

ISSA Proceedings 2002 - The Relationships Among Logic, Dialectic And Rhetoric



1. Introduction

A consideration of the relationship among logic, dialectic and rhetoric was found already in the work of Plato and Aristotle and others in the first golden age of Western philosophy, and this relationship has received attention down through Western history (see the historical observations in Krabbe 2000, Hohmann 2000, and Leff 2000). The late 20th century argumentation scholarly community was reminded of its salience (see Wenzel, 1980) and has returned to its examination. In the last five years or so, a flurry of activity has raised the profile of these questions in this community, particularly with the focus on how dialectic and rhetoric and their relationships bear on the identification, interpretation and assessment of arguments and argumentation (see the special issues of *Argumentation* edited by Hansen and Tindale 1998, and by van Eemeren and Houtlosser 2000a).

In the English-speaking philosophical community, in contrast, there has been little attention to argumentation at all, to say nothing of the relations among logic, dialectic and rhetoric. (The work of Henry W. Johnstone, Jr. is a noteworthy exception.) However, in the last thirty years a small number of philosophers, some of whom characterize their field (for rhetorical reasons) as “informal logic,” have been working out the implications of expanding the analysis and assessment of arguments beyond the identification of the deductive or entailment relationships they might exhibit. In broadening the scope of their perspective in this way, they initially (and belatedly) recognized the bearing of dialectic (see, for instance, Blair and Johnson, 1987), and more recently, the importance of rhetoric (see, for instance, Tindale, 1999). In doing so, they raise for themselves the question of the relationship among the three.

So, under the influence of the recent attention to rhetoric and to the relation between dialectic and rhetoric by the broader community of argumentation, and also due to their own internal theoretical development, some philosophers

working in informal logic have come to an interest in these issues. It is from this historical situation that my own interest in this topic arises. This paper is an attempt to come to grips with the relationship of these three fields or perspectives. To begin, I explain the senses of logic, dialectic and rhetoric used in the paper. If the paper has a thesis, part of it is that there is no one type of relationship among these three, but rather several - at least four, and there may be more. For each of these types of ways the three can be related, the question arises as to how they in fact are related. The other part of the paper's thesis is that even for each type there is not always only one way the three are related.

2. The concepts of logic, dialectic and rhetoric used in this paper

Logic

According to the Amsterdam school, argumentation is, or is most perspicuously to be interpreted as if it were, a particular kind of speech event (van Eemeren and Grootendorst 1984, 1992). As I understand it, according to the Pragma-Dialectical theory, argumentation presupposes an expressed disagreement. The word 'disagreement' is here used in a technical way, to denote a lack of complete identity of commitment. For example, if Anna states confidently that a certain restaurant will be open, and Ben, knowing that Anna sometimes has misplaced confidence in such things but no particular reason to doubt that she is right in this case, responds, "I hope so," then Anna and Ben have a disagreement in the sense in question. So at a minimum, argumentation presupposes an expressed disinclination of at least one party to commit to precisely the same position or "standpoint" that another party expressedly does commit to, regardless of how similar their positions are otherwise. They disagree at least on some specifiable particular point. If the parties decide to try to settle their disagreement by engaging in a discussion, and the ensuing exchange is properly regulated, that is, regulated by the norms necessary and sufficient to procure a rational resolution of the disagreement, then (among other things) each party defends its position using logically-acceptable arguments. Such arguments are thus components of the overall communicative interaction of argumentation.

It is possible to consider arguments apart from their use in argumentation so conceived. Even each party in a Pragma-Dialectical "critical discussion" must consider both which arguments to offer or express and also which arguments on offer or expressed by other parties to accept. To be sure, the context of argumentation is essential to the interpretation of the arguments, but once they

are interpreted in light of that context, one must consider their “logic.” By considering their logic, I mean that if it is an argument on offer, one can ask, “Do the grounds offered make it *rational for me* to accept the position they allegedly support?” If it is an argument one is considering offering and one is committed to a rational resolution of the disagreement, one can ask, “Do the grounds make it *rational for me and my interlocutor* to accept the position in support of which I am considering offering them?” To my knowledge no one has established that arguments cannot, ideally, be used for other purposes besides the rational resolution of disagreement. If it turns out that arguments can be put to other uses, then the question of their “logic” can be raised in those other contexts as well.

If one wants to reserve the word ‘argument’ to denote reasons that someone is publicly committed to, then we would need another word for the organized thoughts entertained by an interlocutor independently of whether he or she makes them public. We might then speak of the interlocutor’s *reasoning*, and so of the logic of his or her *reasoning*. And we do speak this way. However, no one owns the word ‘argument,’ and there is a long and respectable history in philosophy, and in non-technical English as well, of referring to such potential contributions to argumentative discourse as “arguments” and “reasoning” more or less interchangeably, whether or not they end up as someone’s public commitments.

My use of the word ‘logic’ might seem idiosyncratic to scholars who identify themselves as logicians. For example, Woods has said that “no theory is a logic if it lacks proof procedures” (1995, 192). To my knowledge there are no proof procedures available to answer the question that I’ve just suggested it is a task of logic to answer, namely, whether the grounds on offer make it rational to accept the position they are adduced to support. I stand to be corrected by logicians, but taking Woods as authoritative, the term ‘logic,’ “strictly speaking,” would denote the study of, and systems of, proof procedures for the necessary or entailment relations among sets of sentences, for different kinds of operator. Understanding ‘logic’ in this way, one can speak of examining the “logic” of someone’s argument or reasoning when one means examining it to see whether the premise sets used entail the conclusions derived from them according to some logical system. But as is well-known, logical validity in this sense is neither a necessary nor a sufficient condition of a rational or reasonable argument. My use of ‘logic’ – Woods might

say, my corrupt use of 'logic' – has the virtue of allowing for the possibility that reasoning or an argument might be logical in the sense that it is rational to use it or to accept it, even if its premises do not entail its conclusion. For instance, it might be invalid yet inductively strong, or it might be invalid but highly plausible. Or it might be invalid as it stands, but open to reconstruction that makes it valid if and only if some additional premise is accepted. In the latter case it becomes necessary, in order to decide whether the enriched premise set that entails the conclusion should be taken to be the argument, to decide whether it is reasonable to believe or accept that additional premise, which is not a logical question in the strict sense of 'logic.'

Some (e.g., Goldman 1985, Pinto 1994) have said that, understood in the broad sense, logic is not an independent field, but a branch of epistemology. Johnson (2000, 281-283) has listed a number of reasons for resisting the reduction of logic in the broad sense to epistemology, but even if he is wrong, that implication is no *reductio* objection against using 'logic' in this broad way, because the arguments for the subsumption of such logic under epistemology rely precisely on distinguishing it from logic in the strict sense. Anyone who wants to reserve the word 'logic' for logic in the strict sense might allow the term 'informal logic' to designate what I am calling logic in the broad sense.

However, let us resist terminological imperialism. One need not favour terminological anarchy to hold that if there is a healthy tradition of the use of a word in a certain way, that gives it some claim to legitimacy, even if it lacks the theoretical purity of a technical sense assigned to it by some science. Nobody owns the language, and just as the Pragma-Dialectical school does not own the word 'argument,' so too professional logicians do not own the word 'logic.' They are of course free to assign to it a precise technical sense for their purposes, but if others use it in other ways, logicians have no business telling them that on that ground alone they are misusing the word. What logicians can do is point out that this other use is different from theirs, and it can be important to keep that fact in mind. However, to declare that the term 'informal logic' is a solecism, as Hintikka has done as one criticism of informal logic (1989, 13), is irrelevant to the question of the legitimacy of the enterprise that is carried on under that name. Hintikka's reasoning is like saying that the name 'football' is a solecism for a game that requires the player to carry the ball in his hands, and from that observation drawing the inference that there is something wrong with American or Canadian

football. But that point aside, there is a perfectly good use of 'logic' according to which an argument's logic can be deemed acceptable although the premises do not entail the conclusion and can be deemed faulty although they do entail the conclusion.

Dialectic

In evaluating the reasoning or the arguments in argumentation for various purposes, we are interested in their logical strength. To be sure, their logic can enter into the prior identification and interpretation of arguments, because one indication that a piece of discourse is an argument is that it contains a logically cogent case for a claim. In addition, even where situational and textual indicators suggest independently that an argument is present, what argument the discourse is taken to contain can be a function of what reconstruction of it is logically cogent as support for a claim. However, the principal reason we want to identify and interpret argumentative discourse is because we are interested in evaluating the logical merits of the reasoning or arguments expressed in it, for some purpose or another. One primary reason for this interest is that we want to decide whether we ourselves should be convinced by that reasoning or by those arguments.

However, if we focus particularly on arguments used in argumentation, there is another dimension to be taken into account besides their logic, when considering their adequacy for various purposes. Argumentation constitutes an activity in which there is a question about whether, or at least why, a position is worthy of belief or acceptance. And typically there is more than a question. More often, doubt about a point of view or disagreement with it is either voiced or anticipated. The practice of argumentation presupposes the questioning of a point of view. Objections to a protagonist's arguments, and arguments against the position a protagonist is supporting, have to be met by the protagonist. He or she has either to produce additional arguments or to explain why it is not necessary to do so. If dialectic is understood broadly as question-and-answer interchanges, then the practice of argumentation is inherently dialectical.

Why do objections "have to" be met? Why does the protagonist "have to" produce a reply, or explain why not? Why "must" argumentation be dialectical? What is the basis of this imperative? First, there is the practical matter of convincing the interlocutor. If his or her objections are not answered, the argumentation will fail in its objective. So there can be and usually is a rhetorical basis for meeting dialectical challenges. Second, and quite apart from winning the argument or

succeeding in persuading the interlocutor, if the protagonist argues for the position because he or she believes it to be true (or highly probable, or very plausible, or the best alternative, or worthy of acceptance on some other basis), then, in order to be fully justified in that belief, he or she must be able to answer not only this or that particular interlocutor's objections, but any other reasonable objections that he or she can discover. To be sure, we allow for qualified assertions when the protagonist has made only a partial inquiry, and the extent of the search for possible objections required for full confidence in an assertion is a matter of debate (see the discussion of Johnson's concept of a "dialectical tier": Johnson 1996, Govier 1997, 1998, Johnson 2000a); but being able to deal with objections in general is a condition of reasonable belief. So there is an epistemic basis for meeting dialectical challenges as well (see Goldman, 2000).

The epistemic basis for requiring dialectical rejoinders in argumentation has a rationale that is related to the protagonist's objective of rationally justified beliefs. The very practice of argumentation – of advancing arguments with the expectation of their making a difference to the beliefs, non-cognitive attitudes or conduct of others and of expecting others to supply arguments in support of positions they propose – would have no point without the background assumption that having, or giving, reasons is having or giving more than a rationalization. The practice of argumentation presupposes that having or giving arguments is rational in some sense (see also Biro and Siegel 1991, Johnson 2000b). At the least, it imposes a requirement of consistency with our current beliefs and attitudes. And if there are any foundational starting points for conduct or attitudes (including epistemic attitudes), argumentation is the means of tying our current beliefs and attitudes down to those foundations.

There seem to be various kinds of norms that characterize dialectical interchanges. Some might be called "house-keeping" rules, for they are rules that maintain a tidy exchange. "Wait for your turn" and "keep to one point at a time" are examples. Other rules are more centrally connected to the practice, and might be seen as defining it – that is, they are constitutive rules. "Meet the burden of proof" would be an example of a rule constitutive of argumentation's dialectical aspect. What the burden of proof requirements are will vary according to the type of dialectical practice. For instance, the Pragma-Dialectical burden of proof rule is that he or she who asserts must defend if, but only if, challenged (van Eemeren and Grootendorst 1984, 161), whereas Johnson recommends that the he or she

who asserts must defend unless exempted from doing so (2000b, 310). These different burden of proof rules entail, if not entirely different conceptions of argumentation, at least different purposes for it.

Some of the norms governing dialectical interchanges will be a function of the objectives of such interchanges. If you and I are arguing over some proposal we disagree about, for example, whether Able or Baker is the candidate to whom a position should be offered, and each of us has the objective of convincing the other, we will each have to answer the questions and respond to the challenges raised by the other, but no others, for once one of us has convinced the other, the objective has been met. If, on the other hand, you are trying to come to a reasoned opinion on some issue, for example, about whether the ban on killing whales should continue, you should not stop considering objections once you have looked at the arguments of actual interlocutors. Let us say that only the Japanese and the Norwegian governments have advanced arguments against the whaling ban. Your interest does not lie in refuting the Japanese and Norwegian position, but in deciding what position seems right, all things considered. Thus, besides considering the merits of the Japanese and Norwegian arguments against continuing the ban, you need to consider that there might other arguments, either against or in favour of the ban, that deserve consideration.

Rhetoric

The differences between arguments in conversations, in the simplest case organized by the turns of a two-party dialogue, and arguments in speeches, in which the requirements of addressing a heterogeneous audience and the expectations of different kinds of speech-making occasion make quite different demands on the speaker, were noted already by Aristotle, as Krabbe has reminded us (2000). Krabbe suggested that Aristotle took dialectic to be the practice and theory of conversations and rhetoric to be the practice and theory of speeches, recognizing that speeches can contain elements of conversations and conversations can contain elements of speeches. Dialectic gives us the rules for winning dialogue games; rhetoric gives us their counterpart for successful speeches.

One hesitates to differ with Aristotle, however, I am inclined to cut the pie differently. One can identify what might be called the pragmatic properties of argumentation in *both* conversations and speeches. There are the different possible purposes or goals of the argumentative discourse, often several at once,

and there are all the properties of the various kinds of situation in which the argumentative discourse can occur, often with their associated conventions, that necessarily condition it, whoever may be the parties involved in the discourse. My suggestion is that we take rhetoric as a discipline to include the study of the norms for most effectively achieving those purposes in those situations, whether the discourse situation be a two-party conversation (such as between parent and child, between lovers, between colleagues, between dialogue-game players); or whether it be presentation to a small group (such as an academic talk, a summation before a jury, a contribution to a policy-making meeting); or whether it be an address to a large group (such as a political speech to hundreds of party faithful, or a sermon, or a commencement address); or whether it be a presentation to an absent audience, more or less specifiable (such as a journal article or a monograph or a magazine article or a televised address); and so on. We can then speak of the rhetorical (as well as the dialectical and logical) properties both of conversations and of speeches, and indeed of any kind of communication whatever, and we do not have to try to assimilate all sorts of different kinds of communication to one or the other branch of the conversation/speech dichotomy, or model them all as either conversations or speeches.

Whether rhetoric is to be restricted to providing the norms of just effective argumentative communication, or alternatively is to be considered to provide the norms of effective communication general, are questions I do not need to try to answer, for my interest lies in rhetoric as it applies to arguments and argumentation, whether that is the whole of rhetoric or only a part of it. (The former is Reboul's position, see 1991; the latter the view of many American scholars of rhetoric, for example Foss, Foss and Trapp, see 1991, Introduction.)

The norms of rhetoric differ in kind from those of logic and dialectic. One expects the norms of rhetoric to vary with the practices of different cultures, so that communicative behaviour that might be tolerated or expected in one could be found offensive or surprising in another, even if the communication is of the same type. A philosophy lecture that fails to trace its topic back at least to Aristotle would not on that account be condemned in most circles in the United States, but it would be in some circles in France. What makes for effective communication in general, and for effective argumentative communication in particular, is something to be discovered by empirical research. Rhetorical norms are

contingent. The norms of logic and dialectic, in contrast, are culturally invariant. The *kind* of support expected might vary with the subject-matter, being different in mathematics, chemistry, sociology, law, public policy deliberations, and so on. And there might be different dialectical norms for different forums, being different for academic discussions, for criminal trials, for parliamentary debates, and so on. But these differences are due to variations in methodology or to functional variations in these argumentative practices, not to cultural contingencies. And what constitutes entailment, or what makes for a good longitudinal epidemiological study, does not vary from one social situation to another. It is possible that there are universal psychological traits that result in certain kinds of rhetorical norms being culturally invariant, but it remains the case that such norms are contingent, unlike those of logic and dialectic, which are necessary relative to the systems in which they operate.

3. Types of relationships among logic, dialectic and rhetoric

Understanding logic, dialectic and rhetoric in relation to argument in these ways, the question arises as to how they might be related one to another. In what follows I distinguish four different types of possible relationship. The first is the conceptual or logical relationship among the norms of the three perspectives. The second is the contingent or empirical relationship among their norms. The third I call the relationship of normative priority, and the fourth, that of priority of theoretical emphasis.

The conceptual or logical relation among logical, dialectical and rhetorical norms. Cohen (2001) has recently suggested that so far as the evaluation of arguments goes, the norms of logic, dialectic and rhetoric are logically (that is, conceptually) independent of one another[i]. According to Cohen, any argument may be assessed according to its logical cogency, its dialectical satisfactoriness and its rhetorical effectiveness. In addition, he suggests, an argument's assessment according to one of these criteria will be independent of its assessment according to either of the others. Cohen's view is thus a position on one type of relationship among the three perspectives, namely the logical relationship among the norms appropriate to each of them. It is a position on the question of the implications of an assessment of an argument according to the criteria of one of them for the assessment of the argument according to the criteria of either of the others. Cohen's position on the question of this logical relationship is clear: "Arguers and their arguments," he says, "can succeed or fail in three separate ways" (75). Thus,

if he is right, where an argument fits according to the criteria of any one perspective will be logically independent of where it fits according to either of the others. In other words, there is no logical relationship – there are no implications – among evaluations from the logical, rhetorical and dialectical perspectives.

What might such a logical relationship look like, were it to exist? One has been urged by Johnson (2000b), whom I interpret to take the position that an argument is not logically adequate if it is dialectically incomplete. Johnson does not put his point quite this way. He says that an argument is logically adequate only if sufficient support is provided for its conclusion. But he also holds that sufficiency is a criterion of logic, and that support for a conclusion is not sufficient if there are objections to or other criticisms of the argument as stated so far that have not been dealt with (see Johnson, 2000b, Ch. 7). So in my way of talking, for Johnson, dialectical adequacy, at least in a certain respect, is necessary for logical adequacy. I take it that Johnson would therefore disagree with Cohen's position.

I must add the qualification, "at least in a certain respect," because there is more to dialectical adequacy than meeting the burden of proof. For instance, among other things it also requires providing explications and explanations when these are requested and it forbids argumentative moves that improperly limit the argumentative moves of the other parties. So, on Johnson's account, dialectic is presupposed by logic in the respect that a necessary condition of an argument's being logically adequate is that it be at least partly dialectically adequate. This implication seems to me right. A claim that is in question is hardly adequately supported by the grounds adduced in its support if those grounds do not include adequate responses to legitimate objections, whether to the claim itself or to the arguments put forward so far.

However, is the converse not also true? One would have thought that for a response to an objection to be dialectically adequate, it must be logically adequate. The Pragma-Dialectical theory, for example, requires as a rule of dialectical adequacy that the argumentation adduced in support of a standpoint be valid and correctly use an appropriate argumentation scheme (van Eemeren and Grootendorst 1992). That amounts to the view that logic is presupposed by dialectic in the respect that a necessary condition of an argument's being dialectically adequate is that it be logically adequate. This implication also seems to me right. It is difficult to imagine acceptable rules of dialectic that allow logically bad arguments to count as dialectically satisfactory responses. The

norms of dialectic and those of logic thus seem to be interdependent.

If this reasoning is correct and the satisfaction of the norms of logic require the satisfaction of some of the norms of dialectic, and conversely, the two perspectives are nonetheless different, because there is more to logic than dialectic and more to dialectic than logic. Dialectic has to do with rules for well-ordered exchanges of arguments, whereas logic applies only to the arguments themselves; logic has to do with rules for well-designed arguments, which includes more than satisfactory dialectical design.

Johnson focuses on logic and Pragma-Dialectics focuses on dialectic. We should also consider whether there are norms of rhetoric that have implications for those of the other two perspectives when it comes to the assessment of arguments. Rhetoric calls upon us to shape our discourse to the success of our goals, taking into account the particularities of the situation. Since it is normally a principal objective of argumentation to convince whomever it is we are addressing of the truth or acceptability of our standpoint, it follows that argumentation should be assessed from the rhetorical perspective according to how well the means used might have been expected to contribute to that objective. It seems probable that argumentation that fails to allay the objections to our standpoint in the minds of our interlocutors will not be successful in convincing them, so it looks as though there is a rhetorical reason for being dialectically astute. However, one can imagine argumentation that manages to preoccupy the interlocutors with some particular issue, and thereby distract them from the objections that they might otherwise raise. Think of Marc Antony's speech over Caesar's body in Shakespeare's *Julius Caesar*, that manages to preoccupy the crowd with Caesar's generosity and thereby cause them to forget for the moment his imperial ambitions. This kind of example suggests that rhetorical effectiveness does not logically imply dialectical completeness. The converse seems true as well. It seems possible that a dialectically thorough argument could be so complicated as to become tedious, so that the audience loses track of its meanderings, loses interest, and begins to wonder whether the arguer "doth protest too much," and as a consequence, fail to be convinced by what is in fact a dialectically satisfactory case. So it seems that there is no necessary connection between rhetorical effectiveness and dialectical completeness.

The same kind of point applies to the connection between rhetorical and logical norms. While on most occasions it is probably more effective in convincing the

interlocutor to use logically strong arguments instead of logically problematic or weak ones, it is possible to imagine cases in which logically flawed arguments are persuasive. Certainly the concern about logical fallacies (as distinct from dialectical fallacies) presupposes this possibility. And conversely, a logically tight argument might, as a result of its complexity, fail to persuade an audience that thinks the arguer is getting a bit too fancy, suspects him or her of dressing up a weak case, and consequently fails to be convinced by what is in fact a logically strong case. It would follow, then, that as with dialectical norms, any connection between the logical strength and the rhetorical success of arguments is contingent.

In sum, first, one kind of relationship among logic, dialectic and rhetoric is the logical relationship among the applications of their respective norms or criteria for good argument. Second, any argument satisfying the criteria for logical goodness must partially satisfy criteria for dialectical goodness, and conversely, any argument satisfying the criteria for dialectical goodness must satisfy those for logical goodness. Third, there is no necessary or logical relations in either direction between satisfying the norms of logic or the norms of dialectic and satisfying rhetorical norms for arguments.

The contingent or empirical relations among logic, dialectic and rhetoric. To be distinguished from the logical relationship just discussed is the empirical relationship among the three sets of norms as applied to arguments. We have seen that certain connections seem necessary, but apart from those, will there be causal connections, or at least covariance, between the satisfaction of criteria that are contingently related? Specifically, will there be positive correlations between the logical or the dialectical adequacy of argumentation (or both) and their persuasiveness? And if so, is there a causal connection or is some other factor causing both? Or are there more complex empirical relationships. For example, one might hypothesize that, keeping other aspects of logical quality constant, as an argument takes up and deals with the objections that are dear and pressing to the audience, it will be increasingly persuasive for them, but if the argumentation continues to entertain and respond to objections that do not interest the audience, its persuasiveness for them will progressively decline. The formulation of such hypotheses, and the design and implementation of their testing, lie outside the scope of this paper.

Normative priority. Suppose that the story told above about logical relations

among the norms of these three perspectives is correct. And grant that the actual effect of meeting these norms upon the audience or the argument interlocutors is a matter to be discovered by empirical investigation. What ought to happen if the norms of these different perspectives were to render conflicting advice? What if logically sound arguments were in some situations less persuasive than logical fallacious ones? What if dialectically thorough arguments were in some situations less persuasive than ones that ignored many challenges? Would it ever be appropriate to use the fallacious or dialectically incomplete arguments because of their persuasiveness? And what ought to happen if the norms of one or more of these different perspectives were violated? What if a body of argumentation were logically and dialectically impeccable, but far more difficult to understand than necessary, and expressed in ways that antagonized its audience – in short, rhetorically clumsy; should it be rejected on that account? It seems to me that here there is no one right answer, but instead it will be appropriate for the emphasis to be different in different contexts or situations of argumentation. More specifically, the purpose of the evaluation and the perspective of the agent can be determining factors. Let me give some examples.

In criminal trials, the legal system sets the objectives of the argumentation used within it, and imposes numerous constraints. The Crown or prosecuting counsel in criminal courts in the common-law system has the task of establishing the accused's guilt beyond a reasonable doubt. The criminal defence counsel has the role of defending his or her client against the criminal charge. That requires trying to show that the Crown has not proved guilt beyond a reasonable doubt, and in jury trials (since unanimity is required) it in turn consists in trying to persuade some members of a jury that the Crown has failed to make its case beyond a reasonable doubt. Suppose we want to assess the argument of a defence counsel's final address to the jury. How do the normative criteria of logic, dialectic and rhetoric apply? It is an obligation of the accused's lawyer to argue for the weakness of the Crown's case in the most persuasive manner possible. Therefore, we ought not to condemn the defence counsel's argument if its logic is flawed in ways unlikely to impair or, indeed, likely to help, the persuasiveness of his presentation. Nor ought we to condemn the argument if the defence counsel fails to deal with parts of the Crown's case, if this failure is, again, unlikely to impair or likely to help the persuasiveness of his presentation. In addition, the defence counsel would be in violation of his duty to provide the best defence possible if he were to bring forward reasons for thinking his client

guilty, or to raise objections that would undermine his defence. It is the Crown's role to do those things. It is true that the adversarial system forces the defence counsel to try to deal with the evidence of the Crown, and that by failing to respond to the Crown's arguments or evidence the defence takes the risk that the Crown will use that failure in arguing for the guilt of the accused; but these are contingent exigencies, and with sufficient imagination it is possible to concoct, and probably with enough research, to discover, cases in which the successful argument fails to meet the highest standards of logic and dialectic. Such a case would not satisfy the Pragma-Dialectical rules for a critical discussion (see 1984), nor would it satisfy Johnson's requirement of manifest rationality (see 2000), but it might be right case for the defence counsel to make.

A successful and respected civil litigation lawyer in Canada once said that there is only one argumentation rule for litigation, namely: "Know your judge."**[ii]** Part of his point was that to win a favourable ruling or settlement, it is not necessary to prove that you have the better case, but only to persuade the presiding judge that you have the better case. The other part of his point was that different judges are swayed in different ways. In principle, the logical and dialectical acumen of judges can vary. Thus, again, in such situations rhetorical virtue or persuasiveness can in principle, and should, trump logical cogency or Johnson's requirement of dialectical satisfactoriness.

It might be objected that I am just describing certain argumentation practices, and providing no principles that would justify the priority of meeting rhetorical standards over those of logic and dialectic**[iii]**. That point is well taken. So let me add that these particular practices have a very long history of functioning fairly well in realizing their objectives in the criminal and civil legal systems in a number of countries. Included in those objectives are the instantiation of moral and political values. So I suggest that a case can be made that such practices are justified, and consequently that the subordination in them of logical and dialectical norms to rhetorical standards is in turn justified.

Consider a different example, a setting for argument familiar to an academic audience: the academic journal article. Since there are many sub-genres, let me focus on those in philosophy journals in the analytic tradition. In a paper submitted for publication in such a journal, a mistake in logic, if noticed, is a serious obstacle to its prospects, causing at the least a revision to, or else, unless it is just a slip that is easy to fix, outright rejection of, the paper. The demands of

dialectic are almost as stringent. The author must respond, not only to the questions and objections raised by the referees, but also to those already published in the literature, and, indeed, to any others that might reasonably have been raised by anyone. An author is not even castigated for inventing an objection only to rebut it, provided that it is not frivolous. It is true that editors and referees might agree that an objection does not deserve attention when in fact it does, so there is room for a small measure of dialectical leniency. Rhetorical shortcomings, however, are tolerated, especially if the logical and dialectical merits are strong. Moreover, rhetorical virtue is supposed never to trump the requirements of logical cogency and dialectical satisfactoriness. It is a virtue of such a paper that it is clear and easy to understand and to follow, but not a requirement. (Notice that in this sort of context it is difficult to separate dialectic from logic, for a paper that fails to respond to telling objections is not logically cogent, and one that responds to objections, but with logically flawed arguments, is not dialectically satisfactory.)

Once again, the objection that I merely report norms in practice without justifying them may be made, but I would reply along the same lines as above. The practice in which these norms are imbedded functions moderately well, and, in spite of certain failings, it is difficult to imagine an alternative that would be as good. I take it that the purpose of the practice is to expand our knowledge and understanding in philosophy, and that insisting on logical rigour and dialectical thoroughness above all are necessary to that end, whereas requiring rhetorical virtue is not.

I do not know if there are general principles on the basis of which it can be determined in which situation which norms should take precedence. I have just discussed examples in which the purpose or goal of the argumentation seems appropriately to make a difference as to which perspective gets normative priority. It seems to me that the perspective of the agent can also be relevant. For instance, we take it that the person formulating and presenting the argument should ideally have the rhetorical perspective among his or her considerations – for some purposes more than for others, but always to some extent. When selecting, no less than when composing, the arguments and the organizing of their presentation, he or she should consider who the audience is, what the occasion is and what the purposes of the presentation are. However, from the perspective of the person assessing the argument with a view to deciding whether

to adopt its conclusion on the basis of the reasons offered in support of it, the key perspectives seem to be logical and dialectical. Do the grounds actually lend support to the claim, and are the objections answered that need to be answered? These are the questions the consumers of the argumentation ought to have front and centre in their analyses. To be sure, in some roles (think of being a jury member), awareness of rhetorical devices designed to sway the consumer's opinion might be needed in order to give appropriate attention to the logical and dialectical adequacy of the case presented. Nonetheless, the norms used to decide what to believe (for instance, whether to convict or to acquit) should not be those of rhetoric, but those of logic and dialectic. On the other hand, someone assessing the argument with a view to giving advice to the arguer as to how to be more persuasive will appropriately focus on its rhetorical merits, though not necessarily at the expense of its logical and dialectical adequacy. I conclude from considerations such as these that there is no single, universally applicable order of normative priority when considering the norms of logic, dialectic and rhetoric.

Priority of theoretical emphasis. Students of argumentation will be aware that different theories tend to give different emphasis to logic, dialectic and rhetoric. For instance, the Amsterdam Pragma-Dialectical theory consists of an ideal model for a kind of dialectical interaction within which framework logic and rhetoric have subordinate roles (see van Eemeren and Grootendorst, 1984, 1992). To be sure, for an argumentative discussion to be rational, according to this model, the particular arguments used in the process of a dialectical exchange must be logically acceptable, and within that and various dialectical constraints, the interlocutors are free to use whatever rhetorical strategies they think will help them to have the disagreement settled in their favour (see van Eemeren and Houtlosser 2000b, 2000c). But when interpreting argumentative discourse, according to the pragma-dialectical theory, we should treat it as if it were an attempt to follow the rules of the idealized dialectical model. In this respect, dialectic has theoretical priority for this theory. Perelman and Olbrechts-Tyteca (1958) or Tindale (1999), in contrast, take the position that rhetoric has, or should be deemed to have, priority over logic and dialectic. *La Nouvelle Rhetorique* defines logic as the science of demonstration, where rational disagreement is impossible, and conceives argumentation to occupy disagreement space where only rhetoric has application. The role of dialectic is not addressed. Tindale's position seems to be that, because arguments are in fact always situated in particular contexts, with such variables as their specific purpose, their audience,

and the circumstances of their delivery, among other things, all influencing how we should interpret them, or design them, it follows that logical and dialectical norms cannot be brought to bear before rhetorical judgements are made. On this view, the first task of argument interpretation and assessment, and of argument design and presentation as well, is to situate the argument or argumentation rhetorically, and in this respect, rhetoric has theoretical priority. Toulmin's influential model seems intended for the logical assessment of arguments and does not include any reference to dialectical or rhetorical elaborations. And many of the philosophers identified with the informal logic movement have taken their objective to be the interpretation and evaluation of arguments, yet with only a few exceptions they do not discuss the dialectical or the rhetorical dimensions of argumentation. For the Amsterdam school, the most important feature of argumentation is its dialectical dimension; for the New Rhetoric and Tindale, the most important feature of argumentation is its rhetorical dimension; for many informal logicians, the most important feature of argumentation is its logical dimension.

Those who give priority of theoretical emphasis to just one of the three perspectives cannot all be right, but they can all be wrong. Is there some way to decide which theoretical perspective ought to be given priority?

Historically, and in different disciplines, some have been given pride of place and the others ignored, denigrated, or relegated to minor roles. Yet the philosopher who treats logic as central and primary forgets that when he or she writes a paper or makes a presentation, there is unavoidably dialectical interaction with alternative views and contending arguments, and also all sorts of rhetorical decisions have to be made in framing, organizing and presenting the case. When the cultural critic makes the rhetorical perspective central, presumably he or she argues the case, and in doing so interacts with contending views and relies on logical standards. When the communication theorist emphasizes the dialectical and pragmatic properties of argumentation, he or she nonetheless allows that to the extent that the practice is rational in some sense, norms of logic are guiding, and to the extent that it is effective, norms of rhetoric are followed. It seems that any complete theory of argumentation will account for the role of each, not emphasizing any one at the expense of the others.

However, it is understandable that different interests will result in different emphases. If the theorist's primary interest lies in the epistemic or justificatory

functions of argumentation, then the logical perspective may appropriately be emphasized. If the primary interest lies in the conflict-resolution functions of argumentation, then the dialectical perspective should be emphasized. And if the primary interest lies in the communicative functions of argumentation, then the rhetorical perspective would appropriately be central. If, as seems to be the case, argumentation always has all of these functions to some degree, then no perspective should be emphasized to the complete exclusion of the others. However, the details of what precisely it means to give theoretical priority to one or another of these perspectives remain to be worked out.

4. Conclusion

In the paper that resurrected interest in these three fields as intersecting in the study of argumentation, Wenzel (1980) referred to them as “perspectives.” The implication was that argumentation could be studied from any one of them, and Wenzel’s thesis was that it would be a mistake to consider the study of argumentation to be complete without considering all of them. His view was that, as related to the study of argumentation, logic is concerned with the product of argumentation, dialectic is concerned with the procedures used, and rhetoric is concerned with the process of argumentation. I am not sure he thought that these concerns could be addressed independently of one another. My examinations in this paper seem to support Wenzel’s view that all three perspectives exist in every actual case of argumentation. However, it seems the picture is slightly more complicated than Wenzel envisaged. In the study of arguments and argumentation all three must be considered in relation to one another, but there is more than one type of relationship among them[iv].

NOTES

[i] The differences between Cohen’s characterizations of logic, dialectic and rhetoric and mine are not great, and immaterial so far as this point goes, I think. For Cohen, “In a purely deductive context, the logical axis could be replaced by a bivalent function, the two values being ‘valid’ and ‘invalid,’ for assessing inferences. But . . . the premises have to be weighed apart from their use in the inference at hand, In real-life contexts, logic is better conceived as providing a sliding scale measuring the relevance, sufficiency and acceptability . . . of the premises as reasons for the conclusion” (2001, 74). “An arguer has argued well dialectically when all of the objections and questions that have been raised have been answered satisfactorily” (74-75). “The rhetorical perspective examines the

argument's effects on the audience. . . . successfully persuading the audience to accept a conclusion is one of the possible effects of an argument" (75).

[ii] Harvey Strosberg, at the Third International Symposium on Informal Logic, University of Windsor, June, 1988.

[iii] I owe this objection to A.H. van Rees.

[iv] Earlier versions of this paper were presented to WGRAIL (the Windsor Group for Research in Argumentation and Informal Logic) and a graduate class, both at the Department of Philosophy, University of Windsor, the Amsterdam Argumentation Research Group, Department of Speech, Communication, Argumentation Theory and Rhetoric, Universiteit van Amsterdam, and GROLOG (the Groningen Logic group), Filosofisch Instituut, Rijksuniversiteit Groningen. I would like to thank those audiences for their comments and constructive criticisms, all of which influenced the paper in its present form.

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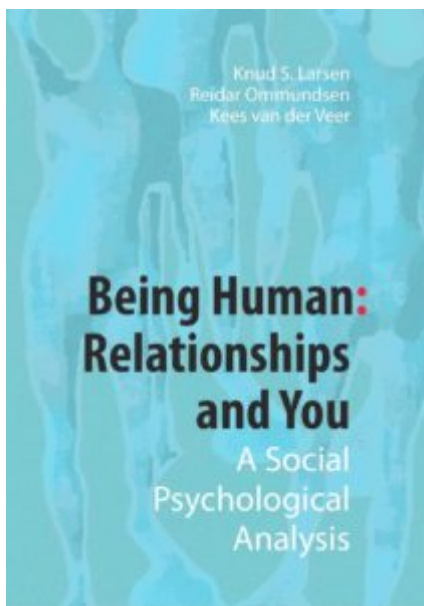
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Being Human. Chapter 3: Attraction And Relationships: The Journey From Initial Attachments To Romantic Love



Many years ago two boys were walking home from school. They were seven years old, lived in the same neighborhood, but went to different grade schools. Although living close to each other they had not met before running into each other on this day on the road leading up the hill to their neighborhood. Both seemed quite determined to assert themselves that day, and soon they began pushing each other that gradually turned to wrestling, and attempts to dominate. After what seemed hours, the two little boys were still rolling down the surrounding hills as the sun was going down. Neither succeeded in

achieving victory that day. In fact, they never again exchanged blows but became the best of friends. Today it is more than 50 years later, and their friendship has endured time and distance. Friendship is like a rusty coin; all you need to do is polish it at times!

In this essay we shall examine the research on attachment, attraction and relationships. The intrinsic interest in these fields by most people is shared by social psychologists, and attachment, attraction, and love relationships constitute

one of the most prolific areas of investigation in social psychology. The early attachment theory advanced by Bowlby (1982) emphasized the importance of the field when he suggested that our attachments to parents to a large extent shape all succeeding relationships in the future. Other research focus on exchange and communal relationships and point to the different ways we have of relating to each other. The importance of relationships cannot be overemphasized since we as humans have a fundamental need to belong. Relationships also contribute to the social self as discussed in the book, and effects social cognition discussed in the same (see: at the end of this article). The variables that determine attraction may be understood theoretically as functions of a reward perspective.

The importance of relationships is demonstrated by findings that show that among all age groups relationships are considered essential to happiness (Berscheid, 1985; Berscheid & Reis, 1998). The absence of close relationships makes the individual feel worthless, powerless, and alienated (Baumeister & Leary, 1995; Stroebe & Stroebe, 1996). Our very humanity is defined by our relationships (Berscheid & Regan, 2005).

1. Attachment: The start to relationships

This chapter is about the development of attachment, intimate relationships between adults, and the road leading toward love relationships. No greater love has a person than giving his life for another. This idea from the Bible brings to mind the passion of deep commitment and the willingness to sacrifice, even in the ultimate sense. This willingness to sacrifice is one manifestation of love, but as we all know there is much more to relationships and love.

The research described in the following pages concerns early attachment, and attraction and love between adults. These relationships may be institutionalized by marriage, or (registered) partnership, or take some other form (living-apart-together) in relationships. Since the vast majority of romantic relationships exist between heterosexual partners we describe the journey from attraction to romantic relationship from this perspective. There is little research so there is no way to know, however, there is no convincing reason to assume that this journey is completely different for homosexuals.

Most people will experience the delirious feelings of infatuation and love sometime in their lives. What is love? How can we achieve love? And how can we build these feelings into lasting relationships? Are there ways we can improve our

chances for satisfying long-lasting and happy relationships? This chapter will show that there are behaviors to avoid, but that we can also contribute much to lasting attachments. Long-lasting romance depends on positive illusions and bringing novelty and renewal to our intimate relationships.

We live in a changing world. Although in many parts of the world couples are still united through arranged marriages, more and more modern communications are changing the ways people relate, for example learning about other culture to value freedom or the individual right to choose one's spouse. Computers provide platforms from which to initiate relationships, and opportunities to screen for important characteristics prior to any encounter. Does that take away something of the mystery of liking and loving relationships? Some do feel that how we encounter and meet people should remain in the realm of the mysterious.

However, as we shall see in this chapter, learning to like and commit to one another follows predictable patterns. The fact that divorce rates increase in the western world, suggests that we could all benefit from a greater understanding of how relationships develop, and how to make them enduring and satisfying. To give up one's life for another is a noble commitment, but to live one's life for the beloved is a different, but equally high calling. How do we move from the initial encounter of liking to romance and love and lasting commitment? We shall see that liking and love are universal behaviors, although cultures affect how they are expressed.

In this chapter we shall discuss the research from initial attachments to long lasting relationships. Is there a basic need to belong? Does evolutionary thinking contribute to our understanding of the universality of attachment? There is evidence, as we shall see, that we all need to be connected to others, to experience a network of varying relationships. These needs are universal, present in all cultures and societies. Our needs to belong motivate our unconscious and conscious thoughts, and our behavior in the search for satisfying relationships. Without such relationships we suffer the pangs of loneliness with negative physical and psychological consequences.

1.1 An evolutionary approach to attachment

Many textbooks in psychology refer to feral children as evidence that negative consequences occur when a child grows up without normal human attachments. The child Victor was found in 1800 in the French village of Saint-Sernin. He was

believed to have grown up in the forests without human contact, and proved devoid of any recognizable human characteristics. Initially he refused to wear clothes, understood no language, and never showed human emotion. This “wild boy of Aveyron” was taken into the care of Jean Itard, who devoted considerable energy to teach Victor language and human interaction. He did eventually learn some words, but never developed normal human interaction or relationships (Itard, 1801; 1962). Do feral children demonstrate the essence of human nature in the absence of relationships? We can see from the story of Victor, and that of other feral children, that what we describe as human is forged in our relationships with others. Without these interactions there is little discernable human in our behavior. Without relationships provided by parents, family, and society, we are without language with which to communicate, and without civilization to teach appropriate norms for behavior, and we have no “human nature”. We are human because of our relationships.

1.2 Early attachment forms the basis for our adult relationships

What are some of the deciding factors that enable us to establish interpersonal relationships? Interpersonal relationships are essential to human satisfaction and happiness, and refer to the bonds of friendship and love that hold together two or more people over time. Interdependence is manifested by how individuals spend significant time thinking about each other, and engage in common activities, and have shared histories and memories. Although central to our understanding of what it means to be human, social psychology has a short history of studying relationships (Hartup & Stevens, 1997). Since we cannot experiment with relationships among humans, research takes a different form. In research on relationships we face different problems with methodology than encountered elsewhere in experimental social psychology (Karney & Bradbury, 1997). Since research may affect self-awareness and the relationship ethical concerns must dictate sensitivity in the questions asked allowing us to use primarily the interview and survey methods.

Harlow (1959) performed a famous experiment with baby rhesus monkeys that supported the conclusions drawn from the studies of feral children: social isolation is traumatic and prevents normal development. In this classic study baby monkeys were raised without any contact with a mother or other monkeys. They were provided two “mother substitutes”; one was a wire feeder, and the other feeding substitute was softer and covered with terry cloth. The importance of

contact was shown by the baby monkeys clinging to the terry cloth “mother”, and when frightened rushing to this substitute for comfort. Like the feral children these monkeys were abnormal when they approached adolescence or adulthood. They displayed high anxiety, could not playfully interact with peers, and failed to engage in normal sexual behavior. It would appear that social interaction, particularly with parent figures, is essential for normal functioning in adulthood. What we describe as human nature would evaporate in the absence of relationships as we are socialized by our interactions. The universality of the desire to belong would suggest a biological basis similar to other biological needs.

Some will suggest that the need to belong is indeed part of our evolutionary heritage (Bercheid & Regan, 2005). No other species display a longer dependency period than humans, and we need nurturing relationships to survive. Parents who in the past failed to display essential nurturing behavior did not produce offspring that survived. We are all descendants of relationships that took parenting very serious. It is possible to perceive bonding from the very beginning of life. Initially only the mother establishes relationships by gazing at the infant, who in turn responds by cooing and smiling. That is the beginning of all subsequent bonding in the child’s life. Later as the child grows, other bonds are established with the father and other family members. Throughout life a normal human being will seek out relationships responding to a biological need for companionship.

Baumeister & Leary (1995) proposed five criteria to demonstrate the fundamental biological nature of the need to belong. First, since relationships make a direct contribution to survival, an evolutionary basis is supported (Simpson & Kenrick, 1998). Evolutionary causality would require us to accept that even romantic bonds with all the giddiness and mystery are primarily vehicles that create conditions for reproduction and survival of the infants (Ellis & Malamuth, 2000; Hrdy, 1999). Without that special attachment between mother and infant the child would be unable to survive or achieve independence (Buss, 1994).

A second criterion for the evolutionary basis of relationships is the universality of the mother-child and romantic lover interdependence. As we shall see, such relationships are found in all cultures expressed with some variations. Thirdly, if relationships are a product of evolution, it should have a profound effect on social cognition. There is much support that our relationships to a significant degree define who we are, our memories, and the attributions we make in varying situations (Karney & Coombs, 2000; Reis & Downey, 1999). Fourthly, if need to

belong is similar to other biological drives the desire for relationships should be satiable. When deprived we should manifest searching behavior similar to that which occurs for food or water when deprived of these essentials. Once our relationships needs are satisfied, we are no longer motivated to establish new connections (Wheeler & Nezlek, 1977), but if deprived we will seek substitutions for even close family relationships (Burkhart, 1973). Finally, according to Baumeister and Leary, if we are deprived chronically the consequences are devastating. There is a great deal of evidence that relationships are fundamental to our sense of physical and psychological well-being, and to how happy or satisfied we are (Myers, 2000b).

For those deprived, the evidence is uncontroversial. Divorced people have higher mortality rates (Lynch, 1979), whereas social integration is associated with lower death rates (Berkman, 1995). Suicide rates are higher for the divorced (Rothberg & Jones, 1987), whereas breast cancer victims are more likely to survive with support groups (Spiegel, Bloom, Kraemer, & Gottheil, 1989). Other research has shown that social support strengthens our immune and cardiovascular systems (Oxman & Hull, 1997). The literature is very clear on this. With social support we do better against all that life throws against us, without relationships we are likely to lead unhappy lives and die prematurely.

1.3 Biology versus culture

There is no more controversial issue than deciding in favor of an evolutionary or a cultural explanation of attraction. Evidence will show that women in all cultures tend to prefer partners who possess material resources, whereas men prefer youth and beauty. However, in the human species the male is also physically larger, stronger, and more dominant. This has led to male control over material resources. Since women are more vulnerable, they are naturally more concerned with meeting these material needs. (Eagly & Wood, 1999; Wood & Eagly, 2002). The cross-cultural consistency in gender preference may simply reflect size differences and the gender based control of economic resources.

The evolutionary perspective asserts that gender based preferences have reproductive reasons. Symmetrical men are thought attractive because they signal good reproductive health. Some intriguing studies show that women who ovulate show a preference for the smell derived from “symmetric” men (Gangestad & Thornhill, 1998; Thornstead & Gangestad, 1999). Women in the ovulatory phase also prefer men who have confident and assertive self

presentations (Gangestad, Simpson, Cousins, Carvar-Apgar, & Christensen, 2004). There is no definitive solution to the biology versus culture argument. Perhaps what matters is, regardless of the origin, these gender differences exist and persist.

1.4 The experience of loneliness

The psychological distress we feel when deprived of social relationships is loneliness (Perlman & Peplau, 1998). For each individual there exists an optimal number of relationships depending on age, and perhaps other factors. We join clubs, political organizations, special interest groups, and religious organizations in an effort to remove deficit in social relationships. We can have many acquaintances, but still feel lonely. Some of us feel lonely being in a crowd where social relations are plentiful, but intimacy is absent. Clearly, the answer to loneliness is not just the quantity of relationships, but whether the connections satisfy emotional needs. Some people have few relationships, and enjoy the experience of being alone. If we find in ourselves good company, our needs for others are diminished. Those who have rich emotional lives are less dependent on others for satisfaction of emotional needs.

However, many people feel the wrenching experience of loneliness. In our society it is very prevalent (Perlman & Peplau, 1998) with 25 percent reporting feeling very lonely and alienated. Some causes of loneliness are situational due to common life changes in our mobile societies. We move often, and when we do we lose some of our relationships. For example, new opportunities for work require our presence in another part of the country or abroad, and young students attend universities away from family and friends. In these and in many other cases people lose their known social network and support groups. On some occasions we lose relationships permanently due to the death of loved ones, and the resulting grief can produce feelings of prolonged loneliness.

Other people suffer from chronic loneliness. These are people who describe themselves as “always lonely”, with continuous feelings of sadness and loss. Chronically lonely people are often in poor health, and their lives are associated with many issues of social maladjustment including alcohol abuse and depression. Loneliness is a form of stress and is associated with increased health problems resulting in death (Hawkley, Burleson, Berntson, & Cacioppo, 2003).

Weiss (1973) described two forms of loneliness. Social loneliness is produced by

the absence of an adequate social network of friends. The answer to that kind of loneliness is establishing new contacts, perhaps by involvement in the community. Emotional loneliness, on the other hand is the deprivation felt from the absence of intimacy in our lives. We all need at least one significant other with whom we can share intimate thoughts and feelings, whether in the form of a friend or spouse. An emotionally lonely person may be well connected, but still feel the gnawing disquiet even in the midst of a crowd.

As we noted in the introduction, our childhood experiences predispose us toward a variety of relationship problems or enjoyments of life. Children of the divorced are at risk for loneliness, and may develop shyness and lower self-esteem (Brehm, Miller, Perlman, & Campbell, 2002). On the other hand, being in a satisfying relationship is a primary guard against feelings of loneliness, this is especially true for those who commit themselves to lifelong relationships (e.g. marriage) (Pinquart, 2003).

Demographic variables also have an effect on loneliness. Those who are poor struggle more with all forms of insecurity, and have less possibilities for participating in social relationships. For example due to lack of money poor people often cannot participate in social activities. Age is also a factor. Most may think that old age is a time of loneliness as people lose relationships to death or other causes. Some research (Perlman, 1990) however, shows that teenagers and young adults suffer most from isolation. Youth is a time when biology is insistent on connecting with others, particularly with a member of the opposite sex, and the absence of intimate relationships is felt most keenly. Some young people feel not only lonely, but rejected and ostracized. When that occurs we see the rejection play out in severe anti-social behavior as in the case of the school shootings of recent years (Twenge, Baumeister, Tice, & Stucke, 2001).

Interacting with people affects our emotional lives. We feel better being around others, particularly in close or romantic relationships (Bolger, Davis, & Rafaeli, 2003; Delespaul, Reis, & DeVries, 1996). Unhappiness in lonely people, however, may not be due to the absence of people alone. Unhappy friends are not rewarding to be around, and they might be lonely because they are unhappy, rather than unhappy because they are lonely (Gotlib, 1992).

Our need to belong is manifest in all cultures and societies. It is obviously functional to the infant who needs protection. However, adults also could not

function in society without supportive relationships. These needs to belong are universal, and if not satisfied produce many negative results. Further, our relationships help form our self-concept (chapter 2) and our most significant behaviors. Our relationships largely determine how we think about the world, and our emotional well-being.

1.5 The beginnings of attachment

Infants demonstrate stubborn attachments to their primary caregiver. This is sometimes manifested by total devotion to the mother, gazing and smiling when in contact, crying when she leaves the room. As the child gets a little older the pattern may continue, initially having nothing to do with the rest of the family. The attachments of the child may gradually change and she or he becomes fond of the father, grandmother and other relatives, proceeding normally from long attachment to the mother, to establishing new relationships with other people in her or his life. Attachment refers to the positive emotions expressed in the presence of the caregiver, the feeling of security in the child, and the desire to be with the caregiver, initially exclusively, but later with other significant others (Bowlby, 1988; Cassidy & Shaver, 1999).

The personal security and emotional warmth offered to the child is different for each caregiver. Therefore infants develop different attachment styles that in turn have profound effect on adult relationships. Ainsworth, Blehar, Waters, & Wall (1978) proposed three infant attachment styles. *The secure attachment* occurs when the caregiver is available, and the infant feels secure, and when the child's emotional needs are met. *The avoidant attachment* occurs when the caregiver is detached, unresponsive to the infant, and when in some cases the infant is rejected. This type of attachment leads to premature detachment and self-reliance. When the parent figure is at times available, but at other times not, and therefore is inconsistent in meeting the emotional needs of the child, the result is *an anxious-ambivalent attachment* style. This type of infant may be anxious and often feel threatened.

Essentially the three attachment styles develop in response to the caregiver's emotional behavior; i.e., how consistent the emotional needs are met, and how secure the child feels as a consequence. From the perspective of evolutionary theory, attachment has obvious survival value for the infant. If mothers did not find the baby's cooing and smile endearing, and if the infant did not find her presence so reassuring, the lack of attachment could be disastrous for the infant.

Infants and small children cannot survive without parental attention, so both the caregiver's behavior and infant's responses are very functional to the survival of the human species.

1.6 Attachment styles of adults

How comfortable are we with our relationships, and to what degree can we form secure and intimate relations with family, friends, and lovers? Hazan & Shaver (1987) found that adults continue with the same attachment styles adopted as infants. Whether an adult is secure in relationships, and can foster shared intimacy, depends on the three attachment styles described above. Psychoanalysis asserted that our childhood experiences have profound effects on adult behavior. The attachment theorist likewise believes that the relationship styles developed as infants are stable across a person's lifetime. Infant attachment styles determine whom we associate with as adults and the quality of our relationships. Some longitudinal studies have in fact demonstrated attachment styles developed early in life determine how we later relate to our love partners, our friends, and eventually our own children (Fraley & Spieker, 2003; Kirkpatrick & Hazan, 1994). Other researchers however, have found changes between infant and adult attachment styles (Baldwin & Fehr, 1995). The infant's relationship with the primary caregiver is critical to the success of adult relationships. However, there is some hope that we can change from infant maladaptive styles to more functional adult behaviors and relationship satisfaction.

Life events may also influence our ability to form secure relationships. Traumatic events that separate us from beloved family members through death or divorce, affect our ability to develop intimate relations. So does childhood abuse, or family instability (Brennan & Shaver, 1993; Klohnen & Bera, 1998). Within intimate relationships the type of attachment has profound effects (Collins & Feeney, 2000; Fraley & Shaver, 1996). How we say goodbye, for example, at train stations and airports is reflective of our attachment styles. Avoidant romantic partners spent less time giving embraces, whereas those who were anxious expressed sadness and fear when separating. How we express attachment may vary with culture. Being reserved is not universally diagnostic of having an avoidant attachment style.

1.7 Secure attachment styles bring many benefits

Secure individuals bring out the best in others. Even when significant others display negative behaviors such as unjustified criticisms, the secure person will

see that behavior in a positive light (Collins, 1996). A secure and positive outlook brings its own rewards. These include, not surprisingly, more relationship satisfaction. Secure partners are less likely to break up the relationship, and more likely to stay married, they experience fewer marital tensions, and generally fewer general negative outcomes (Shaver & Brennan, 1992; Mikulincer & Shaver, 2003). On the other hand, anxious people are more likely to perceive threat. They view life events in pessimistic ways leading to depression, substance abuse, and eating disorders. Our early bonds with caregivers matter a great deal as we move on in life. These attachment styles have significant effects on our current relationships, and our own sense of well-being. Secure life styles based on a good start in life produce healthier relationships, and good personal health.

2. Culture and socialization produce different relationships

Fiske (1991; 1992) proposed a theory of relationships that suggest that we behave in four distinct ways in defining who we are, how we distribute resources, and how we make moral judgments. A *communal relationship* put the interest of the group ahead of that of the individual. Types of groups in this category include families, or close social allies. In families what we contribute depends on what we can offer, and what is right to receive depends on the needs of the individual informed by benevolence and caring. In a family, children are different and require different resources. One child may be intellectually gifted, and parental care may be shown by support for education. Disproportionate support for one child may result in fewer resources for another child. In communal groups or families, resource distribution is decided by the needs of each member, and desire to help all.

In the *authority ranking groups* the status and ranking hierarchy is what matters. Members of these groups are aware of the status differences, and roles tend to be clearly specified. Military organizations are examples, but so are modern capitalist organizations that depend on a top down authoritarian structure. Tribal organizations are usually also authoritarian, and the chief determines who does what, and in what way performance is rewarded or punished.

The third type of relationship is *equality matching*. These relationships are based on equality in resources and preferred outcomes. Many friendships and marriages are governed by some norm of equality. Members should have on the average the same rights, constraints or freedoms. The essential question asked in response to any requests or demands is: is it fair? Is it also applicable to the capitalist market

system based on the market pricing relationships. Fourth, relationships emerging from the market economy are governed in principle by *equity*, by what is considered fair. Salaries should be based on merit and equity, where the compensation received is proportional to the quality and effort made by the individual (for example if you cannot pay for medical help, then you get none). While Fiske claims these four types are universal, some relationships are emphasized in a particular culture. Capitalist societies rely on market pricing relationships, and increasingly we are seeing similar relationships in current and formerly socialist countries.

2.1 The child in the relationship

Many social psychologists find attachment theory useful in understanding the relationships between adults both platonic and romantic (Hazan & Shaver, 1987). They are interested in what ways adult love relationships are similar to the attachment patterns of infants. It seems that the intense fascination with the love object, parent or lover, is similar. The adult lover may gaze with intense fascination into the eyes of the beloved, much as the infant gazes into the eyes of the mother. Lovers feel distress at separation, as do infants when the mother leaves the room. In both situations strong efforts are made to be together, spend time together and avoid separation.

Adult love relationships also fall into the three attachment patterns described for children. One study showed that the majority of US citizens (59 %) are securely attached, whereas 25 percent are avoidant, and 11 percent are anxious-ambivalent (Mickelson, Kessler, & Shaver, 1997). There are differences as well, as adult relationships involve reciprocal care, and in some cases sexual attraction. Still, the mother would not gaze at the infant unless she found it very rewarding, and there is some reciprocal behavior there. The mother loves her child and is rewarded by adorable gazing and smiles of the infant.

Some psychologists feel that this early model of love becomes a working framework for later relationships. The infant who has secure attachments with parents comes to believe that similar relationships can be established as an adult, that people are good and can be trusted. On the other hand the anxious-ambivalent attachment may produce fear, rejection of intimacy, and distrust in the relationship in the adult. The burden of the generations occurs when a parent passes on to the next generation the attachment style he developed as an infant. The rejection a mother experienced as an infant may become the working model

for her child rearing when she is a parent.

There is hope for victims of dysfunctional attachment styles. Sometimes an adult love relationship is so powerful that it can overcome any negative experiences from childhood. On the whole however, absent any major event affecting attachment, there is great stability in attachment styles across the life span (Fraley, 2002; Collins & Feeney, 2004). Secure adults are comfortable with intimacy and feel worthy of receiving affection from another person. As a consequence, they also perceive happiness and joy in their love relationships built on self-disclosure and shared activities. It should come as no surprise that secure individuals also have positive perceptions of parents as loving and fair. Later in life secure people develop more satisfying relationships. Secure people experience more satisfying intimacy and enjoyment, and feel positive emotions in their relationships (Tidwell, Reis, & Shaver, 1996). When life becomes stressful, secure individuals provide more mutual support, and are more effective and responsive to the partners needs (Feeney & Collins, 2001; Feeney & Hohaus, 2001). Avoidant persons, on the other hand, are often uncomfortable in getting intimate, and never develop full trust in the love partner. They spend much time denying love needs, do not self disclose, and place more importance on being independent and self-reliant. The anxious- ambivalent person wants to become intimate, but worry that the other person does not feel the same. Anxious adults tend to be obsessed with the object of love, experience emotional highs and lows, feel intense sexual attraction, and jealousy. They often feel unappreciated by their partners, and view their parents as being unhappy.

2.2 The transfer effect in our relationships

The transfer effect is well known in clinical psychology. In the effort to help the patient the therapist allows the patient to transfer feelings from some other significant other to the therapist. Temporarily the therapist becomes the father figure, or some other significant person in the therapeutic relationship. We have all met people who remind us of others. The authors have all had the experience of meeting someone who was certain to have met one of us before, or believed we were closely related to someone they knew. Does the professor of this class remind you of a favored uncle or aunt? Chances are that you will transfer positive feelings toward the professor, and with such an auspicious beginning the outcome may be very good for your study. The relational self-theory is based on the idea that our prior relationships determine how we feel toward those who remind us of

such significant others from our past.

Andersen & Chen (2002) developed the idea of relational self-theory to demonstrate how prior relationships affect our current cognitions and interactions with others. They hypothesized that when we encounter someone who reminds us of a significant other from the past we are likely to activate a relational self that determines our interactions with the new person. Meeting people who remind us of past significant others even has emotional consequences. In one study the researchers assessed the participant's emotional expressions after being exposed to information that resembled a positive or negative significant other from the past (Andersen, Reznik, & Manzella, 1996). The participants expressed more positive emotion as judged by facial expressions after being exposed to information about a past positive significant other, and more negative facial expressions after exposure to the information of a negative person.

Our past relationships also determine our current interactions. When we interact with someone who reminds us of someone else it affects our self-concept and behavior (Hinkley & Andersen, 1996). Encountering such a person alters how we think of ourselves, and the past relationship may affect our behavior at the automatic level (Andersen, Reznik, & Manzella, 1996). This finding helps explain our preference for some individuals, and our rejection of others. Positive emotions result from being in the presence of people who remind us of previous positive relations. However, we should remind ourselves that these gut feelings are not the consequence of actual behavior or interactions. Any immediate dislike may have more to do with unpleasant relations of the past, than the person with whom you are currently interacting.

2.3 Social cognition and previous relationships

We construe the world through processes of social cognition. Previous relationships affect how we come about this construction of the world. This is logical when we realize that relationships form the basis of many of our memories. In one study, for instance, participants were better able to remember information based on relationships than other sources of information (Sedikides, Olsen, & Reis, 1993).

We tend to be optimistic about self and close friends believing that the outcomes of life will be positive for ourselves and those with whom we relate (Perloff &

Fetzer, 1986), and we include close others in our attributional biases assessing more positive traits and behaviors to partners in close relationships. Success for self and friends is attributed to dispositional causes, while failures are attributed to the situational environment (Fincham & Bradbury, 1993). Close others become in a very real sense a part of the self-concept (Aron & Aron, 1997; Aron & Fraley, 1999). A relationship helps to expand the self-concept by utilizing the resources and characteristics of the other person. These characteristics then become part of the self-concept. This became very visible to us when a close follower of a prominent leader we knew took on characteristics of the admired leader, even to the point of mimicking his speech patterns. Later this same individual married the former wife of the leader, and served as the director of the leader's institute. Relationships are functional because of the self-concept expansion (Wegner, Erber, & Raymond, 1991). So-called transactive memory is demonstrated when partners know each other so well, that they can complete stories told by the other partner, and remember more information than two randomly paired people. Partners also collaborate in remembering facts. In driving to locations one partner may have good understanding of direction and long distance goals, and the other may remember specific street locations. Collaborative memory is based on such close relationships. Social cognition is central to an understanding of social psychology and will be discussed in detail in chapter 4.

3. Liking someone: the start of relationships

Why do we like some people and not others? Our past relationships with parents and close significant others have profound effects on attachment and liking, but that only partly answers the question of attraction. Another answer to what motivates people to embark on a relationship is its contribution to survival and success. However, the average person probably does not evaluate attraction to others on such a calculating basis. That is to say, when it comes to understanding deeper levels of motivation, we like those who are associated with rewarding events and whose behavior is intrinsically rewarding. We dislike those whose behaviors are a burden to us. At the level of motivation, conscious or unconscious, we seek to maximize our rewards and minimize costs. We seek relationships and continue in these if the rewards exceed the costs and therefore yield a profit (Kelley, 1979; Kelley & Thibaut, 1978; Rusbult, 1980).

3.1 Antecedents of attraction

Propinquity, similarity and physical attraction have been studied extensively by

social psychologists. Many would consider these to be obvious variables in interpersonal attraction. Yet, in our culture we say, “beauty is only skin deep”, thereby denigrating the potential influence of physical attractiveness. As we shall see beauty is much more than skin deep, and along with similarity and propinquity have profound effects on whom we like, and on our relationships and social successes.

3.2 Propinquity: we like those living near us

Some of the very earliest research on attraction focused on the proximity of relationships (Festinger, Schachter, & Back, 1950). These early researchers performed a sociometric study in a housing complex for married students at MIT called Westgate West. The residents were asked to name their three closest friends. The majority of the respondents named people who lived in the same building, even though other housing units were nearby. Even within the building proximity was a striking factor, with 41 percent naming their next-door neighbors as best friends, 22 percent named those living two doors away, and only 10 percent pointed to those living at the end of hallways as close friends. The critical factor was the chance of coming in contact. Festinger et al. called this functional distance.

Although there are exceptions when we come to dislike people living next door the result of Festinger and colleagues is a very optimistic finding of social psychology. It suggests that most people have the capacity for friendships if only given the opportunity. This might even be extended to the most intimate relationships. Rather than waiting for the one and only knight on the white horse, or Cinderella, as romantic illusions would have you do, propinquity findings would suggest that there are millions of potential partners if only given the chance for encounters.

3.3 Mere exposure and familiarity

What is it about being given the chance to meet that leads to liking? Some research would indicate that proximity brings on a sense of familiarity that leads to liking (Borstein, 1989; Moreland & Zajonc, 1982; Zajonc, 1968). In the literature it is called the “mere exposure effect”. The more we see people the more we like them, so proximity is about familiarity. Then why does familiarity produce liking? Is there some sense of security that comes from knowing that the familiar produces no harm? Is it an evolutionary mechanism where the familiar reduces threat? Do we have an innate fear of the unfamiliar? Are strangers a

threat, because we do not know enough about them to predict their behavior? Perhaps it is. Perhaps we like those who are familiar, because we can predict their behavior and they are non-threatening. Milgram (1970) suggested that the fear of living in large cities among strangers was eased by seeing the same faces or “familiar strangers” – as they passed on their way to work.

A study by Moreland and Beach (1992) showed that the “mere exposure” produced liking. They had female confederates attend class sitting in the first row. There was otherwise no interaction between the female confederates, the instructor, or other students. Yet, when asked at the end of the term, the students rated these women highly for both liking and attractiveness. The literature supports the idea that familiarity promotes liking (Bornstein, 1989; Moreland & Zajonc, 1982). There is one caveat. If you find yourself instantly disliking what you consider an obnoxious person, exposure will intensify that effect (Swap, 1977).

Still a large amount of literature has been published supporting the “mere exposure” effect (Bornstein, 1989; Zajonc, 1968). For example there are strong correlations between the frequency of exposure to a variety of objects and liking. Flowers that are mentioned more frequently in our literature are liked more than those mentioned less frequently, e.g., violets are liked more than hyacinths. People, at least in the US, also like pine trees more than birches, and like frequently mentioned cities more than those less well known. Zajonc argues that it is the mere exposure effect. However, on the other hand perhaps people write more about violets than hyacinths because they are liked more? How do we explain the preferences for different letters in the English alphabet that correspond to the frequency of appearance in writing (Alluisi & Adams, 1962)? We also tend to see letters in our own name more frequently, and have a greater liking for these letters (Hoorens, Nuttin, Herman, & Pavakanun, 1990).

In another study the more the participants were exposed to words they did not understand (Turkish words or Chinese pictographs) the more they liked them (Zajonc, 1968). Still, even “mere exposure” effects must have an explanation in terms of rewards or the absence of threats that familiarity brings from repeated exposure. Zajonc (2001) recently explained the “mere exposure” effect as a form of classical conditioning. The stimulus is paired with something desirable, namely the absence of any aversive conditions. Therefore over time we learn to approach those objects considered “safe” and avoid those that are unfamiliar.

Computers are often used to make contact these days. Keeping in mind that it is the “functional distance” which is important, how does computer technology contribute to establishing new relationships? (Lea & Spears, 1995). All modern tools of communication can be used either for ethical or unethical purposes. There are predators online who lie or manipulate to take advantage of innocent young people. It is not safe. Online the individual has no way to confirm the truth of what another person is saying. Person-to-person we can check for all the nonverbal signals that we have learned from experience indicating truthfulness and trust. On the other hand, we do not have to worry much about rejection in Internet relationships, so perhaps we have less to lose and therefore can be more honest online? We can more quickly establish intimate relationships, but we may in the process idealize the other person. Only face-to-face can we decide what is real, and even then we may idealize, although as we will see this can be healthy for long term relationship survival.

Proximity effects means that we often marry people who live in the same neighborhoods, or work for the same firm (Burr, 1973; Clarke, 1952). The variable is optimistic about meeting someone because our world of potential relationships is unlimited. If our eyes are open we can find a mate somewhere close by, certainly within walking distance. Perhaps proximity also points to other forms of interpersonal similarity. Generally people living in the same neighborhoods often also come from similar social classes, ethnic groups, and in some parts of the world from the same religious groups. Proximity may therefore also be another way of pointing to similarity as a basis for liking. Familiarity provides the basis for sharing, and the gradual building of trust (Latané, Liu, Bonevento, & Zheng, 1995). The vast majority of those who have had memorable interactions leading to intimacy lived either at the same residence or within one mile from the trusted person.

The mere exposure effect can also be discerned in peoples’ reactions to their own faces. Faces are not completely symmetrical as most of us display some asymmetry where the left side of the face does not perfectly match the right. Our face to a friend looks different from that we see our selves. The mirror image with which we are familiar is reverse from that which the world sees. If familiarity or mere exposure has an effect, our friends should like the face to which they are accustomed, whereas the individual should also like the mirror image with which he is familiar. Mita, Dermer, & Knight (1977) showed that the participants liked

best the face with which they were most familiar.

3.4 Proximity and anticipating the cost of negative relationships

Proximity, moreover, reduces the cost of interaction. It takes a great deal of effort and expense to maintain long distance relationships. As a result of our work we have relationships in different parts of the world. As the years go by it is more and more difficult to continue with friendships that when we were young we thought would last forever. When you do not see someone in the course of daily activities it takes more effort, and may be costly in other ways. Long distance relationships take more dedication, time, and expense.

Proximity may exert pressures toward liking. It is difficult living or working with someone we dislike. That cognitive dissonance may cause us to remove stress by stronger efforts of liking the individual. Therefore, even the anticipation of interaction will increase liking, because we want to get along (Berscheid, Graziano, Monson, & Dermer, 1976). When we know we will interact with someone over time we are likely to focus on the positive qualities, as the alternative is too costly. Think of working with a boss you do not like, how costly that could be? Therefore we put our best foot forward when we meet people who may become part of our daily lives. Even the anticipation of interaction with others produce liking. Why else would people make extraordinary efforts to be nice at “get acquainted parties” at work, or in new neighborhoods? Putting your best foot forward is a strategy to produce reciprocal liking.

4. Similarity: rubbing our back

We like to be massaged, and therefore like those who validate and reinforce who we are and what we believe. The research literature supports this proposition (Berscheid & Reis, 1998; Ptacek & Dodge, 1995; Rosenblatt & Greenberg, 1988). It will come as no surprise that we tend to find our spouse among those who are similar to us on many different characteristics including race, religion, and political persuasion (Burgess & Wallin, 1953). Showing again the opportunistic nature of our most intimate relationships, similarity in social class and religion were the strongest predictors of liking.

Similarity of religion or social class may just be frequency or proximity factors, as the likelihood of exposure is greater for these categories. Similarity in physical attractiveness also plays a role and personality characteristics, although to a lesser extent (Buss, 1984). In a classic study, Newcomb (1961) showed that after

a year of living together, student's liking of roommates was determined by how similar they were. In other studies where the participants thought they were rating another participant (in fact a bogus participant) either similar or dissimilar, the similar person was liked more (Byrne, 1961; Tan & Singh, 1995). The similarity effect holds true across a variety of relationships including friendship and marriage.

Similarity in education and even age seems to determine attraction (Kupersmidt, DeRosier, & Patterson, 1995). Not only are friends similar in social class and education, but also gender, academic achievement, and social behavior. A meta-analysis of 80 separate studies showed moderate relationships between similarity and attraction (AhYun, 2002). Today dating services are established on the principle that similarity is good and functional in relationships. A good match means finding someone who is similar. Dating services try to match after background checks and participant surveys of values, attitudes, and even physical appearance (Hill & Peplau, 1998). Those participants who were matched in attitudes toward gender roles and sexual behavior had the most lasting relationships, one year and even 15 years later.

4.1 How does similarity work?

As mentioned above similarity is a potent variable in friendship and mate selection. What are some of the mechanisms that produce this effect? Similarity gives a common platform for understanding, and that in turn promotes feelings of intimacy essential for trust, empathy and long lasting relationships (Aron, 1988; Kalick & Hamilton, 1988). If the issue is important only those with the same or similar values are acceptable. So attraction is selective and we rarely encounter those whose views are different. In relationships where the participant committed to someone with different values, or where the parties successfully hide their views, similarity could still be the outcome. Typically long time married couples have similar views because over time they persuade the partner to change his/her mind. Social influence may also change our views over time and produce more similarity.

We find pleasure in our relationships with similar others because they confirm our beliefs and the value of our person. When we meet with likeminded people, they validate our inner most values and expressed attitudes. The rest of the world may cast doubt on our beliefs, and may question who we are as persons, but the likeminded validate our ideologies and personal achievements. Even our

physiological arousal corresponds to our liking someone (Clore & Gormly, 1974). Similarity allows for functional relationships and for more effective communication. When we are with those who are similar, communication is effortless, since we do not have to be on guard for disagreement or rejection.

4.2 A common social environment

Of course the social environment also has a selectivity bias. People meet likeminded people at Church, or those with similar occupational interests at work. In many cases the apparent similarity is caused by the selectivity of our social environment. A politically progressive person does not attend meetings of the Ku Klux Klan (a racist group) in order to find a soul mate. A longitudinal study of married couples showed that couples became more and more similar over time as they continued to persuade and experience a shared environment (Gruber-Baldini, Shai, & Willis, 1995).

We choose our friends from our social environment. In college we find our friends among those who are on the same track academically and can be of mutual aid (Kubitschek & Hallinan, 1998). Being in the same environment produces shared experiences and memories that serve to bond people. We perceive similarity and from that conclude that the other person will like us, thereby initiating communication (Berscheid, 1985). It is reinforcing to meet someone with similar views, as they validate our feelings of being right (Byrne & Clore, 1970). At the same time and for the same reasons we find those who disagree unpleasant (Rosenbaum, 1986; Houts, Robins, & Huston, 1996). As a result of having a common basis, similarity in personality traits provides for smooth communications and interactions between people, therefore similarity is less costly.

4.3 We like those who like us: reciprocal liking

Reciprocal liking is even a more powerful determinant of liking than similarity. In one study a young woman expressed an interest in a male participant by eye contact, listening with rapt attention, and leaning forward with interest. Even when told she had different views the male participants still expressed great liking for the woman (Gold, Ryckman, & Mosley, 1984). Regardless whether we show by means of verbal or non-verbal responses, the most significant factor determining our liking of another person is the belief that the person likes us (Berscheid & Walster, 1978; Kenny, 1994). When we come to believe someone likes us we behave in ways that encourage mutual liking. We express more warmth, and are more likely to disclose, and behave in a pleasant way. So liking

someone works like a self-fulfilling prophecy. Expressing liking elicits pleasant behavior and reciprocal liking (Curtis & Miller, 1986).

4.4 Personal characteristics associated with liking

Physical attractiveness is very culturally bound. In some societies voluptuous women are considered beautiful, while in our society the fashion industry and the media define attractiveness as being thin. When it comes to personality based characteristics two factors lead to liking. We like people who show warmth toward others, and people who are socially competent (Lydon, Jamieson, & Zanna, 1988). Warm people are those who have an optimistic outlook on life and people. We like them because they are a source of encouragement in an otherwise discouraging world. Warm people are a pleasure to be around and therefore rewarding. In one study (Folkes & Sears, 1977) the researchers had the participants listen to an interviewee evaluate a variety of objects including movie stars, cities, political leaders. Sometimes the interviewees expressed negativity toward these objects, in other cases positive views. The participants expressed a greater liking for the interviewee who expressed positive views, i.e. displayed warmth toward the rated people and objects.

4.5 Communication skills

Likewise we like more the socially skilled. Social intelligence can be demonstrated by being a good conversationalist. Skilled speakers were seen as more likeable, whereas boring communicators were not only rated as less likeable, but also as less friendly and more impersonal (Leary, Rogers, Canfield, & Coe, 1986). Obviously communication skills are essential to long-lasting relationships. We are especially fond of people whose ways of relating to others are similar to our own (Burleson & Samter, 1996). Those with high communication skills saw interactions as complex with highly valued psychological components. People with low skill levels saw communications as more straightforward and less complicated. To communicate at the same level is a very important aspect of attraction and liking. Operating at the same skill level is rewarding, as we feel empathy and understanding. Those who do not share the same level of communications are less likely to develop long-lasting relationships (Burleson, 1994; Duck & Pittman, 1994).

4.6 Complementarity: Do opposites attract?

The importance of similarity suggests “birds of a feather flock together”. But are we not also told that opposites attract? Do tall dark men not prefer short

attractive blonds? What about the assertive person meeting the less dominant individual? Or the person who has a rich fantasy life marrying the realist? Are there not times when opposites attract because in some ways we complement each other? Certainly, for sexual relations the vast majority of humankind seeks the opposite sex, only a minority is attracted to similarity. The masculine and feminine is the supreme example from nature that opposites attract.

Complementary personality traits produce liking for only a few personality traits (Levinger, 1964; Winch, 1955). On the whole, however, most studies fail to find evidence that complementarities attract in relationships (Antill, 1983; Levinger, Senn, & Jorgensen, 1970; Neimeyer & Mitchell, 1988). When complementarities lead to attraction, it appears to be a rare exception to the dominant effect of similarity. Even in cases where personalities are complementary on some traits, they have many more similar traits in common.

4.7 Ethnicity and relationships

Ethnic identification is only one dimension of similarity. Interracial couples are similar in other significant ways, in attitudes and values. The dissimilarity is, however, more prominent and is judged more prominently by society which affects an individual evaluation of the dissimilarity. But the significance of similarity in interethnic friendships is less important today than in former times. For example more and more US citizens are dating and marrying outside their own racial and ethnic groups (Fears & Deane, 2001). Attitudes toward interracial relationships and marriage are becoming increasingly accepted in society, and interracial marriages are on the increase. The vast majority of all racial groups in the US approve of interracial marriages today (Goodheart, 2004).

The studies which support interracial tolerance in intimate relationships appear to differ with the public opinion survey to be cited in chapter 9 which indicated parents prefer similarity of race for their daughters. The conclusion of the public opinion survey was that social norms now favor such relationships. However, when the respondents were asked something more personal namely, how would they feel if their daughter would be part of an interracial marriage, the outcome was slightly different. The respondents preferred that their daughter not be a part of an interracial relationship. People are willing to give the normative correct responses to surveys, but hold private and subtler negative attitudes when it affects members of their own family. It must be said, however, that negative evaluations of interracial relationships occur before a relationship is established.

Once an interracial relationship is a fact, many opinions change in favor of family harmony and acceptance.

5. Physical Attractiveness: A recommendation for success!

Physical attraction is a powerful determinant of liking and has lifelong benefits. Attend any social event and who do you first notice? If you are a heterosexual man, you will first notice the attractive women, and if you are a woman your eyes will feast on the handsome men. As we shall see there are little differences between the sexes in the appeal of physical attractiveness. First impressions are important, as without these few people would initiate contact. So while physical attractiveness is important in the early phases of a relationship, the benefits continue in a variety of ways.

Notwithstanding the proverb “beauty is only skin deep”, most people behave strongly to physical attraction. There may even be a biological basis as preferences for attractive appearance occur early in life. Fortunately “love is blind”, and we also tend to find those whom we love to be attractive (Kniffin & Wilson, 2004). Since we idealize the beloved we observe beauty where others fail to see it (Murray & Holmes, 1997). Then there is always the case of the “ugly duckling” that later grew into a beautiful swan. Physical development sometimes brings beauty later in life (Zebrowitz, 1997).

In a now classic study (Walster, Aronson, Abrahams, & Rottman, 1966) the researchers randomly assigned freshmen at the University of Minnesota for dates to a dance. The students had previously taken a number of personality measures and aptitude tests. Participants had also been rated independently on physical attractiveness. Having spent a short time dancing and talking, the couples were asked to indicate liking and desire to meet the person again. Perhaps there was insufficient time to evaluate the complex aspects of the date’s personality, but the overriding factor in liking was the physical attractiveness of the date. It is also common to think that men pay more attention to women’s attractiveness than women do to male bodies. However, in this study there were no differences as female as well as males expressed preferences for physical attractiveness.

5.1 Women like attractive men: Imagine!

Despite the common stereotype that women are attracted to the deeper aspects of a person’s character, such as intelligence and competence, women, like men, are impressed by physical attractiveness. They pay as much attention to a handsome

man as men do to beautiful women (Duck, 1994a; 1994b; Speed & Gangestad, 1997; Woll, 1986). However, a meta-analysis showed a slightly greater effect for physical attractiveness in men than in women (Feingold, 1990), and some studies supported the stereotype of stronger male preferences for physical attractiveness (Buss, 1989; Howard, Blumstein, & Schwartz, 1987). The contradictions are easy to explain when we remember the different norms governing the attractiveness issue for men and women. Men are more likely to respond to the common and accepted stereotype that physical attractiveness is important for men, whereas women respond to their stereotype that other traits matter. But in actual behavioral preferences there are few differences. In sexual preferences both men and women rate physical attractiveness as the single most important variable (Regan & Berscheid, 1997).

Physical attractiveness probably has biological roots as both genders think it is the single most important trait in eliciting sexual desire (Graziano, Jensen-Campbell, Shebilske, & Lundgren, 1993; Regan & Berscheid, 1995). In one study women participants looked at a photograph of either an attractive or unattractive man, and were led to believe they spoke with him on the phone (Andersen & Bem, 1981). The two photos were used to elicit the physical attractiveness or unattractiveness stereotype. The respondents in both the attractive and unattractive conditions spoke to the same person.

The purpose here, as in the previous study with men (Snyder, Tanke, & Berscheid, 1977), was to see if the women's perceptions of likeability would change depending on whom they thought they were speaking with, an attractive or unattractive man. The "beautiful is good" stereotype also worked for women. When they believed they spoke to an attractive man they perceived him to be more sociable and likeable, compared to when they thought they "talked" to the unattractive man. Later meta-analyses across numerous studies (Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Langlois, Kalakanis, Rubenstein, Larson, Hallam, & Smoot, 2000) produced convincing evidence that physical attractiveness is an important factor also in women's lives.

5.2 As society sees it: the social advantages of the physically attractive

For both sexes and in nearly all the arenas of life the physical attractiveness of both sexes has profound advantages. The attractive person is more popular with both sexes (Curran & Lippold, 1975; Reis, Nezlek, & Wheeler, 1980). In the new age of video dating, participants show strong preferences for attractive potential

dates (Woll, 1986). Are those who seek out video dating more shallow? Have they impossible high standards encouraged by Playboy and Glamour magazine? Perhaps, but attractiveness continues to be a positive trait across many forms of social interactions. When an attractive and unattractive confederate is presented as “author” of a novel, the novel is judged better if the participants believe it written by the “attractive author” (Cash & Trimer, 1984; Maruyama & Miller, 1981). Studies have also demonstrated direct effects in the workplace. Individuals make more money the higher their rating on physical attractiveness (Frieze, Oleson, & Russell, 1991; Roszell, Kennedy, & Grabb, 1989). Good looking victims are more likely to receive assistance (West & Brown, 1975), and good looking criminals to receive lower sentence (Stewart, 1980).

5.3 Some gender differences

However, the physical attractiveness factor may be muted for women, and compromises are sometimes made when evaluating a desirable long-term relationship involving the raising of children and the creation of a family. In the committed partnership women recognize also the importance of other traits like integrity, income potential, and stability. They are therefore more willing to marry a partner who is less than perfect in physical appearance. Perhaps for similar reasons women also prefer older partners, whereas men have a preference for youthful women. If the goal of the relationship is family development, women also pay more attention to the economic potential of their partners, whereas this is an indifferent issue for most men (Sprecher, Sullivan, & Hatfield, 1994). For men physical attractiveness is a necessity, whereas for women, while still important, it is more like a luxury. A partner’s status and access to resources on the other hand were considered a necessity for women, but a luxury for men (Li, Bailey, Kenrick, & Linsenmeier, 2002). In selecting long term partners, women gave more importance to a man’s warmth, trustworthiness, and status, whereas men placed more emphasis on the potential partners attractiveness and vitality (Fletcher, Tither, O’Loughlin, Friesen, & Overall, 2004). So there are some consistent gender differences.

5.4 What do gender differences in partner preference mean?

Evolutionary psychology would assert that gender differences exist because they are functional to the survival of the species. “What leads to maximum reproductive success?” is the question posed by evolutionary psychology (Buss & Kenrick, 1998). Women invest much effort and time in bringing a child into the

world. To be successful in reproduction requires that women have stable partners with adequate economic and other resources. In the days of the caveman that meant a good cave, warm fire, and ability to provide game. In our day women look for good earning potential. Men on the other hand invest little, and can impregnate several females. For men therefore the key factor is physical attractiveness. In our evolutionary history men learned that youth and attractiveness is more sexually arousing, and incidentally these qualities in women are associated with fertility and health - men are not looking for fertility and health in the first place, but for good sex.

A sociocultural perspective points to the different roles played by the genders historically (Eagly & Wood, 1999). Men have throughout history been the providers and builders of material comfort; women have been the homemakers. The greater interest in a man's economic potential grew from the unfavorable position of women who even today earn less than men for comparable work. As noted some cross-cultural data (Eagly & Wood, 1999), sex differences in preferences for mates have shifted as women have made socio-economic gains. Other research shows that preferences leading to mate selection have changed, especially over the last number of decades of improved socioeconomic possibilities for women (Buss, Shackelford, Kirkpatrick, & Larson, 2001). Men in many Western countries now think it is a good idea that women earn money, and both sexes place more importance on physical attractiveness. So perhaps physical attractiveness was always important for women also, but confounded by the need for socio-economic support.

5.5 Selecting our mates: gender specific wanted ads in newspapers

Evolution has instilled the majority of both sexes with the desire to reproduce with mates who signal good reproductive health. Heterosexual men and women differ however, in the burden of bringing children into the world, and looking after their babies during the most vulnerable period. This gender difference would suggest that women would be more selective in their choices, as they have more at stake. In all societies studied men are more promiscuous, and women exercise more care in selecting partners, especially for long term relationships (Schmitt, 2003).

Men are attracted to fertility and physical qualities that happen to be associated with fertility, and therefore toward feminine features signaling youth (Singh, 1993). Women on the other hand, with a shorter biological clock, intuitively look

for men who have the capacity and desire to invest in their children, and have a good economic future. In fact this difference can be observed weekly in the personal ads that appear in many local papers. Typically men seek youth and attractiveness whereas women seek accomplishments and economic resources (Kenrick & Keefe, 1992; Rajecki, Bledso, & Rasmussen, 1991). Support for this gender difference was found cross-culturally in a study of 37 different societies (Buss, 1989). In all cultures men rated physical attractiveness as more important in a mate, and they preferred younger partners. Women on the other hand preferred partners who were older, and who could provide material resources.

Consistent with the sociocultural perspective, gender differences in mate preferences have shifted somewhat across many cultures as women have gained more socio-economic and political power (Eagly & Wood, 1999). However, these recent changes have not removed fully the historical gender preferences. Men still rank good looks and health higher than women, and women rank the financial prospects of potential mates higher than men. These results call for an interactionist point of view. Gender differences are a function of both our evolutionary past, and our socio-cultural heritage, and it is unlikely we can separate one from the other.

5.6 Social attributions: What we believe about the physical attractive

All cultures have stereotypes that attribute positive qualities to the physically attractive. Dion, Berscheid, & Walster (1972) call this the “what is beautiful is good” attribution. Others have also found support for this common stereotype (Ashmore & Longo, 1995; Calvert, 1988). Meta-analyses have demonstrated the common belief that attractive people have higher levels of social competence, are more extraverted, happier, more assertive, and more sexual (Eagly, Ashmore, Makhijani, & Longo, 1991, Feingold, 1991).

Even young children at a very early age have an awareness of who is and is not attractive. Commonly accepted stereotypes attribute many positive traits and behaviors to the physically attractive. In several experiments the participants were asked to rate a variety of photographs varying in attractiveness (Bar-Tel & Saxe, 1976; Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992b). Persons rated attractive were perceived to be happier, more intelligent, as having more socio-economic success, and possessing desirable personality traits. This undeserved stereotype is consistent across cultures but varies according to cultural values.

For women more than for men, physical attractiveness is a door opener. Just a look at women's journals, and the obsessive concern with beauty and weight suggests a differential advantage accrues to attractive women. This affects not only personal interactions, but also treatment on the job (Bar-Tal & Saxe, 1976). Over the centuries, physical attractiveness for women was tied to their survival, and social success. It is no wonder then that these historical facts have created a much stronger preoccupation with attractiveness for women (Fredrickson & Roberts (1997).

Some studies show that even from birth babies differ in their relative attractiveness. Mothers provide more affection and play more with their attractive infants than with those babies deemed less attractive (Langois, Ritter, Casey, & Sawin, 1995), and nursery school teachers see them as more intelligent (Martinek, 1981). Many rewards accrue to those deemed attractive in our society. While still infants the attractive child is more popular with other children (Dion & Berscheid, 1974). So very early in life the attractive child is given many benefits, including the perception that he/she possesses many positive traits and behaviors (Dion, 1972).

There must be a biological basis when, even before interaction or experience, infants themselves show strong preferences for attractive faces (Langlois, Roggman, Casey, Ritter, Rieser-Danner, & Jenkins, 1987; Langlois, Ritter, Roggman, & Vaughn, 1991). Infant preferences for attractive faces held true for both adults as well as for the faces of other infants. Even when presented to strangers, the infants showed preference for the attractive face, and were more content to play and interact with the attractive stranger. On the other hand they turned away three times as often from the stranger deemed unattractive as from the one rated attractive (Langlois, Roggman, & Rieser-Danner, 1990).

Being given such great advantages at birth, it is no wonder that a person's relative attractiveness has an effect on development and self-confidence. The physically attractive do in fact display more contentment and satisfaction with life, and feel more in control of their fates (Diener, Wolsic, & Fujita, 1995; Umberson & Hughes, 1987). Being treated so nice from birth onward produces the confidence and traits that encourage further positive interactions and rewards (Langlois et al, 2000). Other people by their positive regards create a self-fulfilling prophecy as the attractive person responds with the expected socially skillful behavior.

5.7 The universality of the “beautiful is good” attribution

Is the stereotype present in various cultures? Research would tend to support this contention (Albright, Malloy, Dong, Kenny, Fang, Winkquist, & Yu, 1997; Chen, Shaffer, & Wu, 1997; Wheeler & Kim, 1997). Although beauty is a door opener in all cultures, each culture may vary as to what traits are considered desirable. Some traits associated with attractiveness like being strong and assertive are especially valued in North American samples. Other traits such as being sensitive, honest, and generous are valued in Korean cultures. Some traits like happy, poised, extraverted, and sexually warm and responsive are liked in all the cultures studied.

5.8 Physical attractiveness has immediate impact and provides vicarious prestige

Experimental research shows that vicarious prestige is derived from association with an attractive person (Sigall & Landy, 1973). In one study the participant's impression of an experimental confederate was influenced by whether the collaborator was seated with an attractive or unattractive woman. When with an attractive woman the confederate was perceived as both likeable and confident. There are predictable gender differences. Being with an attractive woman has more positive consequences for a man, than being with an attractive man has for a woman (Bar-Tal & Saxe, 1976; Hebl & Mannix, 2003). US society has coined the term “trophy wife” to demonstrate the appreciation of a man, usually wealthy, being with a young and attractive spouse.

5.9 Cultural differences and consistencies in physical attractiveness: Reproductive health

There are some variations among cultures as to what is considered attractive. Western society has changed over time in evaluation of female beauty. Like mentioned before, just a short historical time ago voluptuous women were considered attractive whereas today the skinny woman is considered more alluring. In different cultures there is also different preferences for skin color and ornaments (Hebl & Heatherton, 1997). In the China of the past, artificially bound small feet of women were thought sexually stimulating and in other cultures women lengthened their necks by adding rings and stretching that body part. So there are cultural variations in what is considered beautiful and attractive. However, there is also considerable cross-cultural agreement on what is physically attractive as there are features of the human face and body that have universal appeal (Langlois et al, 2000; Rhodes, Yoshikawa, Clark, Lee, McKay, &

Akamatsu, 2001). Asians, Blacks and Caucasians share common opinions about what are considered attractive facial features (Bernstein, Lin, McClennan, 1982; Perrett, May, & Yoshikawa, 1994).

As discussed previously, even infants have a preference for attractive faces. The appreciation of beauty must derive from something very functional to our survival and hence to reproduction. Physical attractiveness most importantly signifies good health, and reproductive fitness. Keep in mind that those traits that are functional to our survival are also preserved in biology and our genes. If our ancestors had been attracted to unhealthy persons, they would not have had any offspring. Nature informs us by physical attractiveness that the proposed partner possesses good reproductive health.

We are attracted to faces that typify the norm, and stay away from those that are anomalous. Langlois & Roggman, (1990) in fact, found evidence for the preference for the face scored by independent judges to be culturally typical or average. By means of computer technology, they managed to make composite faces of a number of persons (or average faces), and found that these were considered more attractive than different individual faces. Having average features is one component of beauty. Others have, however, shown that there are also other features (higher cheek bones, thinner jaw, and larger eyes) that contribute to attractiveness (Perett, May, & Yoshikawa, 2994).

Bilateral symmetry is a significant feature in physical attraction (Thornhill & Gangestad, 1993). Departures from bilateral symmetry may indicate the presence of disease, or the inability to resist disease. Average features and symmetry are attractive, from the evolutionary perspective, conceivably because they signal good health to a prospective mate. These cues exist at such a basic level that we have no conscious awareness of their presence. We just know what is attractive to us, and approach the other person depending on that quality, and our own level of attractiveness.

5.10 Attraction variables and first encounters

If we ask people to recall relationships of the past, what do they volunteer as being the cause of initial attraction? In one study, the participants were asked to describe how they had fallen in love or formed a friendship describing a specific relationship from the past (Aron, Dutton, Aron, & Iverson, 1989). These accounts were then categorized for the presence or absence of the attraction variables. For

those describing falling in love, reciprocal liking and attractiveness were mentioned with high frequency. To start a relationship many of us just wait to see if an attractive person makes a move that we can interpret as liking. Reciprocal liking and attractiveness in several meanings are also associated with the formation of friendships. Although this holds true for both genders, conversation appears as one additional important quality for females. Women find quality conversation of greater importance than do men in friendship attraction (Duck, 1994a; Fehr, 1996).

Similarity and proximity, on the other hand, were mentioned with lower frequency. Perhaps these variables seem obvious and therefore do not become part of our memory or consciousness. Similarity and proximity may still play very important roles in interpersonal attraction. They respectively focus attention on those deemed eligible and of interest, and on opportunities for encounters. Similar reports emphasizing the importance of the attraction variables, reciprocal liking, attractiveness, similarity, and proximity, have been obtained from memory reports of initial encounters in other cultures as well (Aron & Rodriquez, 1992; Sprecher, Aron, Hatfield, Cortese, Potapova, & Levitskaya, 1994).

5.11 Level of attractiveness

Water finds its own level, and that seems to hold true for relationships. People seek out mates at the approximate same level of attractiveness they possess (Murstein, 1986). We tend to pair off with people who are rated similar in attractiveness whether for dating or for long-term relationships (Feingold, 1988). Similarity in physical attractiveness affects relationship satisfaction (White, 1980). Those similar in physical attractiveness fall in love.

What is an equitable match in the market place of relationships? If one partner is less attractive perhaps he has compensating qualities like being rich. The dating market is a social market place where potential friends or mates sell compensating qualities. Consistent with the previous discussion, men offer social status and seek attractiveness (Koestner & Wheeler, 1988). Since the market place dominates our psychology perhaps that explains also why beautiful women seek compensation if they are to consider a less attractive man. Beautiful women tend to marry higher in social status (Elder, 1969). In the long run market place psychology may also be responsible for our incredible divorce rates. If the exchange of relationship qualities is not satisfactory why not just look for something better? When relationships are based on exchange, and qualities like

physical attractiveness deteriorate over the lifespan, no wonder that many become dissatisfied and consider their alternatives.

6. Theories of Interpersonal attraction

In some societies the market place seems to determine all aspects of culture and interpersonal interactions. It is no wonder then that theories of interpersonal attraction emphasize qualities important in the market place: rewards, costs, alternatives, and fairness. All relationships involve interdependence and we have the power to influence outcomes and satisfaction. In chapter 1 we briefly discussed the following theories. Now it is time to see their application to interpersonal attraction.

6.1 Social exchange theory

The attraction variables we have discussed all contain potential rewards. Why is it rewarding to be with people who are similar? Similar people validate our self-concept, and that is experienced as rewarding. What are the rewarding aspects of propinquity? If a potential friend lives next door, we do not have to make much of an effort to meet him or her, and that is experienced as rewarding. Is physical attractiveness rewarding? Physical attractiveness brings status to the partner, and that is rewarding. What about reciprocal liking? That can be experienced as validating our self-concept and our sense of worthiness. So many of the variables we have discussed previously can be interpreted by a theory that has rewards and costs as a basis, one such theory is social exchange theory (Homans, 1961; Kelley & Thibaut, 1978; Secord & Backman, 1964; Thibaut & Kelley, 1959).

According to the economic perspective of social exchange theory people feel positive or negative toward their relationships depending on costs and benefits. All relationships involve rewards as well as costs, and relationship outcomes are defined as the rewards minus the costs. The partner may bring comfort, sexual excitement, support in bad times, someone to share information, someone to learn from, all possible rewards. However, the partnership also has costs. The partner might be arrogant, a poor provider, unfaithful, and have different values. These are the potential costs. Social exchange theory proposes that we calculate these rewards and costs consciously or at the subliminal level. If the outcome is positive, we are satisfied and stay in the relationship; if not, we bring the relationship to an end (Foa & Foa, 1974; Lott & Lott, 1974).

Relationship satisfaction in social exchange theory depends on one additional

variable: our comparison level. What do you expect to be the outcome of your current relationship based on your past experiences in other relationships? If you were married to a fantastic man who died you will always have high expectations when meeting potential new partners. On the other hand, at work you have experienced successive poor managers. In transferring to a new department you are pleasantly surprised by an ordinary supervisor, as all your previous work relationships have been negative. Social exchange theory asserts that what we expect from current relationships is laid down in the history of our relationships. Some of us have had successful and rewarding friendships and therefore have high comparison levels. Others have experienced much disappointment and therefore have low expectations. Your satisfaction therefore depends on the comparison level developed from experience.

However, you may also evaluate the relationship from the perspective of what is possible. Perhaps you have friends that have rewarding relationships or rich partners. This provides you with another level of comparison, namely a comparison level of alternatives. If you ditched this partner and started circulating again, you might meet mister right who is rich, attractive and supportive. After all it is a big world so there is a probability that another relationship will prove more rewarding.

Some people have high comparison levels; they have had good fortune in past relationships. Their comparison level for an alternative relationship may therefore be very high, and not easy to meet. Others have low comparison levels for alternatives and will stay in a costly relationship, as they have no expectation that other attachments will provide better results. Women in abusive relationships, for example, often stay because they do not believe that other relationships will improve life (Simpson, 1987).

6.2 Equity theory: Our expectation of fairness

According to equity theory, we feel content in a relationship when what we offer is proportionate to what we receive. Happiness in relationships comes from a balance between inputs and rewards, so we are content when our social relationships are perceived to be equitable. On the other hand, our sense of fairness is disturbed when we are exploited and others take advantage of us. We all possess intuitive rules for determining whether we are being treated fairly (Clark & Chrisman, 1994). Workers who are paid very little while working very hard feel the unfairness or imbalance between input and reward, especially when

others benefit from their hard work. These feelings of injustice constituted the original motivation of the workers movement, the trade unions, and the workers political parties.

At dinnertime do all the children get the same size piece of pie, do we distribute the food in an equitable manner? Equality is the main determinant of our evaluation of the outcome among friends and in family interactions (Austin, 1980). There are of course times when one child's needs are greater than another sibling. Many will recognize that families respond to that issue with "from each according to his ability to each according to his need". One child might be very sick and need all the family's resources. The idea that benefits should be distributed according to need is another aspect of fairness (Clark, Graham, & Grote, 2002).

Equity theory asserts furthermore that people's benefits should equal their input. If we work harder than others we should receive a larger salary (Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985). When people perceive unfairness or inequity they will try to restore the balance. For example, if you work for a low wage you may get together with others who are unfairly treated as well and seek more compensation. You may also cognitively adjust by reasoning that there are no alternatives, and that you are lucky to have any income at all. Then you can use cognitive strategies to change your perception of unfairness. If neither of the strategies bring satisfaction, then it is time to quit and look for some other career.

In intimate relationships satisfaction is also determined to some degree by equity (Sprecher, 2001). For example, how to distribute the household work fairly is an important issue for many young couples. Those couples that cannot find an equitable balance report more distress (Grote & Clark, 2001). Gender ideology plays a role in relationship satisfaction. Feminist ideology historically reacted to the great unfairness brought on by discrimination toward women at home and at work. Feminist women may therefore be unhappier if they perceive inequity in household work (Van Yperen & Buunk, 1991).

6.3 Equity and power

Partners may prefer different solutions to daily equity problems. Should the resources of the family go toward the husband's education, or to buying a house? In a world of scarce resources there are always decisions that may favor only one party. The power balance decides to what degree either partner in an intimate

relationship can influence the feelings, thoughts and behaviors of the other partner. Are all decisions made mutually? How do partners come to an agreement about what type of decision-making is fair and equitable?

What determines power in a relationship? Social norms about gender behavior are a powerful determinant. Traditionally women were taught to respect the dominant role of men as “head” of the family. The man historically had total control over wife and children. Today similar traditional patterns continue throughout the world. There is even the very famous case of a princess in the Saudi Arabian royal family who was executed by orders of her grandfather. Her offense was having a relationship based on romance rather than accepting her father’s decision for an arranged marriage. These so-called honor killings, when women are murdered to restore family “honor”, follow a similar pattern of absolute male control. In the western world these traditional gender roles are giving way to more equitable relations in society and in the family.

Partners may have different resources. When the man has resource advantages, he also tends to be more dominant. When the wife earns at least 50 percent of the household income, there is more equitable power sharing. Power is also partly based on the feelings of dependency within the relationship (Waller, 1938). When one partner is more dependent, the other has more power. This holds also for psychological dependency. If one partner has a greater interest in maintaining the relationship than the other, the dependency gives more power to the partner.

So there are variations in how power works out in relationships. In some relationships the man is totally dominant, and some cultures support this sex role resolution. However, we have observed many changes in gender roles and relations over the past decades. Women have gained more social power and more equity in intimate relationships. In one US survey of married couples the majority (64%) claimed equality in power relations (Blumstein & Schwartz, 1983). A large number (27%) reported that the man was dominant, and 9 percent that the wife controlled power in the marriage. In a more recent US study (Felmlee, 1994) 48 percent of the women and 42 percent of the men described their relationship as equal in power, with most of the remaining respondents reporting that the man was dominant. Couples can achieve equality in different ways with a division of responsibilities. Depending on the situation one of the parties may have more power, but overall there is a sense of equality. Some studies find that consensus between a couple is more important than negotiating all the fine details of power

sharing, and relationship satisfaction appears equally high in male dominated as in power sharing relationships (Peplau, 1984). In close relationships there is less need to negotiate everything and produce equitable solutions. If the satisfaction level is high, the parties are less concerned with perfect equity. It is whether the relationship is rewarding that counts (Berscheid & Reis, 1998).

7. Exchange among strangers and in close communal relationships

Exchange relationships also exist between strangers or in functional relationships at work. Exchange relationships tend to be more temporary and the partners feel less responsibility toward one another compared to more intimate relationships. Satisfaction in all exchange relationships is as noted determined by the principle of fairness. Did your professor give you a grade that reflected your work? Work related outcomes and satisfactions are determined by application of the fairness principle.

In communal relationships, such as families, on the other hand, people's outcome depends on their need. In family relationships we give what we can, and receive from the family what it is able to provide. Communal relationships are typically long-lasting, and promote feelings of mutual responsibility (Clark & Mills, 1979). We look after our children not because we expect a reward, but rather to respond to the needs of our dependants. Likewise children look after their infirm parents, because of feelings of responsibility. In intimate relationships partners respond to the needs of the other, without expecting to be paid back in exact coin or immediately. There may be rewards for both parties in the long run. In short, exchange theory better predicts behavior in relationships where the parties are preoccupied with inputs and rewards, whereas in communal relations the partners are more concerned with meeting the needs of the relationship (Clark, Mills, Powell, 1986).

Mills and Clark (1994; 2001) have defined further differences between exchange in different types of relationships. Among strangers you are not likely to discuss emotional topics whereas that is expected in communal interactions. In communal relationships helping behavior is expected, whereas it would be seen as altruistic in relations between strangers. Moreover, a person is perceived as more selfish if failing to help a friend, than if he failed to come to the aid of a stranger. In real intimate relations between lovers the lines between partners is blurred as a feeling of "we" pervades. When we benefit a loved one, we feel like we are benefiting ourselves (Aron & Aron, 2000). The beloved is seen as part of the self,

and terms like “we” is used more frequently than “I” as relations move beyond exchange and equity concerns (Agnew, Van Lange, Rusbolt, & Langston, 1998).

7.1 Culture and social exchange

Cultural differences affect relationships. In Western society some of our relationships reflect market economic values such as exchange and some forms of equity. Asian societies have in the past been based on more traditional, communal standards. Economic companies in Asia often take a paternal role, offering life long job security. How are the new market economies affecting psychology in Asia and Eastern Europe? Assuming a relationship between economic relations and psychology, we might expect a greater shift toward social exchange relations. Social exchange theory also plays a role in intimate relationships in a variety of cultures (Lin & Rusbult, 1995; Rusbult & Van Lange, 1996; Van Lange, Rusbolt, Drigotas, Arriaga, Witcher, & Cox, 1997). Although communal relations are more characteristic of interdependent cultures, there is still a role for social exchange for some relationships in these societies as well as in more independent cultures.

7.2 Evaluation of relationship satisfaction

How committed people are to a relationship depends on satisfaction, on the potential alternatives available, and on the investment made (Rusbult, 1983). If we are not satisfied in a relationship there are alternatives to be explored. Before we end the relationship we carefully assess one particular factor. Namely, how much have I invested in the relationship? How much would I lose if I left the relationship? Would I be better or worse off, many women in abusive relationships ask themselves. Investment is also a factor the individual considers prior to the commitment to dissolve of a relationship. Investment comprises several things: the money available for a new life, a house that might be lost, the emotional well being of children in the relationship, and of course all the work that has been invested in the relationship. This model also predicts commitment in destructive relationships (Rusbult & Martz, 1995). Women who had poorer economic prospects, and were strongly invested with children present, were more likely to tolerate some forms of abuse.

It is difficult to evaluate equitable outcomes as partners trade different resources. Equity however, remains a factor even in intimate relationships (Canary & Stafford, 2001). In intimate relationships there are few rigid give and take rules. Perhaps the wife does all the housework, does most of the child rising, and is a romantic partner while the husband is only a student. It may seem unfair, but the

investment may pay off down the line in higher income and status. In intimate relationships partners have the long view in mind when evaluating equity. The partners trust that eventually everything will work out to the benefit of the whole family unit.

7.3 Self-disclosure: building intimate relationships

Self-disclosure is the bridge to intimacy and liking (Collins & Miller, 1994). When we disclose important information to others we become vulnerable, and so self-disclosure is a form of trust that invites reciprocation. People who self-disclose are therefore seen as trusting people, and trust is an essential component in intimate relationships. When we open ourselves up to another, reciprocation tends to occur (Dindia, 2002). Telling someone something significant is an investment in trust, and if the relationship is to move to another level, a gradual process of reciprocation is required. Reciprocal self-disclosure is a key factor in liking and builds bridges to the deeper and more meaningful part of a person's inner self (Chaikin & Derlega, 1974).

There are of course risks involved in self-disclosure. The other person may not be interested and fail to reciprocate. We may also reveal something about ourselves that offends the values of the other person thereby causing rejection. Having revealed significant information, we have made ourselves vulnerable to the other person's ability to manipulate or betray our confidence. Many prisoners have after the fact found it unwise that they confessed their crimes to cell mates who later sold the information. For these and other reasons we are often cautious in self-disclosure and will conceal inner feelings (Finkenauer & Hazam, 2000).

In individualist cultures relationship satisfaction is related to self-disclosure. In the more collectivist cultures social relations are often more inhibited (Barnlund, 1989). Japanese students were found to self-disclose much less than American students. Self-disclosure is important to love-based marriages in both American and Indian societies (Yelsma & Athappilly, 1988). However for Indian couples in arranged marriages, marital satisfaction was independent of self-disclosure. Perhaps in these formal relationships satisfaction depends more on completion of agreements and contractual expectations.

Cultural norms determine to a large extent the pattern of self-disclosure across many societies. In western culture emotional expression is normative for women and therefore acceptable. The emphasis on rugged individualism for men

suggests that our society suppresses intimacy among men. Hence emotional expression by men is generally directed toward females. In Muslim countries and some societies in Asia, same sex intimacy is encouraged (Reis & Wheeler, 1991).

*7.4 Gender **differences in self-disclosure?***

A meta-analysis of hundreds of studies showed that women disclose significantly more than men (Dindia & Allen, 1992). Although the overall differences were not large they were statistically significant. Within same sex friendships, women reveal more of themselves than men who are more cautious with their male friends. Verbal communication appears especially important to women, whereas men cement their relationships with best friends through shared activities (Caldwell & Peplau, 1992). Women also seem more willing to share their weaknesses, whereas men will disclose their strengths. The sexes also differ in revealing gender specific information. Men like to share their risk-taking behavior, for example their last mountain climbing trip, or when they saved someone from drowning. Women are more likely to share concerns about their appearance (Derlega, Durham, Gockel, & Sholis, 1981). Social psychology is history so perhaps things have changed since the time of this study.

8. Romantic and loving intimacy

Reciprocal liking is the first step on the road to romance and intimacy. Some basic components are common to all love relationships, whether romantic or friendship. Hallmarks of these loving relationships include valuing the partner, showing mutual support, and experiencing mutual enjoyment (Davis, 1985). Romantic love differs from friendship or parental love by its sexual interest, by fascination with the beloved, and by expectation of exclusiveness of affection. Passionate love is deeply emotional and exciting. It is the pervading and overwhelming desire for a union with the beloved (Hatfield, 1988). When reciprocated passionate love brings with it feelings of joy and fulfillment, all life can be managed with such a relationship secured. When the partners are insecure however, passionate love can also bring jealousy and pain (Kenrick & Cialdini, 1977).

8.1 Physiological arousal or emotion of love?

We can feel intense emotional excitement in a variety of situations. The physiological reactions are similar whether you are mountain climbing or being aroused by being physically close to your beloved. The attributions we make are what make some emotions romantic. Anything that arouses us physiologically can

also create romantic feelings and more intense attractions (Dutton & Aron, 1989). From their classic experiment in which an attractive young lady approached young men as they crossed on a long suspension bridge high above the river (described in chapter 2) it would appear that the physical arousal produced by the high bridge (probably fear) increased the men's romantic responses.

Are there gender differences in experiencing romantic love? Some findings indicate that men are more likely to fall in love, and are less likely to fall out of love, or break up a premarital relationship (Peplau & Gordon, 1985). Since the experience of love is different from promiscuity this finding is not a contradiction of the male tendency in that direction. Perhaps men are more deprived of intimacy and feel the greater need?

8.2 Intimacy and love

Many people in our world long to experience the feelings of intimacy and love with another person. What is intimacy and love? We may know how it feels, yet find it difficult to understand. Loneliness comes from being disconnected from others, and from feeling misunderstood or unappreciated. Intimacy is the reverse of that coin. Intimacy is that lovely moment when someone understands and validates us (Reis, Clark, & Holmes, 2004; Reis & Shaver, 1988). We feel intimate when our partner responds and extends to us unconditional positive regard. Intimacy is felt when despite our shortcomings our partner extends full support, and when we can truly "count on the other person" being steadfast despite the trials of life.

Initially intimacy may manifest itself as a giddy feeling of joy. We feel the fascination or infatuation, but do not always understand the experience at any rational level. The process begins by sharing important feelings either verbally or non-verbally. The partner reciprocates and conveys a feeling of understanding and support (Berscheid & Reis, 1998). Communication is the key to intimacy, the more partners engage in meaningful conversation the more intimacy is experienced (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Sharing deep feelings of love and having these feelings reciprocated is the bridge over the still waters of love (Mackey, Diemer, & O'Brien, 2000).

Men and women experience intimacy in similar ways (Burleson, 2003). We all attach value and meaning to our intimate relationships. Women, however, tend to express more readily the emotions leading to intimacy (Aries, 1996). Women also

tend to be more intimate in same sex relationships than men, and place a higher value on intimate relations. Our socialization allows women greater emotional expressiveness, and they become more skilled emotional communicators compared to men. One source of relationship dissatisfaction is the discrepancy between the genders in the desire for intimate interactions.

Romantic relationship brings intimacy to a logical conclusion. When two people fall in love, trust each other, and communicate at a meaningful level of intimacy, sexual relations becomes one more expression of love. Intimacy leads to passion, and if lucky also to commitment (Sternberg, 1986). Intimacy combined with passion is romantic love. In long lasting relationships the passion may fade away. When that occurs intimacy may combine with commitment and form companionate love, or intimacy without sexual arousal.

For those who have long futures together, intimacy, passion, and commitment form what Sternberg calls consummate love, the basis of a life long relationship. The longer a relationship survives the trials of life, the more likely it is to move toward companionate love. Companionate love is based on deep feelings of affectionate attachment derived from mutual history and shared values (Carlson & Hatfield, 1992). Many couples feel disillusionment when the romantic phase moves to the next step in life. The inability to keep the romantic flame alive contributes to loss of affection and our high divorce rate. People in the US tend to focus on the personal feelings of romance, a luxury of a wealthy society. People in Asia are more concerned with the practical aspects of living together (Dion & Dion, 1991; 1993). Passionate love brings children, but to raise them requires companionate love and not mutual obsession. Companionate love is just as real as the initial passion, and is essential for the survival of families and the species.

Most people experience romantic relationships at some point in their lives. Some will say that these relationships are essential to our sense of well-being (Myers, 2000a, Myers, 2000b). Successful romantic relations contribute to life satisfaction, and to our overall condition of health (Berscheid & Reis, 1998). However, not all romantic relationships are successful. As noted earlier about 50 percent of all marriages in the western world end in divorce, perhaps half of those that remain are unhappy. We need to understand what causes such profound disillusionment (Fincham, 2003).

8.3 Disillusionment and divorce

Many relationships become bankrupt and one or both parties decide to split (Myers, 2000a, Thernstrom, 2003). There are some who feel that if the trend continues eventually two-thirds of all marriages and partnerships will end in divorce (Spanier, 1992). And what of the surviving marriages? We cannot assume that they continue because the parties are happy in their relationship! Some unhappy relationships continue for reasons of dependency or moral requirements. The divorce statistics are a tragic commentary about our inability to adjust to changing sex roles in modern society. Divorce becomes an option for many couples in modern society as women feel less economically dependent on men, and feel they have alternatives.

Many studies indicate that marriages produce less contentment than they did 30 years ago (Glenn, 1991). Conflict in marriages has caused many negative health consequences, for example cardiac illness, and negative effects on the immune system (Kiecolt-Glaser, Malarkey, Cacioppo, & Glaser, 1994). There are always victims in divorce. Children of divorced parents experience many negative outcomes in childhood as well as later in life (Wallerstein, Lewis, & Blakeslee, 2000). Ending a romantic relationship produces extreme disillusionment in couples, and ranks among life's most stressful experiences.

8.4 The role of social exchange and stressful negotiations

Why do relationships fail? We live in a world dominated by preoccupations about what is fair in relationships, is it a wonder that couples tire of the constant negotiations? Social exchange theory has helped researchers identify both destructive and constructive behaviors affecting divorce (Rusbult, 1987; Rusbult & Zembrodt, 1983). Contributing to divorce occurs when one party abuses his/her partner and threatens to leave the marriage. Other couples allow the relationship to slowly deteriorate by passively retreating and refusing to deal with issues. When both parties exhibit these destructive patterns, divorce is the typical outcome (Rusbult, Yovetich, & Verne, 1996).

8.5 Fatal attractions

One cause for divorce is what is called "fatal attractions" (Femlee, 1995). Often the qualities that first attract one to another end up being the quality most disliked. The outgoing individual attracts the shy person. However, after enduring constant social activity the shy person feels that enough is enough. Fatal attractions occur when someone is significantly different from the other person. The immature person is attracted to someone much older. Later in the marriage

when the older person is not interested in youthful activities, the age difference becomes the cause for conflict (Femlee, 1998). These findings again point to the importance of similarity in the relationship which functions not just to produce initial attraction, but also long-term contentment. Some initial attractions of the socially gifted lead to negative outcomes also labeled “fatal attractions” (Felmlee, Flynn, & Bahr, 2004). An initial attraction to a partner’s competence and drive for example, was later in the relationship perceived as alienating and as demonstrating workaholic attitudes that were destructive to the relationship. Some respondents who were initially attracted to a partner’s intelligence later were repelled by what they considered a considerable ego.

8.6 Personality differences and demography

Other research has focused on the personality of those who divorce. People who come into a relationship with negative baggage from other relationships are more likely to split. Those who are neurotic, anxious, and emotionally volatile are divorce prone (Karney & Bradbury, 1997; Kurdek, 1992). Neurotics spend much time feeling negative emotions that negatively impacts the partner and the marriage. They are also more likely to bring other types of stress to the relationship including health issues and problems (Watson & Pennebaker, 1989). Neurotic people react strongly to interpersonal conflict and therefore are less satisfied in relationships (Bolger & Schilling, 1991). If a person is overly sensitive, he or she is more likely to look for rejection and have greater difficulties in establishing or continuing intimate relationships (Downey & Feldman, 1996; Downey, Freitas, Michaelis, & Khouri, 1998).

8.7 Demographic variables and divorce

Some demographic factors are related to dissatisfaction. Generally those who have lower socioeconomic status are more likely to end marriages (Williams & Collins, 1995). Lower socioeconomic status brings stress into a marriage, including money worries and job insecurity. Marrying at a young age is related to lower socioeconomic resources (Berscheid & Reis, 1998). Sometimes the very young do not have the education needed to succeed in an increasingly competitive world. If they have no other resources they often depend on minimum wage jobs, in a constant struggle to keep their heads above water. In the US young married couples often have no insurance, poor housing, and few prospects for improvement, but this situation is different in Western Europe. Young couples often lack the maturity to cope, and a willingness to put the interests of the other

person first.

8.8 Conflict in intimate relationships

Most people do not care what mere acquaintances think of their preferences in life. Whatever acquaintances believe will have few consequences either good or bad. However, those people who are close to us can have profound effects on our goal attainment and our happiness. The frequency of interaction with intimate friends or family produces more opportunities for conflict. For example, a teenager wants to attend a party, but his parents want him to study. In intimate relationships we feel the stresses of life, and often latch out at those we should love and protect. The birth of a new child is experienced as stress by most couples, as is death in the family or other significant loss (Bradbury, Rogge, & Lawrence, 2001) but these types of stress usually does not lead to conflicts.

Most marriages experience at least occasional unpleasant disagreements (McGonagle, Kesler, & Schilling, 1992). No marriage or partnership is perfect, all relationships reflect varying interests and preferences. As couples become more interdependent, and do more things together, opportunities for conflict increase (McGonagle, Kessler, & Schilling, 1992). Intimate partners fight over a variety of issues from political and religious disagreements, to household responsibilities (Fincham, 2003).

Conflict occurs when we interfere with someone's preferences, and frustrate goal attainment. One partner thinks it is important to save for a house or children's education. The other partner wants to enjoy life now and use the money for travel. Compromises can often be found, but at times conflicting goals add to tension and disillusionment in the relationship.

Some conflicts are caused by the behaviors of the partner. Drinking to excess or using drugs are causes for conflict. Since we live in a changing world, we may also differ in our perceptions of our responsibilities and privileges in the relationship. A tradition minded man may see household chores as "woman's work", whereas an egalitarian woman may have expectations of an equal division of such tasks. Finally, conflict may also be caused by the attributions we make of the partner's behavior. Do we give the partner the benefit of the doubt, or do we attribute her/his behavior to bad intent? If the partner has difficulty in finding rewarding work do we attribute that to an unpromising work situation and general unemployment, or do we believe the partner is indifferent and lazy?

These three levels of conflict – level of integration, interference and behavior – reflect the three ways that partners are interdependent. At the behavioral level, partners may have different expectations. At the normative level the partners believe in different rules (egalitarian or traditional) for their relationship. Conflict is likely if the wife has an egalitarian perspective, but the husband is traditionally minded. At the dispositional level, conflict may be a result of the partner's disagreement over attributions for the conflictive behavior (Braiker & Kelley, 1979). Most conflicts have the potential to be harmful to marriages, but some relationships can be helped by an open discussion of disagreements and recognition of the possibility for change (Holman & Jarvis, 2003).

Conflict may also occur as a result of the blaming game. Attributions of blame are especially toxic to a relationship (Bradbury & Fincham, 1990). Dissatisfied couples blame each other for problems in the relationship. Blaming is another way of attributing negative causes to the partner's behavior. Even when the partner performs a positive act the partner may attribute it to bad intentions. Gifts of flowers may for example not be considered an act of love by the blaming partner, but as designed to serve some ulterior purpose. Dissatisfied couples make attributions that consistently cast the partner's behavior in a negative light (McNulty & Karney, 2001).

8.9 The interpersonal dynamics of unhappy couples

Studies of married partners have pointed to some significant dynamics that are powerful predictors of divorce (Levenson & Gottman 1983; Gottman & Levenson, 1992). The researchers got married couples to talk about a significant conflict in their lives and then subsequently coded the interaction for negative responses. Based on these observations the researchers identified four types of behaviors that could predict with 93 percent accuracy whether the couple would divorce (Gottman & Levenson, 2000).

The four toxic behaviors include criticism (1). Those who consistently find fault with their partners will have unhappy marriages. The tone of the criticism (2) also makes a difference. Some partners criticize in ways that belittle the other person. Others know how to criticize in a lighthearted or playful way, and the outcome can then be positive (Keltner, Young, Heerey, Oemig, & Monarch, 1998). To solve

problems in a relationship requires the ability to talk openly, and without eliciting defensiveness in the partner. Some people are so neurotic that even the slightest criticism elicits anxiety and rejection. Another dysfunctional way of dealing with conflict is to stonewall the issue (3), deny the existence of any problems, or convey the impression that the problem is unworthy of serious discussion. Conflict denial is also related to the final toxic behavior, the emotion of contempt (4). When a partner consistently looks down on the other person as inferior and expresses feelings of superiority that contempt is the ultimate expression of disillusionment and highly predictive of divorce (Gottman & Levenson, 1999).

8.10 The market economy and divorce in China

Chinese society now exhibits similar marital problems to those of long established market economies. Nationwide the divorce rate has skyrocketed 67 percent between 2000 and 2005, and is still increasing (Beech, 2006). It would appear that psychological concepts derived from the market economy have entered marital relations in China with similar consequences to those in western capitalist nations. However, this development might also been explained by an emerging courage by women to break away from traditions and demand justice and an equal say in a relationship. New terms such as “flash divorce” have emerged as it is now possible to get divorced in China in as little as 15 minutes. The divorce rate is mainly due to women’s dissatisfaction with the unfaithfulness of men. Women themselves now have more economic power and do not have to put up with relationships that doomed the happiness of their mothers and grandmothers. Economic independence has increased women’s expectations from their relationships and, when not met, disillusionment has led to dissatisfaction. The material underpinnings of this revolution are indicated by female requirements for marriage in Shanghai that now include the necessity of the man owning a car, a nice apartment, and a considerable bank account. There are those who say, “materialism is being pursued at the expense of traditional values like love” (Beach, 2006: 52). Couples have become more skeptical or cynical about the marriage relationship. According to Beach there were 441,000 fewer marriages in 2005 compared to the previous year. The difference in valuing marriage between individualistic and collectivistic cultures is broken down by the relentless march of market economy psychology resulting from globalization (Dion & Dion, 1993; Dion & Dion, 1996).

8.11 The emotional consequences of ending a relationship

A key factor in how people react to a breakup of a relationship is the role each person played in the decision (Akert, 1998). The research showed that the person who decided the breakup coped the best. The partner who decided to split generally found the ending of the relationship less sad, although even in that case there were some negative consequences reported, including higher frequency of headaches. The party who was least responsible for the decision reported more unhappiness and anger. All partners in a breakup situation reported some physical reactions within weeks. The break of deep emotional ties is extremely stressful.

The least negative consequences occur when the couple allow for mutual decision-making. It reduces somewhat the negative symptoms reported, although 60 percent still reported some negative reactions, with women suffering the most (or perhaps being more honest in reporting). Can people stay friends after a romantic breakup? It depends on gender. Men are usually not interested in continuing a relationship on a friendship basis, whereas women are more interested. Again what seems to be a key is whether the breakup is based on a mutual decision; in that case there are stronger possibilities for a continued friendship.

8.12 Forming satisfying and lasting relationships

How can we create relationships that result in happy outcomes? From the perspective of exchange theory, the focus must be on more profit in the relationship. We can increase profit by either reducing the costs of interaction, or increasing rewards to each partner (Rusbult, 1983). The more rewarding a relationship as defined by the individual the more satisfaction it produces. What constitute costs is less well understood. When the wife puts a husband through college while raising their children is that a cost or a sacrifice for a happier future (Clark & Grote, 1998)? In intimate and close relationships costs are simply the willingness to put aside egoistic interest for the sake of the relationship. As noted earlier sacrifice may be perceived as being rewarding in the long-term vision of the future life of the couple.

Since we live in market economies which encourages social comparison and affects our psychology, many partners are tempted to look at the outcomes for other couples as well as their own expectations of satisfaction when evaluating their relationship. A key to happiness is to meet the expectations we had when we married. We can always find those that are doing less well than we are on a

variety of criteria. One party may not be happy with the level of emotional intimacy in the relationship, but can point to the neighbor with an alcoholic spouse as a comparison standard (Buunk, Oldersma, & De Dreu, 2001). The satisfaction of downward comparison can be seen in the popularity of the yellow press and the scandal newspapers. Many people enjoy reading about the misfortune of the rich and famous because it makes them feel better about their own less than perfect lives.

Equity theory may also play a role in evaluating satisfaction in relationships. A balanced relationship where each partner contributes a fair share is more satisfying and happy (Cate & Lloyd, 1992). Fairness is always at the perceptual level, and so our evaluation of fairness depends on the quality of the relationship. If the partners are happy, the occasional inequity in contributions will be seen as a minor distraction. For unhappy relationships even minor discrepancies of contributions will contribute to dissatisfaction and conflict.

Cate & Lloyd (1992) also provide some practical ideas for creating lasting relationships. Marrying a little older for example, allows for better preparation and a better socioeconomic platform for marriage. Furthermore, they suggest we try to get over the infatuation stage and evaluate the prospective partners level of neuroticism and maturity because we all carry some baggage from past relationships, but some people's burdens impact negatively on intimacy. Thirdly, happiness is also somewhat dependent on getting out of the blaming game. We should give our partner the benefit of the doubt and be willing to attribute positive dispositions and intent, and reward all positive acts by word and deed. These steps may avoid the trap and cycle of misery that lead to dissolution of relationships that once promised intimacy.

8.13 Making real commitments

Commitment is discussed in the psychological literature from several perspectives. Can your partner make the commitment and is it for the long haul? There are three variables related to commitment (Rusbult, 1983). The first is the accumulation of all the rewards of the relationship. The rewarding aspects of a romantic relationship are by far the most important determinant of satisfaction (Cate, Lloyd, Henton, & Larson, 1982). The support we receive, sexual satisfactions, home security, adventure and novelty, are all-important rewards that contribute to lasting relationships.

The second variable concerns the temptations of alternative partners. This may decrease commitment. The fewer alternatives that are present the less likely that the relationship will flounder (White & Booth, 1991). When the partners are young there are more temptations and more alternatives, but as time passes there are fewer alternatives. If you see your relationship as the only one possible, and if the feeling is mutual, the relationship will be more satisfying and lasting. Finally, the investments we have made may determine commitment. If we have invested a great deal in our mutual history, children, home, common religion, we are likely to stay within the relationship. More committed relationships produce more interdependent lives where the focus is on the unit and not the individual (Agnew, Van Lange, Rusbult, & Langston, 1998). The more committed can more easily adjust to demands and stresses of life such as the arrival of a new child. Commitment also encourages forgiveness, the feeling that one should never let the sun set on a bad argument (Finkel, Rusbult, Kumashiro, & Hannon, 2002).

8.14 The moral commitment

The foregoing emphasizes the social psychological factors that encourage commitment. For many in permanent relationships, commitment refers to basic integrity. From a moral perspective when you commit to another person your word should mean something, and support for your partner is for the better or worse of life. For some, moral commitment is a social obligation. It is the right thing to do for the marriage and the family. That does not imply that a relationship built on such commitment is loveless, on the contrary moral commitment may allow greater security and happiness. For some couples, commitment is also reinforced by religious beliefs. They believe that marriage is a religious duty not to be taken lightly. Marriage for some is an existential commitment; there are some things in life that are meant to last in an ever-changing world.

8.15 The positive view of life and the beloved

Much research points to the negative effects of having children on the happiness of marriage partners (Myers, 2000a). The arrival of children creates new conditions as children demand the focus of parents, and the relationship suffers. Partners often fail to return to the pre-child happiness until they are again alone after their children leave home. However, those who fight for their intimacy find it rewarding (Aron, Norman, Aron, McKenna, & Heyman, 2000). The key to marital happiness is to overcome boredom by finding new and exciting things to

do as a couple. We all have needs for rootedness, but also for new and novel experiences. Those couples that build occasional excitement into their relationship feel more satisfied (Gable, Reis, Impett, & Asher, 2004). However, it takes an effort to do something new and different, and fighting for intimacy is a life long struggle. What novel activities couples can bring into their lives depends on many factors including socioeconomic variables and age. In the end it may be the effort toward renewal that wins over our partners and keeps the flame of intimacy alive. Rewards, pleasure and novelty are the keys to long-lasting romance and satisfaction with love and life.

8.16 Idealizations, positive illusions, and commitment

Romantic partners who feel “totally” in love manifest unrealistic, but delightful illusions about their partner’s behaviors and qualities. In chapter 2 we discussed positive illusions and mental health. Do such positive illusions also contribute to satisfaction and enduring relationships? There is much to support that contention. Partners who have positive illusions can think of nothing negative about the beloved. With powerful positive illusions dominating our perceptions, we experience the behaviors of our partner as rewarding and feel stronger commitment to the relationship. Murray (1999) suggested that satisfaction, and stability of a relationship depended on overstating the positive qualities of the partner. Those in love look at the behavior and reactions of the partner in the most positive way, consistently giving the partner any benefit of doubt, or not allowing doubt in the first place. The idealization of romantic partners is an essential component in satisfaction of intimate relationships (Murray & Holmes, 1993; 1997; Neff & Karney, 2002).

With positive illusions we overestimate what is good and underestimate the negative. Remember the results of reciprocal liking! In a similar way, idealizing the partner produces mutual liking and more relationship satisfaction. Even when asked about the partner’s greatest fault (Murray & Holmes, 1999), romantic participants were likely to refuse to accept the presence of any fault or turn it into a virtue. For example, if the partner was not ambitious, he was still a wonderful husband who helped around the house. If the partner did not express emotions, well it was because he felt so deeply, and expressed his feelings in other ways. So even the partner’s emotions were idealized (Hawkins, Carrere, & Gottman, 2002). In a study where the partner rated how much positive affect was expressed in a discussion on conflict, satisfied romantic partners overestimated the positive

expressions of their partners when compared to neutral judge's perceptions. In general, romantic couples that are happy see the interactions of their partner in a continuous positive way. There seems to be no substitute for happiness in couples, and it is as if a romantic partner can do no wrong. Having these positive illusions contributes to lasting relationships.

Even though half of all marriages in the US end in divorce, romantic illusions lead to the belief that one's own marriage will succeed. Most people are unrealistic on probability grounds, and think there is little or no chance for divorce in their future (Fowers, Lyons, Montel, & Shakel, 2001). We can also see positive illusions at work when participants were asked about the quality of their relationships and these outcomes are compared to ratings of those who knew them well, such as parents and roommates. The participants were primarily positive and saw fewer obstacles to success than did those who were intimate observers. The observers were more evenhanded and saw both the strengths as well as the problems in the relationship.

Positive illusions are aided by our faulty memory. Many people believe their relationship is getting better all the time (Frye & Karney, 2004). For example although women's satisfactions declined in a longitudinal study, the participants expressed beliefs that their current relationship was better than ever (Karney & Coombs, 2000). It is of course very useful to longevity of relationships that we do not remember the bad times or believe those days were better than was actually the case. It is helpful to long-lasting marriages that couples see an unbroken path to an ever improving and more intimate relationship. The relationship bias is found in American, European and Asian cultures (Endo, Heine, & Lehman, 2000). Participants consistently rated their own relationships better when compared to those of the "average" students. These results together demonstrate the functional utility of unconditional positive regard. If we want to be successful in love, we must really love the beloved!

Summary

This essay covered the most significant relationships of human life from the initial attachments to long lasting commitments. We introduced evolutionary psychology in an attempt to understand the initial attachments of infants present in all societies and cultures. The examples of feral children in the literature and the absence of discernable human traits in these children support the idea that human traits are forged in the interaction with significant others. There is also

much to suggest that early attachment forms the basis for later relationships. The inference from Harlow's studies is that social isolation is traumatic and results in abnormal development and adult personality. Humans have an even longer dependency period than the monkeys studied by Harlow, and need nurturing to survive. The bonding that occurs initially with the mother becomes the basis of all other bonding relationships.

If the need to belong is a biological drive, is that expressed in the universality of the mother-child relationship and romantic love? If the need to relate to other people is a biological drive, the need to belong should be satiable. When not sufficient the individual will reach out to establish new relationships; however, when sufficient there is no longer a motive to do so. Our relationships are essential to our sense of well-being and happiness. Those people who are deprived of supportive relations largely live unhappy lives, and isolation has negative consequences for health. Our relationship history defines largely who we are and the attributions we make.

The role of biology can be observed in the preferences of the two genders for qualities in the opposite sex. In all cultures women prefer men with material resources, and men prefer youth and beauty. Perhaps this finding could reflect the relative size differences between the two genders and the historical control of males over economic resources. On the other hand the evolutionary perspective suggests that these differences have a reproductive cause. There is no resolution of these varying interpretations, but the gender differences exist.

The experience of loneliness has many negative consequences. People may have an optimal number of relationships and still feel lonely. Perhaps the relationships are not satisfying some basic emotional needs for intimacy. We do know that those who live rich emotional lives are less dependent on others for satisfying emotional needs. There are those who are chronically lonely. Often that is related to the mobility and temporary nature of relationships due to movement, death, and life changes. Demographic variables may also play a role as the poor struggle with many forms of insecurity and have less time for relationships. Youth is a time of special danger of loneliness as biology demands attachments especially in this stage of life.

The initial attachment is with the mother; later in normal development attachment is expanded to include the father, other family members and friends.

The caregiver's own sense of security and warmth is of signal importance to the infant's attachment style. If the infant is secure and feels the human warmth of its mother, a similar pattern can be expected in adult attachments. The infant attachment style is stable over the individual's lifetime, and those who were emotionally secure as infants will find it easier to develop similar healthy relationships as adults. Traumatic life events may also affect our ability to establish and maintain secure relationships. The death of a parent or divorce may produce lasting insecurity in the child. Secure attachments bring many benefits to the individual. Secure individuals bring out the best in others as they generally look for the positive even for negative behavior. Consequently there are fewer health problems and divorce among those who possess a basic sense of security.

Cultures produce somewhat different relationships and expectations. Some cultures are communal and put the interests of the family ahead of that of the individual. In these cultures resource distribution depend on the need of the family member at least as perceived by controlling heads of families. In individualist cultures the rights and needs of the individual is primary, and people generally look after number one or themselves. Some societies are authoritarian like the military, and emphasize status and the established hierarchy. In modern society in which individualistic culture dominates we see more emphasis on equality in resource distribution and outcomes. The question that couples seek to answer is, is the relationship fair.

Relational self-theory is based on the idea that prior relationships provide the framework for understanding our current attitudes and behaviors. If your current lover, boss or other significant person remind you of someone previously significant in your life, you may transfer the feeling you had from that previously significant person to the current relationship. Those who remind us of a positive relationship will have positive feelings transferred to the current relationship. Our past relationships may affect us at the automatic level and we may remain unaware of how these previous relationships affect our current thinking. Previous relationships form the basis of memories and social cognition. We also include family and close friends in our attributional biases, believing that the success of our beloved is due to personal dispositions, whereas failure in those close to us is thought to be caused by unfavorable environmental factors.

Liking someone is the start of relationships. In all its simplicity, we like those who are rewarding to us and we dislike those who are a burden. The literature

supports the importance of some antecedents to liking; these include propinquity, similarity, and physical attraction. We tend to like those who live near us because propinquity provides the opportunity to meet, and repeated exposure creates feelings of familiarity. This is an optimistic finding from social psychology that suggests that many relationships are possible in a person's life given the opportunity. The mere exposure effect supports the idea that repeated exposure leads to liking as exposure creates feelings of safety and security. Proximity may mask another variable important to liking relationships, that of similarity, as we often live in social environments where people share common values, or other characteristics. Also long distance relationships are more difficult to maintain and therefore more costly. Similarity is a powerful variable in liking relationships. We marry those who are similar to us in social class, religion and values. The more similar we are to someone, the more we like the other person. Dating services are based on the idea that a good match is with someone who is similar in values, attitudes, and even physical appearance. The reason similarity is central to liking relationships is that it provides a common platform for understanding the other person and therefore promotes intimacy and trust. Of course it is also reassuring to have our values confirmed by another person. Again, the similarity may be caused by selectivity of the social environment which produces shared experiences and therefore bonding. Those who come from the same culture would have a large set of experiences and values in common not present to outsiders.

Nothing can beat reciprocal liking in eliciting positive feelings; we like those who like us. Reciprocal liking is even more powerful than similarity in producing liking toward someone. Personal traits are also important. The research supports the significance of personal warmth and competence in producing liking in most people. Most members of the sexes are attracted to the opposite sex. Do opposites attract? It seems that opposite attraction holds only for the sexual relationship. Only a few complementary personality traits affect attraction. Although society is moving toward more tolerance on different ethnic relationships, these changing attitudes may only reflect changing norms and may not hold for the individual's own family.

Physical attractiveness is a powerful antecedent to liking. There is in fact little difference between the genders, both like the physically attractive member of the opposite sex. It seems that physical attractiveness is the single most important variable in eliciting sexual desire and arousal. There are some gender differences.

Women place greater importance on economic security and stability when considering marriage. They will therefore marry a less desirable male, or an older male, who possesses material resources. Evolutionary psychology would say that these gender differences exist for reproductive reasons. To form family, women must have stable partners. However, as society advances toward economic equality, both sexes place more importance on physical attractiveness.

The physically attractive have many social advantages. All societies subscribe to the “beautiful is good” norm. One consequence is the attribution of positive traits like competence to the physically attractive. It is no wonder they also experience more socio-economic success. Culture determines somewhat the features that are considered attractive. However, there are also universal traits considered attractive in all cultures. Faces that signal reproductive fitness and health are considered attractive in all societies. This lends support to the evolutionary perspective. Faces that typify the norm, and express bilateral symmetry also have universal appeal. From an evolutionary perspective these faces signal reproductive fitness.

In today's world the market place economy dominates in all aspects of culture and interpersonal interactions. Interpersonal attraction is also dominated by market ideas. The theories of interpersonal attraction emerged in western capitalist societies and reflect therefore common social ideas of rewards, costs, and fairness. Social exchange theory states that relationship liking depends on outcomes that is defined as the rewards minus the costs of a relationship. The theory suggests that relationships have rewards, but also costs and the rewards must be larger for the relationship to be lasting and satisfying. Our satisfaction may also to some degree depend on past relationships that serve as a comparison level. Equity theory states that contentment depends on equity, the give and take in a relationship. Essentially equality and fairness is what governs relationship satisfaction from this perspective. In modern times this perspective in intimate relations leads to tiresome negotiations, issues perhaps better solved by consensus about division of responsibilities.

Theories of interpersonal attraction seem more valid for functional relationships one might find at work or school. Western-based societies are more based on exchange, equity and market economies, whereas societies in Asia are more communally based. In communal relations the outcome for the individual depends on need. Also in close relationships, topics dealing with emotional support and

satisfaction are relevant, and altruistic behaviors are expected.

Relationship satisfaction depends also on other factors. First of all the level of investment in the relationship in terms of children, common history, and economic achievements may affect stability. Secondly, what is the level of commitment, and do the partners have alternatives and other prospects? In all these cases, intimate relationships are dominated by the long view, and not just the immediate reward. Thirdly, self-disclosure is an essential factor in building trust and intimate relations. When self-disclosure is reciprocated, such behavior leads to intimacy. Self-disclosure is perhaps more important in individualist societies, as in collectivist societies couples are more inhibited. Women disclose more within same sex relationships, and men are more cautious. Men are more likely to share risk-taking experiences, whereas women will share concerns about appearance.

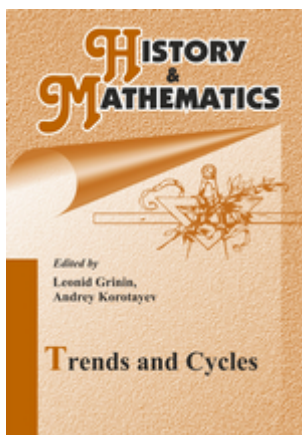
Romantic love differs from friendship by its emphasis on sexual interest, by the fascination and infatuation with the partner, and the exclusiveness of the relationship. Such relationships are emotional and exciting. Men and women experience intimacy in similar ways, but women are more likely to express the feelings that lead to intimacy. Romantic love can be defined as intimacy combined with passionate feelings. When couples also feel commitment there is the basis for lasting relationships. Having a successful romantic relationship is basic to feelings of well-being and health.

However, we can observe by the reported divorce statistics that all is not well in marriages. This discontentment appears a tragic commentary on our inability to adjust to changing gender roles as society moves toward more equality. Central to many relationship failures is a preoccupation with fairness and endless negations requiring change in partners. Personality also matters in discontentment. The neurotic individual's preoccupation with negative emotions kills intimate relations. The neurotics bad past experiences influence current expectations, and cause the neurotic to act with strong emotion to any conflict. Stress as represented by socio-economic factors may produce discontentment. The poor are struggling with many forms of insecurity and have little time for intimate relations. Likewise the young are at risk for divorce as lacking the maturity, and struggling with many stresses.

Conflict in relationships comes furthermore about when we interfere with a

person's preferences, or frustrate important goals. The behavior of the partner may also have an effect. Drug abuse for example kills the possibility of intimate relations. Attributional blame is also toxic, along with endless criticisms, denying the existence of problems, and displaying the emotion of contempt toward the partner. Breaking emotional ties is extremely painful. The party that is least responsible suffers more unhappiness. What can be done? If we believe in social exchange and equity, we can increase rewards and seek to develop more fairness in the relationship. Presumably the more rewarding and fair our relationship, the more happy. We can also just love more.

Biosocial Evolution, Ecological Aspects, And Consciousness ~ Modeling Of Biological And Social Phases Of Big History



Abstract

In the first part of this article we survey general similarities and differences between biological and social macroevolution. In the second (and main) part, we consider a concrete mathematical model capable of describing important features of both biological and social macroevolution. In mathematical models of historical macrodynamics, a hyperbolic pattern of world population growth arises from non-linear, second-order positive feedback between demographic growth and technological development. Based on diverse paleontological data and an analogy with macrosociological models, we suggest that the hyperbolic character of biodiversity growth can be similarly accounted for by non-linear, second-order positive feedback between diversity growth and the complexity of community structure. We discuss how such positive feedback mechanisms can be modelled mathematically. ~ *This research has been*

supported by the Russian Science Foundation (Project No 14-11-00634).

Keywords: *social evolution, biological evolution, mathematical model, biodiversity, population growth, positive feedback, hyperbolic growth.*

Introduction

The present article represents an attempt to move further in our research on the similarities and differences between social and biological evolution (see Grinin, Markov, and Korotayev 2008, 2009a, 2009b, 2011, 2012). We have endeavored to make a systematic comparison between biological and social evolution at different levels of analysis and in various aspects. We have formulated a considerable number of general principles and rules of evolution, and worked to develop a common terminology to describe some key processes in biological and social evolution. In particular, we have introduced the notion of ‘social aromorphosis’ to describe the process of widely diffused social innovation that enhances the complexity, adaptability, integrity, and interconnectedness of a society or social system (Grinin, Markov, and Korotayev 2008, 2009a, 2009b). This work has convinced us that it might be possible to find mathematical models that can describe important features of both biological and social macroevolution. In the first part of this article we survey general similarities and differences between the two types of macroevolution. In the second (and main) part, we consider a concrete mathematical model that we deem capable of describing important features of both biological and social macroevolution.

The comparison of biological and social evolution is an important but (unfortunately) understudied subject. Students of culture still vigorously debate the applicability of Darwinian evolutionary theory to social/cultural evolution. Unfortunately, the result is largely a polarization of views. On the one hand, there is a total rejection of Darwin’s theory of social evolution (see, *e.g.*, Hallpike 1986). On the other hand, there are arguments that cultural evolution demonstrates all of the key characteristics of Darwinian evolution (Mesoudi *et al.* 2006).

We believe that, instead of following the outdated objectivist principle of ‘either – or’, we should concentrate on the search for methods that could allow us to apply the achievements of evolutionary biology to understanding social evolution and *vice versa*. In other words, we should search for productive generalizations and analogies for the analysis of evolutionary mechanisms in both contexts. The Universal Evolution approach aims for the inclusion of all mega-evolution within a

single paradigm (discussed in Grinin, Carneiro, *et al.* 2011). Thus, this approach provides an effective means by which to address the above-mentioned task.

It is not only systems that evolve, but also mechanisms of evolution (see Grinin, Markov, and Korotayev 2008). Each sequential phase of macroevolution is accompanied by the emergence of new evolutionary mechanisms. Certain prerequisites and preadaptations can, therefore, be detected within the previous phase, and the development of new mechanisms does not invalidate the evolutionary mechanisms that were active during earlier phases. As a result, one can observe the emergence of a complex system of interaction composed of the forces and mechanisms that work together to shape the evolution of new forms.

Biological organisms operate in the framework of certain physical, chemical and geological laws. Likewise, the behaviors of social systems and people have certain biological limitations (naturally, in addition to various social-structural, historical, and infrastructural limitations). From the standpoint of Universal Evolution, new forms of evolution that determine phase transitions may result from activities going in different directions. Some forms that are similar in principle may emerge at breakthrough points, but may also result in evolutionary dead-ends. For example, social forms of life emerged among many biological phyla and classes, including bacteria, insects, birds, and mammals. Among insects, in particular, one finds rather highly developed forms of socialization (see, *e.g.*, Robson and Traniello 2002; Ryabko and Reznikova 2009; Reznikova 2011). Yet, despite the seemingly common trajectory and interrelation of social behaviors among these various life forms, the impacts that each have had on the Earth are remarkably different.

Further, regarding information transmission mechanisms, it appears possible to speak about certain 'evolutionary freaks'. Some of these mechanisms were relatively widespread in the biological evolution of simple organisms, but later became less so. Consider, for example, the horizontal exchange of genetic information (genes) among microorganisms, which makes many useful genetic 'inventions' available in a sort of 'commons' for microbe communities. Among bacteria, the horizontal transmission of genes contributes to the rapid development of antibiotic resistance (*e.g.*, Markov and Naymark 2009). By contrast, this mechanism of information transmission became obsolete or was transformed into highly specialized mechanisms (*e.g.*, sexual reproduction) in the

evolution of more complex organisms. Today, horizontal transmission is mostly confined to the simplest forms of life.

These examples suggest that an analysis of the similarities and differences between the mechanisms of biological and social evolution may help us to understand the general principles of megaevolution[\[1\]](#) in a much fuller way. These similarities and differences may also reveal the driving forces and supra-phase mechanisms (*i.e.*, mechanisms that operate in two or more phases) of megaevolution. One of our previous articles was devoted to the analysis of one such mechanism: *aromorphosis*, the process of widely diffused social innovation that enhances the complexity, adaptability, integrity, and interconnectedness of a society or social system (Grinin, Markov, and Korotayev 2011; see also Grinin and Korotayev 2008, 2009a, 2009b; Grinin, Markov, and Korotayev 2009a, 2009b).

It is important to carefully compare the two types of macroevolution (*i.e.*, biological and social) at various levels and in various aspects. This is necessary because such comparisons often tend to be incomplete and deformed by conceptual extremes. These limitations are evident, for example, in the above-referenced paper by Mesoudi *et al.* (2006), which attempts to apply a Darwinian method to the study of social evolution. Unfortunately, a failure to recognize or accept important differences between biological and social evolution reduces the overall value of the method that these authors propose. Christopher Hallpike's rather thorough monograph, *Principles of Social Evolution* (1986), provides another illustration of these limitations. Here, Hallpike offers a fairly complete analysis of the similarities and differences between social and biological organisms, but does not provide a clear and systematic comparison between social and biological evolution. In what follows, we hope to avoid similar pitfalls.

Biological and Social Evolution: A Comparison at Various Levels

There are a few important differences between biological and social macroevolution. Nonetheless, it is possible to identify a number of fundamental similarities, including at least three basic sets of shared factors. First, we are discussing very complex, non-equilibrium, but stable systems whose function and evolution can be described by General Systems Theory, as well as by a number of cybernetic principles and laws. Second, we are not dealing with isolated systems, but with the complex interactions between organisms and their external environments. As a result, the reactions of systems to 'external' challenges can be described in terms of general principles that express themselves within

a biological reality and a social reality. Third (and finally), a direct 'genetic' link exists between the two types of macroevolution and their mutual influence.

We believe that the laws and forces driving the biological and social phases of Big History can be comprehended more effectively if we apply the concept of biological and social aromorphosis (Grinin, Markov, and Korotayev 2011). There are some important similarities between the evolutionary algorithms of biological and social aromorphoses. Thus, it has been noticed that the basis of biological aromorphosis is usually formed by some partial evolutionary change that... creates significant advantages for an organism, puts it in more favorable conditions for reproduction, multiplies its numbers and its changeability..., thus accelerating the speed of its further evolution. In those favorable conditions, the total restructurization of the whole organization takes place afterwards (Shmal'gauzen 1969: 410; see also Severtsov 1987: 64-76).

During the course of adaptive radiation, such changes in organization diffuse more or less widely (frequently with significant variations).

A similar pattern is observed within social macroevolution. An example is the invention and diffusion of iron metallurgy. Iron production was practiced sporadically in the 3rd millennium BCE, but regular production of low-grade steel did not begin until the mid-2nd millennium BCE in Asia Minor (see, *e.g.*, Chubarov 1991: 109). At this point, the Hittite kingdom guarded its monopoly over the new technology. The diffusion of iron technology led to revolutionary changes in different spheres of life, including a significant advancement in plough agriculture and, consequently, in the agrarian system as a whole (Grinin and Korotayev 2006); an intensive development of crafts; an increase in urbanism; the formation of new types of militaries, armed with relatively cheap but effective iron weapons; and the emergence of significantly more developed systems of taxation, as well as information collection and processing systems, that were necessary to support these armies (*e.g.*, Grinin and Korotayev 2007a, 2007b). Ironically, by introducing cheaply made weapons and other tools into the hands of people who might resist the Hittite state, this aromorphosis not only supported the growth of that kingdom, it also laid the groundwork for historical phase shifts.

Considering such cases through the lens of aromorphosis has helped us to detect a number of regularities and rules that appear to be common to biological and

social evolution (Grinin, Markov, and Korotayev 2011). Such rules and regularities (*e.g.*, payment for arogenic progress, special conditions for the emergence of aromorphosis, *etc.*) are similar for both biological and social macroevolution. It is important to emphasize, however, that similarity between the two types of macroevolution does not imply commonality. Rather, significant similarities are frequently accompanied by enormous differences. For example, the genomes of chimpanzees and the humans are 98 per cent similar, yet there are enormous intellectual and social differences between chimpanzees and humans that arise from the apparently ‘insignificant’ variations between the two genomes (see Markov and Naymark 2009).

Despite its aforementioned limitations, it appears reasonable to continue the comparison between the two types of macroevolution following the analysis offered by Hallpike (1986). Therefore, it may prove useful to revisit the pertinent observations of this analysis here. Table 1 summarizes the similarities and differences that Hallpike (*Ibid.*: 33–34) finds between social and biological *organisms*.

While we do not entirely agree with all of his observations – for example, the establishment of colonies could be seen as a kind of social reproduction akin to organic reproduction – we do feel that Hallpike comes to a sound conclusion: that similarities between social and biological organisms are, in general, determined by similarities in organization and structure (we would say similarities between different types of systems). As a result, Hallpike believes that one can use certain analogies in which institutions are similar to some organs. In this way, cells may be regarded as similar to individuals, central government similar to the brain, and so on. Examples of this kind of thinking can be found in the classic texts of social theory (see, *e.g.*, Spencer 1898 and Durkheim 1991 [1893]), as well as in more recent work (see, *e.g.*, Heylighen 2011).

Table 1. Similarities and differences between social and biological organisms, as described by Hallpike (1986)

Similarities	Differences
Social institutions are interrelated in a manner analogous to the organs of the body.	Individual societies do not have clear boundaries. For example, two societies may be distinct politically, but not culturally or religiously.
Despite changes in membership, social institutions maintain continuity, as do biological organs when individual cells are replaced.	Unlike organic cells, the individuals within a society have agency and are capable of learning from experience.
The social division of labor is analogous to the specialization of organic functions.	Social structure and function are far less closely related than in organic structure and function.
Self-maintenance and feedback processes characterize both kinds of system.	Societies do not reproduce. Cultural transmission between generations cannot be distinguished from the processes of system maintenance.
Adaptive responses to the physical environment characterize both kinds of system.	Societies are more mutable than organisms, displaying a capacity for metamorphosis only seen in organic phylogeny.
The trade, communication, and other transmission processes that characterize social systems are analogous to the processes that transmit matter, energy, and information in biological organisms.	Societies are not physical entities, rather their individual members are linked by information bonds.

When comparing biological *species* and societies, Hallpike (1986: 34) singles out the following similarities:

- (1) that, like societies, species do not reproduce;
- (2) that both have phylogenies reflecting change over time; and
- (3) that both are made up of individuals who compete against one another.

Importantly, he also indicates the following *difference*: '[S]ocieties are organized systems, whereas species are simply collections of individual organisms' (Hallpike 1986: 34).

Hallpike tries to demonstrate that, because of the differences between biological and social organisms, the very idea of natural selection does not appear to apply to social evolution. However, we do not find his proofs very convincing on this account, although they do make sense in certain respects. Further, his analysis is confined mainly to the level of the individual organism and the individual society. He rarely considers interactions at the supra-organism level (though he does, of course, discuss the evolution of species). His desire to demonstrate the sterility of Darwinian theory to discussions of social evolution notwithstanding, it seems that Hallpike involuntarily highlights the similarity between biological and social evolution. As he, himself, admits, the analogy between the biological organism and society is quite noteworthy.

Just as he fails to discuss interactions and developments at the level of the supra-organism in great detail, Hallpike does not take into account the point in social evolution where new supra-societal developments emerge (up to the level of the emergence of the World System [*e.g.*, Korotayev 2005, 2007, 2008, 2012; Grinin

and Korotayev 2009b]). We contend that it is very important to consider not only evolution at the level of a society but also at the level above individual societies, as well as the point at which both levels are interconnected. The supra-organism level is very important to understanding biological evolution, though the differences between organisms and societies make the importance of this supra-level to understanding social evolution unclear. Thus, it might be more productive to compare societies with ecosystems rather than with organisms or species. However, this would demand the development of special methods, as it would be necessary to consider the society not as a social organism, but as a part of a wider system, which includes the natural and social environment (*cf.*, Lekevičius 2009, 2011).

In our own analysis, we seek to build on the observations of Hallpike while, at the same time, providing a bit more nuance and different scales of analysis. Viewing each as a process involving selection (natural, social, or both), we identify the differences between social and biological evolution at the level of the individual biological organism and individual society, as well as at the supra-organismic and supra-societal level.

Natural and Social Selection

Biological evolution is more additive (cumulative) than substitutive. Put another way: the new is added to the old. By contrast, social evolution (especially over the two recent centuries) is more substitutive than additive: the new replaces the old (Grinin, Markov, and Korotayev 2008, 2011).

Further, the mechanisms that control the emergence, fixation, and diffusion of evolutionary breakthroughs (aromorphoses) differ between biological and social evolution. These differences lead to long-term restructuring in the size and complexity of social organisms. Unlike biological evolution, where some growth of complexity is also observed, social reorganization becomes continuous. In recent decades, societies that do not experience a constant and significant evolution look inadequate and risk extinction.

In addition, the size of societies (and systems of societies) tends to grow constantly through more and more tightly integrative links (this trend has become especially salient in recent millennia), whereas the trend towards increase in the size of biological organisms in nature is rather limited and far from general. At another level of analysis, one can observe the formation of special suprasocietal

systems that also tend to grow in size. This is one of the results of social evolution and serves as a method of aromorphosis fixation and diffusion.

The Individual Biological Organism and the Individual Society

It is very important to note that, although biological and social organisms are significantly (actually 'systemically') similar, they are radically different in their capacities to evolve. For example, as indicated by Hallpike (see above), societies are capable of rapid evolutionary metamorphoses that were not observed in the pre-human organic world. In biological evolution, the characteristics acquired by an individual are not inherited by its offspring; thus, they do not influence the very slow process of change.

There are critical differences in how biological and social information are transmitted during the process of evolution. Social systems are not only capable of rapid transformation, they are also able to borrow innovations and new elements from other societies. Social systems may also be transformed consciously and with a certain purpose. Such characteristics are absent in natural biological evolution.

The biological organism does not evolve by itself: evolution may only take place at a higher level (*e.g.*, population, species, *etc.*). By contrast, social evolution can often be traced at the level of the individual social organism (*i.e.*, society). Moreover, it is frequently possible to trace the evolution of particular institutions and subsystems within a social organism. In the process of social evolution the same social organism or institution may experience radical transformation more than once.

The Supra-organic and Supra-societal Level

Given the above-mentioned differences, within the process of social evolution we observe the formation of two types of special supra-societal entity:

(1) amalgamations of societies with varieties of complexity that have analogues in biological evolution, and (2) elements and systems that do not belong to any particular society and lack many analogues in biological evolution.

The first type of amalgamation is rather typical, not only in social but also in biological evolution. There is, however, a major difference between the two kinds of evolution. Any large society usually consists of a whole hierarchy of social systems. For example, a typical agrarian empire might include nuclear families,

extended families, clan communities, village communities, primary districts, secondary districts, and provinces, each operating with their own rules of interaction but at the same time interconnected. This kind of supra-societal amalgamation can hardly be compared with a single biological organism (though both systems can still be compared functionally, as is correctly noted by Hallpike [1986]). Within biological evolution, amalgamations of organisms with more than one level of organization (as found in a pack or herd) are usually very unstable and are especially unstable among highly organized animals. Of course, analogues do exist within the communities of some social animals (*e.g.*, social insects, primates). Neither should we forget that scale is important: while we might compare a society with an individual biological organism, we must also consider groups of organisms bound by cooperative relationships (see, *e.g.*, Boyd and Richerson 1996; Reeve and Hölldobler 2007). Such groups are quite common among bacteria and even among viruses. These caveats aside, it remains the case that within social evolution, one observes the emergence of more and more levels: from groups of small sociums to humankind as a whole.

The multiplication of these levels rapidly produces the second kind of amalgamation. It is clear that the level of analysis is very important for comparison of biological and social evolution. Which systems should be compared? Analogues appear to be more frequent when a society (a social organism) is compared to a biological organism or species. However, in many cases, it may turn out to be more productive to compare societies with other levels of the biota's systemic organization. This might entail comparisons with populations, ecosystems and communities; with particular structural elements or blocks of communities (*e.g.*, with particular fragments of trophic networks or with particular symbiotic complexes); with colonies; or with groups of highly organized animals (*e.g.*, cetaceans, primates, and other social mammals or termites, ants, bees and other social insects).

Thus, here we confront a rather complex and rarely studied methodological problem: which levels of biological and social process are most congruent? What are the levels whose comparison could produce the most interesting results? In general, it seems clear that such an approach should not be a mechanical equation of 'social organism = biological organism' at all times and in every situation. The comparisons should be operational and instrumental. This means that we should choose the scale and level of social and biological phenomena,

forms, and processes that are adequate for and appropriate to our intended comparisons.

Again, it is sometimes more appropriate to compare a society with an individual biological organism, whereas in other cases it could well be more appropriate to compare the society with a community, a colony, a population, or a species. At yet another scale, as we will see below, in some cases it appears rather fruitful to compare the evolution of the biosphere with the evolution of the anthroposphere.

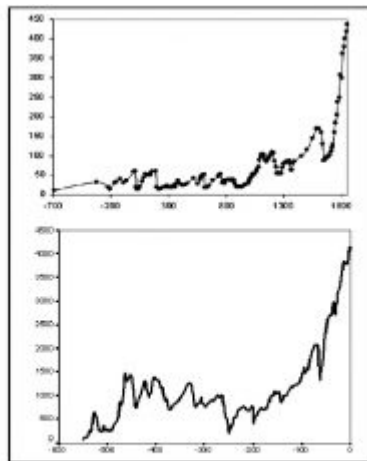


Fig. 1. Similarity between the long-term population dynamics of China (top: millions of people, following Korotayev, Malkov, et al. 2005b: 47–68) and the dynamics of Phanerozoic marine biodiversity (bottom: number of genera, N , following Markov and Korotayev 2007)

Mathematical Modeling of Biological and Social Macroevolution

The authors of this article met for the first time in 2005, in the town of Dubna (near Moscow), at what seems to have been the first ever international conference dedicated specifically to Big History studies. Without advance knowledge of one another, we found ourselves in a single session. During the course of the session, we presented two different

diagrams. One illustrated population dynamics in China between 700 BCE and 1851 CE, the other illustrated the dynamics of marine Phanerozoic biodiversity over the past 542 million years (Fig. 1).

The similarity between the two diagrams was striking. This, despite the fact that they depicted the development of very different systems (human population vs. biota) at different time scales (hundreds of years vs. millions of years), and had been generated using the methods of different sciences (historical demography vs. paleontology) with different sources (demographic estimates vs. paleontological data). What could have caused similarity of developmental dynamics in very different systems?

* * *

In 1960, von Foerster *et al.* published a striking discovery in the journal *Science*. They showed that between 1 and 1958 CE, the world's population (N) dynamics could be described in an extremely accurate way with an astonishingly simple equation:[\[2\]](#)

$$N_t = \frac{C}{(t_0 - t)} \quad (\text{Eq. 1})$$

where N_t is the world population at time t , and C and t_0 are constants, with t_0 corresponding to an absolute limit ('singularity' point) at which N would become infinite. Parameter t_0 was estimated by von Foerster and his colleagues as 2026.87, which corresponds to November 13, 2026; this made it possible for them to supply their article with a title that was a public-relations masterpiece: 'Doomsday: Friday, 13 November, A.D. 2026'.

Of course, von Foerster and his colleagues did not imply that the world population on that day could actually become infinite. The real implication was that the world population growth pattern that operated for many centuries prior to 1960 was about to end and be transformed into a radically different pattern. This prediction began to be fulfilled only a few years after the 'Doomsday' paper was published as World System growth (and world population growth in particular) began to diverge more and more from the previous blow-up regime. Now no longer hyperbolic, the world population growth pattern is closer to a logistic one (see, *e.g.*, Korotayev, Malkov *et al.* 2006a; Korotayev 2009).

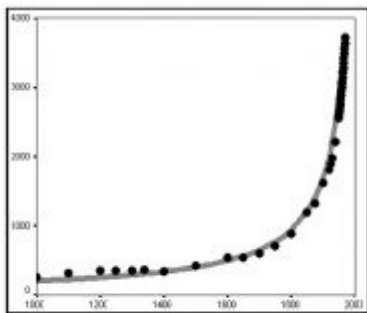


Fig. 2. Correlation between empirical estimates of world population (black, in millions of people, 1000–1970) and the curve generated by von Foerster *et al.*'s equation (grey)

Fig. 2 presents the overall correlation between the curve generated by von Foerster *et al.*'s equation and the most detailed series of empirical estimates of world population (McEvedy and Jones 1978, for the period 1000–1950; U.S. Bureau of the Census 2013, for 1950–1970). The formal characteristics

are:

$R = 0.998$; $R^2 = 0.996$; $p = 9.4 \times 10^{-17} \approx 1 \times 10^{-16}$. For readers unfamiliar with mathematical statistics: R^2 can be regarded as a measure of the fit between the dynamics generated by a mathematical model and the empirically observed situation, and can be interpreted as the proportion of the variation accounted for

by the respective equation. Note that 0.996 also can be expressed as 99.6 per cent.^[3] Thus, von Foerster *et al.*'s equation accounts for an astonishing 99.6 per cent of all the macrovariation in world population, from 1000 CE through 1970, as estimated by McEvedy and Jones (1978) and the U.S. Bureau of the Census (2013).^[4] Note also that the empirical estimates of world population find themselves aligned in an extremely neat way along the hyperbolic curve, which convincingly justifies the designation of the pre-1970s world population growth pattern as 'hyperbolic'.

The von Foerster *et al.*'s equation, , is the solution for the following differential equation (see, *e.g.*, Korotayev, Malkov *et al.* 2006a: 119–120):

The von Foerster *et al.*'s equation, $N_t = \frac{C}{t_0 - t}$, is the solution for the following differential equation (see, *e.g.*, Korotayev, Malkov *et al.* 2006a: 119–120):

$$\frac{dN}{dt} = \frac{N^2}{C} \quad (\text{Eq. 2})$$

This equation can be also written as:

$$\frac{dN}{dt} = \alpha N^2, \quad (\text{Eq. 3})$$

where $\alpha = \frac{1}{C}$.

What is the meaning of this mathematical expression? In our context, dN/dt denotes the absolute population growth rate at a certain moment in time. Hence, this equation states that the absolute population growth rate at any moment in time should be proportional to the square of world population at this moment. This significantly demystifies the problem of hyperbolic growth. To explain this hyperbolic growth, one need only explain why for many millennia the world population's absolute growth rate tended to be proportional to the square of the population.

The main mathematical models of hyperbolic growth in the world population (Taagapera 1976, 1979; Kremer 1993; Cohen 1995; Podlazov 2004; Tsirel 2004; Korotayev 2005, 2007, 2008, 2009, 2012; Korotayev, Malkov *et al.* 2006a: 21–36; Golosovsky 2010; Korotayev and Malkov 2012) are based on the following two assumptions:

'the Malthusian (Malthus 1978 [1798]) assumption that population is limited by the available technology, so that the growth rate of population is proportional to the growth rate of technology' (Kremer 1993: 681-682),[\[5\]](#) and the idea that '[h]igh population spurs technological change because it increases the number of potential inventors... In a larger population there will be proportionally more people lucky or smart enough to come up with new ideas', thus, 'the growth rate of technology is proportional to total population' (Kremer 1993: 685).[\[6\]](#)

Here Kremer uses the main assumption of Endogenous Technological Growth theory (see, *e.g.*, Kuznets 1960; Grossman and Helpman 1991; Aghion and Howitt 1998; Simon 1977, 2000; Komlos and Nefedov 2002; Jones 1995, 2005).

The first assumption looks quite convincing. Indeed, throughout most of human history the world population was limited by the technologically determined ceiling of the carrying capacity of land. For example, with foraging subsistence technologies the Earth could not support more than 8 million people because the amount of naturally available useful biomass on this planet is limited. The world population could only grow over this limit when people started to apply various means to artificially increase the amount of available biomass that is with the transition from foraging to food production. Extensive agriculture is also limited in terms of the number of people that it can support. Thus, further growth of the world population only became possible with the intensification of agriculture and other technological improvements (see, *e.g.*, Turchin 2003; Korotayev, Malkov *et al.* 2006a, 2006b; Korotayev and Khaltourina 2006). However, as is well known, the technological level is not constant, but variable (see, *e.g.*, Grinin 2007a, 2007b, 2012), and in order to describe its dynamics the second basic assumption is employed.

As this second supposition was, to our knowledge, first proposed by Simon Kuznets (1960), we shall denote the corresponding type of dynamics as 'Kuznetsian'. (The systems in which the Kuznetsian population-technological dynamics are combined with Malthusian demographic dynamics will be denoted as 'Malthusian-Kuznetsian'.) In general, we find this assumption rather plausible – in fact, it is quite probable that, other things being equal, within a given period of time, five million people will make approximately five times more inventions than one million people.

This assumption was expressed mathematically by Kremer in the following way:

$$\frac{dT}{dt} = kNT \quad (\text{Eq. 4})$$

This equation simply says that the absolute technological growth rate at a given moment in time (dT/dt) is proportional to the technological level (T) observed at this moment (the wider the technological base, the higher the number of inventions that can be made on its basis). On the other hand, this growth rate is also proportional to the population (N): the larger the population, the larger the number of potential inventors.[\[7\]](#)

When united in one system, Malthusian and Kuznetsian equations account quite well for the hyperbolic growth of the world population observed before the early 1990s (see, *e.g.*, Korotayev 2005, 2007, 2008, 2012; Korotayev, Malkov *et al.* 2006a). The resultant models provide a rather convincing explanation of *why*, throughout most of human history, the world population followed the hyperbolic pattern with the absolute population growth rate tending to be proportional to N^2 . For example, why would the growth of population from, say, 10 million to 100 million, result in the growth of dN/dt 100 times? The above mentioned models explain this rather convincingly. The point is that the growth of world population from 10 to 100 million implies that human subsistence technologies also grew approximately 10 times (given that it will have proven, after all, to be able to support a population ten times larger). On the other hand, the tenfold population growth also implies a tenfold growth in the number of potential inventors, and, hence, a tenfold increase in the relative technological growth rate. Thus, the absolute technological growth rate would expand $10 \times 10 = 100$ times as, in accordance with Eq. 4, an order of magnitude higher number of people having at their disposal an order of magnitude wider technological base would tend to make two orders of magnitude more inventions. If, as throughout the Malthusian epoch, the world population (N) tended toward the technologically determined carrying capacity of the Earth, we have good reason to expect that dN/dt should also grow just by about 100 times.

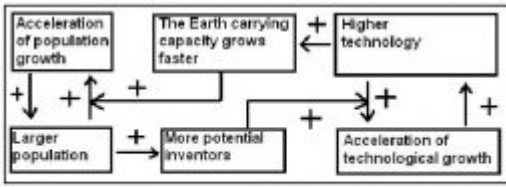


Fig. 3. Cognitive scheme of the nonlinear second order positive feedback between technological development and demographic growth

In fact, it can be shown (see, *e.g.*, Korotayev, Malkov *et al.* 2006a, 2006b; Korotayev and Khaltourina 2006) that the hyperbolic pattern of the world's population growth could be accounted for by a nonlinear second-order positive

feedback mechanism that was long ago shown to generate just the hyperbolic growth, also known as the 'blow-up regime' (see, *e.g.*, Kurdyumov 1999). In our case, this nonlinear second-order positive feedback looks as follows: more people – more potential inventors – faster technological growth – faster growth of the Earth's carrying capacity – faster population growth – more people allow for more potential inventors – faster technological growth, and so on (see Fig. 3).

Note that the relationship between technological development and demographic growth cannot be analyzed through any simple cause-and-effect model, as we observe a true dynamic relationship between these two processes – each of them is both the cause and the effect of the other.

The feedback system described here should be identified with the process of 'collective learning' described, principally, by Christian (2005: 146-148). The mathematical models of World System development discussed in this article can be interpreted as models of the influence that collective learning has on global social evolution (*i.e.*, the evolution of the World System). Thus, the rather peculiar hyperbolic shape of accelerated global development prior to the early 1970s may be regarded as a product of global collective learning. We have also shown (Korotayev, Malkov *et al.* 2006a: 34-66) that, for the period prior to the 1970s, World System economic and demographic macrodynamics, driven by the above-mentioned positive feedback loops, can simply and accurately be described with the following model:

$$\frac{dN}{dt} = aSN, \quad (\text{Eq. 5})$$

$$\frac{dS}{dt} = bNS. \quad (\text{Eq. 6})$$

The world GDP (G) can be calculated using the following equation:

$G = mN + SN,$	(Eq. 7)
----------------	---------

where G is the world GDP, N is population, and S is the produced surplus per capita, over the subsistence amount (m) that is minimally necessary to reproduce the population with a zero growth rate in a Malthusian system (thus, $S = g - m$, where g denotes per capita GDP); a and b are parameters.

The mathematical analysis of the basic model (not described here) suggests that up to the 1970s, the amount of S should be proportional, in the long run, to the World System's population: $S = kN$. Our statistical analysis of available empirical data has confirmed this theoretical proportionality (Korotayev, Malkov *et al.* 2006a: 49-50). Thus, in the right-hand side of Eq. 6, S can be replaced with kN , resulting in the following equation:

$$\frac{dN}{dt} = kaN^2.$$

Recall that the solution of this type of differential equations is:

$$N_t = \frac{C}{(t_0 - t)},$$

which produces a simple hyperbolic curve.

As, according to our model, S can be approximated as kN , its long-term dynamics can be approximated with the following equation:

$$S = \frac{kC}{t_0 - t}. \quad (\text{Eq. 8})$$

Thus, the long-term dynamics of the most dynamic component of the world GDP, SN, the ‘world surplus product’, can be approximated as follows:

$$\Delta V = \frac{kC^* t^2}{(t_q - t)^2}, \quad (\text{Eq. 9})$$

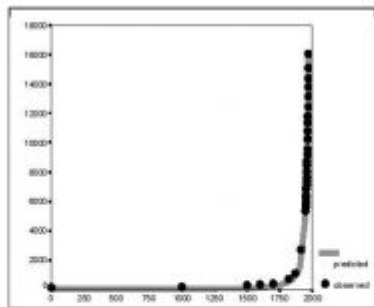


Fig. 4. The fit between predictions of a quadratic-hyperbolic model and observed world GDP dynamics, 1–1973 CE (in billions of 1990 international dollars, PPP)

Note: $R = .9993$, $R^2 = .9986$, $p < .0001$. The black markers correspond to Maddison's (2001) estimates (Maddison's estimates of the world per capita GDP for 1000 CE has been corrected on the basis of [Meliantsev 2004]). The grey solid line has been generated by the following equation:

$$G = \frac{17749573.1}{(2006 - t)^2}.$$

Thus, up to the 1970s the hyperbolic growth of the world population was accompanied by the quadratic-hyperbolic growth of the world GDP, as suggested by our model. Note that the hyperbolic growth of the world population and the quadratic-hyperbolic growth of the world GDP are very tightly connected processes, actually two sides of the same coin, two dimensions of one process propelled by

nonlinear second-order positive feedback loops between the technological development and demographic growth (see Fig. 5).

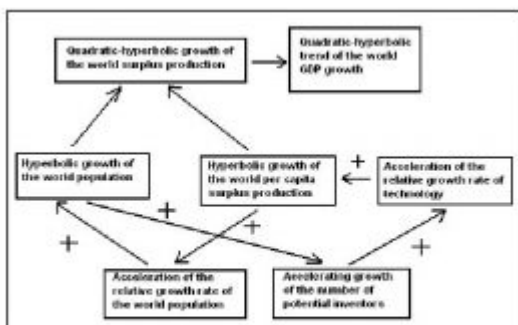


Fig. 5. Cognitive scheme of the world economic growth generated by nonlinear second-order positive feedback between technological development and demographic growth

We have also demonstrated (Korotayev, Malkov *et al.* 2006a: 67-80) that the World System population's literacy (l) dynamics are rather accurately described by the following differential equation:

$$\frac{dl}{dt} = aSl(1-l), \quad (\text{Eq. 10})$$

where l is the proportion of the population that is literate, S is per capita surplus, and a is a constant. In fact, this is a version of the autocatalytic model. Literacy growth is proportional to the fraction of the population that is literate, l (potential teachers), to the fraction of the population that is illiterate, $(1-l)$ (potential pupils), and to the amount of per capita surplus S , since it can be used to support educational programs. (Additionally, S reflects the technological level T that implies, among other things, the level of development of educational technologies.) From a mathematical point of view, Eq. 9 can be regarded as logistic where saturation is reached at literacy level $l = 1$. S is responsible for the speed with which this level is being approached.

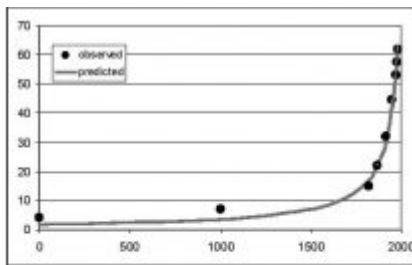


Fig. 6. The fit between predictions of the hyperbolic model and observed world literacy dynamics, 1-1980 CE (%%)

Note: $R = 0.997$, $R^2 = 0.994$, $p \ll 0.0001$. Black dots correspond to World Bank (2013) estimates for the period since 1970, and to Meliantsev's (2004) estimates for the earlier period. The grey solid line has been generated by the following equation:

$$l_t = \frac{3769.264}{(2040 - t)^2}$$

The best-fit values of parameters C (3769.264) and t_0 (2040) have been calculated with the least squares method.

It is important to stress that with low values of l (which correspond to most of human history, with recent decades being the exception), the rate of increase in world literacy generated by this model (against the background of hyperbolic growth of S) can be approximated rather accurately as hyperbolic (see Fig. 6).

The overall number of literate people is proportional both to the literacy level and to the overall population. As both of these variables experienced hyperbolic growth until the 1960s/1970s, one has sufficient grounds to expect that until recently the overall number of literate people in the world (L)^[8] was growing not just hyperbolically, but rather in a quadratic-hyperbolic way (as was world GDP). Our empirical test has confirmed this – the quadratic-hyperbolic model describes the growth of the literate population of this planet with an extremely good fit indeed (see Fig. 7).

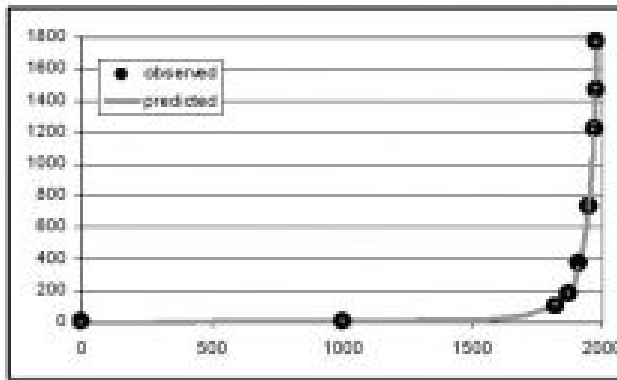


Fig. 7. The fit between predictions of the quadratic-hyperbolic model and observed world literate population dynamics, 1-1980 CE (L , millions)

Note: $R = 0.9997$, $R^2 = 0.9994$, $p \ll 0.0001$. The black dots correspond to UNESCO/World Bank (2014) estimates for the period since 1970, and to Melnikova's (2004) estimates for the earlier period; we have also taken into account the changes of age structure on the basis of UN Population Division (2014) data. The gray solid line has been generated by the following equation:

$$L_t = \frac{4958551}{(2031 - t)^2}$$

The best-fit values of parameters C (4958551) and t_0 (2031) have been calculated with the least squares method.

Similar processes are observed with respect to world urbanization, the macrodynamics of which appear to be described by the differential equation:

$$\frac{du}{dt} = bS(t) (u_{\lim} - u), \quad (\text{Eq. 11})$$

where u is the proportion of the population that is urban, S is per capita surplus produced with the given level of the World System's technological development, b is a constant, and u_{\lim} is the maximum possible proportion of the population that can be urban. Note that this model implies that during the Malthusian-Kuznetsian era of the blow-up regime, the hyperbolic growth of world urbanization must have been accompanied by a quadratic-hyperbolic growth of the urban population of the world, as supported by our empirical tests (see Figs 8-9).

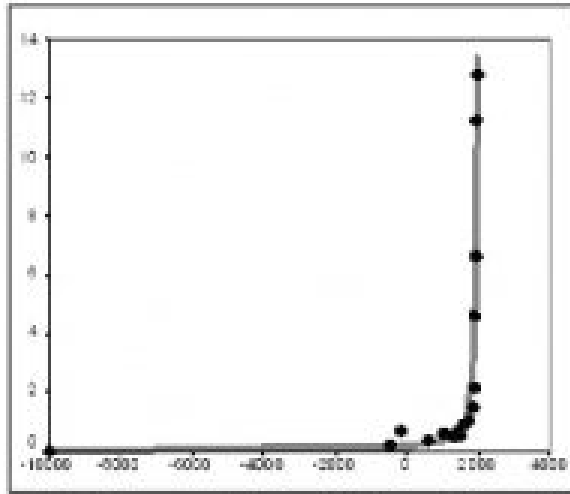


Fig. 8. The fit between predictions of the hyperbolic model and empirical estimates of world megaurbanization dynamics (% of the world population living in cities with > 250,000 inhabitants), 10,000 BCE – 1960 CE

Note: $R = 0.987$, $R^2 = 0.974$, $p \ll 0.0001$. The black dots correspond to Chandler's (1987) estimates, UN Population Division (2014), Modelski (2003), and Gruebler (2006). The grey solid line has been generated by the following equation:

$$u_t = \frac{403.012}{(1990 - t)}$$

The best-fit values of parameters C (403.012) and t_0 (1990) have been calculated with the least squares method. For comparison, the best fit (R^2) obtained here for the exponential model is 0.492.

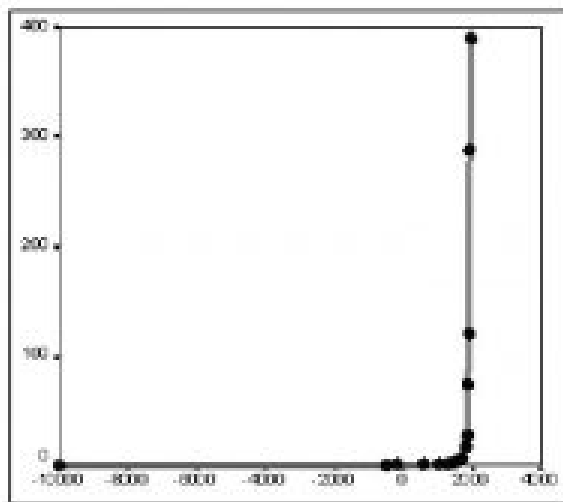


Fig. 9. The fit between predictions of the quadratic-hyperbolic model and the observed dynamics of world urban population living in cities with > 250,000 inhabitants (millions), 10,000 BCE - 1960 CE

Note: $R = 0.998$, $R^2 = 0.996$, $p < 0.0001$. The black markers correspond to estimates of Chandler (1987) and UN Population Division (2014). The grey solid line has been generated by the following equation:

$$U_t = \frac{912057.9}{(2008 - t)^2}$$

The best-fit values of parameters C (912057.9) and t_0 (2008) have been calculated with the least squares method. For comparison, the best fit (R^2) obtained here for the exponential model is 0.637.

Within this context it is hardly surprising to find that the general macrodynamics of largest settlements within the World System are also quadratic-hyperbolic (see Fig. 10).

As has been demonstrated by socio-cultural anthropologists working across cultures (see, *e.g.*, Naroll and Divale 1976; Levinson and Malone 1980: 34), for pre-agrarian, agrarian, and early industrial cultures the size of the largest settlement is a rather effective indicator of the general sociocultural complexity of a social system. This, of course, suggests that the World System's general sociocultural complexity also grew, in the Malthusian-Kuznetsian era, in a generally quadratic-hyperbolic way.

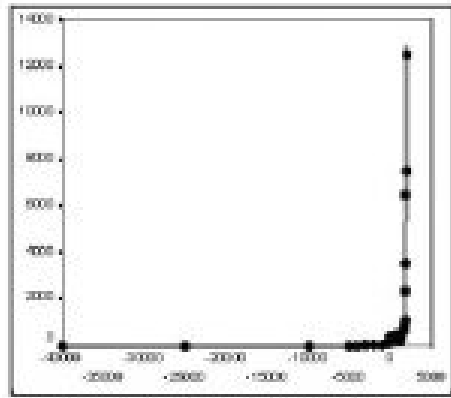


Fig. 10. The fit between predictions of the quadratic-hyperbolic model and the observed dynamics of size of the largest settlement of the world (thousands of inhabitants), 10,000 BCE - 1950 CE

Note: $R = 0.992$, $R^2 = 0.984$, $p < 0.0001$. The black markers correspond to estimates of Modelski (2003) and Chandler (1987). The grey solid line has been generated by the following equation:

$$U_{max,t} = \frac{104020618.573}{(2040 - t)^2}$$

The best-fit values of parameters C (104020618.5) and t_0 (2040) have been calculated with the least squares method. For comparison, the best fit (R^2) obtained here for the exponential model is 0.747.

Turning to a more concrete case study, as suggested at the beginning of this section, the hyperbolic model is particularly effective for describing the long-term population dynamics of China, the country with the best-known demographic history. The Chinese population curve reflects not only a hyperbolic

trend, but also cyclical and stochastic dynamics. These components of long-term population dynamics in China, as well as in other complex agrarian societies, have been discussed extensively (see, *e.g.*, Braudel 1973; Abel 1980; Usher 1989; Goldstone 1991; Chu and Lee 1994; Komlos and Nefedov 2002; Turchin 2003, 2005a, 2005b; Nefedov 2004; Korotayev 2006; Korotayev and Khaltourina 2006; Korotayev, Malkov *et al.* 2006b; Turchin and Korotayev 2006; Korotayev, Komarova *et al.* 2007; Grinin, Korotayev *et al.* 2008; Grinin, Malkov *et al.* 2009; Turchin and Nefedov 2009; van Kessel-Hagesteijn 2009; Korotayev, Khaltourina, Malkov *et al.* 2010; Korotayev, Khaltourina *et al.* 2010; Grinin and Korotayev 2012).

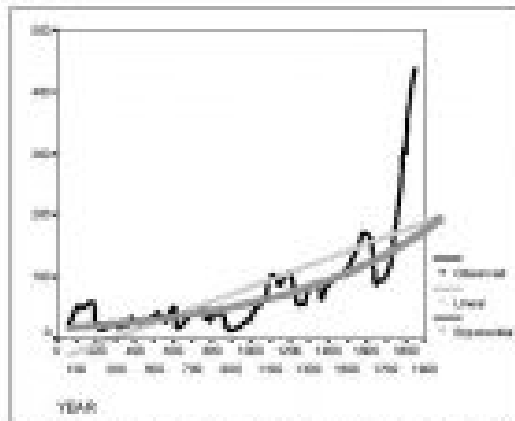


Fig. 11. Population dynamics of China (million people, following Korotayev, Malkov, et al. 2006b: 47-88), 57-1851 CE. Fit with Linear and Exponential Models

Note: Linear model: $R^2 = 0.468$. Exponential model: $R^2 = 0.600$.

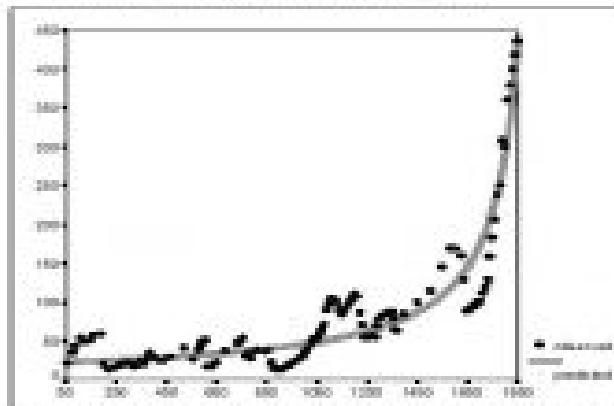


Fig. 12. Fit between a hyperbolic model and observed population dynamics of China (million people), 57-1851 CE

Note: $R^2 = 0.884$. The grey solid line has been generated by the following equation:

$$N_t = \frac{35451}{1915 - t}$$

As we have observed with respect to world population dynamics, even before the start of its intensive modernization, the population dynamics of China were characterized by a pronounced hyperbolic trend (Figs 11 and 12).

The hyperbolic model describes traditional Chinese population dynamics *much* more accurately than either linear or exponential models.

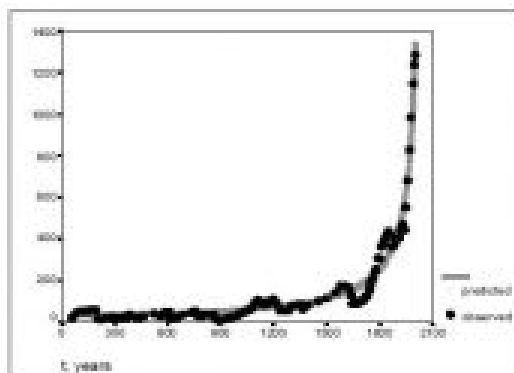


Fig. 13. Fit between a hyperbolic model and observed population dynamics of China (million people, following Korotayev, Malkov, *et al.* 2006b: 47–88), 57–2003 CE

Note: $R^2 = 0.968$. The grey solid line has been generated by the following equation:

$$N_t = \frac{63150}{2050 - t}.$$

The hyperbolic model describes the population dynamics of China in an especially accurate way if we take the modern period into account (Fig. 13).

It is curious that, as we noted above, the dynamics of marine biodiversity are strikingly similar to the population dynamics of China. The similarity probably derives from the fact that both curves are produced by the interference of the same three components (the general hyperbolic trend, as well as cyclical and stochastic dynamics). In fact, there is a lot of evidence that some aspects of biodiversity dynamics are stochastic (Raup *et al.* 1973; Sepkoski 1994; Markov 2001; Cornette and Lieberman 2004), while others are periodic (Raup and Sepkoski 1984; Rohde and Muller 2005). In any event, the hyperbolic model describes marine biodiversity (measured by number of genera) through the Phanerozoic much more accurately than an exponential model (Fig. 14).

When measured by number of species, the fit between the empirically observed marine biodiversity dynamics and the hyperbolic model becomes even better (Fig. 15).

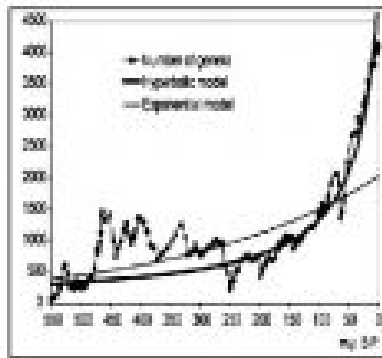


Fig. 14. Global change in marine biodiversity (number of genera, N) through the Phanerozoic (following Markov and Korotayev 2007)

Note: Exponential model: $R^2 = 0.463$. Hyperbolic model: $R^2 = 0.854$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{183.520}{57 - t}$$

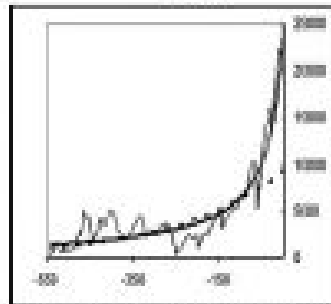


Fig. 15. Global change in marine biodiversity (number of species, N) through the Phanerozoic (following Markov and Korotayev 2008)

Note: Exponential model: $R^2 = 0.51$. Hyperbolic model: $R^2 = 0.91$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{892874}{35 - t}$$

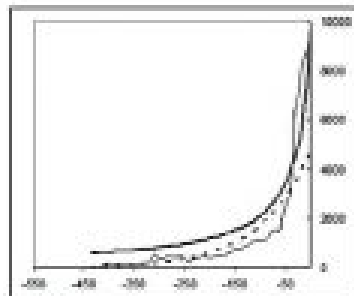


Fig. 16. Global change in continental biodiversity (number of genera, N) through the Phanerozoic (following Markov and Korotayev 2008)

Note: Exponential model: $R^2 = 0.86$. Hyperbolic model: $R^2 = 0.94$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{272095}{29 - t}$$

Likewise, the hyperbolic model describes continental biodiversity in an especially accurate way (Fig. 16).

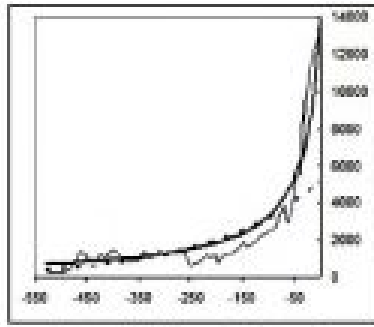


Fig. 17. Global change in total biodiversity (number of genera, N) through the Phanerozoic (following Markov and Korotayev 2008)

Note: Exponential model: $R^2 = 0.67$. Hyperbolic model: $R^2 = 0.95$. The hyperbolic line has been generated by the following equation:

$$N_t = \frac{434635}{30 - t}$$

The hyperbolic dynamics are most prominent when both marine and continental biotas are considered together. This fact can be interpreted as a proof of the integrated nature of the biosphere. But why, throughout the Phanerozoic, did global biodiversity tend to follow a hyperbolic trend similar to that which we observed for the World System in general and China in particular?

As we have noted above, in sociological models of macrohistorical dynamics, the hyperbolic pattern of world population growth arises from non-linear second-order positive feedback (more or less identical with the mechanism of collective learning) between demographic growth and technological development. Based on analogy with these sociological models and diverse paleontological data, we suggest that the hyperbolic character of biodiversity growth can be similarly accounted for by non-linear second-order positive feedback between diversity growth and the complexity of community structure: more genera - higher alpha diversity - enhanced stability and 'buffering' of communities - lengthening of average life span of genera, accompanied by a decrease in the extinction rate - faster diversity growth - more genera - higher alpha diversity, and so on. Indeed, this begins to appear as a (rather imperfect) analogue of the collective learning mechanism active in social macroevolution.

The growth of genus richness throughout the Phanerozoic was mainly due to an increase in the average longevity of genera and a gradual accumulation of long-lived (stable) genera in the biota. This pattern reveals itself in a decrease in the extinction rate. Interestingly, in both biota and humanity, growth was facilitated by a decrease in mortality rather than by an increase in the birth rate. The longevity of newly arising genera was growing in a stepwise manner. The most short-lived genera appeared during the Cambrian; more long-lived genera

appeared in Ordovician to Permian; the next two stages correspond to the Mesozoic and Cenozoic (Markov 2001, 2002). We suggest that diversity growth can facilitate the increase in genus longevity via progressive stepwise changes in the structure of communities.

Most authors agree that three major biotic changes resulted in the fundamental reorganization of community structure during the Phanerozoic: Ordovician radiation, end-Permian extinction, and end-Cretaceous extinction (Bambach 1977; Sepkoski *et al.* 1981; Sepkoski 1988, 1992; Markov 2001; Bambach *et al.* 2002). Generally, after each major crisis, the communities became more complex, diverse, and stable. The stepwise increase of alpha diversity (*i.e.*, the average number of species or genera in a community) through the Phanerozoic was demonstrated by Bambach (1977) and Sepkoski (1988). Although Powell and Kowalewski (2002) have argued that the observed increase in alpha diversity might be an artifact caused by several specific biases that influenced the taxonomic richness of different parts of the fossil record, there is evidence that these biases largely compensated for one another so that the observed increase in alpha diversity was probably underestimated rather than overestimated (Bush and Bambach 2004).

Another important symptom of progressive development of communities is an increase in the evenness of species (or genus) abundance distribution. In primitive, pioneer, or suppressed communities, this distribution is strongly uneven: the community is overwhelmingly dominated by a few very abundant species. In more advanced, climax, or flourishing communities, this distribution is more even (Magurran 1988). The former type of community is generally more vulnerable. The evenness of species richness distribution in communities increased substantially during the Phanerozoic (Powell and Kowalewski 2002; Bush and Bambach 2004). It is most likely there was also an increase in habitat utilization, total biomass, and the rate of trophic flow in biota through the Phanerozoic (Powell and Kowalewski 2002).

The more complex the community, the more stable it is due to the development of effective interspecies interactions and homeostatic mechanisms based on the negative feedback principle. In a complex community, when the abundance of a species decreases, many factors arise that facilitate its recovery (*e.g.*, food resources rebound while predator populations decline). Even if the species becomes extinct, its vacant niche may 'recruit' another species, most probably a

related one that may acquire morphological similarity with its predecessor and thus will be assigned to the same genus by taxonomists. So a complex community can facilitate the stability (and longevity) of its components, such as niches, taxa and morphotypes. This effect reveals itself in the phenomenon of 'coordinated stasis'. The fossil record contains many examples in which particular communities persist for million years while the rates of extinction and taxonomic turnover are minimized (Brett *et al.* 1996, 2007).

Selective extinction leads to the accumulation of 'extinction-tolerant' taxa in the biota (Sepkoski 1991b). Although there is evidence that mass extinctions can be nonselective in some aspects (Jablonski 2005), they are obviously highly selective with respect to the ability of taxa to endure unpredictable environmental changes. This can be seen, for instance, in the selectivity of the end-Cretaceous mass extinction with respect to the time of the first occurrence of genera. In younger cohorts, the extinction level was higher than that of the older cohorts (see Markov and Korotayev 2007: fig. 2). The same pattern can be observed during the periods of 'background' extinction as well. This means that genera differ in their ability to survive extinction events, and that extinction-tolerant genera accumulate in each cohort over the course of time. Thus, taxa generally become more stable and long-lived through the course of evolution, apart from the effects of communities. The communities composed of more stable taxa would be, in turn, more stable themselves, thus creating positive feedback.

The stepwise change of dominant taxa plays a major role in biotic evolution. This pattern is maintained not only by the selectivity of extinction (discussed above), but also by the selectivity of the recovery after crises (Bambach *et al.* 2002). The taxonomic structure of the Phanerozoic biota was changing in a stepwise way, as demonstrated by the concept of three sequential 'evolutionary faunas' (Sepkoski 1992). There were also stepwise changes in the proportion of major groups of animals with different ecological and physiological parameters. There was stepwise growth in the proportion of motile genera to non-motile, 'physiologically buffered' genera to 'unbuffered', and predators to prey (Bambach *et al.* 2002). All these trends should have facilitated the stability of communities. For example, the diversification of predators implies that they became more specialized. A specialized predator regulates its prey's abundance more effectively than a non-specialized predator.

There is also another possible mechanism of second-order positive feedback

between diversity and its growth rate. Recent research has demonstrated a shift in typical relative-abundance distributions in paleocommunities after the Paleozoic (Wagner *et al.* 2006). One possible interpretation of this shift is that community structure and the interactions between species in the communities became more complex. In post-Paleozoic communities, new species probably increased ecospace more efficiently, either by facilitating opportunities for additional species or by niche construction (Wagner *et al.* 2006; Solé *et al.* 2002; Laland *et al.* 1999). This possibility makes the mechanisms underlying the hyperbolic growth of biodiversity and human population even more similar, because the total ecospace of the biota is analogous to the ‘carrying capacity of the Earth’ in demography. As far as new species can increase ecospace and facilitate opportunities for additional species entering the community, they are analogous to the ‘inventors’ of the demographic models whose inventions increase the carrying capacity of the Earth.

Exponential and logistic models of biodiversity imply several possible ways in which the rates of origination and extinction may change through time (Sepkoski 1991a). For instance, exponential growth can be derived from constant per-taxon extinction and origination rates, the latter being higher than the former. However, actual paleontological data suggest that origination and extinction rates did not follow any distinct trend through the Phanerozoic, and their changes through time look very much like chaotic fluctuations (Cornette and Lieberman 2004). Therefore, it is more difficult to find a simple mathematical approximation for the origination and extinction rates than for the total diversity. In fact, the only critical requirement of the exponential model is that the difference between the origination and extinction through time should be proportional to the current diversity level:

$$(N_o - N_e)/\Delta t \approx kN, \quad (\text{Eq. 12})$$

where N_o and N_e are the numbers of genera with, respectively, first and last occurrences within the time interval Δt , and N is the mean diversity level during the interval. The same is true for the hyperbolic model. It does not predict the exact way in which origination and extinction should change, but it does predict that their difference should be roughly proportional to the square of the current diversity level:

$$(N_o - N_e)/\Delta t \approx kN^2. \quad (\text{Eq. 13})$$

In the demographic models discussed above, the hyperbolic growth of the world population was not decomposed into separate trends of birth and death rates. The main driving force of this growth was presumably an increase in the carrying capacity of the Earth. The way in which this capacity was realized – either by decreasing death rate or by increasing birth rate, or both – depended upon many factors and may varied from time to time.

The same is probably true for biodiversity. The overall shape of the diversity curve depends mostly on the differences in the mean rates of diversity growth in the Paleozoic (low), Mesozoic (moderate), and Cenozoic (high). The Mesozoic increase was mainly due to a lower extinction rate (compared to the Paleozoic), while the Cenozoic increase was largely due to a higher origination rate (compared to the Mesozoic) (see Markov and Korotayev 2007: 316, figs. 3a and b). This probably means that the acceleration of diversity growth during the last two eras was driven by different mechanisms of positive feedback between diversity and its growth rate. Generally, the increment rate $((N_o - N_e)/\Delta t)$ was changing in a more regular way than the origination rate $N_o/\Delta t$ and extinction rate $N_e/\Delta t$. The large-scale changes in the increment rate correlate better with N^2 than with N (see Markov and Korotayev 2007: 316, Figs 3c and d), thus supporting the hyperbolic rather than the exponential model.

Conclusion

In mathematical models of historical macrodynamics, a hyperbolic pattern of world population growth arises from non-linear second-order positive feedback between the demographic growth and technological development. Based on the analogy with macrosociological models and diverse paleontological data, we suggest that the hyperbolic character of biodiversity growth can be similarly accounted for by non-linear second-order positive feedback between the diversity growth and the complexity of community structure. This hints at the presence, within the biosphere, of a certain analogue to the collective learning mechanism. The feedback can work via two parallel mechanisms: (1) a decreasing extinction rate (more surviving taxa – higher alpha diversity – communities become more complex and stable – extinction rate decreases – more taxa, and so on), and (2) an increasing origination rate (new taxa – niche construction – newly formed niches occupied by the next ‘generation’ of taxa – new taxa, and so on). The latter

possibility makes the mechanisms underlying the hyperbolic growth of biodiversity and human population even more similar, because the total ecospace of the biota is analogous to the 'carrying capacity of the Earth' in demography. As far as new species can increase ecospace and facilitate opportunities for additional species entering the community, they are analogous to the 'inventors' of the demographic models whose inventions increase the carrying capacity of the Earth.

The hyperbolic growth of Phanerozoic biodiversity suggests that 'cooperative' interactions between taxa can play an important role in evolution, along with generally accepted competitive interactions. Due to this 'cooperation' (which may be roughly analogous to 'collective learning'), the evolution of biodiversity acquires some features of a self-accelerating process. The same is naturally true of cooperation/collective learning in global social evolution. This analysis suggests that we can trace rather similar macropatterns within both the biological and social phases of Big History. These macropatterns can be represented by relatively similar curves and described accurately with very simple mathematical models.

NOTES

* This research has been supported by the Russian Science Foundation (Project No 14-11-00634).

[1] We denote as *megaevolution* all the process of evolution throughout the whole of Big History, whereas we denote as *macroevolution* the process of evolution during one of its particular phases.

[2] To be exact, the equation proposed by von Foerster and his colleagues looked as follows: . However, as von Hoerner (1975) and Kapitza (1999) showed, it can be simplified as .

[3] The second characteristic (p , standing for 'probability') is a measure of the correlation's statistical significance. A bit counter-intuitively, the lower the value of p , the higher the statistical significance of the respective correlation. This is because p indicates the probability that the observed correlation could be accounted solely by chance. Thus, $p = 0.99$ indicates an extremely low statistical significance, as it means that there are 99 chances out of 100 that the observed correlation is the result of a coincidence, and, thus, we can be quite confident that

there is no systematic relationship (at least, of the kind that we study) between the two respective variables. On the other hand, $p = 1 \times 10^{-16}$ indicates an extremely high statistical significance for the correlation, as it means that there is only one chance out of 10,000,000,000,000,000 that the observed correlation is the result of pure coincidence (a correlation is usually considered statistically significant once $p < 0.05$).

[4] In fact, with slightly different parameters ($C = 164890.45$; $t_0 = 2014$) the fit (R^2) between the dynamics generated by von Foerster's equation and the macrovariation of world population for 1000–1970 CE as estimated by McEvedy and Jones (1978) and the U.S. Bureau of the Census (2013) reaches 0.9992 (99.92 per cent); for 500 BCE – 1970 CE this fit increases to 0.9993 (99.93 per cent) with the following parameters: $C = 171042.78$; $t_0 = 2016$.

[5] In addition to this, the absolute growth rate is proportional to the population itself. With a given relative growth rate, a larger population will increase more in absolute number than a smaller one.

[6] Note that 'the growth rate of technology' here means the relative growth rate (*i.e.*, the level to which technology will grow in a given unit of time in proportion to the level observed at the beginning of this period).

[7] Kremer did not test this hypothesis empirically in a direct way. Note, however, that our own empirical test of this hypothesis has supported it (see Korotayev, Malkov *et al.* 2006b: 141–146).

[8] Since literacy appeared, almost all of the Earth's literate population has lived within the World System; hence, the literate population of the Earth and the literate population of the World System have been almost perfectly synonymous.

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IIDE Proceedings 2014 - A Dooyeweerdian Understanding Of Affordance In Information Systems

And Ecological Psychology



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Affordance is attracting considerable interest but it poses significant philosophical challenges, around meaningfulness and the subject-object relationship, as well as less fundamental methodological challenges, such as complexity and translation of idea from one field to another. At this point, the fields in which the notion of affordance is discussed, from ecological psychology to information systems, do not speak to each other and especially in the IS field the treatment of affordance is ad-hoc. This paper discusses how Dooyeweerd's philosophy can very readily address the philosophical challenges, and provide validation and guidance for the methodological challenges. Dooyeweerd would base affordance in his 'oceanic' idea of meaningfulness, and provide a workable definition of affordance as the relationship between two ways of being meaningful (two aspects). The usefulness of this is explored. The paper also discusses some practical applications of a Dooyeweerdian understanding of affordance.

1. Introduction

The idea of affordance has aroused interest in several fields of study of information and communication technology (ICT). Especially in the fields of human-computer interaction (HCI), which focuses on how individuals use ICT, and information systems (IS), which focuses on the benefits of using ICT, affordance was called upon to address issues that had long been found challenging.

In the field of HCI, it was noticed that some designs of the user interface (the

screen etc. with which the user interacts in HCI) were easier to use than others – that is, they afforded greater or lesser ease of use. Though ergonomics, psychology, and the amount of skill the user has, affect ease of use, there also seemed to be something about the design and shape of the user interface objects themselves that affected ease (of difficulty) of use. The notion of affordance was harnessed by Norman (1988) and others (e.g. Hartson 2003) to explain this.

More recently, in the field of IS, affordance has been harnessed by several scholars to explain why ICT facilities make specific human activities easier or more difficult, and tend to bring certain benefits rather than others. For example, triggered attending to online conversations (Majczrak et al. 2013) reduces need to keep watch on conversations, but it can also reduce the depth of engagement. Networked ICT can assist speedy change to documents (Conole & Dyke 2004) but can also bring confusion. Attempts to account for these solely in terms of power relations, attitude or capability of users proved insufficient, because the actual design of the facilities ‘affords’ these activities or benefits.

Originally proposed by J.J. Gibson (1979) in the field of ecological psychology, the idea of affordance shows considerable promise in these fields. It also presents new challenges. Some challenges arise from complexity, some arise from translating the idea from psychology, and some arise from fundamental philosophical issues like the subject-object relation and understanding what affordance is.

This paper discusses these challenges, and explores briefly whether the philosophy of Dooyeweerd can address them. The emphasis will be on affordance in the field of IS more than in HCI or psychology, because of its greater complexity. The idea of affordance and its roots in psychology are explained, with a discussion of how it has been translated across to HCI and IS. Four kinds of challenges are outlined. How these challenges may be addressed by Dooyeweerd’s philosophy is explored, and a few practical examples are given.

2. Affordance

A rock (a flat, horizontal, extended, rigid surface up to knee-high) affords climbing to an animal and a hole in a hedge or wall affords going-through (Gibson 1979, 127): “The affordances of the environment are what it offers the animal, what it provides or furnishes.” The word ‘affordance’ was coined by Gibson to denote a phenomenon that had not been adequately discussed and did not even have a name before, and his exploration of this notion stimulated the field of ecological psychology. The notion of affordance, at root, does not just deal with

animals climbing rocks, but with any situation in which an agent interacts with things in its environment – or indeed with the environmental situation as a whole. It addresses issues of perception and what is perceived, of action and possibility, and how these are ‘afforded’ by properties of things in the environment. Gibson (1979, 129) characterizes affordance as “physical and psychical”, in that the physical properties of the environment afford psychical properties like ‘climbability’, which are meaningful to the animal.

The relationship between agent and environment is very similar to that between subject and object. Yet Gibson and other ecological psychologists have found that current presuppositions about subject and object need to be questioned. “Gibson’s concept of affordances was an attempt to undermine the traditional dualism of the objective and subjective” (Costall 2012). Shaw (2003, 93) praised Gibson’s courage: “where most psychologists and philosophers are happy naming the divide the subjective-objective, Gibson would rather we repair the cut entirely by a kind of relational integration”. With Gibson, “one gets subjectivity and objectivity wrapped up in a single package” (Shaw 2003, 97).

The idea of affordance as an attempt to understand the relationship between agent and environment is relevant across many fields. In the field of artefact design, for example, some door handles afford pulling (those that can be grabbed), while others (those that look like plates) afford pushing (Norman 1988). Though plate-like door handles can also be pulled if bent round, they do not invite pulling, and labels saying ‘Pull’ must be installed. What is it about such artefacts that does the affording? How much is social convention, and how much is psychological or even physical?

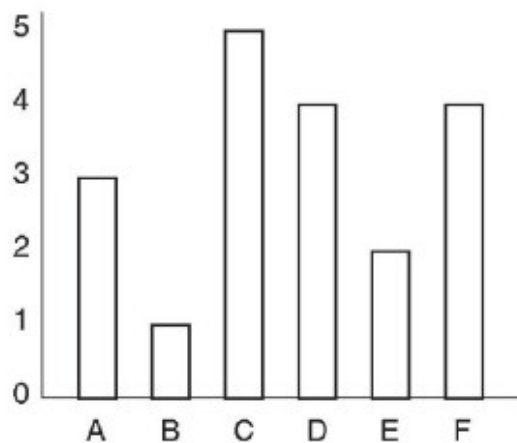


Figure 1. A typical bar chart

Figure 1. A typical bar chart

The field of human-computer interaction faces similar issues (Hartson 2003). The agent is the computer user, and the environment is what of the user interface is seen, heard and manipulated via mouse or finger. What is meaningful to the user is not just these sights, sounds and muscular controls, but the information they carry. For example, a bar chart (a set of long thin rectangles arranged side by side, as shown in Figure 1) is most naturally interpreted by the user as a set of quantities that can be compared. For example, if A-F are nations, then we would expect the numbers 0-5 to indicate population, size of GDP, proportion of land devoted to agriculture, for each nation. However, if the numbers 1-5 indicated religions, main language spoken, this would be possible, but not so natural. The naturalness can be explained by affordance: length of bar affords quantity, not relationship, and proximity of bar affords comparison.

In the field of information systems (IS) the agent is the user and those with whom the user engages, while the environment is the ICT facilities they use – but it is not what the user sees or hears, as in HCI, but the information that is carried via the user interface. It is an informational environment, not physical nor sensory. What they afford is human activities that are meaningful in the life, work and roles of the user. The presence and the shape of ICT facilities available enable or constrain such activities, yielding benefits or problems.

Various kinds of IS affordance have been discussed. For example, Internet-connected ICT affords accessibility to information, speed of change of information, communication etc., but also monopolization and risk (Conole &

Dyke 2004). If affords visibility of content, persistence of content, editability of content, and association (Treem & Leonardi 2012). Social media in organisations afford metavoicing (ability to comment on the presence rather than content, e.g. by voting 'Like'), triggered attending (setting emails or blogs to alert us to certain topics so we don't need to keep watching), etc. (Majchrzak et al. 2013). ICT in businesses affords visualization of entire work processes, flexible product creation, virtual collaboration, etc. (Zammuto et al. 2007).

Just as in ecological psychology, so in the field of IS, affordance challenges traditional understandings of subject and object, possibility and action. It is hailed by Hutchby (2001) as enabling us, after an era dominated by social constructionist perspectives, to pose questions about the 'objective' reality of ICT without falling back into a technological deterministic perspective. However, there are challenges, which are discussed next.

3. Some Challenges

Affordance challenges us in at least four ways. Some arise from the complexity of the IS field itself, especially that of multiple levels of activity, benefit and problem. Some challenges arise from the translation from that field to those of HCI and IS, especially that of accounting for what is common to all fields. Two more fundamental challenges have been widely discussed in the field of ecological psychology, including what affordance actually is, and how agent and environment relate.

3.1 The Challenge of Complexity

If we compare the above affordances of accessibility of information (Conole & Dyke 2004), visibility of information (Treem & Leonardi 2012), triggered attending (Majchrzak et al. 2013) and ability to visualize the entire work process (Zammuto et al. 2007), it is clear that they are of different kinds or levels, leading to confusion or complexity. Is one kind 'right' and the others 'wrong'? Can they all pertain, and if so how do they relate to each other? Are there other kinds yet to be discovered? On what basis may we judge candidates for new kinds of affordance? Moreover, how do these kinds of IS affordance relate to those found in artefact design, HCI and ecological psychology? Such challenges, which arise from complexity, have not yet been discussed in the IS community and possibly not even recognised as issues.

In IS, for each kind of affordance, a list of individual affordances is offered. Such lists are valueless unless we can rely on the list being well-formed or reasonably

complete. Most of the authors cited discuss neither completeness nor well-formedness. Yet Mansour et al. (2013) use Treem & Leonardi's (2012) four affordances of social media as though they are complete - and then come up with four more, but with little discussion of how they relate to each other. When completeness is sought, as by Hartson (2003), over 80 affordances are found, which becomes cumbersome in practice.

3.2 The Challenge of Translating Between Fields

There has been substantial discourse about the nature of affordance in the field of ecological psychology. May we capitalise on that discourse in the IS or HCI fields, by translating concepts and issues across to those fields? If so, how and on what basis? It would seem that the concepts of agent, environment, and a relationship between them that enables or invites activity, is common to all, but this raises further questions.

On what basis is it valid to translate issues or concept from one field to another, and how do we cope with the differences? In HCI and IS, the agent is human and the environment is no longer physical but sensory in HCI and informational in IS. What is the role of the agent's body, which is of primary importance in ecological psychology. Is there an equivalent of body-scale (e.g. leg length compared with rock height (Warren & Whang 1987; Alsmith 2012)) in IS? Also, issues arise in HCI and IS that are not present in ecological psychology. Rietveld (2008) argues that artefact affordances have a canonical and normative quality, and this carries across to IS, where Conole & Dyke (2004) and Majchrzak et al. (2013) discuss problems as well as benefits afforded by ICT.

3.3 The Challenge of Understanding What Affordance Is

What is affordance? Is it ontological, as Gibson believed, or epistemological, as Norman believed? If ontological several issues emerge in ecological psychology that are relevant to other fields.

Does affordance determine the agent's activity, or does it "offer" (Gibson 1979, 127), "enable" (Hartson 2003) or "invite" (Withagen et al. 2012) agent activity? What form does the agent's freedom take (Stoffregen 2000; Chemero 2003; Scarantino 2004)? Likewise, In IS, users of ICT are constrained by its features, yet they often innovatively reinvent use (Boudreau & Robey 2005; Leonardi 2011). Is affordance a property of a distinct object or a feature of a situation (Chemero 2003)? In IS, should we look at the ICT artefact alone, or the situation as a whole. Is affordance perceived, observed or acted on unreflectively?

(Withagen et al. 2012; Rietveld 2008) In IS, what is the role of tacit and explicit knowledge in use of ICT facilities?

In what terms should affordance be discussed, as entities, activities, relationships, etc.? Discussion in terms of the interaction of distinct entities (agent and object), like animals, rocks or door-handles, precludes Chemero's (2003) insight that affordance is of situations. Discussion in terms of activities, like climbing, perceiving, opening, scrolling, associating, editing, tends to place the emphasis back on the agent, and downplays the importance of the environment. Discussion in terms of a relationship between agent and environment leaves open the question of the conceptual terms in which both are to be related: either in terms meaningful to the agent (e.g. climber-climbed) or in terms meaningful to the environment (e.g. force of foot and equal and opposite reaction from rock), which dichotomy misses the point that (in Gibson's cases) the physical features of the environment relate to the psychical features of the agent.

We need a way of discussing affordance that encompasses all these and more. Behind all the discussion of entities, activities, properties and relationships is concealed a notion that pervades them all, is occasionally mentioned in passing, but is not discussed: meaning or *meaningfulness*. Schmidt (2007) call's Gibsons ideas "an ecological theory of meaning". According to Costall (2012, 87), Gibson had written "a remarkable, though largely forgotten, chapter on meaning, in his first book, *The perception of the visual world* (1950)", which "anticipated the concept (of affordance) in several important ways". Gibson (1950, 199) talked about "use-meanings or meanings for the satisfaction of needs ..." Gibson obviously had the idea in of meaning mind, but meaning is not a concept that 1950s psychologists liked to use, and many still resist doing so, so Gibson had to use terms that suggest meaning instead, such as in "what eyes are good for" (Gibson 1966, 155). Gibson (1979) again begins to speak of "the 'values' and 'meanings' of things in the environment" (p.127), and his "*relative to the animal*" (his italics) is a meaning concept. Later, Gibson (1982, 407) directly says "The meaning or value of a thing consists of what it affords".

Those who developed Gibson's ideas use the term 'meaning' often. For example, "an environment consisting of affordance is a meaningful environment" (Withagen & Chemero 2011, 4), "meaning-laden environment ... Affordances are meaningful to animals" (Chemero 2003, 182). Gibson "gave us affordances ... to account for meaning in the mutuality of the perceiver and environment" (Cutting 1986, 252). In addition, many use other words that imply 'meaning', such as: "significance"

(Chemero 2003, 182), “animal referential or action referential ... refer to some animal, person or group” (Michaels 2003, 139), “relative to the animal ... without respect to the animal” (Stoffregen 2000, 9).

In each affordance there are two ways in which the environment is meaningful. In the rock’s own terms, for example, properties like rigid, flat, extended, horizontal are meaningful. But in the animal’s terms, properties like climbable or supportive are meaningful. So Gibson (1979, 129) speaks about such affordance as “both physical and psychical” – meaningful to both physical environment and to animal. “Affordances,” says Chemero (2003, 184), “... are relations between particular aspects of animals and particular aspects of situations.” (An aspect is a way of looking at something.) Affordance may thus be defined in terms of two ways of being meaningful, or a pair of aspects:

- * an *agent aspect* that indicates a way in which the affordance is meaningful to agents,
- * a *environment aspect* that indicates a way in which the affordance is meaningful to the environment that makes the actualization of the agent aspect possible.

How this translates across to other fields is discussed later.

(Note: The concept of ‘agent aspect’ reveals an important distinction between two ways in which the environment is meaningful to the agent: more general and more specific or contingent upon circumstances. In general, the rock is climbable, but the specific reason for climbing might be to flee an enemy, to pursue food, or just to gain a vantage point. “Agent aspect” always refers to the more general meaning, which speaks of the potential of the environment, rather than its specific use.)

Thus affordance may be seen as a pairing of ways of being meaningful. However, it raises the challenge of how the two meanings relate. Chemero (2003) argues that this coupling of non-physical with physical meaning requires a new ontology that “is at odds with today’s physicalist reductionist consensus (in the field of psychology)”. This brings us to the subject-object relationship.

3.4 *The Challenge of the Subject-Object Relationship*

Affordance as a relationship between agent and environment inherently bridges between subject and object. That affordance must be seen as “relative to the animal” (Gibson 1979, 127) suggests that affordance is subjective. However, “affordance is not bestowed upon an object by a need of the observer and his act of perceiving it; it is always there to be perceived,” located in the environment

(p.139), which suggests it is objective. Of this tension, Gibson wrote (p.129):
“an affordance is neither an objective property nor a subjective property, or it is both if you like. An affordance cuts across the dichotomy of subjective-objective and helps us to understand its inadequacy. It is equally a fact of the environment and a fact of behavior. It is both physical and psychical, and yet neither.” (p.129)

A similar tension has been encountered in the IS field. The kinds of affordances discussed above are all, on the one hand, relative to (meaningful to) the user, while on the other hand being located in the environment, i.e. the ICT facilities themselves. Over the past few decades the IS field has increasingly emphasised the former, the subjectivity of IS use (Hartson 2003), including the flexibility with which users can resist use, adopt workarounds or use the facilities in innovative ways. Hutchby (2001) charts the dialectical reactions that have characterized perspectives in the IS field, between emphasis on objectivity with technological determinism, then on subjectivity with social construction of technology and social shaping of technology, and suggests that affordance might offer a next phase, which he calls “technological shaping of sociality”, and which recognises the objectivity of technology alongside the subjectivity of the user. Like Gibson, he wants a reconciliation, and the debate about subject-object in that field can be useful in IS. However, the milieu mitigates against integration of them.

This must be addressed philosophically. Apart from a few passing allusions to Polanyi, James, Wittgenstein etc., Gibson, a radical empiricist, did not attempt a philosophical underpinning. Some have suggested basing Gibson in Heidegger or Merleau-Ponty (Dotov et al. 2012), but the former dissolves rather than “repairs” the difference between subject and object, and the latter’s focus on the body, make them less useful in the fields of ICT and IS. Moreover, neither offer a basis for addressing the diversity of kinds of affordance, nor the both-neither nature of affordance. Dooyeweerd (1955) provides a way to bridge the subject-object gulf without dissolving one into the other, and without undue emphasis on body, so it is useful in IS. This will be explored.

4. A Dooyeweerdian Understanding of Affordance

Dooyeweerd’s philosophy shows promise in understanding affordance. This is because Dooyeweerd came from a different direction, which places meaning at the centre in a way that resonates with the needs of understanding the nature of affordance, and as a consequence can address complexity. Dooyeweerd understands the subject-object relationship in a radically different way that allows

genuine integration of subject and object, and addresses the ontology of affordance in a way that can be translated over different fields.

Dooyeweerd argued that most Western philosophers, including both Descartes and Heidegger, have presupposed that the fundamental principle on which all may be explained is to be sought within the created order, and that doing so inevitably divorces meaning from reality and makes it very difficult to address complexity. It also results in philosophical movements of thought being governed by dualistic pre-theoretical presuppositions that lead to deep antinomies in philosophy. The dualism that governs the current era, to which both Descartes and Heidegger belong, is the opposition of (deterministic) nature and (human) freedom. The Cartesian subject-object relationship is an expression of this, presupposing an unbridgeable gulf between (freely-perceiving) subject and (perceived) object so, Dooyeweerd argued, much as philosophers might try to bridge the gulf they will ultimately always be unsuccessful because their opposition is presupposed (Dooyeweerd 1955,I,64-65).

Resolution requires adopting different presuppositions. By presupposing that the fundamental principle lies outwith created reality, meaning is re-integrated with reality, and his philosophy is not dualistic but recognises a pluralistic diversity that coheres. This opens the way for a radically different idea of subject and object, which provides what Gibson was reaching for.

4.1 Addressing the Challenge of What Affordance Is

Dooyeweerd held that meaningful law is the transcendental foundation of all being, becoming, activity, possibility, knowing and rationality. He wrote:

“Meaning is the being of all that has been created and the nature even of our selfhood.” (Dooyeweerd 1955, I, 4, his italics)

Meaning, in this sense, must be differentiated from subjective or intersubjective attribution of meanings to things, and from linguistic semantics or pragmatics. It is akin to what is referred to in “the meaning of life” – something beyond us, and to which all refers. Meaning in Dooyeweerd’s sense will be called ‘*meaningfulness*’ here. Meaningfulness is like an ocean in which fish swim, and which at the same time enables their swimming and even enables them to be fish. It is this ‘oceanic’ view of meaningfulness that is helpful for understanding affordance. Meanings, in the sense of specific attributions or significations, are made possible by this ‘ocean’ of meaningfulness. (It may be argued that what Heidegger did for existence, Dooyeweerd did for meaningfulness. Meaningfulness

is not something we stand apart from, control or generate, as a property of objects, but something we 'live within', and we actualize or 'discover' it by living or occurring within it.)

In everyday experience we encounter a rich diversity of meaningfulness – physical meaningfulness, biotic, psychical, purposeful, informational, social, economic, aesthetic meaningfulness, and so on. Most philosophy has divorced meaningfulness from reality (Dooyeweerd 1955, II, 25-26) and thus has had little incentive to explore this diversity, so instead tries to reduce it to just a couple of aspects (ways of being meaningful). Dooyeweerd, by contrast, was motivated to do justice to our everyday experience and explore the diversity philosophically. In a discussion of over 400 pages in Dooyeweerd (1955, II), he delineated fifteen aspects or fundamental ways of being meaningful. These are shown in Table 1, below, each of which is irreducibly distinct from the others, and the laws of which cannot be reduced to the laws of others.

Dooyeweerd addresses the debate over whether affordance should be approached as entities, activities or relationships, by grounding all three in a deeper notion of aspectual meaningfulness. Genuine existence presupposes meaningfulness. For example, a rock exists *qua* rock by reference to the physical aspect, and becomes rock by responding to laws of the physical aspect (which govern forces, energy, etc.). A climbable-thing exists *qua* climbable-thing by reference to the psychic aspect. An ICT system has no existence *qua* ICT system, and does not become an ICT system, except by reference to the informational ('lingual') aspect and its laws. Reference solely to the physical silicon, copper and plastic from which its hardware is constructed does not account for the ICT system. For fuller discussion of this, see Chapter V of Basden (2008). Each thing is a thing by reference to at least one aspect.

To Dooyeweerd, aspectual existence accommodates, but does not presuppose, distinct entities. Physical, social and aesthetic existence especially are often beyond entities, and are more properly called situations. But biotic and analytical existence especially are often discrete.

Likewise, activity presupposes meaningful law that defines and enables functioning and repercussions of that functioning ('causality'). Climbing, *qua* climbing, as opposed to exerting-force-on-horizontal-flat-rigid-rock, presupposes the sphere of meaningfulness that is psychical. Likewise, editing text, *qua* editing text, presupposes the lingual, and collaboration, *qua* collaboration, presupposes the social. To Dooyeweerd, this is not just epistemological (in that we call such

activity “climbing”, “editing” and “collaboration”), but it is ontological, in that climbing, editing and collaboration actually occur, and are not ontologically reducible to physical functioning such as exerting forces. (Arguing that requires more space than is available here.) Relationships also presuppose such aspects, in that the kind of relationship that is meaningful depends on the aspect.

This implies that each thing, activity and relationship that we encounter in the pre-theoretical (everyday) attitude actually exhibits multiple aspects. So, for example, the rock is both rock by reference to the physical aspect, and also at the same time, climbable-thing by reference to the psychical aspect. An ICT system exhibits many more aspects, discussed in Chapter V of Basden (2008). This informs the debate over whether perception of the environment is reflective or unreflective. It would be addressed by Dooyeweerd as the agent and environment functioning together in response to aspectual law. In the analytical aspect perception can be reflective, but in the psychical, formative, lingual, social and other aspects, it is unreflective (c.f. Basden 2008, 93).

Repercussions of functioning in the quantitative to physical aspects are largely deterministic, but are increasing non-deterministic in the later aspects, instead taking on a normative quality. In the case of the climbing animal, the psychical activity of its climbing will not be deterministic, even though the physical activity of contact between foot and rock functions largely deterministically. That later aspects are even less determinative can inform the debate over whether affordance offers or invites, rather than determines, activity.

Conventionally, each discipline or science focuses its gaze on one way of being meaningful (one aspect) and studies that (Basden 2008, 100). The temptation is strong to ignore all but the one aspect or to try to reduce phenomena meaningful in other aspects to those meaningful in their main aspect. The temptation to reduce psychical activity like climbing to physical activity is strong, but Gibson wanted to resist it. Yet the intellectual milieu of the time made it difficult for him. It still does. Dooyeweerd can provide sound philosophical support for Gibson’s resistance – and also equivalent resistance in the IS field.

4.2 Addressing the Challenge of Complexity

Dooyeweerd’s notion of aspects as ways in which things are meaningful can address the complexity of kinds of affordance, and also affordances within each kind. Whereas meaningfulness has been problematic in psychology, it has long been recognised in the field of IS for some time, for example via the *Weltanschauung* of Soft Systems Methodology (Checkland 1981), the hermeneutic

circle of interpretive IS research (Klein & Myers 1999) and the semantics and pragmatics of knowledge engineering (Basden & Klein 2008). However, meaningfulness has seldom been discussed as such, having been largely taken for granted.

Dooyeweerd's exploration of the diversity of meaningfulness offers a basis on which to address the complexity of IS (see, e.g., Bergvall-Kåreborn & Grahm 1996; Eriksson 2006). All situations exhibit all aspects, either actually or latently, and identifying how it is meaningful in each aspect helps to separate out issues, draws attention to issues that have been overlooked, and helps to prevent category errors. If each affordance is a pair of ways of being meaningful, then we might expect many possible pairs, each being characteristic of a different kind of affordance. In artefacts, the agent aspect is the formative (achievement of some task like opening a door), while the environment aspect is the physical. In HCI, the environment aspect is the psychical aspect, i.e. things that are seen, heard or controlled by muscular action, while the agent aspect is the informational, insofar as the user's seeing, hearing or manipulating is not for its own sake but always signifies something.

In the IS field as described earlier, the environment is informational, but the agent aspect is different in each case, and this provides a way to differentiate them. Zammuto et al. (2007) are primarily interested in how ICT affords benefits to the product-oriented organisation, such as flexible product creation and mass collaboration to achieve some productive end. These focus largely on the economic aspect. They also discuss visualization (of the entire work process), which is analytical. Majczrak et al. (2013) are interested in how social media in organisations afford metavoicing, triggered attending, network-informed associating, etc. which are primarily meaningful in the social aspect. Treem & Leonardi (2012) are primarily interested in issues meaningful in the formative aspect of achievement, such as visibility, persistence, editability. Conole & Dyke (2004) are interested in general ICT-related possibilities, many of the meaningful in the lingual aspect.

Hutchby (2001) argues that affordance depends on a relationship between human activities and technological features, rather than on either separately, and that studying either informational or organisational aspects on their own is not helpful. However, these authors show that in the IS field the agent aspect varies, being respectively the economic,

Aspect	Kernel (To do with)	Meaningful in Affordance
1. Quantitative	Discrete amount	-
2. Spatial	Continuous extension	-
3. Kinematic	Movement	-
4. Physical	Fields, Energy, material	Environment aspect of Gibsonian affordance
5. Biotic / organic	Life functions, organism	-
6. Psychical	Sensing, feeling and emotion	Agent aspect of animal affordance (Gibson 1977); Environment aspect of HCI and artefact affordance
7. Analytical / logical	Distinction, concepts	Agent aspect of analysis affordance (Zammito et al. 2007)
8. Formative / technical	Formative power: design, construction; achievement, goals, techniques, tools	Agent aspect of artefact affordance (Norman 1988)
9. Informational / lingual	Symbolic signification	Agent aspect of user interface affordance (Norman 1988); Environment aspect of various ICT and IS affordances; Agent aspect of informational affordance (Treen & Leonardi 2012)
10. Social	Relationships, organisations, roles	Agent aspect of organisational affordance (Majchrzak et al. 2013)
11. Economic	Frugality, resources, limitations, management	Agent aspect of affordance oriented to assisting production etc. (Zammito et al. 2007)
12. Aesthetic	Harmony, delight, fun	
13. Juridical	'Due', appropriateness; rights, responsibilities	
14. Ethical / Moral	Attitude, self-giving love	
15. Pistic / Faith	Faith, commitment, belief, Vision of who we are	

Table 1

social, formative and informational. This increased complexity can be addressed by reference to Dooyeweerd's suite of aspects. Table 1 shows each aspect with its kernel meaning, and how each aspect might be an agent aspect or environment aspect for each kind of affordance in both IS and other fields.

This shows several things. One is that each kind of affordance discussed above can be situated within such a scheme. This provides a more general way of understanding affordance in general across all fields. It also shows that there is room for other kinds to be discovered. This provides an incentive to seek others and a basis on which candidate kinds of affordance may be judged – see later examples in which the agent aspect is the aesthetic or ethical. The fact that some aspects are both agent aspect for one kind of affordance and environment aspect for another suggests a way of relating different kinds of affordance together. Specifically, one kind of affordance might 'serve' or 'enable' another and, conversely, one kind might depend on another. For example, HCI affordances can serve IS use affordances. This dependency has been discussed by Dooyeweerd as interdependency among aspects, where each aspect depends foundationally on earlier ones insofar as functioning in that aspect depends on good functioning in the earlier aspect (e.g. social functioning requires lingual functioning of communication).

Aspects have a normative quality, with each aspect defining a distinct kind of good and bad. For example, lingual good includes understandability, social good and bad include togetherness versus enmity, and economic good and bad include

frugality versus waste (Basden 2011). This can be a basis for studying the normativity that Rietveld (2008) found in artefact affordances and which pervades IS affordances. Sometimes, IS affordance seems to exhibit more than two aspects. For example, visualization of entire work processes, though it might serve economic purposes, seems mainly meaningful in the analytical aspect (visualization) and also the aesthetic aspect of harmony (“entire”). By prompting a decision on which aspect is intended to be primary, with appropriate rewording, Dooyeweerd’s aspects are useful in removing possible category errors. Dooyeweerd recognised that multiple aspects could be important, in his distinguishing between qualifying, founding, leading and internal-leading aspects. In most cases, the founding aspect aligns with the environment aspect, and the qualifying aspect with the agent aspect, but that does not always work, because Dooyeweerd assumed that the founding aspect is always earlier, whereas we have one case in which the agent aspect is analytical, earlier than the lingual environment aspect. Dooyeweerd’s theory of roles of aspects seems underdeveloped (Basden 2008), and might benefit from study of a wide range of IS affordances.

4.3 Addressing the Challenge of Subject and Object

If we are to circumvent the problem of the Cartesian subject-object relationship, we need to understand what makes it problematic. Dooyeweerd (1955) located its root problem in pre-theoretical commitment to a dualism between nature and freedom, and this influenced the thought of both Descartes and Heidegger. Descartes’ subject is presupposed to be free in its perceiving, thinking and acting, while his object is presupposed to be largely passive and unfree – of the nature pole. Heidegger could only remove the tension between subject and object by ignoring one of them, but this ultimately fails to fit everyday experience, in which subject and object both occur and neither can be ignored.

Dooyeweerd could overcome the tension while retaining both subject and object by recognising that, to be a subject (agent) is constituted in being subject to law (thus re-integrating the two English words ‘subject’). Law does not refer to subjectively or socially constructed laws, rules or norms, whether spoken or unspoken, but to the deep law that enables reality to Be and Occur, and by which Time itself is generated. Law often takes the form of promise, and is different for each aspect; for example, a law of the lingual aspect might be expressed as “If we make sense in terms of what the reader already assumes or believes, then the reader will understand better”. What Dooyeweerd called the law side of reality

includes the deep laws of all aspects together.

All functioning in temporal reality is governed and made meaningful by this aspectual law, but subjects and objects function differently. Things function as subject (agent) when they respond to law, and as objects when their functioning, though still governed by law, is as a result of some agent's subject-functioning. For example, as I write this I am responding to laws of the lingual aspect, and thus function as lingual subject, but the words and sentences I write are functioning as lingual objects. The expected reader is also a lingual subject; Dooyeweerd's view enables a subject-subject as well as subject-object relations. So, as ICT is used, the words and other symbols they read or write are lingual objects while they, as lingual subjects, actively respond to lingual law. Likewise, when considered from the psychical aspect, the animal functions as subject when they climb, and the rock functions as psychical object in being climbed.

Agent and environment are governed, and their functioning enabled, by the same law side. However, they function differently in different aspects. To Dooyeweerd, whether an entity is a subject or object does not depend on the entity itself, but on how it functions in each aspect. An entity can be subject in one aspect but object in another, as in the example of the animal climbing a rock:

- * The climbing animal functions as subject in both psychical (seeing, hearing, responding as climbing) and physical (feet exert force) aspects. The human user of a computer functions as subject in all aspects.

- * The climbable rock functions as object in the psychical aspect ('letting itself' be climbed) but as subject in the physical (exerting equal and opposite force). Likewise, a computer may be said to function as subject in the physical aspect of silicon etc., but as object in the lingual, social and economic aspect.

This provides philosophical grounding, which has so far been lacking, for the idea that agent-relative properties like climbability or editability are located in the environment, without having to reduce the agent aspect to the environment aspect, and without having to posit it as being solely in the intentions or constructions of the agent. Unlike the Heideggerian escape, of merely dissolving the difference between subject and object, Dooyeweerd retained the distinction, which is found in everyday life and is also important for affordance. Dooyeweerd's understanding of subject and object provides the foundations for the bridge that Gibson and others have so long sought. It also enables IS scholars to conceive of how the information ('technical') characteristics of the ICT facilities have a role to

play in response to the 'free', innovative activity of the user, without fear of returning to a technological determinism in which only the technology plays a role.

4.4 Addressing the Challenge of Translation to Different Fields

This provides a sound basis for translating the insights from ecological psychology across to other fields – and vice versa. For translation to be valid there must be some common thread that can be made the basis for translation. Chemero's (2003) suggestion that affordance is a relationship between a pair of aspects, combined with Dooyeweerd's notion of aspects, helps to generalise the idea of affordance across all fields, as a pairing of agent and environment aspects in each case.

Dooyeweerd's suite of aspects provides a useful conceptual tool with which to think about the different pairings. Dooyeweerd's notion of multiple aspects of one activity means that when extra aspects are encountered they can be incorporated rather than ignored. Aspects are understood in the same way, as ways in which things can be meaningful, and meaningfulness is understood in the same way, as an 'ocean' that enables us to Be and Occur. This grounds entities, activities and relationships of affordance across all aspects, as explained above.

What differs through the aspects, and thus what influences the way issues encountered in one kind of affordance are translated to others, are three things: the precise meaningfulness that each offers, that the laws of earlier aspects are more deterministic than the more normative laws of later aspects, and that functioning in later aspects depends on that in earlier ones for its actualization. The following are issues discussed above:

- * Activity. Each agent aspect enables a distinct kind of activity, but this is likely to be more varied and less predictable in IS than in ecological psychology.
- * Normativity. This should be expected in all kinds of affordance, though in than psychical affordance normativity is minimal. That normativity differs for each aspect provides clarity.
- * Enabling. Functioning in the environment aspect enables that in the agent aspect. This can often be understood in terms of Dooyeweerdian interdependency between aspects.
- * Unreflective perception. The knowing in most aspects is unreflective, but takes a different form.

Formative, lingual and social perception all differ, but are all present in IS use, so

understanding the difference can help study.

In ecological psychology, the body is important, and body-scale is a key concept. How might this translate across to information systems? There have been two main ways, neither of which are ideal. One approach is to ask where 'bodies' are found in IS, such as in avatars in virtual reality or characters in computer games. This can lead to confusion, as in (Rambusch & Susi 2008) and is limited in application. Another is to seek analogies to the body, as Bloomfield et al. (2010) do, taking Scarry's (1985) view that made objects are projections of the human body (e.g. bandage replaces skin). Then "Such 'affordances', we might say, name the various ongoing exchanges of attributes between human bodies and the world made of objects" (Bloomfield et al. p.421). But they provide no precision, as the "we might say" indicates, and arguments cannot be based on analogies.

Seeing affordance as meaningfulness opens up a third, more satisfactory way. This involves we asking why body scale is important (meaningful) in ecological affordances: It is because of the physical and pre-physical properties of the animal - how the animal is meaningful in terms of the environment. That is, the environment aspect in which both agent and environment function are compared. Usually a subject-subject relationship is discovered in this aspect, which is the basis for genuine interaction. In the IS field, we can likewise compare the environment aspect of both user and ICT facility. Several affordances are founded in information (Dooyeweerd's lingual aspect), so the equivalence of body scale is: What are the lingual (informational) characteristics of the afforded human task, and how do they compare with those available in the ICT facility? One example might be language difference, which can hinder social affordance.

5. Practical Application

A few examples are now offered of how this might work in practice. Aspectual normativity provides a way to separate out issues (Ahmad & Basden 2013) and locate more precisely where the problems might lie. For example, information overload (Conole & Dyke 2004) is problematic by reference to the lingual aspect but not the formative, while groupthink (Majchrzak et al. 2013) is problematic by reference to the social and pistic aspects, but possibly not directly problematic in the economic aspect. Dooyeweerd's aspects are intended to apply across all cultures, and to be intuitively grasped. This opens up the possibility of distinguishing affordances that are culturally specific from those which apply across all cultures. To understand affordances which apply across cultures is very

important when considering ethical and beneficial development in which ICT plays its part.

Some extant lists of affordances are incomplete or not well formed, and aspects can help reveal and even correct these. In the ideal case, all affordances of a given kind should have the same agent and environment aspects, but may be differentiated from each other by a tertiary aspect. This can help prompt critique and refinement of lists, as in the following example, which critiques Zammuto et al.'s (2007) five affordances of: Visualizing entire work processes, Flexible product creation, Virtual collaboration, Mass collaboration, and Simulation and synthetic representation (what-iffing). For all these, the environment aspect is the lingual. From the way they are worded, each is meaningful in a different aspect, respectively: analytic/aesthetic, formative, social, social and analytic.

If this is the agent aspect, then the list is not well-formed. However, examination of their explanation of each shows that each is related to the economic functioning of a product-oriented organisation, so these aspects might be the tertiary ones. The dual aspect in visualization suggests the affordance can be meaningfully split, one dealing with analysis of work processes, the other with harmonizing them. The two social aspects prompts a question of whether there is any important difference between virtual and mass collaboration. The text reveals that though both involve collaboration, which is indeed social, the emphasis in the former is on communication and in the latter is on working together, suggesting lingual and social aspects respectively. The 'virtual' tag, though fashionable in IS circles, is not useful as a differentiator since most of their affordances involve virtuality. It might be useful to relabel both.

Dooyeweerd's suite of aspects can help direct search for new kinds of affordance. Table 1 contains aspects for which no IS affordance has yet been discussed – aesthetic to pistic – which suggests possible new kinds of affordance. The way to begin to consider these is to assume an environment aspect of lingual, but an agent aspect of each of these, and ask for each "What benefits or problems meaningful in this aspect would the user experience?" For the aesthetic aspect, such benefits might be fun or enjoyment. "How can ICT facilities afford fun?" is an IS question, to which Dooyeweerd can direct our attention. Computer games are a genre dedicated to this, so exploration of aesthetic-lingual affordances might begin there.

Though Rambusch & Susi (2008) try to discuss affordances in computer games, but their treatment is confused, and can be an example of how a Dooyeweerdian approach can remove confusion. They mix together affordances that are

meaningful to the avatar (opening a door in a virtual room) with those meaningful to the human player (keyboard buttons), and yet they miss the main point of computer gaming: fun. Using Dooyeweerd's aspects, Breems & Basden (2014) are able to distinguish these as: opening a virtual door in a virtual room is 'engaging with meaningful content'; hitting keyboard buttons is 'human-computer interaction', and having fun is 'human living with computers', and all three involve all aspects, though in different ways.

Finally, aspectual affordance might provide insight into societal and developmental issues. Recognising that no affordance has been discussed in which the ethical is the agent aspect (Table 1), this directs our attention to the question, "How can ICT facilities afford self-giving attitudes such as generosity?" Attitude is not just individual but also pervades society in ways that are not obvious, but which become felt after a time. So this affordance needs to take a societal perspective. This is especially important in development ethics. Generosity is an attitude which pervades Sub-Saharan Africa, but which by comparison is lacking in the wealthy, European North. This directs us to the important question of the impact of ICT on African attitudes, whether it will afford a strengthening or weakening of such generosity, and how to strengthen rather than weaken. Given the individualized nature of mobile ICT, this is a serious challenge. Much will depend on whether the ICT available for use there is self-protective or tends to open up self. The tendency of application developers to self-protection of economic and legal interests is likely to afford a turn to selfishness and self-centredness, undermining traditional generosity. There is much other potential applicability, such as how the Dooyeweerdian idea of affordance can guide research agendas, and how it can be used to bring disparate kinds of affordance together into a wider picture. Those are still to be explored.

6. Conclusion

Affordance is a useful notion with which to think about and discuss the relationship between an agent and its environment across many fields - whether animals in a physical environment, or people using ICT facilities in an organisation. Several challenges have been mentioned: complexity and different kinds of affordance, the translation of concepts and findings about affordance from one field to others, and two more fundamental challenges, those of meaningfulness and of the subject-object relationship.

Dooyeweerd's philosophy is ideal for grounding an understanding of affordance,

because the two main fundamental challenges that affordance presents are directly and centrally addressed by Dooyeweerd, and the other two challenges are addressed on the basis of those. To Dooyeweerd, meaningfulness is foundational to all, and his exploration of diversity of meaningfulness, which resulted in his famous suite of fifteen aspects, can be very helpful in understanding affordance as the relationship between pairs of aspects. Until now, though the discourse around affordance frequently mentioned meaning, there was little understanding of meaning as such. Dooyeweerd's reinterpretation of the subject-object relationship enables us to understand how agent-relative features like climability or editability can be located in the environment rather than solely in the agent. A number of issues that depend on these foundational ones have been also discussed, and some practical examples have been given for how Dooyeweerd might be useful when discussing affordance.

This might make a number of contributions. The field of ecological psychology might benefit from a philosophical grounding to the concepts that circulate in its discourse, as well as from a confidence that there is at least one philosophy that can support both Gibson's desire to bridge between subjective and objective and the growing importance of meaning. The field of IS can benefit from recognising distinct kinds of affordance as defined by different agent aspects. Dooyeweerd's suite of aspects can direct research into new kinds of affordance. The generation of lists of affordances of each kind can benefit from reference to aspects. The idea that the environment aspect is the lingual rather than the physical provides a starting point for translating insights emerging from the field of ecological psychology into the field of IS. In these ways, IS research into IS use can be strengthened and given a firmer foundation.

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NOTES

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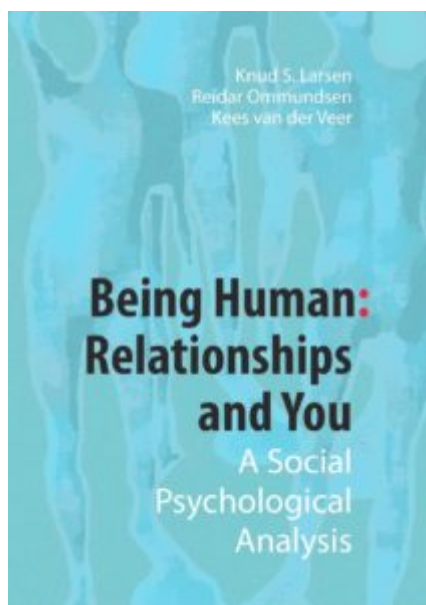
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Being Human: Attraction And Relationships ~ The Journey From Initial Attachments To Romantic Love



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Many years ago two boys were walking home from school. They were seven years old, lived in the same neighborhood, but went to different grade schools. Although living close to each other they had not met before running into each other on this day on the road leading up the hill to their neighborhood. Both seemed quite determined to assert themselves that day, and soon they began pushing each other that gradually turned to wrestling, and attempts to dominate. After what seemed hours, the two little boys were still rolling down the surrounding hills as the sun was going down. Neither succeeded in achieving victory that day. In fact, they never again exchanged blows but became the best of friends. Today it is more than 50 years later, and their friendship has endured time and distance. Friendship is like a rusty coin; all you need to do is polish it at times!

In this essay we shall examine the research on attachment, attraction and relationships. The intrinsic interest in these fields by most people is shared by social psychologists, and attachment, attraction, and love relationships constitute one of the most prolific areas of investigation in social psychology. The early attachment theory advanced by Bowlby (1982) emphasized the importance of the field when he suggested that our attachments to parents to a large extent shape all succeeding relationships in the future. Other research focus on exchange and communal relationships and point to the different ways we have of relating to each other. The importance of relationships cannot be overemphasized since we as humans have a fundamental need to belong. Relationships also contribute to the social self as discussed in the book, and effects social cognition discussed in the same (see: at the end of this article). The variables that determine attraction may be understood theoretically as functions of a reward perspective.

The importance of relationships is demonstrated by findings that show that among all age groups relationships are considered essential to happiness (Berscheid, 1985; Berscheid & Reis, 1998). The absence of close relationships makes the individual feel worthless, powerless, and alienated (Baumeister & Leary, 1995; Stroebe & Stroebe, 1996). Our very humanity is defined by our relationships (Berscheid & Regan, 2005).

1. Attachment: The start to relationships

This chapter is about the development of attachment, intimate relationships between adults, and the road leading toward love relationships. No greater love

has a person than giving his life for another. This idea from the Bible brings to mind the passion of deep commitment and the willingness to sacrifice, even in the ultimate sense. This willingness to sacrifice is one manifestation of love, but as we all know there is much more to relationships and love.

The research described in the following pages concerns early attachment, and attraction and love between adults. These relationships may be institutionalized by marriage, or (registered) partnership, or take some other form (living-apart-together) in relationships. Since the vast majority of romantic relationships exist between heterosexual partners we describe the journey from attraction to romantic relationship from this perspective. There is little research so there is no way to know, however, there is no convincing reason to assume that this journey is completely different for homosexuals.

Most people will experience the delirious feelings of infatuation and love sometime in their lives. What is love? How can we achieve love? And how can we build these feelings into lasting relationships? Are there ways we can improve our chances for satisfying long-lasting and happy relationships? This chapter will show that there are behaviors to avoid, but that we can also contribute much to lasting attachments. Long-lasting romance depends on positive illusions and bringing novelty and renewal to our intimate relationships.

We live in a changing world. Although in many parts of the world couples are still united through arranged marriages, more and more modern communications are changing the ways people relate, for example learning about other culture to value freedom or the individual right to choose one's spouse. Computers provide platforms from which to initiate relationships, and opportunities to screen for important characteristics prior to any encounter. Does that take away something of the mystery of liking and loving relationships? Some do feel that how we encounter and meet people should remain in the realm of the mysterious.

However, as we shall see in this chapter, learning to like and commit to one another follows predictable patterns. The fact that divorce rates increase in the western world, suggests that we could all benefit from a greater understanding of how relationships develop, and how to make them enduring and satisfying. To give up one's life for another is a noble commitment, but to live one's life for the beloved is a different, but equally high calling. How do we move from the initial

encounter of liking to romance and love and lasting commitment? We shall see that liking and love are universal behaviors, although cultures affect how they are expressed.

In this chapter we shall discuss the research from initial attachments to long lasting relationships. Is there a basic need to belong? Does evolutionary thinking contribute to our understanding of the universality of attachment? There is evidence, as we shall see, that we all need to be connected to others, to experience a network of varying relationships. These needs are universal, present in all cultures and societies. Our needs to belong motivate our unconscious and conscious thoughts, and our behavior in the search for satisfying relationships. Without such relationships we suffer the pangs of loneliness with negative physical and psychological consequences.

1.1 An evolutionary approach to attachment

Many textbooks in psychology refer to feral children as evidence that negative consequences occur when a child grows up without normal human attachments. The child Victor was found in 1800 in the French village of Saint-Sernin. He was believed to have grown up in the forests without human contact, and proved devoid of any recognizable human characteristics. Initially he refused to wear clothes, understood no language, and never showed human emotion. This “wild boy of Aveyron” was taken into the care of Jean Itard, who devoted considerable energy to teach Victor language and human interaction. He did eventually learn some words, but never developed normal human interaction or relationships (Itard, 1801; 1962). Do feral children demonstrate the essence of human nature in the absence of relationships? We can see from the story of Victor, and that of other feral children, that what we describe as human is forged in our relationships with others. Without these interactions there is little discernable human in our behavior. Without relationships provided by parents, family, and society, we are without language with which to communicate, and without civilization to teach appropriate norms for behavior, and we have no “human nature”. We are human because of our relationships.

1.2 Early attachment forms the basis for our adult relationships

What are some of the deciding factors that enable us to establish interpersonal relationships? Interpersonal relationships are essential to human satisfaction and happiness, and refer to the bonds of friendship and love that hold together two or more people over time. Interdependence is manifested by how individuals spend

significant time thinking about each other, and engage in common activities, and have shared histories and memories. Although central to our understanding of what it means to be human, social psychology has a short history of studying relationships (Hartup & Stevens, 1997). Since we cannot experiment with relationships among humans, research takes a different form. In research on relationships we face different problems with methodology than encountered elsewhere in experimental social psychology (Karney & Bradbury, 1997). Since research may affect self-awareness and the relationship ethical concerns must dictate sensitivity in the questions asked allowing us to use primarily the interview and survey methods.

Harlow (1959) performed a famous experiment with baby rhesus monkeys that supported the conclusions drawn from the studies of feral children: social isolation is traumatic and prevents normal development. In this classic study baby monkeys were raised without any contact with a mother or other monkeys. They were provided two “mother substitutes”; one was a wire feeder, and the other feeding substitute was softer and covered with terry cloth. The importance of contact was shown by the baby monkeys clinging to the terry cloth “mother”, and when frightened rushing to this substitute for comfort. Like the feral children these monkeys were abnormal when they approached adolescence or adulthood. They displayed high anxiety, could not playfully interact with peers, and failed to engage in normal sexual behavior. It would appear that social interaction, particularly with parent figures, is essential for normal functioning in adulthood. What we describe as human nature would evaporate in the absence of relationships as we are socialized by our interactions. The universality of the desire to belong would suggest a biological basis similar to other biological needs.

Some will suggest that the need to belong is indeed part of our evolutionary heritage (Bercheid & Regan, 2005). No other species display a longer dependency period than humans, and we need nurturing relationships to survive. Parents who in the past failed to display essential nurturing behavior did not produce offspring that survived. We are all descendants of relationships that took parenting very serious. It is possible to perceive bonding from the very beginning of life. Initially only the mother establishes relationships by gazing at the infant, who in turn responds by cooing and smiling. That is the beginning of all subsequent bonding in the child’s life. Later as the child grows, other bonds are established with the father and other family members. Throughout life a normal human being will seek

out relationships responding to a biological need for companionship.

Baumeister & Leary (1995) proposed five criteria to demonstrate the fundamental biological nature of the need to belong. First, since relationships make a direct contribution to survival, an evolutionary basis is supported (Simpson & Kenrick, 1998). Evolutionary causality would require us to accept that even romantic bonds with all the giddiness and mystery are primarily vehicles that create conditions for reproduction and survival of the infants (Ellis & Malamuth, 2000; Hrdy, 1999). Without that special attachment between mother and infant the child would be unable to survive or achieve independence (Buss, 1994).

A second criterion for the evolutionary basis of relationships is the universality of the mother-child and romantic lover interdependence. As we shall see, such relationships are found in all cultures expressed with some variations. Thirdly, if relationships are a product of evolution, it should have a profound effect on social cognition. There is much support that our relationships to a significant degree define who we are, our memories, and the attributions we make in varying situations (Karney & Coombs, 2000; Reis & Downey, 1999). Fourthly, if need to belong is similar to other biological drives the desire for relationships should be satiable. When deprived we should manifest searching behavior similar to that which occurs for food or water when deprived of these essentials. Once our relationships needs are satisfied, we are no longer motivated to establish new connections (Wheeler & Nezlek, 1977), but if deprived we will seek substitutions for even close family relationships (Burkhart, 1973). Finally, according to Baumeister and Leary, if we are deprived chronically the consequences are devastating. There is a great deal of evidence that relationships are fundamental to our sense of physical and psychological well-being, and to how happy or satisfied we are (Myers, 2000b).

For those deprived, the evidence is uncontroversial. Divorced people have higher mortality rates (Lynch, 1979), whereas social integration is associated with lower death rates (Berkman, 1995). Suicide rates are higher for the divorced (Rothberg & Jones, 1987), whereas breast cancer victims are more likely to survive with support groups (Spiegel, Bloom, Kraemer, & Gottheil, 1989). Other research has shown that social support strengthens our immune and cardiovascular systems (Oxman & Hull, 1997). The literature is very clear on this. With social support we do better against all that life throws against us, without relationships we are likely to lead unhappy lives and die prematurely.

1.3 Biology versus culture

There is no more controversial issue than deciding in favor of an evolutionary or a cultural explanation of attraction. Evidence will show that women in all cultures tend to prefer partners who possess material resources, whereas men prefer youth and beauty. However, in the human species the male is also physically larger, stronger, and more dominant. This has led to male control over material resources. Since women are more vulnerable, they are naturally more concerned with meeting these material needs. (Eagly & Wood, 1999; Wood & Eagly, 2002). The cross-cultural consistency in gender preference may simply reflect size differences and the gender based control of economic resources.

The evolutionary perspective asserts that gender based preferences have reproductive reasons. Symmetrical men are thought attractive because they signal good reproductive health. Some intriguing studies show that women who ovulate show a preference for the smell derived from “symmetric” men (Gangestad & Thornhill, 1998; Thornstead & Gangestad, 1999). Women in the ovulatory phase also prefer men who have confident and assertive self presentations (Gangestad, Simpson, Cousins, Carvar-Apgar, & Christensen, 2004). There is no definitive solution to the biology versus culture argument. Perhaps what matters is, regardless of the origin, these gender differences exist and persist.

1.4 The experience of loneliness

The psychological distress we feel when deprived of social relationships is loneliness (Perlman & Peplau, 1998). For each individual there exists an optimal number of relationships depending on age, and perhaps other factors. We join clubs, political organizations, special interest groups, and religious organizations in an effort to remove deficit in social relationships. We can have many acquaintances, but still feel lonely. Some of us feel lonely being in a crowd where social relations are plentiful, but intimacy is absent. Clearly, the answer to loneliness is not just the quantity of relationships, but whether the connections satisfy emotional needs. Some people have few relationships, and enjoy the experience of being alone. If we find in ourselves good company, our needs for others are diminished. Those who have rich emotional lives are less dependent on others for satisfaction of emotional needs.

However, many people feel the wrenching experience of loneliness. In our society it is very prevalent (Perlman & Peplau, 1998) with 25 percent reporting feeling

very lonely and alienated. Some causes of loneliness are situational due to common life changes in our mobile societies. We move often, and when we do we lose some of our relationships. For example, new opportunities for work require our presence in another part of the country or abroad, and young students attend universities away from family and friends. In these and in many other cases people lose their known social network and support groups. On some occasions we lose relationships permanently due to the death of loved ones, and the resulting grief can produce feelings of prolonged loneliness.

Other people suffer from chronic loneliness. These are people who describe themselves as “always lonely”, with continuous feelings of sadness and loss. Chronically lonely people are often in poor health, and their lives are associated with many issues of social maladjustment including alcohol abuse and depression. Loneliness is a form of stress and is associated with increased health problems resulting in death (Hawkley, Burleson, Berntson, & Cacioppo, 2003).

Weiss (1973) described two forms of loneliness. Social loneliness is produced by the absence of an adequate social network of friends. The answer to that kind of loneliness is establishing new contacts, perhaps by involvement in the community. Emotional loneliness, on the other hand is the deprivation felt from the absence of intimacy in our lives. We all need at least one significant other with whom we can share intimate thoughts and feelings, whether in the form of a friend or spouse. An emotionally lonely person may be well connected, but still feel the gnawing disquiet even in the midst of a crowd.

As we noted in the introduction, our childhood experiences predispose us toward a variety of relationship problems or enjoyments of life. Children of the divorced are at risk for loneliness, and may develop shyness and lower self-esteem (Brehm, Miller, Perlman, & Campbell, 2002). On the other hand, being in a satisfying relationship is a primary guard against feelings of loneliness, this is especially true for those who commit themselves to lifelong relationships (e.g. marriage) (Pinquart, 2003).

Demographic variables also have an effect on loneliness. Those who are poor struggle more with all forms of insecurity, and have less possibilities for participating in social relationships. For example due to lack of money poor people often cannot participate in social activities. Age is also a factor. Most may think that old age is a time of loneliness as people lose relationships to death or

other causes. Some research (Perlman, 1990) however, shows that teenagers and young adults suffer most from isolation. Youth is a time when biology is insistent on connecting with others, particularly with a member of the opposite sex, and the absence of intimate relationships is felt most keenly. Some young people feel not only lonely, but rejected and ostracized. When that occurs we see the rejection play out in severe anti-social behavior as in the case of the school shootings of recent years (Twenge, Baumeister, Tice, & Stucke, 2001).

Interacting with people affects our emotional lives. We feel better being around others, particularly in close or romantic relationships (Bolger, Davis, & Rafaeli, 2003; Delespaul, Reis, & DeVries, 1996). Unhappiness in lonely people, however, may not be due to the absence of people alone. Unhappy friends are not rewarding to be around, and they might be lonely because they are unhappy, rather than unhappy because they are lonely (Gotlib, 1992).

Our need to belong is manifest in all cultures and societies. It is obviously functional to the infant who needs protection. However, adults also could not function in society without supportive relationships. These needs to belong are universal, and if not satisfied produce many negative results. Further, our relationships help form our self-concept (chapter 2) and our most significant behaviors. Our relationships largely determine how we think about the world, and our emotional well-being.

1.5 The beginnings of attachment

Infants demonstrate stubborn attachments to their primary caregiver. This is sometimes manifested by total devotion to the mother, gazing and smiling when in contact, crying when she leaves the room. As the child gets a little older the pattern may continue, initially having nothing to do with the rest of the family. The attachments of the child may gradually change and she or he becomes fond of the father, grandmother and other relatives, proceeding normally from long attachment to the mother, to establishing new relationships with other people in her or his life. Attachment refers to the positive emotions expressed in the presence of the caregiver, the feeling of security in the child, and the desire to be with the caregiver, initially exclusively, but later with other significant others (Bowlby, 1988; Cassidy & Shaver, 1999).

The personal security and emotional warmth offered to the child is different for each caregiver. Therefore infants develop different attachment styles that in turn

have profound effect on adult relationships. Ainsworth, Blehar, Waters, & Wall (1978) proposed three infant attachment styles. *The secure attachment* occurs when the caregiver is available, and the infant feels secure, and when the child's emotional needs are met. *The avoidant attachment* occurs when the caregiver is detached, unresponsive to the infant, and when in some cases the infant is rejected. This type of attachment leads to premature detachment and self-reliance. When the parent figure is at times available, but at other times not, and therefore is inconsistent in meeting the emotional needs of the child, the result is *an anxious-ambivalent attachment* style. This type of infant may be anxious and often feel threatened.

Essentially the three attachment styles develop in response to the caregiver's emotional behavior; i.e., how consistent the emotional needs are met, and how secure the child feels as a consequence. From the perspective of evolutionary theory, attachment has obvious survival value for the infant. If mothers did not find the baby's cooing and smile endearing, and if the infant did not find her presence so reassuring, the lack of attachment could be disastrous for the infant. Infants and small children cannot survive without parental attention, so both the caregiver's behavior and infant's responses are very functional to the survival of the human species.



1.6 Attachment styles of adults

How comfortable are we with our relationships, and to what degree can we form secure and intimate relations with family, friends, and lovers? Hazan & Shaver

(1987) found that adults continue with the same attachment styles adopted as infants. Whether an adult is secure in relationships, and can foster shared intimacy, depends on the three attachment styles described above. Psychoanalysis asserted that our childhood experiences have profound effects on adult behavior. The attachment theorist likewise believes that the relationship styles developed as infants are stable across a person's lifetime. Infant attachment styles determine whom we associate with as adults and the quality of our relationships. Some longitudinal studies have in fact demonstrated attachment styles developed early in life determine how we later relate to our love partners, our friends, and eventually our own children (Fraley & Spieker, 2003; Kirkpatrick & Hazan, 1994). Other researchers however, have found changes between infant and adult attachment styles (Baldwin & Fehr, 1995). The infant's relationship with the primary caregiver is critical to the success of adult relationships. However, there is some hope that we can change from infant maladaptive styles to more functional adult behaviors and relationship satisfaction.

Life events may also influence our ability to form secure relationships. Traumatic events that separate us from beloved family members through death or divorce, affect our ability to develop intimate relations. So does childhood abuse, or family instability (Brennan & Shaver, 1993; Klohnen & Bera, 1998). Within intimate relationships the type of attachment has profound effects (Collins & Feeney, 2000; Fraley & Shaver, 1996). How we say goodbye, for example, at train stations and airports is reflective of our attachment styles. Avoidant romantic partners spent less time giving embraces, whereas those who were anxious expressed sadness and fear when separating. How we express attachment may vary with culture. Being reserved is not universally diagnostic of having an avoidant attachment style.

1.7 Secure attachment styles bring many benefits

Secure individuals bring out the best in others. Even when significant others display negative behaviors such as unjustified criticisms, the secure person will see that behavior in a positive light (Collins, 1996). A secure and positive outlook brings its own rewards. These include, not surprisingly, more relationship satisfaction. Secure partners are less likely to break up the relationship, and more likely to stay married, they experience fewer marital tensions, and generally fewer general negative outcomes (Shaver & Brennan, 1992; Mikulincer & Shaver, 2003). On the other hand, anxious people are more likely to perceive threat. They

view life events in pessimistic ways leading to depression, substance abuse, and eating disorders. Our early bonds with caregivers matter a great deal as we move on in life. These attachment styles have significant effects on our current relationships, and our own sense of well-being. Secure life styles based on a good start in life produce healthier relationships, and good personal health.

2. Culture and socialization produce different relationships

Fiske (1991; 1992) proposed a theory of relationships that suggest that we behave in four distinct ways in defining who we are, how we distribute resources, and how we make moral judgments. A *communal relationship* put the interest of the group ahead of that of the individual. Types of groups in this category include families, or close social allies. In families what we contribute depends on what we can offer, and what is right to receive depends on the needs of the individual informed by benevolence and caring. In a family, children are different and require different resources. One child may be intellectually gifted, and parental care may be shown by support for education. Disproportionate support for one child may result in fewer resources for another child. In communal groups or families, resource distribution is decided by the needs of each member, and desire to help all.

In the *authority ranking groups* the status and ranking hierarchy is what matters. Members of these groups are aware of the status differences, and roles tend to be clearly specified. Military organizations are examples, but so are modern capitalist organizations that depend on a top down authoritarian structure. Tribal organizations are usually also authoritarian, and the chief determines who does what, and in what way performance is rewarded or punished.

The third type of relationship is *equality matching*. These relationships are based on equality in resources and preferred outcomes. Many friendships and marriages are governed by some norm of equality. Members should have on the average the same rights, constraints or freedoms. The essential question asked in response to any requests or demands is: is it fair? Is it also applicable to the capitalist market system based on the market pricing relationships. Fourth, relationships emerging from the market economy are governed in principle by *equity*, by what is considered fair. Salaries should be based on merit and equity, where the compensation received is proportional to the quality and effort made by the individual (for example if you cannot pay for medical help, then you get none). While Fiske claims these four types are universal, some relationships are

emphasized in a particular culture. Capitalist societies rely on market pricing relationships, and increasingly we are seeing similar relationships in current and formerly socialist countries.

2.1 The child in the relationship

Many social psychologists find attachment theory useful in understanding the relationships between adults both platonic and romantic (Hazan & Shaver, 1987). They are interested in what ways adult love relationships are similar to the attachment patterns of infants. It seems that the intense fascination with the love object, parent or lover, is similar. The adult lover may gaze with intense fascination into the eyes of the beloved, much as the infant gazes into the eyes of the mother. Lovers feel distress at separation, as do infants when the mother leaves the room. In both situations strong efforts are made to be together, spend time together and avoid separation.

Adult love relationships also fall into the three attachment patterns described for children. One study showed that the majority of US citizens (59 %) are securely attached, whereas 25 percent are avoidant, and 11 percent are anxious-ambivalent (Mickelson, Kessler, & Shaver, 1997). There are differences as well, as adult relationships involve reciprocal care, and in some cases sexual attraction. Still, the mother would not gaze at the infant unless she found it very rewarding, and there is some reciprocal behavior there. The mother loves her child and is rewarded by adorable gazing and smiles of the infant.

Some psychologists feel that this early model of love becomes a working framework for later relationships. The infant who has secure attachments with parents comes to believe that similar relationships can be established as an adult, that people are good and can be trusted. On the other hand the anxious-ambivalent attachment may produce fear, rejection of intimacy, and distrust in the relationship in the adult. The burden of the generations occurs when a parent passes on to the next generation the attachment style he developed as an infant. The rejection a mother experienced as an infant may become the working model for her child rearing when she is a parent.

There is hope for victims of dysfunctional attachment styles. Sometimes an adult love relationship is so powerful that it can overcome any negative experiences from childhood. On the whole however, absent any major event affecting attachment, there is great stability in attachment styles across the life span

(Fraley, 2002; Collins & Feeney, 2004). Secure adults are comfortable with intimacy and feel worthy of receiving affection from another person. As a consequence, they also perceive happiness and joy in their love relationships built on self-disclosure and shared activities. It should come as no surprise that secure individuals also have positive perceptions of parents as loving and fair. Later in life secure people develop more satisfying relationships. Secure people experience more satisfying intimacy and enjoyment, and feel positive emotions in their relationships (Tidwell, Reis, & Shaver, 1996). When life becomes stressful, secure individuals provide more mutual support, and are more effective and responsive to the partners needs (Feeney & Collins, 2001; Feeney & Hohaus, 2001). Avoidant persons, on the other hand, are often uncomfortable in getting intimate, and never develop full trust in the love partner. They spend much time denying love needs, do not self disclose, and place more importance on being independent and self-reliant. The anxious- ambivalent person wants to become intimate, but worry that the other person does not feel the same. Anxious adults tend to be obsessed with the object of love, experience emotional highs and lows, feel intense sexual attraction, and jealousy. They often feel unappreciated by their partners, and view their parents as being unhappy.

2.2 The transfer effect in our relationships

The transfer effect is well known in clinical psychology. In the effort to help the patient the therapist allows the patient to transfer feelings from some other significant other to the therapist. Temporarily the therapist becomes the father figure, or some other significant person in the therapeutic relationship. We have all met people who remind us of others. The authors have all had the experience of meeting someone who was certain to have met one of us before, or believed we were closely related to someone they knew. Does the professor of this class remind you of a favored uncle or aunt? Chances are that you will transfer positive feelings toward the professor, and with such an auspicious beginning the outcome may be very good for your study. The relational self-theory is based on the idea that our prior relationships determine how we feel toward those who remind us of such significant others from our past.

Andersen & Chen (2002) developed the idea of relational self-theory to demonstrate how prior relationships affect our current cognitions and interactions with others. They hypothesized that when we encounter someone who reminds us of a significant other from the past we are likely to activate a

relational self that determines our interactions with the new person. Meeting people who remind us of past significant others even has emotional consequences. In one study the researchers assessed the participant's emotional expressions after being exposed to information that resembled a positive or negative significant other from the past (Andersen, Reznik, & Manzella, 1996). The participants expressed more positive emotion as judged by facial expressions after being exposed to information about a past positive significant other, and more negative facial expressions after exposure to the information of a negative person.

Our past relationships also determine our current interactions. When we interact with someone who reminds us of someone else it affects our self-concept and behavior (Hinkley & Andersen, 1996). Encountering such a person alters how we think of ourselves, and the past relationship may affect our behavior at the automatic level (Andersen, Reznik, & Manzella, 1996). This finding helps explain our preference for some individuals, and our rejection of others. Positive emotions result from being in the presence of people who remind us of previous positive relations. However, we should remind ourselves that these gut feelings are not the consequence of actual behavior or interactions. Any immediate dislike may have more to do with unpleasant relations of the past, than the person with whom you are currently interacting.

2.3 Social cognition and previous relationships

We construe the world through processes of social cognition. Previous relationships affect how we come about this construction of the world. This is logical when we realize that relationships form the basis of many of our memories. In one study, for instance, participants were better able to remember information based on relationships than other sources of information (Sedikides, Olsen, & Reis, 1993).

We tend to be optimistic about self and close friends believing that the outcomes of life will be positive for ourselves and those with whom we relate (Perloff & Fetzner, 1986), and we include close others in our attributional biases assessing more positive traits and behaviors to partners in close relationships. Success for self and friends is attributed to dispositional causes, while failures are attributed to the situational environment (Fincham & Bradbury, 1993). Close others become in a very real sense a part of the self-concept (Aron & Aron, 1997; Aron & Fraley, 1999). A relationship helps to expand the self-concept by utilizing the resources

and characteristics of the other person. These characteristics then become part of the self-concept. This became very visible to us when a close follower of a prominent leader we knew took on characteristics of the admired leader, even to the point of mimicking his speech patterns. Later this same individual married the former wife of the leader, and served as the director of the leader's institute. Relationships are functional because of the self-concept expansion (Wegner, Erber, & Raymond, 1991). So-called transactive memory is demonstrated when partners know each other so well, that they can complete stories told by the other partner, and remember more information than two randomly paired people. Partners also collaborate in remembering facts. In driving to locations one partner may have good understanding of direction and long distance goals, and the other may remember specific street locations. Collaborative memory is based on such close relationships. Social cognition is central to an understanding of social psychology and will be discussed in detail in chapter 4.

3. Liking someone: the start of relationships

Why do we like some people and not others? Our past relationships with parents and close significant others have profound effects on attachment and liking, but that only partly answers the question of attraction. Another answer to what motivates people to embark on a relationship is its contribution to survival and success. However, the average person probably does not evaluate attraction to others on such a calculating basis. That is to say, when it comes to understanding deeper levels of motivation, we like those who are associated with rewarding events and whose behavior is intrinsically rewarding. We dislike those whose behaviors are a burden to us. At the level of motivation, conscious or unconscious, we seek to maximize our rewards and minimize costs. We seek relationships and continue in these if the rewards exceed the costs and therefore yield a profit (Kelley, 1979; Kelley & Thibaut, 1978; Rusbult, 1980).

3.1 Antecedents of attraction

Proximity, similarity and physical attraction have been studied extensively by social psychologists. Many would consider these to be obvious variables in interpersonal attraction. Yet, in our culture we say, "beauty is only skin deep", thereby denigrating the potential influence of physical attractiveness. As we shall see beauty is much more than skin deep, and along with similarity and proximity have profound effects on whom we like, and on our relationships and social successes.

3.2 Propinquity: we like those living near us

Some of the very earliest research on attraction focused on the proximity of relationships (Festinger, Schachter, & Back, 1950). These early researchers performed a sociometric study in a housing complex for married students at MIT called Westgate West. The residents were asked to name their three closest friends. The majority of the respondents named people who lived in the same building, even though other housing units were nearby. Even within the building proximity was a striking factor, with 41 percent naming their next-door neighbors as best friends, 22 percent named those living two doors away, and only 10 percent pointed to those living at the end of hallways as close friends. The critical factor was the chance of coming in contact. Festinger et al. called this functional distance.

Although there are exceptions when we come to dislike people living next door the result of Festinger and colleagues is a very optimistic finding of social psychology. It suggests that most people have the capacity for friendships if only given the opportunity. This might even be extended to the most intimate relationships. Rather than waiting for the one and only knight on the white horse, or Cinderella, as romantic illusions would have you do, propinquity findings would suggest that there are millions of potential partners if only given the chance for encounters.

3.3 Mere exposure and familiarity

What is it about being given the chance to meet that leads to liking? Some research would indicate that proximity brings on a sense of familiarity that leads to liking (Borstein, 1989; Moreland & Zajonc, 1982; Zajonc, 1968). In the literature it is called the “mere exposure effect”. The more we see people the more we like them, so proximity is about familiarity. Then why does familiarity produce liking? Is there some sense of security that comes from knowing that the familiar produces no harm? Is it an evolutionary mechanism where the familiar reduces threat? Do we have an innate fear of the unfamiliar? Are strangers a threat, because we do not know enough about them to predict their behavior? Perhaps it is. Perhaps we like those who are familiar, because we can predict their behavior and they are non-threatening. Milgram (1970) suggested that the fear of living in large cities among strangers was eased by seeing the same faces or “familiar strangers” – as they passed on their way to work.

A study by Moreland and Beach (1992) showed that the “mere exposure”

produced liking. They had female confederates attend class sitting in the first row. There was otherwise no interaction between the female confederates, the instructor, or other students. Yet, when asked at the end of the term, the students rated these women highly for both liking and attractiveness. The literature supports the idea that familiarity promotes liking (Bornstein, 1989; Moreland & Zajonc, 1982). There is one caveat. If you find yourself instantly disliking what you consider an obnoxious person, exposure will intensify that effect (Swap, 1977).

Still a large amount of literature has been published supporting the “mere exposure” effect (Bornstein, 1989; Zajonc, 1968). For example there are strong correlations between the frequency of exposure to a variety of objects and liking. Flowers that are mentioned more frequently in our literature are liked more than those mentioned less frequently, e.g., violets are liked more than hyacinths. People, at least in the US, also like pine trees more than birches, and like frequently mentioned cities more than those less well known. Zajonc argues that it is the mere exposure effect. However, on the other hand perhaps people write more about violets than hyacinths because they are liked more? How do we explain the preferences for different letters in the English alphabet that correspond to the frequency of appearance in writing (Alluisi & Adams, 1962)? We also tend to see letters in our own name more frequently, and have a greater liking for these letters (Hoorens, Nuttin, Herman, & Pavakanun, 1990).

In another study the more the participants were exposed to words they did not understand (Turkish words or Chinese pictographs) the more they liked them (Zajonc, 1968). Still, even “mere exposure” effects must have an explanation in term of rewards or the absence of threats that familiarity brings from repeated exposure. Zajonc (2001) recently explained the “mere exposure” effect as a form of classical conditioning. The stimulus is paired with something desirable, namely the absence of any aversive conditions. Therefore over time we learn to approach those objects considered “safe” and avoid those that are unfamiliar.

Computers are often used to make contact these days. Keeping in mind that it is the “functional distance” which is important, how does computer technology contribute to establishing new relationships? (Lea & Spears, 1995). All modern tools of communication can be used either for ethical or unethical purposes. There are predators online who lie or manipulate to take advantage of innocent young people. It is not safe. Online the individual has no way to confirm the truth

of what another person is saying. Person-to-person we can check for all the nonverbal signals that we have learned from experience indicating truthfulness and trust. On the other hand, we do not have to worry much about rejection in Internet relationships, so perhaps we have less to lose and therefore can be more honest online? We can more quickly establish intimate relationships, but we may in the process idealize the other person. Only face-to-face can we decide what is real, and even then we may idealize, although as we will see this can be healthy for long term relationship survival.

Proximity effects means that we often marry people who live in the same neighborhoods, or work for the same firm (Burr, 1973; Clarke, 1952). The variable is optimistic about meeting someone because our world of potential relationships is unlimited. If our eyes are open we can find a mate somewhere close by, certainly within walking distance. Perhaps proximity also points to other forms of interpersonal similarity. Generally people living in the same neighborhoods often also come from similar social classes, ethnic groups, and in some parts of the world from the same religious groups. Proximity may therefore also be another way of pointing to similarity as a basis for liking. Familiarity provides the basis for sharing, and the gradual building of trust (Latané, Liu, Bonevento, & Zheng, 1995). The vast majority of those who have had memorable interactions leading to intimacy lived either at the same residence or within one mile from the trusted person.

The mere exposure effect can also be discerned in peoples' reactions to their own faces. Faces are not completely symmetrical as most of us display some asymmetry where the left side of the face does not perfectly match the right. Our face to a friend looks different from that we see our selves. The mirror image with which we are familiar is reverse from that which the world sees. If familiarity or mere exposure has an effect, our friends should like the face to which they are accustomed, whereas the individual should also like the mirror image with which he is familiar. Mita, Dermer, & Knight (1977) showed that the participants liked best the face with which they were most familiar.

3.4 Proximity and anticipating the cost of negative relationships

Proximity, moreover, reduces the cost of interaction. It takes a great deal of effort and expense to maintain long distance relationships. As a result of our work we have relationships in different parts of the world. As the years go by it is more and more difficult to continue with friendships that when we were young we thought

would last forever. When you do not see someone in the course of daily activities it takes more effort, and may be costly in other ways. Long distance relationships take more dedication, time, and expense.

Proximity may exert pressures toward liking. It is difficult living or working with someone we dislike. That cognitive dissonance may cause us to remove stress by stronger efforts of liking the individual. Therefore, even the anticipation of interaction will increase liking, because we want to get along (Berscheid, Graziano, Monson, & Dermer, 1976). When we know we will interact with someone over time we are likely to focus on the positive qualities, as the alternative is too costly. Think of working with a boss you do not like, how costly that could be? Therefore we put our best foot forward when we meet people who may become part of our daily lives. Even the anticipation of interaction with others produce liking. Why else would people make extraordinary efforts to be nice at “get acquainted parties” at work, or in new neighborhoods? Putting your best foot forward is a strategy to produce reciprocal liking.

4. Similarity: rubbing our back

We like to be massaged, and therefore like those who validate and reinforce who we are and what we believe. The research literature supports this proposition (Berscheid & Reis, 1998; Ptacek & Dodge, 1995; Rosenblatt & Greenberg, 1988). It will come as no surprise that we tend to find our spouse among those who are similar to us on many different characteristics including race, religion, and political persuasion (Burgess & Wallin, 1953). Showing again the opportunistic nature of our most intimate relationships, similarity in social class and religion were the strongest predictors of liking.

Similarity of religion or social class may just be frequency or proximity factors, as the likelihood of exposure is greater for these categories. Similarity in physical attractiveness also plays a role and personality characteristics, although to a lesser extent (Buss, 1984). In a classic study, Newcomb (1961) showed that after a year of living together, student’s liking of roommates was determined by how similar they were. In other studies where the participants thought they were rating another participant (in fact a bogus participant) either similar or dissimilar, the similar person was liked more (Byrne, 1961; Tan & Singh, 1995). The similarity effect holds true across a variety of relationships including friendship and marriage.

Similarity in education and even age seems to determine attraction (Kupersmidt, DeRosier, & Patterson, 1995). Not only are friends similar in social class and education, but also gender, academic achievement, and social behavior. A meta-analysis of 80 separate studies showed moderate relationships between similarity and attraction (AhYun, 2002). Today dating services are established on the principle that similarity is good and functional in relationships. A good match means finding someone who is similar. Dating services try to match after background checks and participant surveys of values, attitudes, and even physical appearance (Hill & Peplau, 1998). Those participants who were matched in attitudes toward gender roles and sexual behavior had the most lasting relationships, one year and even 15 years later.

4.1 How does similarity work?

As mentioned above similarity is a potent variable in friendship and mate selection. What are some of the mechanisms that produce this effect? Similarity gives a common platform for understanding, and that in turn promotes feelings of intimacy essential for trust, empathy and long lasting relationships (Aron, 1988; Kalick & Hamilton, 1988). If the issue is important only those with the same or similar values are acceptable. So attraction is selective and we rarely encounter those whose views are different. In relationships where the participant committed to someone with different values, or where the parties successfully hide their views, similarity could still be the outcome. Typically long time married couples have similar views because over time they persuade the partner to change his/her mind. Social influence may also change our views over time and produce more similarity.

We find pleasure in our relationships with similar others because they confirm our beliefs and the value of our person. When we meet with likeminded people, they validate our inner most values and expressed attitudes. The rest of the world may cast doubt on our beliefs, and may question who we are as persons, but the likeminded validate our ideologies and personal achievements. Even our physiological arousal corresponds to our liking someone (Clore & Gormly, 1974). Similarity allows for functional relationships and for more effective communication. When we are with those who are similar, communication is effortless, since we do not have to be on guard for disagreement or rejection.

4.2 A common social environment

Of course the social environment also has a selectivity bias. People meet

likeminded people at Church, or those with similar occupational interests at work. In many cases the apparent similarity is caused by the selectivity of our social environment. A politically progressive person does not attend meetings of the Ku Klux Klan (a racist group) in order to find a soul mate. A longitudinal study of married couples showed that couples became more and more similar over time as they continued to persuade and experience a shared environment (Gruber-Baldini, Shai, & Willis, 1995).

We choose our friends from our social environment. In college we find our friends among those who are on the same track academically and can be of mutual aid (Kubitschek & Hallinan, 1998). Being in the same environment produces shared experiences and memories that serve to bond people. We perceive similarity and from that conclude that the other person will like us, thereby initiating communication (Berscheid, 1985). It is reinforcing to meet someone with similar views, as they validate our feelings of being right (Byrne & Clore, 1970). At the same time and for the same reasons we find those who disagree unpleasant (Rosenbaum, 1986; Houts, Robins, & Huston, 1996). As a result of having a common basis, similarity in personality traits provides for smooth communications and interactions between people, therefore similarity is less costly.

4.3 We like those who like us: reciprocal liking

Reciprocal liking is even a more powerful determinant of liking than similarity. In one study a young woman expressed an interest in a male participant by eye contact, listening with rapt attention, and leaning forward with interest. Even when told she had different views the male participants still expressed great liking for the woman (Gold, Ryckman, & Mosley, 1984). Regardless whether we show by means of verbal or non-verbal responses, the most significant factor determining our liking of another person is the belief that the person likes us (Berscheid & Walster, 1978; Kenny, 1994). When we come to believe someone likes us we behave in ways that encourage mutual liking. We express more warmth, and are more likely to disclose, and behave in a pleasant way. So liking someone works like a self-fulfilling prophecy. Expressing liking elicits pleasant behavior and reciprocal liking (Curtis & Miller, 1986).

4.4 Personal characteristics associated with liking

Physical attractiveness is very culturally bound. In some societies voluptuous women are considered beautiful, while in our society the fashion industry and the media define attractiveness as being thin. When it comes to personality based

characteristics two factors lead to liking. We like people who show warmth toward others, and people who are socially competent (Lydon, Jamieson, & Zanna, 1988). Warm people are those who have an optimistic outlook on life and people. We like them because they are a source of encouragement in an otherwise discouraging world. Warm people are a pleasure to be around and therefore rewarding. In one study (Folkes & Sears, 1977) the researchers had the participants listen to an interviewee evaluate a variety of objects including movie stars, cities, political leaders. Sometimes the interviewees expressed negativity toward these objects, in other cases positive views. The participants expressed a greater liking for the interviewee who expressed positive views, i.e. displayed warmth toward the rated people and objects.

4.5 Communication skills

Likewise we like more the socially skilled. Social intelligence can be demonstrated by being a good conversationalist. Skilled speakers were seen as more likeable, whereas boring communicators were not only rated as less likeable, but also as less friendly and more impersonal (Leary, Rogers, Canfield, & Coe, 1986). Obviously communication skills are essential to long-lasting relationships. We are especially fond of people whose ways of relating to others are similar to our own (Burleson & Samter, 1996). Those with high communication skills saw interactions as complex with highly valued psychological components. People with low skill levels saw communications as more straightforward and less complicated. To communicate at the same level is a very important aspect of attraction and liking. Operating at the same skill level is rewarding, as we feel empathy and understanding. Those who do not share the same level of communications are less likely to develop long-lasting relationships (Burleson, 1994; Duck & Pittman, 1994).

4.6 Complementarity: Do opposites attract?

The importance of similarity suggests “birds of a feather flock together”. But are we not also told that opposites attract? Do tall dark men not prefer short attractive blonds? What about the assertive person meeting the less dominant individual? Or the person who has a rich fantasy life marrying the realist? Are there not times when opposites attract because in some ways we complement each other? Certainly, for sexual relations the vast majority of humankind seeks the opposite sex, only a minority is attracted to similarity. The masculine and feminine is the supreme example from nature that opposites attract.

Complementary personality traits produce liking for only a few personality traits (Levinger, 1964; Winch, 1955). On the whole, however, most studies fail to find evidence that complementarities attract in relationships (Antill, 1983; Levinger, Senn, & Jorgensen, 1970; Neimeyer & Mitchell, 1988). When complementarities lead to attraction, it appears to be a rare exception to the dominant effect of similarity. Even in cases where personalities are complementary on some traits, they have many more similar traits in common.

4.7 Ethnicity and relationships

Ethnic identification is only one dimension of similarity. Interracial couples are similar in other significant ways, in attitudes and values. The dissimilarity is, however, more prominent and is judged more prominently by society which affects an individual evaluation of the dissimilarity. But the significance of similarity in interethnic friendships is less important today than in former times. For example more and more US citizens are dating and marrying outside their own racial and ethnic groups (Fears & Deane, 2001). Attitudes toward interracial relationships and marriage are becoming increasingly accepted in society, and interracial marriages are on the increase. The vast majority of all racial groups in the US approve of interracial marriages today (Goodheart, 2004).

The studies which support interracial tolerance in intimate relationships appear to differ with the public opinion survey to be cited in chapter 9 which indicated parents prefer similarity of race for their daughters. The conclusion of the public opinion survey was that social norms now favor such relationships. However, when the respondents were asked something more personal namely, how would they feel if their daughter would be part of an interracial marriage, the outcome was slightly different. The respondents preferred that their daughter not be a part of an interracial relationship. People are willing to give the normative correct responses to surveys, but hold private and subtler negative attitudes when it affects members of their own family. It must be said, however, that negative evaluations of interracial relationships occur before a relationship is established. Once an interracial relationship is a fact, many opinions change in favor of family harmony and acceptance.

5. Physical Attractiveness: A recommendation for success!

Physical attraction is a powerful determinant of liking and has lifelong benefits. Attend any social event and who do you first notice? If you are a heterosexual man, you will first notice the attractive women, and if you are a woman your eyes

will feast on the handsome men. As we shall see there are little differences between the sexes in the appeal of physical attractiveness. First impressions are important, as without these few people would initiate contact. So while physical attractiveness is important in the early phases of a relationship, the benefits continue in a variety of ways.

Notwithstanding the proverb “beauty is only skin deep”, most people behave strongly to physical attraction. There may even be a biological basis as preferences for attractive appearance occur early in life. Fortunately “love is blind”, and we also tend to find those whom we love to be attractive (Kniffin & Wilson, 2004). Since we idealize the beloved we observe beauty where others fail to see it (Murray & Holmes, 1997). Then there is always the case of the “ugly duckling” that later grew into a beautiful swan. Physical development sometimes brings beauty later in life (Zebrowitz, 1997).

In a now classic study (Walster, Aronson, Abrahams, & Rottman, 1966) the researchers randomly assigned freshmen at the University of Minnesota for dates to a dance. The students had previously taken a number of personality measures and aptitude tests. Participants had also been rated independently on physical attractiveness. Having spent a short time dancing and talking, the couples were asked to indicate liking and desire to meet the person again. Perhaps there was insufficient time to evaluate the complex aspects of the date’s personality, but the overriding factor in liking was the physical attractiveness of the date. It is also common to think that men pay more attention to women’s attractiveness than women do to male bodies. However, in this study there were no differences as female as well as males expressed preferences for physical attractiveness.

5.1 Women like attractive men: Imagine!

Despite the common stereotype that women are attracted to the deeper aspects of a person’s character, such as intelligence and competence, women, like men, are impressed by physical attractiveness. They pay as much attention to a handsome man as men do to beautiful women (Duck, 1994a; 1994b; Speed & Gangestad, 1997; Woll, 1986). However, a meta-analysis showed a slightly greater effect for physical attractiveness in men than in women (Feingold, 1990), and some studies supported the stereotype of stronger male preferences for physical attractiveness (Buss, 1989; Howard, Blumstein, & Schwartz, 1987). The contradictions are easy to explain when we remember the different norms governing the attractiveness issue for men and women. Men are more likely to respond to the common and

accepted stereotype that physical attractiveness is important for men, whereas women respond to their stereotype that other traits matter. But in actual behavioral preferences there are few differences. In sexual preferences both men and women rate physical attractiveness as the single most important variable (Regan & Berscheid, 1997).

Physical attractiveness probably has biological roots as both genders think it is the single most important trait in eliciting sexual desire (Graziano, Jensen-Campbell, Shebilske, & Lundgren, 1993; Regan & Berscheid, 1995). In one study women participants looked at a photograph of either an attractive or unattractive man, and were led to believe they spoke with him on the phone (Andersen & Bem, 1981). The two photos were used to elicit the physical attractiveness or unattractiveness stereotype. The respondents in both the attractive and unattractive conditions spoke to the same person.

The purpose here, as in the previous study with men (Snyder, Tanke, & Berscheid, 1977), was to see if the women's perceptions of likeability would change depending on whom they thought they were speaking with, an attractive or unattractive man. The "beautiful is good" stereotype also worked for women. When they believed they spoke to an attractive man they perceived him to be more sociable and likeable, compared to when they thought they "talked" to the unattractive man. Later meta-analyses across numerous studies (Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992; Langlois, Kalakanis, Rubenstein, Larson, Hallam, & Smoot, 2000) produced convincing evidence that physical attractiveness is an important factor also in women's lives.

5.2 As society sees it: the social advantages of the physically attractive

For both sexes and in nearly all the arenas of life the physical attractiveness of both sexes has profound advantages. The attractive person is more popular with both sexes (Curran & Lippold, 1975; Reis, Nezlek, & Wheeler, 1980). In the new age of video dating, participants show strong preferences for attractive potential dates (Woll, 1986). Are those who seek out video dating more shallow? Have they impossible high standards encouraged by Playboy and Glamour magazine? Perhaps, but attractiveness continues to be a positive trait across many forms of social interactions. When an attractive and unattractive confederate is presented as "author" of a novel, the novel is judged better if the participants believe it written by the "attractive author" (Cash & Trimer, 1984; Maruyama & Miller, 1981). Studies have also demonstrated direct effects in the workplace. Individuals

make more money the higher their rating on physical attractiveness (Frieze, Oleson, & Russell, 1991; Roszell, Kennedy, & Grabb, 1989). Good looking victims are more likely to receive assistance (West & Brown, 1975), and good looking criminals to receive lower sentence (Stewart, 1980).

5.3 Some gender differences

However, the physical attractiveness factor may be muted for women, and compromises are sometimes made when evaluating a desirable long-term relationship involving the raising of children and the creation of a family. In the committed partnership women recognize also the importance of other traits like integrity, income potential, and stability. They are therefore more willing to marry a partner who is less than perfect in physical appearance. Perhaps for similar reasons women also prefer older partners, whereas men have a preference for youthful women. If the goal of the relationship is family development, women also pay more attention to the economic potential of their partners, whereas this is an indifferent issue for most men (Sprecher, Sullivan, & Hatfield, 1994). For men physical attractiveness is a necessity, whereas for women, while still important, it is more like a luxury. A partner's status and access to resources on the other hand were considered a necessity for women, but a luxury for men (Li, Bailey, Kenrick, & Linsenmeier, 2002). In selecting long term partners, women gave more importance to a man's warmth, trustworthiness, and status, whereas men placed more emphasis on the potential partners attractiveness and vitality (Fletcher, Tither, O'Loughlin, Friesen, & Overall, 2004). So there are some consistent gender differences.

5.4 What do gender differences in partner preference mean?

Evolutionary psychology would assert that gender differences exist because they are functional to the survival of the species. "What leads to maximum reproductive success?" is the question posed by evolutionary psychology (Buss & Kenrick, 1998). Women invest much effort and time in bringing a child into the world. To be successful in reproduction requires that women have stable partners with adequate economic and other resources. In the days of the caveman that meant a good cave, warm fire, and ability to provide game. In our day women look for good earning potential. Men on the other hand invest little, and can impregnate several females. For men therefore the key factor is physical attractiveness. In our evolutionary history men learned that youth and attractiveness is more sexually arousing, and incidentally these qualities in

women are associated with fertility and health – men are not looking for fertility and health in the first place, but for good sex.

sociocultural perspective points to the different roles played by the genders historically (Eagly & Wood, 1999). Men have throughout history been the providers and builders of material comfort; women have been the homemakers. The greater interest in a man's economic potential grew from the unfavorable position of women who even today earn less than men for comparable work. As noted some cross-cultural data (Eagly & Wood, 1999), sex differences in preferences for mates have shifted as women have made socio-economic gains. Other research shows that preferences leading to mate selection have changed, especially over the last number of decades of improved socioeconomic possibilities for women (Buss, Shackelford, Kirkpatrick, & Larson, 2001). Men in many Western countries now think it is a good idea that women earn money, and both sexes place more importance on physical attractiveness. So perhaps physical attractiveness was always important for women also, but confounded by the need for socio-economic support.

5.5 Selecting our mates: gender specific wanted ads in newspapers

Evolution has instilled the majority of both sexes with the desire to reproduce with mates who signal good reproductive health. Heterosexual men and women differ however, in the burden of bringing children into the world, and looking after their babies during the most vulnerable period. This gender difference would suggest that women would be more selective in their choices, as they have more at stake. In all societies studied men are more promiscuous, and women exercise more care in selecting partners, especially for long term relationships (Schmitt, 2003).

Men are attracted to fertility and physical qualities that happen to be associated with fertility, and therefore toward feminine features signaling youth (Singh, 1993). Women on the other hand, with a shorter biological clock, intuitively look for men who have the capacity and desire to invest in their children, and have a good economic future. In fact this difference can be observed weekly in the personal ads that appear in many local papers. Typically men seek youth and attractiveness whereas women seek accomplishments and economic resources (Kenrick & Keefe, 1992; Rajecki, Bledso, & Rasmussen, 1991). Support for this gender difference was found cross-culturally in a study of 37 different societies (Buss, 1989). In all cultures men rated physical attractiveness as more important

in a mate, and they preferred younger partners. Women on the other hand preferred partners who were older, and who could provide material resources.

Consistent with the sociocultural perspective, gender differences in mate preferences have shifted somewhat across many cultures as women have gained more socio-economic and political power (Eagly & Wood, 1999). However, these recent changes have not removed fully the historical gender preferences. Men still rank good looks and health higher than women, and women rank the financial prospects of potential mates higher than men. These results call for an interactionist point of view. Gender differences are a function of both our evolutionary past, and our socio-cultural heritage, and it is unlikely we can separate one from the other.

5.6 Social attributions: What we believe about the physical attractive

All cultures have stereotypes that attribute positive qualities to the physically attractive. Dion, Berscheid, & Walster (1972) call this the “what is beautiful is good” attribution. Others have also found support for this common stereotype (Ashmore & Longo, 1995; Calvert, 1988). Meta-analyses have demonstrated the common belief that attractive people have higher levels of social competence, are more extraverted, happier, more assertive, and more sexual (Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1991).

Even young children at a very early age have an awareness of who is and is not attractive. Commonly accepted stereotypes attribute many positive traits and behaviors to the physically attractive. In several experiments the participants were asked to rate a variety of photographs varying in attractiveness (Bar-Tel & Saxe, 1976; Eagly, Ashmore, Makhijani, & Longo, 1991; Feingold, 1992b). Persons rated attractive were perceived to be happier, more intelligent, as having more socio-economic success, and possessing desirable personality traits. This undeserved stereotype is consistent across cultures but varies according to cultural values.

For women more than for men, physical attractiveness is a door opener. Just a look at women’s journals, and the obsessive concern with beauty and weight suggests a differential advantage accrues to attractive women. This affects not only personal interactions, but also treatment on the job (Bar-Tal & Saxe, 1976). Over the centuries, physical attractiveness for women was tied to their survival, and social success. It is no wonder then that these historical facts have created a

much stronger preoccupation with attractiveness for women (Fredrickson & Roberts (1997).

Some studies show that even from birth babies differ in their relative attractiveness. Mothers provide more affection and play more with their attractive infants than with those babies deemed less attractive (Langois, Ritter, Casey, & Sawin, 1995), and nursery school teachers see them as more intelligent (Martinek, 1981). Many rewards accrue to those deemed attractive in our society. While still infants the attractive child is more popular with other children (Dion & Berscheid, 1974). So very early in life the attractive child is given many benefits, including the perception that he/she possesses many positive traits and behaviors (Dion, 1972).

There must be a biological basis when, even before interaction or experience, infants themselves show strong preferences for attractive faces (Langlois, Roggman, Casey, Ritter, Rieser-Danner, & Jenkins, 1987; Langlois, Ritter, Roggman, & Vaughn, 1991). Infant preferences for attractive faces held true for both adults as well as for the faces of other infants. Even when presented to strangers, the infants showed preference for the attractive face, and were more content to play and interact with the attractive stranger. On the other hand they turned away three times as often from the stranger deemed unattractive as from the one rated attractive (Langlois, Roggman, & Rieser-Danner, 1990).

Being given such great advantages at birth, it is no wonder that a person's relative attractiveness has an effect on development and self-confidence. The physically attractive do in fact display more contentment and satisfaction with life, and feel more in control of their fates (Diener, Wolsic, & Fujita, 1995; Umberson & Hughes, 1987). Being treated so nice from birth onward produces the confidence and traits that encourage further positive interactions and rewards (Langlois et al, 2000). Other people by their positive regards create a self-fulfilling prophecy as the attractive person responds with the expected socially skillful behavior.

5.7 The universality of the "beautiful is good" attribution

Is the stereotype present in various cultures? Research would tend to support this contention (Albright, Malloy, Dong, Kenny, Fang, Winkquist, & Yu, 1997; Chen, Shaffer, & Wu, 1997; Wheeler & Kim, 1997). Although beauty is a door opener in all cultures, each culture may vary as to what traits are considered desirable.

Some traits associated with attractiveness like being strong and assertive are especially valued in North American samples. Other traits such as being sensitive, honest, and generous are valued in Korean cultures. Some traits like happy, poised, extraverted, and sexually warm and responsive are liked in all the cultures studied.

5.8 Physical attractiveness has immediate impact and provides vicarious prestige

Experimental research shows that vicarious prestige is derived from association with an attractive person (Sigall & Landy, 1973). In one study the participant's impression of an experimental confederate was influenced by whether the collaborator was seated with an attractive or unattractive woman. When with an attractive woman the confederate was perceived as both likeable and confident. There are predictable gender differences. Being with an attractive woman has more positive consequences for a man, than being with an attractive man has for a woman (Bar-Tal & Saxe, 1976; Hebl & Mannix, 2003). US society has coined the term "trophy wife" to demonstrate the appreciation of a man, usually wealthy, being with a young and attractive spouse.

5.9 Cultural differences and consistencies in physical attractiveness: Reproductive health

There are some variations among cultures as to what is considered attractive. Western society has changed over time in evaluation of female beauty. Like mentioned before, just a short historical time ago voluptuous women were considered attractive whereas today the skinny woman is considered more alluring. In different cultures there is also different preferences for skin color and ornaments (Hebl & Heatherton, 1997). In the China of the past, artificially bound small feet of women were thought sexually stimulating and in other cultures women lengthened their necks by adding rings and stretching that body part. So there are cultural variations in what is considered beautiful and attractive. However, there is also considerable cross-cultural agreement on what is physically attractive as there are features of the human face and body that have universal appeal (Langlois et al, 2000; Rhodes, Yoshikawa, Clark, Lee, McKay, & Akamatsu, 2001). Asians, Blacks and Caucasians share common opinions about what are considered attractive facial features (Bernstein, Lin, McClennan, 1982; Perrett, May, & Yoshikawa, 1994).

As discussed previously, even infants have a preference for attractive faces. The appreciation of beauty must derive from something very functional to our survival

and hence to reproduction. Physical attractiveness most importantly signifies good health, and reproductive fitness. Keep in mind that those traits that are functional to our survival are also preserved in biology and our genes. If our ancestors had been attracted to unhealthy persons, they would not have had any offspring. Nature informs us by physical attractiveness that the proposed partner possesses good reproductive health.

We are attracted to faces that typify the norm, and stay away from those that are anomalous. Langlois & Roggman, (1990) in fact, found evidence for the preference for the face scored by independent judges to be culturally typical or average. By means of computer technology, they managed to make composite faces of a number of persons (or average faces), and found that these were considered more attractive than different individual faces. Having average features is one component of beauty. Others have, however, shown that there are also other features (higher cheek bones, thinner jaw, and larger eyes) that contribute to attractiveness (Perett, May, & Yoshikawa, 1994).

Bilateral symmetry is a significant feature in physical attraction (Thornhill & Gangestad, 1993). Departures from bilateral symmetry may indicate the presence of disease, or the inability to resist disease. Average features and symmetry are attractive, from the evolutionary perspective, conceivably because they signal good health to a prospective mate. These cues exist at such a basic level that we have no conscious awareness of their presence. We just know what is attractive to us, and approach the other person depending on that quality, and our own level of attractiveness.

5.10 Attraction variables and first encounters

If we ask people to recall relationships of the past, what do they volunteer as being the cause of initial attraction? In one study, the participants were asked to describe how they had fallen in love or formed a friendship describing a specific relationship from the past (Aron, Dutton, Aron, & Iverson, 1989). These accounts were then categorized for the presence or absence of the attraction variables. For those describing falling in love, reciprocal liking and attractiveness were mentioned with high frequency. To start a relationship many of us just wait to see if an attractive person makes a move that we can interpret as liking. Reciprocal liking and attractiveness in several meanings are also associated with the formation of friendships. Although this holds true for both genders, conversation appears as one additional important quality for females. Women find quality

conversation of greater importance than do men in friendship attraction (Duck, 1994a; Fehr, 1996).

Similarity and proximity, on the other hand, were mentioned with lower frequency. Perhaps these variables seem obvious and therefore do not become part of our memory or consciousness. Similarity and proximity may still play very important roles in interpersonal attraction. They respectively focus attention on those deemed eligible and of interest, and on opportunities for encounters. Similar reports emphasizing the importance of the attraction variables, reciprocal liking, attractiveness, similarity, and proximity, have been obtained from memory reports of initial encounters in other cultures as well (Aron & Rodriquez, 1992; Sprecher, Aron, Hatfield, Cortese, Potapova, & Levitskaya, 1994).

5.11 Level of attractiveness

Water finds its own level, and that seems to hold true for relationships. People seek out mates at the approximate same level of attractiveness they possess (Murstein, 1986). We tend to pair off with people who are rated similar in attractiveness whether for dating or for long-term relationships (Feingold, 1988). Similarity in physical attractiveness affects relationship satisfaction (White, 1980). Those similar in physical attractiveness fall in love.

What is an equitable match in the market place of relationships? If one partner is less attractive perhaps he has compensating qualities like being rich. The dating market is a social market place where potential friends or mates sell compensating qualities. Consistent with the previous discussion, men offer social status and seek attractiveness (Koestner & Wheeler, 1988). Since the market place dominates our psychology perhaps that explains also why beautiful women seek compensation if they are to consider a less attractive man. Beautiful women tend to marry higher in social status (Elder, 1969). In the long run market place psychology may also be responsible for our incredible divorce rates. If the exchange of relationship qualities is not satisfactory why not just look for something better? When relationships are based on exchange, and qualities like physical attractiveness deteriorate over the lifespan, no wonder that many become dissatisfied and consider their alternatives.

6. Theories of Interpersonal attraction

In some societies the market place seems to determine all aspects of culture and interpersonal interactions. It is no wonder then that theories of interpersonal

attraction emphasize qualities important in the market place: rewards, costs, alternatives, and fairness. All relationships involve interdependence and we have the power to influence outcomes and satisfaction. In chapter 1 we briefly discussed the following theories. Now it is time to see their application to interpersonal attraction.

6.1 Social exchange theory

The attraction variables we have discussed all contain potential rewards. Why is it rewarding to be with people who are similar? Similar people validate our self-concept, and that is experienced as rewarding. What are the rewarding aspects of propinquity? If a potential friend lives next door, we do not have to make much of an effort to meet him or her, and that is experienced as rewarding. Is physical attractiveness rewarding? Physical attractiveness brings status to the partner, and that is rewarding. What about reciprocal liking? That can be experienced as validating our self-concept and our sense of worthiness. So many of the variables we have discussed previously can be interpreted by a theory that has rewards and costs as a basis, one such theory is social exchange theory (Homans, 1961; Kelley & Thibaut, 1978; Secord & Backman, 1964; Thibaut & Kelley, 1959).

According to the economic perspective of social exchange theory people feel positive or negative toward their relationships depending on costs and benefits. All relationships involve rewards as well as costs, and relationship outcomes are defined as the rewards minus the costs. The partner may bring comfort, sexual excitement, support in bad times, someone to share information, someone to learn from, all possible rewards. However, the partnership also has costs. The partner might be arrogant, a poor provider, unfaithful, and have different values. These are the potential costs. Social exchange theory proposes that we calculate these rewards and costs consciously or at the subliminal level. If the outcome is positive, we are satisfied and stay in the relationship; if not, we bring the relationship to an end (Foa & Foa, 1974; Lott & Lott, 1974).

Relationship satisfaction in social exchange theory depends on one additional variable: our comparison level. What do you expect to be the outcome of your current relationship based on your past experiences in other relationships? If you were married to a fantastic man who died you will always have high expectations when meeting potential new partners. On the other hand, at work you have experienced successive poor managers. In transferring to a new department you are pleasantly surprised by an ordinary supervisor, as all your previous work

relationships have been negative. Social exchange theory asserts that what we expect from current relationships is laid down in the history of our relationships. Some of us have had successful and rewarding friendships and therefore have high comparison levels. Others have experienced much disappointment and therefore have low expectations. Your satisfaction therefore depends on the comparison level developed from experience.

However, you may also evaluate the relationship from the perspective of what is possible. Perhaps you have friends that have rewarding relationships or rich partners. This provides you with another level of comparison, namely a comparison level of alternatives. If you ditched this partner and started circulating again, you might meet mister right who is rich, attractive and supportive. After all it is a big world so there is a probability that another relationship will prove more rewarding.

Some people have high comparison levels; they have had good fortune in past relationships. Their comparison level for an alternative relationship may therefore be very high, and not easy to meet. Others have low comparison levels for alternatives and will stay in a costly relationship, as they have no expectation that other attachments will provide better results. Women in abusive relationships, for example, often stay because they do not believe that other relationships will improve life (Simpson, 1987).

6.2 Equity theory: Our expectation of fairness

According to equity theory, we feel content in a relationship when what we offer is proportionate to what we receive. Happiness in relationships comes from a balance between inputs and rewards, so we are content when our social relationships are perceived to be equitable. On the other hand, our sense of fairness is disturbed when we are exploited and others take advantage of us. We all possess intuitive rules for determining whether we are being treated fairly (Clark & Chrisman, 1994). Workers who are paid very little while working very hard feel the unfairness or imbalance between input and reward, especially when others benefit from their hard work. These feelings of injustice constituted the original motivation of the workers movement, the trade unions, and the workers political parties.

At dinnertime do all the children get the same size piece of pie, do we distribute the food in an equitable manner? Equality is the main determinant of our

evaluation of the outcome among friends and in family interactions (Austin, 1980). There are of course times when one child's needs are greater than another sibling. Many will recognize that families respond to that issue with "from each according to his ability to each according to his need". One child might be very sick and need all the family's resources. The idea that benefits should be distributed according to need is another aspect of fairness (Clark, Graham, & Grote, 2002).

Equity theory asserts furthermore that people's benefits should equal their input. If we work harder than others we should receive a larger salary (Hatfield, Traupmann, Sprecher, Utne, & Hay, 1985). When people perceive unfairness or inequity they will try to restore the balance. For example, if you work for a low wage you may get together with others who are unfairly treated as well and seek more compensation. You may also cognitively adjust by reasoning that there are no alternatives, and that you are lucky to have any income at all. Then you can use cognitive strategies to change your perception of unfairness. If neither of the strategies bring satisfaction, then it is time to quit and look for some other career.

In intimate relationships satisfaction is also determined to some degree by equity (Sprecher, 2001). For example, how to distribute the household work fairly is an important issue for many young couples. Those couples that cannot find an equitable balance report more distress (Grote & Clark, 2001). Gender ideology plays a role in relationship satisfaction. Feminist ideology historically reacted to the great unfairness brought on by discrimination toward women at home and at work. Feminist women may therefore be unhappier if they perceive inequity in household work (Van Yperen & Buunk, 1991).

6.3 Equity and power

Partners may prefer different solutions to daily equity problems. Should the resources of the family go toward the husband's education, or to buying a house? In a world of scarce resources there are always decisions that may favor only one party. The power balance decides to what degree either partner in an intimate relationship can influence the feelings, thoughts and behaviors of the other partner. Are all decisions made mutually? How do partners come to an agreement about what type of decision-making is fair and equitable?

What determines power in a relationship? Social norms about gender behavior are a powerful determinant. Traditionally women were taught to respect the

dominant role of men as “head” of the family. The man historically had total control over wife and children. Today similar traditional patterns continue throughout the world. There is even the very famous case of a princess in the Saudi Arabian royal family who was executed by orders of her grandfather. Her offense was having a relationship based on romance rather than accepting her father’s decision for an arranged marriage. These so-called honor killings, when women are murdered to restore family “honor”, follow a similar pattern of absolute male control. In the western world these traditional gender roles are giving way to more equitable relations in society and in the family.

Partners may have different resources. When the man has resource advantages, he also tends to be more dominant. When the wife earns at least 50 percent of the household income, there is more equitable power sharing. Power is also partly based on the feelings of dependency within the relationship (Waller, 1938). When one partner is more dependent, the other has more power. This holds also for psychological dependency. If one partner has a greater interest in maintaining the relationship than the other, the dependency gives more power to the partner.

So there are variations in how power works out in relationships. In some relationships the man is totally dominant, and some cultures support this sex role resolution. However, we have observed many changes in gender roles and relations over the past decades. Women have gained more social power and more equity in intimate relationships. In one US survey of married couples the majority (64%) claimed equality in power relations (Blumstein & Schwartz, 1983). A large number (27%) reported that the man was dominant, and 9 percent that the wife controlled power in the marriage. In a more recent US study (Felmlee, 1994) 48 percent of the women and 42 percent of the men described their relationship as equal in power, with most of the remaining respondents reporting that the man was dominant. Couples can achieve equality in different ways with a division of responsibilities. Depending on the situation one of the parties may have more power, but overall there is a sense of equality. Some studies find that consensus between a couple is more important than negotiating all the fine details of power sharing, and relationship satisfaction appears equally high in male dominated as in power sharing relationships (Peplau, 1984). In close relationships there is less need to negotiate everything and produce equitable solutions. If the satisfaction level is high, the parties are less concerned with perfect equity. It is whether the relationship is rewarding that counts (Berscheid & Reis, 1998).

7. Exchange among strangers and in close communal relationships

Exchange relationships also exist between strangers or in functional relationships at work. Exchange relationships tend to be more temporary and the partners feel less responsibility toward one another compared to more intimate relationships. Satisfaction in all exchange relationships is as noted determined by the principle of fairness. Did your professor give you a grade that reflected your work? Work related outcomes and satisfactions are determined by application of the fairness principle.

In communal relationships, such as families, on the other hand, people's outcome depends on their need. In family relationships we give what we can, and receive from the family what it is able to provide. Communal relationships are typically long-lasting, and promote feelings of mutual responsibility (Clark & Mills, 1979). We look after our children not because we expect a reward, but rather to respond to the needs of our dependants. Likewise children look after their infirm parents, because of feelings of responsibility. In intimate relationships partners respond to the needs of the other, without expecting to be paid back in exact coin or immediately. There may be rewards for both parties in the long run. In short, exchange theory better predicts behavior in relationships where the parties are preoccupied with inputs and rewards, whereas in communal relations the partners are more concerned with meeting the needs of the relationship (Clark, Mills, Powell, 1986).

Mills and Clark (1994; 2001) have defined further differences between exchange in different types of relationships. Among strangers you are not likely to discuss emotional topics whereas that is expected in communal interactions. In communal relationships helping behavior is expected, whereas it would be seen as altruistic in relations between strangers. Moreover, a person is perceived as more selfish if failing to help a friend, than if he failed to come to the aid of a stranger. In real intimate relations between lovers the lines between partners is blurred as a feeling of "we" pervades. When we benefit a loved one, we feel like we are benefiting ourselves (Aron & Aron, 2000). The beloved is seen as part of the self, and terms like "we" is used more frequently than "I" as relations move beyond exchange and equity concerns (Agnew, Van Lange, Rusbolt, & Langston, 1998).

7.1 Culture and social exchange

Cultural differences affect relationships. In Western society some of our relationships reflect market economic values such as exchange and some forms of

equity. Asian societies have in the past been based on more traditional, communal standards. Economic companies in Asia often take a paternal role, offering life long job security. How are the new market economies affecting psychology in Asia and Eastern Europe? Assuming a relationship between economic relations and psychology, we might expect a greater shift toward social exchange relations. Social exchange theory also plays a role in intimate relationships in a variety of cultures (Lin & Rusbult, 1995; Rusbult & Van Lange, 1996; Van Lange, Rusbult, Drigotas, Arriaga, Witcher, & Cox, 1997). Although communal relations are more characteristic of interdependent cultures, there is still a role for social exchange for some relationships in these societies as well as in more independent cultures.

7.2 Evaluation of relationship satisfaction

How committed people are to a relationship depends on satisfaction, on the potential alternatives available, and on the investment made (Rusbult, 1983). If we are not satisfied in a relationship there are alternatives to be explored. Before we end the relationship we carefully assess one particular factor. Namely, how much have I invested in the relationship? How much would I lose if I left the relationship? Would I be better or worse off, many women in abusive relationships ask themselves. Investment is also a factor the individual considers prior to the commitment to dissolve of a relationship. Investment comprises several things: the money available for a new life, a house that might be lost, the emotional well being of children in the relationship, and of course all the work that has been invested in the relationship. This model also predicts commitment in destructive relationships (Rusbult & Martz, 1995). Women who had poorer economic prospects, and were strongly invested with children present, were more likely to tolerate some forms of abuse.

It is difficult to evaluate equitable outcomes as partners trade different resources. Equity however, remains a factor even in intimate relationships (Canary & Stafford, 2001). In intimate relationships there are few rigid give and take rules. Perhaps the wife does all the housework, does most of the child rising, and is a romantic partner while the husband is only a student. It may seem unfair, but the investment may pay off down the line in higher income and status. In intimate relationships partners have the long view in mind when evaluating equity. The partners trust that eventually everything will work out to the benefit of the whole family unit.

7.3 Self-disclosure: building intimate relationships

Self-disclosure is the bridge to intimacy and liking (Collins & Miller, 1994). When we disclose important information to others we become vulnerable, and so self-disclosure is a form of trust that invites reciprocation. People who self-disclose are therefore seen as trusting people, and trust is an essential component in intimate relationships. When we open ourselves up to another, reciprocation tends to occur (Dindia, 2002). Telling someone something significant is an investment in trust, and if the relationship is to move to another level, a gradual process of reciprocation is required. Reciprocal self-disclosure is a key factor in liking and builds bridges to the deeper and more meaningful part of a person's inner self (Chaikin & Derlega, 1974).

There are of course risks involved in self-disclosure. The other person may not be interested and fail to reciprocate. We may also reveal something about ourselves that offends the values of the other person thereby causing rejection. Having revealed significant information, we have made ourselves vulnerable to the other person's ability to manipulate or betray our confidence. Many prisoners have after the fact found it unwise that they confessed their crimes to cell mates who later sold the information. For these and other reasons we are often cautious in self-disclosure and will conceal inner feelings (Finkenauer & Hazam, 2000).

In individualist cultures relationship satisfaction is related to self-disclosure. In the more collectivist cultures social relations are often more inhibited (Barnlund, 1989). Japanese students were found to self-disclose much less than American students. Self-disclosure is important to love-based marriages in both American and Indian societies (Yelsma & Athappilly, 1988). However for Indian couples in arranged marriages, marital satisfaction was independent of self-disclosure. Perhaps in these formal relationships satisfaction depends more on completion of agreements and contractual expectations.

Cultural norms determine to a large extent the pattern of self-disclosure across many societies. In western culture emotional expression is normative for women and therefore acceptable. The emphasis on rugged individualism for men suggests that our society suppresses intimacy among men. Hence emotional expression by men is generally directed toward females. In Muslim countries and some societies in Asia, same sex intimacy is encouraged (Reis & Wheeler, 1991).

7.4 Gender *differences in self-disclosure?*

A meta-analysis of hundreds of studies showed that women disclose significantly

more than men (Dindia & Allen, 1992). Although the overall differences were not large they were statistically significant. Within same sex friendships, women reveal more of themselves than men who are more cautious with their male friends. Verbal communication appears especially important to women, whereas men cement their relationships with best friends through shared activities (Caldwell & Peplau, 1992). Women also seem more willing to share their weaknesses, whereas men will disclose their strengths. The sexes also differ in revealing gender specific information. Men like to share their risk-taking behavior, for example their last mountain climbing trip, or when they saved someone from drowning. Women are more likely to share concerns about their appearance (Derlega, Durham, Gockel, & Sholis, 1981). Social psychology is history so perhaps things have changed since the time of this study.

8. Romantic and loving intimacy

Reciprocal liking is the first step on the road to romance and intimacy. Some basic components are common to all love relationships, whether romantic or friendship. Hallmarks of these loving relationships include valuing the partner, showing mutual support, and experiencing mutual enjoyment (Davis, 1985). Romantic love differs from friendship or parental love by its sexual interest, by fascination with the beloved, and by expectation of exclusiveness of affection. Passionate love is deeply emotional and exciting. It is the pervading and overwhelming desire for a union with the beloved (Hatfield, 1988). When reciprocated passionate love brings with it feelings of joy and fulfillment, all life can be managed with such a relationship secured. When the partners are insecure however, passionate love can also bring jealousy and pain (Kenrick & Cialdini, 1977).

8.1 Physiological arousal or emotion of love?

We can feel intense emotional excitement in a variety of situations. The physiological reactions are similar whether you are mountain climbing or being aroused by being physically close to your beloved. The attributions we make are what make some emotions romantic. Anything that arouses us physiologically can also create romantic feelings and more intense attractions (Dutton & Aron, 1989). From their classic experiment in which an attractive young lady approached young men as they crossed on a long suspension bridge high above the river (described in chapter 2) it would appear that the physical arousal produced by the high bridge (probably fear) increased the men's romantic responses.

Are there gender differences in experiencing romantic love? Some findings indicate that men are more likely to fall in love, and are less likely to fall out of love, or break up a premarital relationship (Peplau & Gordon, 1985). Since the experience of love is different from promiscuity this finding is not a contradiction of the male tendency in that direction. Perhaps men are more deprived of intimacy and feel the greater need?

8.2 Intimacy and love

Many people in our world long to experience the feelings of intimacy and love with another person. What is intimacy and love? We may know how it feels, yet find it difficult to understand. Loneliness comes from being disconnected from others, and from feeling misunderstood or unappreciated. Intimacy is the reverse of that coin. Intimacy is that lovely moment when someone understands and validates us (Reis, Clark, & Holmes, 2004; Reis & Shaver, 1988). We feel intimate when our partner responds and extends to us unconditional positive regard. Intimacy is felt when despite our shortcomings our partner extends full support, and when we can truly “count on the other person” being steadfast despite the trials of life.

Initially intimacy may manifest itself as a giddy feeling of joy. We feel the fascination or infatuation, but do not always understand the experience at any rational level. The process begins by sharing important feelings either verbally or non-verbally. The partner reciprocates and conveys a feeling of understanding and support (Berscheid & Reis, 1998). Communication is the key to intimacy, the more partners engage in meaningful conversation the more intimacy is experienced (Reis, Sheldon, Gable, Roscoe, & Ryan, 2000). Sharing deep feelings of love and having these feelings reciprocated is the bridge over the still waters of love (Mackey, Diemer, & O’Brien, 2000).

Men and women experience intimacy in similar ways (Burleson, 2003). We all attach value and meaning to our intimate relationships. Women, however, tend to express more readily the emotions leading to intimacy (Aries, 1996). Women also tend to be more intimate in same sex relationships than men, and place a higher value on intimate relations. Our socialization allows women greater emotional expressiveness, and they become more skilled emotional communicators compared to men. One source of relationship dissatisfaction is the discrepancy between the genders in the desire for intimate interactions.

Romantic relationship brings intimacy to a logical conclusion. When two people fall in love, trust each other, and communicate at a meaningful level of intimacy, sexual relations becomes one more expression of love. Intimacy leads to passion, and if lucky also to commitment (Sternberg, 1986). Intimacy combined with passion is romantic love. In long lasting relationships the passion may fade away. When that occurs intimacy may combine with commitment and form companionate love, or intimacy without sexual arousal.

For those who have long futures together, intimacy, passion, and commitment form what Sternberg calls consummate love, the basis of a life long relationship. The longer a relationship survives the trials of life, the more likely it is to move toward companionate love. Companionate love is based on deep feelings of affectionate attachment derived from mutual history and shared values (Carlson & Hatfield, 1992). Many couples feel disillusionment when the romantic phase moves to the next step in life. The inability to keep the romantic flame alive contributes to loss of affection and our high divorce rate. People in the US tend to focus on the personal feelings of romance, a luxury of a wealthy society. People in Asia are more concerned with the practical aspects of living together (Dion & Dion, 1991; 1993). Passionate love brings children, but to raise them requires companionate love and not mutual obsession. Companionate love is just as real as the initial passion, and is essential for the survival of families and the species.

Most people experience romantic relationships at some point in their lives. Some will say that these relationships are essential to our sense of well-being (Myers, 2000a, Myers, 2000b). Successful romantic relations contribute to life satisfaction, and to our overall condition of health (Berscheid & Reis, 1998). However, not all romantic relationships are successful. As noted earlier about 50 percent of all marriages in the western world end in divorce, perhaps half of those that remain are unhappy. We need to understand what causes such profound disillusionment (Fincham, 2003).

8.3 Disillusionment and divorce

Many relationships become bankrupt and one or both parties decide to split (Myers, 2000a, Thernstrom, 2003). There are some who feel that if the trend continues eventually two-thirds of all marriages and partnerships will end in divorce (Spanier, 1992). And what of the surviving marriages? We cannot assume that they continue because the parties are happy in their relationship! Some unhappy relationships continue for reasons of dependency or moral requirements.

The divorce statistics are a tragic commentary about our inability to adjust to changing sex roles in modern society. Divorce becomes an option for many couples in modern society as women feel less economically dependent on men, and feel they have alternatives.

Many studies indicate that marriages produce less contentment than they did 30 years ago (Glenn, 1991). Conflict in marriages has caused many negative health consequences, for example cardiac illness, and negative effects on the immune system (Kiecolt-Glaser, Malarkey, Cacioppo, & Glaser, 1994). There are always victims in divorce. Children of divorced parents experience many negative outcomes in childhood as well as later in life (Wallerstein, Lewis, & Blakeslee, 2000). Ending a romantic relationship produces extreme disillusionment in couples, and ranks among life's most stressful experiences.

8.4 The role of social exchange and stressful negotiations

Why do relationships fail? We live in a world dominated by preoccupations about what is fair in relationships, is it a wonder that couples tire of the constant negotiations? Social exchange theory has helped researchers identify both destructive and constructive behaviors affecting divorce (Rusbult, 1987; Rusbult & Zembrodt, 1983). Contributing to divorce occurs when one party abuses his/her partner and threatens to leave the marriage. Other couples allow the relationship to slowly deteriorate by passively retreating and refusing to deal with issues. When both parties exhibit these destructive patterns, divorce is the typical outcome (Rusbult, Yovetich, & Verne, 1996).

8.5 Fatal attractions

One cause for divorce is what is called "fatal attractions" (Femlee, 1995). Often the qualities that first attract one to another end up being the quality most disliked. The outgoing individual attracts the shy person. However, after enduring constant social activity the shy person feels that enough is enough. Fatal attractions occur when someone is significantly different from the other person. The immature person is attracted to someone much older. Later in the marriage when the older person is not interested in youthful activities, the age difference becomes the cause for conflict (Femlee, 1998). These findings again point to the importance of similarity in the relationship which functions not just to produce initial attraction, but also long-term contentment. Some initial attractions of the socially gifted lead to negative outcomes also labeled "fatal attractions" (Felmlee, Flynn, & Bahr, 2004). An initial attraction to a partner's competence and drive for

example, was later in the relationship perceived as alienating and as demonstrating workaholic attitudes that were destructive to the relationship. Some respondents who were initially attracted to a partner's intelligence later were repelled by what they considered a considerable ego.

8.6 Personality differences and demography

Other research has focused on the personality of those who divorce. People who come into a relationship with negative baggage from other relationships are more likely to split. Those who are neurotic, anxious, and emotionally volatile are divorce prone (Karney & Bradbury, 1997; Kurdek, 1992). Neurotics spend much time feeling negative emotions that negatively impacts the partner and the marriage. They are also more likely to bring other types of stress to the relationship including health issues and problems (Watson & Pennebaker, 1989). Neurotic people react strongly to interpersonal conflict and therefore are less satisfied in relationships (Bolger & Schilling, 1991). If a person is overly sensitive, he or she is more likely to look for rejection and have greater difficulties in establishing or continuing intimate relationships (Downey & Feldman, 1996; Downey, Freitas, Michaelis, & Khouri, 1998).

8.7 Demographic variables and divorce

Some demographic factors are related to dissatisfaction. Generally those who have lower socioeconomic status are more likely to end marriages (Williams & Collins, 1995). Lower socioeconomic status brings stress into a marriage, including money worries and job insecurity. Marrying at a young age is related to lower socioeconomic resources (Berscheid & Reis, 1998). Sometimes the very young do not have the education needed to succeed in an increasingly competitive world. If they have no other resources they often depend on minimum wage jobs, in a constant struggle to keep their heads above water. In the US young married couples often have no insurance, poor housing, and few prospects for improvement, but this situation is different in Western Europe. Young couples often lack the maturity to cope, and a willingness to put the interests of the other person first.

8.8 Conflict in intimate relationships

Most people do not care what mere acquaintances think of their preferences in life. Whatever acquaintances believe will have few consequences either good or bad. However, those people who are close to us can have profound effects on our goal attainment and our happiness. The frequency of interaction with intimate

friends or family produces more opportunities for conflict. For example, a teenager wants to attend a party, but his parents want him to study. In intimate relationships we feel the stresses of life, and often latch out at those we should love and protect. The birth of a new child is experienced as stress by most couples, as is death in the family or other significant loss (Bradbury, Rogge, & Lawrence, 2001) but these types of stress usually does not lead to conflicts.

Most marriages experience at least occasional unpleasant disagreements (McGonagle, Kesler, & Schilling, 1992). No marriage or partnership is perfect, all relationships reflect varying interests and preferences. As couples become more interdependent, and do more things together, opportunities for conflict increase (McGonagle, Kessler, & Schilling, 1992). Intimate partners fight over a variety of issues from political and religious disagreements, to household responsibilities (Fincham, 2003).

Conflict occurs when we interfere with someone's preferences, and frustrate goal attainment. One partner thinks it is important to save for a house or children's education. The other partner wants to enjoy life now and use the money for travel. Compromises can often be found, but at times conflicting goals add to tension and disillusionment in the relationship.

Some conflicts are caused by the behaviors of the partner. Drinking to excess or using drugs are causes for conflict. Since we live in a changing world, we may also differ in our perceptions of our responsibilities and privileges in the relationship. A tradition minded man may see household chores as "woman's work", whereas an egalitarian woman may have expectations of an equal division of such tasks. Finally, conflict may also be caused by the attributions we make of the partner's behavior. Do we give the partner the benefit of the doubt, or do we attribute her/his behavior to bad intent? If the partner has difficulty in finding rewarding work do we attribute that to an unpromising work situation and general unemployment, or do we believe the partner is indifferent and lazy?

These three levels of conflict – level of integration, interference and behavior – reflect the three ways that partners are interdependent. At the behavioral level, partners may have different expectations. At the normative level the partners believe in different rules (egalitarian or traditional) for their relationship. Conflict is likely if the wife has an egalitarian perspective, but the husband is traditionally minded. At the dispositional level, conflict may be a result of the partner's

disagreement over attributions for the conflictive behavior (Braiker & Kelley, 1979). Most conflicts have the potential to be harmful to marriages, but some relationships can be helped by an open discussion of disagreements and recognition of the possibility for change (Holman & Jarvis, 2003).

Conflict may also occur as a result of the blaming game. Attributions of blame are especially toxic to a relationship (Bradbury & Fincham, 1990). Dissatisfied couples blame each other for problems in the relationship. Blaming is another way of attributing negative causes to the partner's behavior. Even when the partner performs a positive act the partner may attribute it to bad intentions. Gifts of flowers may for example not be considered an act of love by the blaming partner, but as designed to serve some ulterior purpose. Dissatisfied couples make attributions that consistently cast the partner's behavior in a negative light (McNulty & Karney, 2001).

8.9 The interpersonal dynamics of unhappy couples

Studies of married partners have pointed to some significant dynamics that are powerful predictors of divorce (Levenson & Gottman 1983; Gottman & Levenson, 1992). The researchers got married couples to talk about a significant conflict in their lives and then subsequently coded the interaction for negative responses. Based on these observations the researchers identified four types of behaviors that could predict with 93 percent accuracy whether the couple would divorce (Gottman & Levenson, 2000).

The four toxic behaviors include criticism (1). Those who consistently find fault with their partners will have unhappy marriages. The tone of the criticism (2) also makes a difference. Some partners criticize in ways that belittle the other person. Others know how to criticize in a lighthearted or playful way, and the outcome can then be positive (Keltner, Young, Heerey, Oemig, & Monarch, 1998). To solve problems in a relationship requires the ability to talk openly, and without eliciting defensiveness in the partner. Some people are so neurotic that even the slightest criticism elicits anxiety and rejection. Another dysfunctional way of dealing with conflict is to stonewall the issue (3), deny the existence of any problems, or convey the impression that the problem is unworthy of serious discussion. Conflict denial is also related to the final toxic behavior, the emotion of contempt (4). When a partner consistently looks down on the other person as inferior and expresses feelings of superiority that contempt is the ultimate expression of disillusionment and highly predictive of divorce (Gottman & Levenson, 1999).

8.10 The market economy and divorce in China

Chinese society now exhibits similar marital problems to those of long established market economies. Nationwide the divorce rate has skyrocketed 67 percent between 2000 and 2005, and is still increasing (Beech, 2006). It would appear that psychological concepts derived from the market economy have entered marital relations in China with similar consequences to those in western capitalist nations. However, this development might also been explained by an emerging courage by women to break away from traditions and demand justice and an equal say in a relationship. New terms such as “flash divorce” have emerged as it is now possible to get divorced in China in as little as 15 minutes. The divorce rate is mainly due to women’s dissatisfaction with the unfaithfulness of men. Women themselves now have more economic power and do not have to put up with relationships that doomed the happiness of their mothers and grandmothers. Economic independence has increased women’s expectations from their relationships and, when not met, disillusionment has led to dissatisfaction. The material underpinnings of this revolution are indicated by female requirements for marriage in Shanghai that now include the necessity of the man owning a car, a nice apartment, and a considerable bank account. There are those who say, “materialism is being pursued at the expense of traditional values like love” (Beach, 2006: 52). Couples have become more skeptical or cynical about the marriage relationship. According to Beach there were 441,000 fewer marriages in 2005 compared to the previous year. The difference in valuing marriage between individualistic and collectivistic cultures is broken down by the relentless march of market economy psychology resulting from globalization (Dion & Dion, 1993; Dion & Dion, 1996).

8.11 The emotional consequences of ending a relationship

A key factor in how people react to a breakup of a relationship is the role each person played in the decision (Akert, 1998). The research showed that the person who decided the breakup coped the best. The partner who decided to split generally found the ending of the relationship less sad, although even in that case there were some negative consequences reported, including higher frequency of headaches. The party who was least responsible for the decision reported more unhappiness and anger. All partners in a breakup situation reported some physical reactions within weeks. The break of deep emotional ties is extremely stressful.

The least negative consequences occur when the couple allow for mutual decision-making. It reduces somewhat the negative symptoms reported, although 60 percent still reported some negative reactions, with women suffering the most (or perhaps being more honest in reporting). Can people stay friends after a romantic breakup? It depends on gender. Men are usually not interested in continuing a relationship on a friendship basis, whereas women are more interested. Again what seems to be a key is whether the breakup is based on a mutual decision; in that case there are stronger possibilities for a continued friendship.

8.12 Forming satisfying and lasting relationships

How can we create relationships that result in happy outcomes? From the perspective of exchange theory, the focus must be on more profit in the relationship. We can increase profit by either reducing the costs of interaction, or increasing rewards to each partner (Rusbult, 1983). The more rewarding a relationship as defined by the individual the more satisfaction it produces. What constitute costs is less well understood. When the wife puts a husband through college while raising their children is that a cost or a sacrifice for a happier future (Clark & Grote, 1998)? In intimate and close relationships costs are simply the willingness to put aside egoistic interest for the sake of the relationship. As noted earlier sacrifice may be perceived as being rewarding in the long-term vision of the future life of the couple.

Since we live in market economies which encourages social comparison and affects our psychology, many partners are tempted to look at the outcomes for other couples as well as their own expectations of satisfaction when evaluating their relationship. A key to happiness is to meet the expectations we had when we married. We can always find those that are doing less well than we are on a variety of criteria. One party may not be happy with the level of emotional intimacy in the relationship, but can point to the neighbor with an alcoholic spouse as a comparison standard (Buunk, Oldersma, & De Dreu, 2001). The satisfaction of downward comparison can be seen in the popularity of the yellow press and the scandal newspapers. Many people enjoy reading about the misfortune of the rich and famous because it makes them feel better about their own less than perfect lives.

Equity theory may also play a role in evaluating satisfaction in relationships. A balanced relationship where each partner contributes a fair share is more

satisfying and happy (Cate & Lloyd, 1992). Fairness is always at the perceptual level, and so our evaluation of fairness depends on the quality of the relationship. If the partners are happy, the occasional inequity in contributions will be seen as a minor distraction. For unhappy relationships even minor discrepancies of contributions will contribute to dissatisfaction and conflict.

Cate & Lloyd (1992) also provide some practical ideas for creating lasting relationships. Marrying a little older for example, allows for better preparation and a better socioeconomic platform for marriage. Furthermore, they suggest we try to get over the infatuation stage and evaluate the prospective partners level of neuroticism and maturity because we all carry some baggage from past relationships, but some people's burdens impact negatively on intimacy. Thirdly, happiness is also somewhat dependent on getting out of the blaming game. We should give our partner the benefit of the doubt and be willing to attribute positive dispositions and intent, and reward all positive acts by word and deed. These steps may avoid the trap and cycle of misery that lead to dissolution of relationships that once promised intimacy.

8.13 Making real commitments

Commitment is discussed in the psychological literature from several perspectives. Can your partner make the commitment and is it for the long haul? There are three variables related to commitment (Rusbult, 1983). The first is the accumulation of all the rewards of the relationship. The rewarding aspects of a romantic relationship are by far the most important determinant of satisfaction (Cate, Lloyd, Henton, & Larson, 1982). The support we receive, sexual satisfactions, home security, adventure and novelty, are all-important rewards that contribute to lasting relationships.

The second variable concerns the temptations of alternative partners. This may decrease commitment. The fewer alternatives that are present the less likely that the relationship will flounder (White & Booth, 1991). When the partners are young there are more temptations and more alternatives, but as time passes there are fewer alternatives. If you see your relationship as the only one possible, and if the feeling is mutual, the relationship will be more satisfying and lasting. Finally, the investments we have made may determine commitment. If we have invested a great deal in our mutual history, children, home, common religion, we are likely to stay within the relationship. More committed relationships produce more interdependent lives where the focus is on the unit and not the individual (Agnew,

Van Lange, Rusbult, & Langston, 1998). The more committed can more easily adjust to demands and stresses of life such as the arrival of a new child. Commitment also encourages forgiveness, the feeling that one should never let the sun set on a bad argument (Finkel, Rusbult, Kumashiro, & Hannon, 2002).

8.14 The moral commitment

The foregoing emphasizes the social psychological factors that encourage commitment. For many in permanent relationships, commitment refers to basic integrity. From a moral perspective when you commit to another person your word should mean something, and support for your partner is for the better or worse of life. For some, moral commitment is a social obligation. It is the right thing to do for the marriage and the family. That does not imply that a relationship built on such commitment is loveless, on the contrary moral commitment may allow greater security and happiness. For some couples, commitment is also reinforced by religious beliefs. They believe that marriage is a religious duty not to be taken lightly. Marriage for some is an existential commitment; there are some things in life that are meant to last in an ever-changing world.

8.15 The positive view of life and the beloved

Much research points to the negative effects of having children on the happiness of marriage partners (Myers, 2000a). The arrival of children creates new conditions as children demand the focus of parents, and the relationship suffers. Partners often fail to return to the pre-child happiness until they are again alone after their children leave home. However, those who fight for their intimacy find it rewarding (Aron, Norman, Aron, McKenna, & Heyman, 2000). The key to marital happiness is to overcome boredom by finding new and exciting things to do as a couple. We all have needs for rootedness, but also for new and novel experiences. Those couples that build occasional excitement into their relationship feel more satisfied (Gable, Reis, Impett, & Asher, 2004). However, it takes an effort to do something new and different, and fighting for intimacy is a life long struggle. What novel activities couples can bring into their lives depends on many factors including socioeconomic variables and age. In the end it may be the effort toward renewal that wins over our partners and keeps the flame of intimacy alive. Rewards, pleasure and novelty are the keys to long-lasting romance and satisfaction with love and life.

8.16 Idealizations, positive illusions, and commitment

Romantic partners who feel “totally” in love manifest unrealistic, but delightful illusions about their partner’s behaviors and qualities. In chapter 2 we discussed positive illusions and mental health. Do such positive illusions also contribute to satisfaction and enduring relationships? There is much to support that contention. Partners who have positive illusions can think of nothing negative about the beloved. With powerful positive illusions dominating our perceptions, we experience the behaviors of our partner as rewarding and feel stronger commitment to the relationship. Murray (1999) suggested that satisfaction, and stability of a relationship depended on overstating the positive qualities of the partner. Those in love look at the behavior and reactions of the partner in the most positive way, consistently giving the partner any benefit of doubt, or not allowing doubt in the first place. The idealization of romantic partners is an essential component in satisfaction of intimate relationships (Murray & Holmes, 1993; 1997; Neff & Karney, 2002).

With positive illusions we overestimate what is good and underestimate the negative. Remember the results of reciprocal liking! In a similar way, idealizing the partner produces mutual liking and more relationship satisfaction. Even when asked about the partner’s greatest fault (Murray & Holmes, 1999), romantic participants were likely to refuse to accept the presence of any fault or turn it into a virtue. For example, if the partner was not ambitious, he was still a wonderful husband who helped around the house. If the partner did not express emotions, well it was because he felt so deeply, and expressed his feelings in other ways. So even the partner’s emotions were idealized (Hawkins, Carrere, & Gottman, 2002). In a study where the partner rated how much positive affect was expressed in a discussion on conflict, satisfied romantic partners overestimated the positive expressions of their partners when compared to neutral judge’s perceptions. In general, romantic couples that are happy see the interactions of their partner in a continuous positive way. There seems to be no substitute for happiness in couples, and it is as if a romantic partner can do no wrong. Having these positive illusions contributes to lasting relationships.

Even though half of all marriages in the US end in divorce, romantic illusions lead to the belief that one’s own marriage will succeed. Most people are unrealistic on probability grounds, and think there is little or no chance for divorce in their future (Fowers, Lyons, Montel, & Shakel, 2001). We can also see positive illusions at work when participants were asked about the quality of their relationships and

these outcomes are compared to ratings of those who knew them well, such as parents and roommates. The participants were primarily positive and saw fewer obstacles to success than did those who were intimate observers. The observers were more evenhanded and saw both the strengths as well as the problems in the relationship.

Positive illusions are aided by our faulty memory. Many people believe their relationship is getting better all the time (Frye & Karney, 2004). For example although women's satisfactions declined in a longitudinal study, the participants expressed beliefs that their current relationship was better than ever (Karney & Coombs, 2000). It is of course very useful to longevity of relationships that we do not remember the bad times or believe those days were better than was actually the case. It is helpful to long-lasting marriages that couples see an unbroken path to an ever improving and more intimate relationship. The relationship bias is found in American, European and Asian cultures (Endo, Heine, & Lehman, 2000). Participants consistently rated their own relationships better when compared to those of the "average" students. These results together demonstrate the functional utility of unconditional positive regard. If we want to be successful in love, we must really love the beloved!

Summary

This essay covered the most significant relationships of human life from the initial attachments to long lasting commitments. We introduced evolutionary psychology in an attempt to understand the initial attachments of infants present in all societies and cultures. The examples of feral children in the literature and the absence of discernable human traits in these children support the idea that human traits are forged in the interaction with significant others. There is also much to suggest that early attachment forms the basis for later relationships. The inference from Harlow's studies is that social isolation is traumatic and results in abnormal development and adult personality. Humans have an even longer dependency period than the monkeys studied by Harlow, and need nurturing to survive. The bonding that occurs initially with the mother becomes the basis of all other bonding relationships.

If the need to belong is a biological drive, is that expressed in the universality of the mother-child relationship and romantic love? If the need to relate to other people is a biological drive, the need to belong should be satiable. When not sufficient the individual will reach out to establish new relationships; however,

when sufficient there is no longer a motive to do so. Our relationships are essential to our sense of well-being and happiness. Those people who are deprived of supportive relations largely live unhappy lives, and isolation has negative consequences for health. Our relationship history defines largely who we are and the attributions we make.

The role of biology can be observed in the preferences of the two genders for qualities in the opposite sex. In all cultures women prefer men with material resources, and men prefer youth and beauty. Perhaps this finding could reflect the relative size differences between the two genders and the historical control of males over economic resources. On the other hand the evolutionary perspective suggests that these differences have a reproductive cause. There is no resolution of these varying interpretations, but the gender differences exist.

The experience of loneliness has many negative consequences. People may have an optimal number of relationships and still feel lonely. Perhaps the relationships are not satisfying some basic emotional needs for intimacy. We do know that those who live rich emotional lives are less dependent on others for satisfying emotional needs. There are those who are chronically lonely. Often that is related to the mobility and temporary nature of relationships due to movement, death, and life changes. Demographic variables may also play a role as the poor struggle with many forms of insecurity and have less time for relationships. Youth is a time of special danger of loneliness as biology demands attachments especially in this stage of life.

The initial attachment is with the mother; later in normal development attachment is expanded to include the father, other family members and friends. The caregiver's own sense of security and warmth is of signal importance to the infant's attachment style. If the infant is secure and feels the human warmth of its mother, a similar pattern can be expected in adult attachments. The infant attachment style is stable over the individual's lifetime, and those who were emotionally secure as infants will find it easier to develop similar healthy relationships as adults. Traumatic life events may also affect our ability to establish and maintain secure relationships. The death of a parent or divorce may produce lasting insecurity in the child. Secure attachments bring many benefits to the individual. Secure individuals bring out the best in others as they generally look for the positive even for negative behavior. Consequently there are fewer health problems and divorce among those who possess a basic sense of security.

Cultures produce somewhat different relationships and expectations. Some cultures are communal and put the interests of the family ahead of that of the individual. In these cultures resource distribution depends on the need of the family member at least as perceived by controlling heads of families. In individualist cultures the rights and needs of the individual are primary, and people generally look after number one or themselves. Some societies are authoritarian like the military, and emphasize status and the established hierarchy. In modern society in which individualistic culture dominates we see more emphasis on equality in resource distribution and outcomes. The question that couples seek to answer is, is the relationship fair.

Relational self-theory is based on the idea that prior relationships provide the framework for understanding our current attitudes and behaviors. If your current lover, boss or other significant person remind you of someone previously significant in your life, you may transfer the feeling you had from that previously significant person to the current relationship. Those who remind us of a positive relationship will have positive feelings transferred to the current relationship. Our past relationships may affect us at the automatic level and we may remain unaware of how these previous relationships affect our current thinking. Previous relationships form the basis of memories and social cognition. We also include family and close friends in our attributional biases, believing that the success of our beloved is due to personal dispositions, whereas failure in those close to us is thought to be caused by unfavorable environmental factors.

Liking someone is the start of relationships. In all its simplicity, we like those who are rewarding to us and we dislike those who are a burden. The literature supports the importance of some antecedents to liking; these include propinquity, similarity, and physical attraction. We tend to like those who live near us because propinquity provides the opportunity to meet, and repeated exposure creates feelings of familiarity. This is an optimistic finding from social psychology that suggests that many relationships are possible in a person's life given the opportunity. The mere exposure effect supports the idea that repeated exposure leads to liking as exposure creates feelings of safety and security. Proximity may mask another variable important to liking relationships, that of similarity, as we often live in social environments where people share common values, or other characteristics. Also long distance relationships are more difficult to maintain and therefore more costly. Similarity is a powerful variable in liking relationships. We

marry those who are similar to us in social class, religion and values. The more similar we are to someone, the more we like the other person. Dating services are based on the idea that a good match is with someone who is similar in values, attitudes, and even physical appearance. The reason similarity is central to liking relationships is that it provides a common platform for understanding the other person and therefore promotes intimacy and trust. Of course it is also reassuring to have our values confirmed by another person. Again, the similarity may be caused by selectivity of the social environment which produces shared experiences and therefore bonding. Those who come from the same culture would have a large set of experiences and values in common not present to outsiders.

Nothing can beat reciprocal liking in eliciting positive feelings; we like those who like us. Reciprocal liking is even more powerful than similarity in producing liking toward someone. Personal traits are also important. The research supports the significance of personal warmth and competence in producing liking in most people. Most members of the sexes are attracted to the opposite sex. Do opposites attract? It seems that opposite attraction holds only for the sexual relationship. Only a few complementary personality traits affect attraction. Although society is moving toward more tolerance on different ethnic relationships, these changing attitudes may only reflect changing norms and may not hold for the individual's own family.

Physical attractiveness is a powerful antecedent to liking. There is in fact little difference between the genders, both like the physically attractive member of the opposite sex. It seems that physical attractiveness is the single most important variable in eliciting sexual desire and arousal. There are some gender differences. Women place greater importance on economic security and stability when considering marriage. They will therefore marry a less desirable male, or an older male, who possesses material resources. Evolutionary psychology would say that these gender differences exist for reproductive reasons. To form family, women must have stable partners. However, as society advances toward economic equality, both sexes place more importance on physical attractiveness.

The physically attractive have many social advantages. All societies subscribe to the "beautiful is good" norm. One consequence is the attribution of positive traits like competence to the physically attractive. It is no wonder they also experience more socio-economic success. Culture determines somewhat the features that are considered attractive. However, there are also universal traits considered

attractive in all cultures. Faces that signal reproductive fitness and health are considered attractive in all societies. This lends support to the evolutionary perspective. Faces that typify the norm, and express bilateral symmetry also have universal appeal. From an evolutionary perspective these faces signal reproductive fitness.

In today's world the market place economy dominates in all aspects of culture and interpersonal interactions. Interpersonal attraction is also dominated by market ideas. The theories of interpersonal attraction emerged in western capitalist societies and reflect therefore common social ideas of rewards, costs, and fairness. Social exchange theory states that relationship liking depends on outcomes that is defined as the rewards minus the costs of a relationship. The theory suggests that relationships have rewards, but also costs and the rewards must be larger for the relationship to be lasting and satisfying. Our satisfaction may also to some degree depend on past relationships that serve as a comparison level. Equity theory states that contentment depends on equity, the give and take in a relationship. Essentially equality and fairness is what governs relationship satisfaction from this perspective. In modern times this perspective in intimate relations leads to tiresome negotiations, issues perhaps better solved by consensus about division of responsibilities.

Theories of interpersonal attraction seem more valid for functional relationships one might find at work or school. Western-based societies are more based on exchange, equity and market economies, whereas societies in Asia are more communally based. In communal relations the outcome for the individual depends on need. Also in close relationships, topics dealing with emotional support and satisfaction are relevant, and altruistic behaviors are expected.

Relationship satisfaction depends also on other factors. First of all the level of investment in the relationship in terms of children, common history, and economic achievements may affect stability. Secondly, what is the level of commitment, and do the partners have alternatives and other prospects? In all these cases, intimate relationships are dominated by the long view, and not just the immediate reward. Thirdly, self-disclosure is an essential factor in building trust and intimate relations. When self-disclosure is reciprocated, such behavior leads to intimacy. Self-disclosure is perhaps more important in individualist societies, as in collectivist societies couples are more inhibited. Women disclose more within same sex relationships, and men are more cautious. Men are more

likely to share risk-taking experiences, whereas women will share concerns about appearance.

Romantic love differs from friendship by its emphasis on sexual interest, by the fascination and infatuation with the partner, and the exclusiveness of the relationship. Such relationships are emotional and exciting. Men and women experience intimacy in similar ways, but women are more likely to express the feelings that lead to intimacy. Romantic love can be defined as intimacy combined with passionate feelings. When couples also feel commitment there is the basis for lasting relationships. Having a successful romantic relationship is basic to feelings of well-being and health.

However, we can observe by the reported divorce statistics that all is not well in marriages. This discontentment appears a tragic commentary on our inability to adjust to changing gender roles as society moves toward more equality. Central to many relationship failures is a preoccupation with fairness and endless negotiations requiring change in partners. Personality also matters in discontentment. The neurotic individual's preoccupation with negative emotions kills intimate relations. The neurotic's bad past experiences influence current expectations, and cause the neurotic to act with strong emotion to any conflict. Stress as represented by socio-economic factors may produce discontentment. The poor are struggling with many forms of insecurity and have little time for intimate relations. Likewise the young are at risk for divorce as lacking the maturity, and struggling with many stresses.

Conflict in relationships comes furthermore about when we interfere with a person's preferences, or frustrate important goals. The behavior of the partner may also have an effect. Drug abuse for example kills the possibility of intimate relations. Attributional blame is also toxic, along with endless criticisms, denying the existence of problems, and displaying the emotion of contempt toward the partner. Breaking emotional ties is extremely painful. The party that is least responsible suffers more unhappiness. What can be done? If we believe in social exchange and equity, we can increase rewards and seek to develop more fairness in the relationship. Presumably the more rewarding and fair our relationship, the more happy. We can also just love more.

ISSA Proceedings 2014 - Toward Polylogical Analysis Of Argumentation: Disagreement Space In The Public Controversy About Fracking

Abstract: This paper offers a new way to make sense of disagreement expansion from a polylogical perspective by incorporating various places (venues), players (parties), and positions (standpoints) into the analysis. The concepts build on prior implicit ideas about disagreement space by suggesting how to more fully account for argumentative context, and its construction, in large-scale complex controversies.

Keywords: argumentation, controversy, deliberation, disagreement space, fracking, polylogue.

1. Introduction

Deliberation in the contemporary globalized, mediated environment presents an opportunity for reflecting on method in argument analysis. As we have argued before (Lewiński & Aakhus, 2014), one key conceptual issue is this: while multi-party and multi-position argumentation (*polylogue*) is prevalent, the analytic apparatus in argumentation studies tends toward dialectical analysis of dyadic disagreements. Such an analysis is posited on a set of often tacit assumptions about argumentation: it typically takes place in a fixed and definable setting where two parties (proponent vs. opponent) exchange reasons and criticisms in order to justify (or refute) some standpoint over which they disagree. Argumentation is thus presumed to be a communicative activity which expands along the lines of a disagreement space co-constructed by the two parties through their argument-relevant speech acts (see Jackson, 1992; van Eemeren et al., 1993, pp. 95ff.).[i]

In this paper, we propose how to make sense of disagreement expansion from a polylogical perspective by incorporating various *places* (venues), *players* (parties), and *positions* (standpoints) into the analysis. We use a case about transporting oil by train drawn from the broader controversy about extraction of shale gas and oil resources using hydraulic fracturing (“fracking”), to which various players (e.g., companies, federal regulators, local communities, environmentalists, professional associations) contribute their conflicting views and arguments. In this way, the controversy develops as a polylogue, which is discourse (*logos*) among many (*poly*), that is, a dia-logue more complex than simple dialogue (discourse between two) typically used to model and analyze argumentation (Lewiński, 2014). The paper contributes to argumentation theory by developing polylogical analysis, which is important for advancing understanding of large-scale, multi-party argumentation (Aakhus & Lewiński, 2011).

2. Argumentation analysis of public controversies over energy production

To see how the dyadic assumptions about argumentation hide the polylogical character of disagreement expansion in public controversies, we consider some analyses of argumentation over energy production, as it is a constant source of contemporary public controversy. The economic, social, political, and environmental impacts of various technologies (coal, natural gas, oil, nuclear power, hydropower, wind and solar energy, etc.) are hotly debated between all the parties involved: from producers, distributors, state regulators, environmental groups, consumers, to local communities affected by energy production.

A good example of such a controversy extensively analyzed with the tools of argumentation theory is Royal Dutch Shell’s involvement in the oil production in Nigeria in the 1990’s (van Eemeren, 2010, Ch. 6; van Eemeren & Houtlosser, 1999, 2002; Johnson, 2002; Leff, 2006; Tindale, 1999, Ch. 5). Among the key issues of this public debate was Shell’s cozy relationship with the Nigerian military regime, its lack of concern for the environment and local communities and, in particular, its alleged complicity in the death of Ken Saro-Wiwa, a prominent Nigerian dissident and environmental activist. Shell decided to manage these issues by publishing an advertorial “Clear thinking in troubled times” in major world newspapers in November 1995 – which served as the basis for analyses mentioned above.

In their pragma-dialectical analysis, van Eemeren & Houtlosser clearly identify the complexities of the argumentative situation in this case. Shell addresses “the general public” with an attempt to refute the accusations leveled against the

company by campaigners such as Greenpeace. Therefore: “Dialectically speaking we have here two opposing parties – Shell and the campaigners – and a third party – the public – that is supposedly neutral” (2002, p. 148). Later, using an updated terminology, van Eemeren argues that the skeptical “general public” is Shell’s *primary audience* accessed via an ostensible argument with the oppositional *secondary audience*, the campaigners. Indeed, careful management of disagreement with the two is “a crucial element in Shell’s strategic maneuvering at the confrontation stage” (van Eemeren, 2010, p. 169). This is achieved by “dissociating the general public [...] from the campaigners who reacted against Shell’s involvement in Nigeria. [...] This strategic separation between the public and the campaigners has the advantage to Shell that the company can treat the public as a possible ally” (pp. 169-170).

The pragma-dialectical study meticulously analyzes the textual and contextual elements in Shell’s advertorial, and precisely reconstructs the structure of its arguments. Yet, despite openly conceding there are (at least) three parties to the controversy, and that this fact is one of the main vehicles for Shell’s strategic maneuvering, pragma-dialectics still relies on a dyadic model of communication. For instance, in the *dialectical profiles* of the reconstructed discussion between Shell and its opponents, the primary audience – “the general public” – merges with the secondary audience – “the campaigners” – into a single category of “opponents”, presumably to clear room for a dyadic dialectical analysis (van Eemeren, 2010, pp. 171-173). We see this as a blind spot, which significantly weakens the purported goal of the entire analysis: the “determining of the strategic function of argumentative moves” in this controversy (van Eemeren, 2010, Ch. 6; see Lewiński & Aakhus, 2014).

What is evident in Shell’s advertorial is argumentative dynamics that goes beyond a simple dyadic clash between a proponent and an opponent. There are, instead, numerous distinct groups which might oppose, doubt, or be concerned with Shell’s position. Tindale makes this clear in his analysis of the case: Shell “can expect a wide audience ranging from the hostile to the sympathetic to the indifferent” (1999, p. 127). While “the indifferent” largely correspond to the neutral general public in van Eemeren’s analysis and “the hostile” are “the campaigners”, Tindale discusses yet another “subgroup of principal interest” for Shell’s argument: the “sympathetic, but concerned” “members of the business community, particularly investors in the company, who have an economic interest

in the issue” (1999, p. 127). Interestingly, for Tindale, Shell’s argumentation is heavily driven by the appeal to “the business component of its audience”, entirely left out from van Eemeren’s study: “A bottom-line position that permeates the discourse is that Shell has no expectation of pulling out from Nigeria. The company’s future economic success in the region rests in part on convincing investors of this.” (1999, p. 128).**[ii]**

With this rhetorically-based analysis, we arrive at an understanding of a disagreement where at least four parties play a part: Shell, anti-Shell campaigners, Shell’s concerned investors, and the general international public. This, arguably, is still a simplification. One can easily see Shell’s competitors in the region, the Nigerian government, potential litigants (Saro-Wiwa’s family), affected communities in Nigeria, and legal authorities in Nigeria and Holland (Shell’s headquarters) as other possible stakeholders/players/parties in this very controversy.**[iii]** If Shell’s text indeed “has been constructed with care and deliberation” (Tindale, 1999, p. 127), then we can reasonably expect that such (actual or potential) sources of doubt and disagreement have been carefully and deliberately managed in this one-page message.

The analyses of energy production controversies based on dyadic assumptions thus hide important complexities of argumentation as it happens in public controversies. Most notably, there are many players claiming a stake in the production process and its consequences, which leads to many positions being advanced and refuted in many places where energy production is carried out and discussed. If we want to analyze and evaluate such a controversy for what it is – a multi-party dispute, that is, multi-party argumentative interaction – we need a model of such an interaction. We call this model a *polylogue*. If the aim of argument analysis is only to assess the rationality of a single argument or evaluate the maneuvers of a particular arguer, then dyadic assumptions might suffice. However, public controversies are dynamic, multi-party activities that unfold over time in a variety of places. Such controversies often take on a particular form of life that is in turn constitutive of the content, direction, and outcomes of the very matters and activity that gave rise to the controversy in the first place (e.g. Schön & Rein, 1994). Understanding the logic of an argument or the reasonableness of a particular move by an actor is necessary but wholly insufficient for establishing an argumentative analysis of the controversy. What is needed is an argumentative understanding of the logic of the controversy, which

can be developed through analysis of the polylogical expansion of disagreement.

3. *Reconstructing argumentation as polylogical expansion of disagreement*

3.1 *Public controversies as polylogues*

Some basic assumptions of argumentation theory are still greatly shaped by the way legal proceedings are conducted – a lasting influence that began with Aristotle and was perpetuated in the work of Toulmin (1958) and Perelman & Olbrechts-Tyteca (1969). Argumentation happens in a fixed venue (court of law), has pre-defined rules and a cast of characters, and amounts to a dyadic clash of two contradictory positions (guilty vs. innocent in a criminal trial) sustained by two confronting parties (accuser vs. accused). The analysis of Shell's advertorial using the pragma-dialectical model is a good example of this approach.

We argue that public controversies such as oil production and transportation quite clearly break these assumptions. The venues are constantly shifting and are strategically selected, designed, and argued about; players are numerous and fluctuating; and positions do not amount to a dyadic contradiction but rather involve a set of multiple contrary standpoints. In this way they become polylogues, that is, dialogues other than simple dialogues, or dyadic interactions. This, in itself, is unremarkable, given that most public interactions are in fact multilateral. What is remarkable, though, is that argumentation theory applies its dyadic, legally-inspired models to capture the strategic shape and rational quality of such polylogues.

Our main argument is that such complex situations – quite typical for public controversies – cannot be easily “fit into” the simple dialectical framework consisting of an opponent facing a proponent. As we argued before (Lewiński & Aakhus, 2014), it is possible for some localized episodes of argumentative exchanges, but it does not add up to an adequate account of the entire multi-party dispute. Similarly, the somewhat static and asymmetric rhetorical account of an *arguer qua speaker* facing (possibly multiple) *audience(s)* does not do full justice to the interactive discursive dynamics of an ongoing public dispute of this sort (Lewiński & Aakhus, 2014).

3.2 *Activity breakdown and the emergence of argumentation*

A breach or breakdown in human activity provides an important point of entry for argumentation analysis as suggested in the pragmatic theory of argument advanced by Jackson and Jacobs (e.g. Jacobs, 1989). Argumentation from their perspective is not a standalone activity or practice but is woven into the very

tapestry of communication. Central to their theory is that argument functions as repair in human activities – that is, argument arises because it functions as a method for repairing the content or process of some ongoing activity. The activity in which people engage offers the natural grounds for raising doubts, objections, and disagreement as well as for proof and justification (e.g. Jackson & Jacobs, 1981). Moreover, the substance and direction of any human activity is subject to the capacity of participants, and any third-parties or systems, to jointly manage the shape of the disagreement space through the relevant or digressive design of their argumentative moves (Jacobs & Jackson, 2006). While Jackson and Jacobs develop their account within settings of interpersonal argumentation, we find that the insight is remarkably scalable to any human activity (e.g. Aakhus, 2013).

Our point of entry into our current reflection on method for polylogical analysis is a news story published in the *New York Times* on January 25, 2014 entitled “Accidents surge as oil industry takes the train” (Krauss & Mouawad, 2014). Unlike Shell’s advertorial, this is not a dramatic and carefully crafted piece of rhetoric but instead a news story reporting on a turning point event. By selecting this text, we move away from focusing on an exceptional speech or a speaker towards a text that openly reflects on the social, political, and technical infrastructure that enables large-scale coordinated human activity. This is important for polylogical analysis, which seeks to articulate not only the arguments made but the argumentative activity and the function of arguments and argumentation in human activities. Since the text used here reports a breach or breakdown in human activity, it provides the analyst a form of “infrastructural inversion” where what is otherwise taken-for-granted in human activity as normal and unnoticed is exposed and made temporarily strange and ready for examination (see Bowker & Star, 1999). Among other important methodological concerns for analyzing argument, infrastructural inversion is a method for a pragmatic analysis such as advocated by Jackson and Jacobs. In particular, it draws analytic attention to making visible how argumentative activity is embedded within broad human activities and how argumentation shapes and is shaped by the conduct of human activity.

3.3 *Exploding trains*

Fracking (or: hydraulic fracturing) is a method of extracting natural gas and oil (the so called ‘shale’ gas and oil) from deep layers of ‘shale’ rock. It consists of an older technology and a new technology. The older technology involves fracturing

rock by injecting high-pressurized liquids (water with added chemicals and sand) and thereby releasing the gas and oil trapped there. The newer technology involves drilling that can maneuver in nearly any direction rather than simple vertical drilling of prior eras. This method has been recently used on a massive scale in the USA, increasing its oil production by 50% (from 2008 to 2013). This has turned the USA into one of the biggest gas and oil producers in the world and changed the availability of petroleum resources for consumption around the world. Because of this, the fracking business has been hailed as the chief agent of the USA's energy security, a job creator, and provider of cheap energy to American industry and consumers. Yet concerns remain. There are environmental hazards (documented cases of water pollution, methane emissions, micro-earthquakes, etc.), questions about the actual economic impact on local communities, and shifts in energy policy and investment away from non-carbon based energy sources. Consequently, there is an ongoing public controversy over fracking's economic, environmental, social, and political impact that stretches from local communities around extraction sites to USA's oil-driven global politics.

An important but overlooked aspect of shale oil and gas production is its transportation. Fracking takes place in new areas otherwise disconnected from traditional oil and gas production pipeline infrastructure. Hence a massive surge in the amount of oil shipped by rail: from 9,500 carloads in 2008 to 400,000 in 2013 (4,200% more). Not unexpectedly, rail supplies can hardly keep up with the increasing demand for efficient and safe large-scale transportation. Tragic accidents occur, such as the explosion of a train in Quebec, Canada, in July 2013 which killed 47 people. In 2013 alone, there were more spills than in the entire 1975-2012 period (Krauss & Mouawad, 2014). One of such major spills occurred in the town of Casselton, North Dakota, on December 30, 2013 where a train carrying crude oil crashed into a derailed grain train causing a major fire and oil spill. This has been a widely reported accident that further fueled the public debate about the safety of shale oil production and transportation.

Shale gas and oil production is a massive human undertaking made up of an interconnected web of activities coordinated through communication across time and space through many kinds of venues. The text of the news story thus opens up the landscape of the controversy and makes visible many parties and their beliefs and opinions about how the transportation of shale oil should be conducted. It is these beliefs and opinions that get drawn out and into the explicit

discourse about transporting oil. The argumentative activities through which disagreement space around human activity is expanded and contracted can be understood by examining its possible venues, parties to the disagreement, and contended positions.

4. *Analysis*

4.1 *Places*

The news account reveals many places, or venues, where disagreement about the transportation of shale oil is managed. The news story provides some insight into and appreciation of a labyrinth of venues that are connected in more-or-less relevant ways around the matter of transporting shale oil.

There are five venues that stand out in the account. First, there is reference to informal public encounters, such as Kerry's Kitchen "where residents gather for gossip and comfort food especially the caramel rolls baked fresh every morning." **[iv]** Second, there is reference to formal closed 'disciplinary' meeting between principal actors in shale oil transportation: "Railroad executives, meeting with the transportation secretary and federal regulators recently, pledged to look for ways to make oil convoys safer – including slowing down the trains or rerouting them from heavily populated areas." Third, there is reference to formal private meeting where 'negotiations' between the industry representatives and regulators take place: "After the recent meeting with regulators, the American Petroleum Institute pledged it would share its own test data about the oil, which they have said is proprietary." Fourth, there is reference to private, informal deliberation: "Adrian Kieffer, the assistant fire chief, rushed to the accident and spent nearly 12 hours there, finishing at 3 a.m. 'When I got home that night, my wife said let's sell our home and move,' he said." And, finally, there is the news story itself which points to a privately structured public media space for communication about the incident.

While it is not possible to offer an extensive analysis of these venues referred to in the news story, it is important to note that the juxtaposition of these venues in the account suggests that there is no one institution, field, sphere, or conversation that defines and contains the disagreement. Instead we begin to see a complex infrastructure of venues where those with a stake in the shale oil production and transportation engage each other. Each venue is a means for argumentation to repair the breakdown in the shale oil production and transportation caused by the explosion. Each venue suggests argumentative conduct aimed at the various

doubts, differences, and disagreements brought to life by the derailment and explosion.

While conventional pragmatic analysis of argumentation has begun to take into account the rules of the settings where argumentation happens by considering the formal argumentative activity types characteristic of various institutions (e.g. legislative assemblies in political argumentation), conventional pragmatic analysis treats these as stable social structures to better understand the arguments and maneuvers of particular actors within the setting. By contrast, the news account offers an infrastructural inversion that draws into light the dynamic relationship of venues that is otherwise tacit, taken for granted, and even hidden from plain sight. From this vantage point, an analyst begins to see the varying ways disagreement expands through the creative struggle among the parties to pursue and place argumentation. There are concerns by industry and government over where best to handle the issues, whether through formal judicial proceedings or, as in the present case, a private disciplinary meeting among regulators and industry. This may illustrate a form of *venue shopping* where parties seek the most favorable place to handle a difference (e.g., Pralle, 2003). There are concerns by industry over the information available about oil and gas production and, in the present case, there may be a form of *venue entrepreneurship* where some participants seek to strategically alter some rules of engagement, such as when an industry representative worked with government to create a site where industry controls the dissemination of official industry information to stakeholders. Closer analysis of additional background may also reveal efforts at *venue creation* where parties seek to create an entirely new place to engage in argumentation. Thus, venues become part of the argumentation as parties seek to shape and discipline the pursuit and expansion of disagreement by selecting, altering, or creating venues for argumentation.

4.2 *Players*

The initial framing of the controversy in the *New York Times* news report is noticeably dyadic. The journalist is clearly trying to put in motion some simple adversary dialectics between oil “producers” and their “critics”: “In the race for profits and energy independence, critics say producers took shortcuts to get the oil to market as quickly as possible without weighing the hazards of train shipments.” Such two-sidedness has become a landmark of modern journalistic writing as a vehicle for impartiality and comprehensiveness (Cramer, 2011).

In its entirety, however, the news story reveals a complex network of distinct players and their multilateral, rather than bilateral, relations: local residents (coffee shop owner, firefighters), North Dakota state authorities (state governor), federal “safety officials” (National Transportation Safety Board, NTSB chair) and “regulators” (Federal Railroad Administration, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, DoT Secretary), third-parties (former administrator of the PHMSA, rail transport consultant), and industry groups (Association of American Railroads, The Railway Supply Institute, American Petroleum Institute). At a certain level of abstraction, one can of course extract some basic disagreement between the pro-side (producers) and the contra-side (critics). This, however, is not a level interesting to an argument analyst who wants to understand the “logic” behind taking up particular lines of disagreement, design of arguments and criticisms, as well as constraints and affordances a given social or institutional role carries. Since these differ, so do different players’ positions and arguments. Take for example the difference between federal “safety officials” and “regulators”. The former are tasked with investigating the causes of accidents and suggesting adequate recommendations. The latter are to develop and implement concrete and binding regulations, something they do in negotiation with all the parties involved, including the industry. Regulators might be, then, “critics” of the “producers” but likely in a way different than safety officials are. Similarly, local residents, who care for the safety and well-being of their communities, cannot be taken to constitute one argumentative party with the state authorities concerned with having a sustainable, revenue-generating business at home. The former argue that “we should slow the production, and the trains, down”, the latter’s “first priority was improving tank cars” so that, supposedly, they can better serve the burgeoning oil business. Both, then, take up some disagreement with “producers” regarding the way oil is produced and transported, but take it into a markedly different direction.

To conclude, there appears to be no *Public* or *Opponent* in the classic rhetorical or dialectical sense – instead, the controversy involves a variety of stakeholders, as determined by those who call-out and make claims on actions of others.

4.3 Positions

The multilateral network of relations among the players makes it hard to reconstruct this controversy in dyadic terms also at the level of positions various

players defend. Again, the dyadic tendency of argumentation theory would guide us into seeing it as, basically, a two-sided disagreement. The main bone of contention would be the activity of shale oil and gas production. On the one hand, we would get those who claim, "Yes, let's frack as much as we can!", on the other those who would want to ban fracking altogether (clearly, there are actual players who claim just that - arguments of some oil industry actors vs. radical environmentalists). Then, however, we quickly notice a variety of mediating "yes, but" positions: from "YES, let's frack, but improve slightly the drilling technology so that less spills occur" to "yes, let's conditionally frack BUT ONLY IF other sources of energy are unavailable." The disagreement space becomes populated with all kinds of incompatible positions and arguments that do not easily fit the simple pro-con divisions.

The *New York Times* report indeed reveals a complex, polylogical network of disagreements on the issue of transporting oil by train. The Railway Supply Institute, an industry group representing freight car owners, defends their current practices by maintaining that "existing cars 'already provide substantial protection in the event of a derailment'." This position is challenged by another industry group, Association of American Railroads (companies that manage the railroads). According to them, tank cars should be "retrofitted with better safety features or 'aggressively phased out'." Their arguments for this position seem purely prudential - without safer transportation, oil business will not grow as expected; in the words of a former administrator of the Pipeline and Hazardous Materials Safety Administration: "Producers need to understand that rail-car safety can become an impediment to production." Additionally, as other third-party consultants claim, "railroads and car owners can no longer ignore the liabilities associated with oil trains, which could reach \$1 billion in the Quebec accident."

Now, these disagreements *within* the oil transportation business are just a side dish in the broader controversy. The main courses are made of opposition from government, local communities, as well as environmentalists (not referred to in this very report). Federal "safety officials" "have warned for more than two decades that these cars were unsuited to carry flammable cargo", and their arguments are based in concerns over citizens' and environmental safety, rather than prosperous business. Finally, local communities have a distinct position of their own: because they need now to restore "shattered calm and confidence",

“[m]ost people [in Casselton] think we should slow the production, and the trains, down.” They thus question not just the technical details of production and transportation, but rather the very rationale for these activities. This puts their position in opposition to all the above-mentioned, including the federal officials who might not be doing enough to protect the common people.

In this way, disagreement is not limited to contradiction. Accordingly, the expansion of disagreement space is not limited to a dyadic dynamics between two contradictions; instead, it involves a polylogical network of multilateral relations.

5. Conclusion

In this paper, we highlight how to make sense of disagreement expansion from a polylogical perspective by incorporating various *places* (venues), *players* (parties), and *positions* (standpoints) into the analysis. By articulating positions, disagreement expansion can be seen as something generated by players attempting to manage an interconnected web of commitments relative to their multilateral relations to others. Disagreement is not limited to contradiction. By articulating players, disagreement expansion can be seen as co-constructed through the calling-out actions of multiple players and the anticipation of being called-out. Disagreement is not limited to contending with one other party and thus argumentative strategy is not limited to message design but is opened to communication design as it is found in the variety of instruments for communication which parties develop to manage their role in a complex web of relationships. By articulating venues, disagreement expansion can be seen as something that happens through a network of communicative activities that develops in the course of managing broader human activities. The content, strategies, and parties to argumentation are not necessarily limited to the demands of one kind of communicative activity but are often relevant to and implicated in other communicative activities in the network. Disagreement is not limited to one given, fixed place but finds its way into a variety of places and often motivates the reconfiguring or invention of places for argumentation. Thus, by articulating the polylogical expansion of disagreement space, argumentation analysis can engage the logic of controversies rather than taking context to be given or treating it as static for other analytic aims.

While disagreement space has been treated as a dialectical product from a dyadic perspective, the original conceptualization affords a polylogical analysis. It is not an inherently dyadic concept and the concept needs to be developed to address

complex, contemporary argumentation. By introducing particular analytic concepts (positions, players, and places) for reconstructing disagreement expansion, we are suggesting that the reconstruction of argumentation can more fully take into account the infrastructure for communication, which makes argumentation possible, at a variety of scales. Moreover, we are articulating a means to account for how argumentative contexts are constructed and become a conscious target for strategic construction in order to shape human sense-making about broad human activities. For those interested in moving argumentation analysis beyond the assessment of a single argument or the evaluation of the maneuvers of a particular arguer, such conceptual and methodological considerations are needed (see Aakhus, 2013; Aakhus & Lewiński, 2011; Lewiński & Aakhus, 2014).

NOTES

- i.** There is nothing inherent in the disagreement space concept that limits it to the dyadic presumption. Indeed, a close look at the examples and analysis in van Eemeren et al. (1993), especially chapters 5-7, suggests that disagreement space is a discourse-centric phenomenon that can incorporate many parties and positions (see Aakhus & Vasilyeva, 2008). We develop this intuition in our present paper.
- ii.** Johnson (2002, p. 41) and Leff (2006, p. 203, n. 2) both make a similar argument in their analysis of this case. Indeed, looking from the perspective of the strategic objectives of a modern corporation, the entire argumentation in Shell's advertorial is eventually subordinate to its claim of "future economic success". Shell is addressing various stakeholders with complex argumentation, stating that they are a growing and socially responsible company which, therefore, is worth dealing with, whether as an investor, government, business partner, community member, activist, or customer.
- iii.** In an endnote, Tindale himself recognizes that "we can imagine other interested subgroups", and mentions Shell's competitors and Nigerian expatriates opposing the government (1999, p. 215, n. 1).
- iv.** All quotations in the analysis are from New York Times report "Accidents surge as oil industry takes the train" (Krauss & Mouawad, 2014).

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