Adult Behavioral Developmental Stages of Attachment

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The current paper examines individuals' understanding of relationships with significant others in terms of the increase in complexity of tasks that is posited to occur in the Model of Hierarchical Complexity (Commons et al., 1998). We interviewed 8 to 10 year old children, and adults, about losses of attachment objects, including people, pets, objects, places, events and ideals. Statements that children and adults made about these attachment objects were scored used the Model of Hierarchical Complexity. It was found that children's statements were primarily scored as primary or concrete. Adults' statements ranged from primary to systematic, but were more often scored as abstract, formal and systematic (not primary or concrete). Illustrative examples of statements at each of the orders of complexity for both children and adults are provided. It will be important to extend these findings by examining whether the verbal behavior of individuals with respect to relationships is related to the kinds of relationships they appear to have.

The current notion of attachment was originally systematized by Mary Ainsworth and her colleagues (Ainsworth, Blehar, Waters & Wall, 1978) in work conducted with infants and their parents. The notion was one that, at the beginning, was meant to capture the infant's attachment to a primary caregiver, usually the mother. The current paper starts by discussing this original notion of attachment and how it has been generalized beyond infancy, to adults. It will then discuss the possibility of extending and expanding upon attachment theory to better accommodate what is known about adult development.

Classical attachment theory is embodied in the work done with the *strange situation* as developed by Mary Ainsworth (Ainsworth, et al., 1978). The strange situation measures how infants and young children behave during a reunion after having been separated from their mother (or other primary caregiver). Securely attached infants seek contact with their mothers. Insecurely attached infants are classified as either avoidant or ambivalent. Avoidant infants do not seek contact with their mothers during reunion. Ambivalent infants become upset upon separation, seek contact during reunion, but usually also push away or fail to be consoled by the mother.

Beginning in 1985, researchers (Hazan & Shaver, 1987; Main, Kaplan & Cassidy, 1985) began to extend to adults the basic ideas from the work on infant attachment. The work by Main et al. began with a study of the parents of children whose attachment patterns were already being studied. They interviewed parents about their own, remembered attachment experiences, which became the basis for the Adult Attachment Interview (AAI). Hazan and Shaver's (1987) work began by assessing attachment in adults using questionnaire-like instruments. Hesse (1999) summarizes a large number of studies that used the AAI,

while Rothbard and Shaver (1994) and Hazan and Zeifman (1999) summarize some of the work using this other methods.

In this work on attachment in adults, the features of attachment described for infants are directly applied to adults. For example in both the work by Main and colleagues and the work by Hazan and colleagues, adults are classified into the three major types: secure, avoidant and ambivalent. It is assumed that an adult's attachment status is related to their earlier experiences of sensitive care, just as with infants. Adults are assumed to have an "internal working model" of both themselves and their caretakers. According to the overall theory, these working models have developed as a result of interactional experiences with the caregiver.

What the theories do not do is incorporate aspects of development that may have occurred since infancy. Such aspects would include: (a) experience with multiple, significant relationships that might be very different from an individual's earlier experience with caregivers, (b) an increasing tendency, starting in adolescence and into adulthood, of reflecting on experiences. Increasingly the effects of an experience can be as much due to how an individual evaluates that experience as to what happened, and (c) most importantly, an increase in the complexity of tasks that individuals can solve as they develop. It is this latter aspect that this paper will examine.

The current paper examines aspects of this increase in complexity from the point of view of the Model of Hierarchical Complexity. As described in the Introduction to this special issue, the Model of Hierarchical Complexity (Commons et al., 1998; Commons & Miller, 1998) posits that developmental changes result not from changes in mental structures or schemas as Piaget argued, but instead result from the fact that the tasks that people must solve as they develop become more hierarchically complex. Specifically, a task is more hierarchically complex if: (a) the task and its required action is *defined* in terms of two or more less hierarchically complex tasks and their required task actions (note that actions here may be observable behaviors or mental actions); (b) the more hierarchically complex task organizes or coordinates two or more less complex actions; and (c) the coordination of actions that occurs has to be non-arbitrary; it can't be just any chain of actions.

The task to be examined in the current study is the task of understanding relationships with significant others, or attachment relationships. In an earlier paper, Commons (1991) proposed Stages of Attachment starting in infancy and continuing to adulthood. The current paper will revisit this question by giving updated material (Table 1) and by examining ways in which attachment-related statements might differ in children and adults. Because attachment theory has focused upon reactions to separation as the most productive context for eliciting attachment

behavior, we looked for an analogous situation to ask participants about. It seemed as if asking participants about losses of attach- ment objects, and their reported feelings as a result of these losses, would be an analogous context.

Table 1. Stages of Attachment

Stage 1. Sensory-motor (reflexes and tropisms)
Infants are dependent on their caregivers. Habituation and positive and negative reinforcement are the main attachment contingencies. Both positive and negative reinforcement increase or maintain the frequency of behavior that they follow. Infants can discriminate their primary caregivers from others. There is a small preference for that primary caregiver, which seems to be partially based on familiarity. The familiar caregiver is more effective at pacification than others. Decreasing distress serves as a negative reinforcer. Much of infant's behavior maintains a simple positive feeling and seeks comfort from distress. Infants fail to maintain that feeling by discriminating that the attachment object is not available during some distress episodes and others cannot alleviate it as well. Some activities and games are preferred. There seems to be little preference for place. Toys preferred on the basis of function and form. Peers are objects to be manipulated. There is a recognition of babies midway. Imitation is mostly reflexive, such as smiling to smiles.

Stage 2. Circular sensory-motor (conditional and other complex discriminations)
Infants imitate on an operant basis. They follow hidden objects. They discriminate separation from attachment figures. They develop a clear preference for one or at most two attachment objects. These three facts results in there being degree of separation protest. Gewirtz and Pelaez-Nogueras (1991) find that the separation protest can be conditioned further. The appearance of and, imitations by, smiles and laughs from the primary caregiver are more reinforcing of behavior then when they emanate from others. Infants can recognize familiar people in mirrors, looking first at person and then the image. They do not recognize themselves. They have favorite toys. Operant laughing and crying clearly appear. Reaching towards the main caregiver develops as one of the attachment behaviors.

Stage 3. Sensory-motor (concepts)
There is generalized imitation and beginning identification with increased matching to similar category objects. There is a recognition of self (in a mirror for instance) without explicit training. This indicates a further separation of self from others. Because they can name themselves and others, there is categorical separation. Gender labels can be attached to the sex categories. The infant begins to become mobile and can act independently in a broader arena. This leads to some independence from the primary attachment figures.

Stage 4. Nominal (named concepts)
Pervasive imitation and identification develops. They use objects that the attachment objects use. Children discriminate the effects of acts on others. They act like an executive and manipulate others without discriminating what the others' goals are. They give verbal opposition, quite often saying "no" (Terrible twos). They fail to control caretakers and are unable to obtain their planned objects on their own. They see peers as individuals to be manipulated but are attached to them (Field, 1991). There are clear favorite toys. Children clearly associate peer relations and routines with place (Field, 1991). The place is discriminative for the activities. The child who remains misses the one that moves and not visa versa. Hence there is really only partial attachment to friends and it is conditional on the environment. Routine is important. If a mother leaves the area for a trip, the child is less upset when routine is maintained. Words have a literal meaning and quite often even a name like orange juice can be taken as an instruction to drink the orange juice. Demands are followed. There is no independent rule-governed behavior. Words take on social-reinforcing value. Perceptions of monsters are real.

Stage 5. Sentential (sequences of named concepts)
Instructions in sentence form are followed. There are simple rules. The child can state a rule as well as follow them. Rules have the form of role of description, explanation and moral imperative. Children select children who are somewhat similar as playmates. Children verbalize about what they like and want. Often they do not understand the difference between their own orders and those given by adults. The superiority of rules of adults is only partially understood. Only bits and pieces of adult behavior can be imitated. Being someone and their opposite comes into play. One may be the bad person as well as the good one. Possible selves are explored thorough imitation. Monsters can be fought and subdued.

Stage 6. Preoperational (sequences of sequences of named concepts – paragraphs)
Longer sequences of instructions can be followed. The instructions may have the form of paragraphs. By the end of this period, a child in this culture has formed a group identity; they have a sex-role preference (Kohlberg, 1966; Miller & Commons, 1973). There is strong pervasive imitation of same sex parents and figures. The person begins to follow older person. The pervasive imitation of the older is identification. It is seen in role playing. There is no distinction between a personal interpretation of another's action and what the true perspective. There is no sense of a shared self yet there is some empathy. Abstractions of superiority of the adult caretaker is now partially but not consistently discriminated. There is still complete dependence. Pervasive imitation can be reinforced by producing similar appearing outcomes. The observed appearance of similarity to the adult model may make those outcomes reinforcing.

Stage 7. Primary, Moral Attachment Stage (reality-verified objects)
There is actual rule governed behavior in addition to pervasive imitation. The verbal behavior of attachment objects is vocalized as rules. The children follow rules accurately across time. Children can coordinate their actions with attachment objects. Children recognize their own dependence on the parent. They can discriminate the greater power and competence of the attachment object. If children are asked who is better, they reply that the attachment object is better. Also authority in general is seen as better, more competent, more virtuous. Children compare themselves to the attachment object--this social comparison requiring primary operations.
The perspective of the parent can be seen in the form of rules that the parent states. Insofar as there is moral attachment, feedback from the attachment object affects not only specific behaviors but mood as well. The discriminated value of the self changes with such evalua-

tion. Producing pervasively matched behavior is reinforced not only by the usual reinforcing properties associated with the outcomes produced by such behaviors but by the appearance of similarity, which is valued in itself. Outcomes delivered to the parents may reinforce behavior of the child, because of the shared self.

Stage 8. Concrete (concrete others)

Two new sources of attachment objects appear. The attachment objects increasingly can be peers. While with peers, people ignore the basic attachment figure to some degree. Immediate social reinforcement from peers is sometimes more effective than more general rules in controlling behavior. Hence, parental authority is sometimes ignored. While in the preoperational and primary stages, children will act out what they see in the adult world or hear, during concrete operations the shared-self may extend to models that appear in written or spoken stories. These are models that appear quite real as opposed to the mythical figures from the earlier two stages.

Shared activity with some degree of compatibility is the basis of peer attachment. People change the way they behave with different friends. The perspective of the other is discriminated by considering how one's own behavior will affect another's behavior, the other person's behavior possibly reinforcing ones own. Such perspective taking makes it possible to have for attachment objects named peer groups, such as cub scouts, brownies, camp fire girls. The school has a name and so do the teachers. Authority figures in general are good. There is a strong sense of shared self, the objects now being extended to informal local organizations. Rules are good and to be followed.

Stage 9. Abstract (abstract others)

Actors can take the perspective of another abstract rather than actual-concrete person (viewing the actor). Rules are so well discriminated and followed that in implicit rules of groups become important. People select attachment figures other than caregivers. Group identification develops along with serious attachment to groups (imitation of group behavior). People see themselves as belonging to one of the acceptable groups or an out group. People, who do not attach to groups appear distinct to themselves and others. One sees nationalism and parochialism. The group's displayed view of themselves can serve as reinforcers and punishers. When caught breaking rules by new attachment figures there is rage and shame. There is opposition to parental figures with the rules of peers used as challenges. Formal groups are important. Following the rules makes one good. There are multiple sources for the rules.

Stage 10. Formal (subsystems of others)

The perspective is that each sector of the world consists of a number of relationships, the rules that guide them have to be discovered or learned by the person. Hence, with respect to social perspective taking, how abstract others will behave can be experimentally and logically examined. The sectors of the world seems to be fixed. Subgroups are to be affiliated with. One subgroup, usually the one is in is superior to all others. Its rules and definitions are superior to others. The costs of being in some outside group are high. There is opposition to norms of basic attachment figures, rebellion, weakening of interdependence. People can figure out what to do to influence other people. The rules are abstract, and in some sense are like general principle, they just have not been applied widely. There is increasing opposition to parents but conformity to age-appropriate groups, not in just superficial ways as in the abstract sate but in terms of the effectiveness of the group to use rule governed behavior to subtly define the relationship between the person and the system. The person is seen as subordinate to the system.

Stage 11. Systematic – Independence and dependence (ordered subsystems of others)

The person takes the perspective that there are a number of possible systems to which one might affiliate. At the later levels of this stage, although these systems have relative validity the person must choose among them (Perry, 1970, 1981). People can see interrelationships between the actions of one person and another and how that interaction affects the system. The rules that govern identity are arbitrary and may be reconstructed by the group. There is independence but with conformity to group norms. People view themselves as individuals. A change in a system most often appears as a new ordering individual and subgroup status. The new order is the one a person has to live with and care about. The attachment to the system makes it likely that people, whether liked or not, will be afforded the procedures of the system. In the later part of this stage, tolerance of others who are different from oneself develops as one of the main positive attachment behaviors. Cynicism towards the system develops as one of the main negative attachment behaviors.

Stage 12. Metasystematic (system of universal others)

People attain autonomy (Armon, 1989). They respect others and value them as human beings irrespective of agreeing them. The opposition of the previous stage that may have required some hostility towards controlling objects, has dissipated. The perspective taking ability allows the person to see the other in more similar terms to the other. They can not only stand in their shoes, view the relationship from a third person perspective, and see how that relationship fits into the system, but they can assume the perspective of the other to the extent that they are informed. They also discriminate the inability to do so fully. Dependency is acknowledged.

Stage 13. Paradigmatic operations (differentiated universal others)

Perspective-taking now not only includes an integrated self and other but self and nature (Sonnert & Commons, 1994). People see that they are part of nature, not in opposition to it. They see that there is no way to transcend nature or impose themselves on it. There is recognition that human endeavors have limited complexity in the face of the possibly infinite complexity of the universe. The mappings between self and other, self and society, self and nature formed at stage 5b are transformed so that people are just part of nature. The attachment objects include universal entities, such as everyone and all of nature. There is unconditional respect for everything in nature including ones place in it.

Method

Research Participants

There were 40 participants. Of these, 18 were children (9 girls and 9 boys), mean age = 8.38 years, *SD* = .70. Children were recruited from summer camp and school programs in the Cambridge and Boston areas. There were 22 adults (13 female and 9 male), ranging in age from 18 to 60, with a mean age of 30.52, *SD* = 10.38. Adults were recruited from a variety of settings, but a large subset of them was graduate students and employees of a large private northeastern university. Responses from a small subset of children and of adults will be presented in part of the Results section, to illustrate the stages.

Materials and Procedure

Individuals in both age groups were interviewed using the same combination of open-ended and closed format questions. The interview was pretested using the grammar-checking feature of Word Perfect® and all vocabulary was appropriate for the third grade reading level. At the beginning of the interview, individuals were told that we wanted to talk to them about caring. They were asked to give a definition of "caring" for something. There was some discussion of their definition and an elicitation of examples to make sure that the individual understood the topic. Only then were participants asked: "Sometimes a person or a thing that you care for might go away or get lost. Has that ever happened to you? Can you tell me about that?" At this point, the task of the interviewer was not so much to discuss any one loss in depth, but to elicit as many losses as possible, first in a non-directive fashion, by asking simply "anything else?" The losses that participants remembered on their own are called "uncued." The interviewer then cued them as to whether they had ever lost any of six specific entities not already mentioned (people, objects, pets, places, events, or abstract entities, such as ideals). Once a set of losses had been elicited in this manner, participants were asked to respond to further questions about three types of losses: (a) their most important loss, (b) the loss of a person (if not the same as their most important loss), and (c) the loss of an object. Interviews were conducted by several graduate and undergraduate students, who were employed as research assistants. Students had some training in interviewing.

Individual statements that children and adults made about the losses of attachment objects were then scored in terms of their hierarchical complexity. The scoring was based upon a scoring manual developed by Commons and colleagues (Commons, Danaher-Gilpin, Miller, & Goodheart, 2002). All scoring was done by two scorers together. If they disagreed or were unclear about how to score, a third scorer who had considerably more experience with the scoring scheme was consulted. Each statement in a narration was scored individually, so separate statements of an individual could represent different orders of hierarchical complexity. While a single individual's statements will show a range of complexity, children's statements, in general will be scored within a lower range of orders of complexity.

Results

The purpose of the current paper is to illustrate what statements about relationships at different orders of complexity are like, and also to discuss differences between children and adults in the orders of complexity that they typically used to discuss their loss experiences. In the items below, gender, age, participant statements, and scoring descriptions are provided.

Primary-stage statements

Primary stage statements tended to be simple, single-action statements about what had happened. These statements can be chained together, for example, in a temporal order. They generally focused on subjects themselves or on the other person, but did not suggest coordination between the two (Rodriguez & Commons, 1991). If two people were mentioned, then it was only incidentally, or as part of the chain of statements. Primary stage statements were often shorter than other types of statements; it was common, however, to see a chain of primary stage statements. In addition to how short primary stage statements were, their content was never abstract in nature. They referred to specific, one-time events in a story.

(M, age 8) And I lost my favorite toy. Actually I lost two of my GAG. Those were my favorite toys. [*Three sentences, in a chain that could occur in any order about losses of these toys.*]

(F, age 9) I[t] was good in the fact that like, she was dead and it couldn't be helped because she was an old cat and her kidneys had failed and, I mean, not even people live through kidneys usually and so... [*This is a story of how she felt after her cat died. She also seems to be repeating things she has been told that the death of the cat was inevitable, and "not even people" live through kidney disease.*]

(F, age 25) *Primary Step 4.* My crystal jewelry box. Last Friday. I didn't lose it. But it's gone. It crashed. [*There is only one role here, that of the jewelry box and one causal statement, I didn't lose it. It is factual.*]

(F, age 25) *Primary Step 4.* I went out in the rain, and walked around in the rain and wept. [*Just a story about herself and her feelings.*]

(M, age 23) *Primary Step 4.* He was my clarinet teacher and I was, I think I was in fifth or sixth grade. [*Telling details about the clarinet teacher; note that while there are two people, it is really just two phrases chained together.*]

(M, age 23) *Primary Step 4.* I sat down on the stairs and cried until my mom got there. [*Details about what happened when he found out about the death of his clarinet teacher.*]

(M, age 41) *Primary Step 4.* I lost several, three to be exact. [*Part of a story with specific information about the number of motorcycles he has lost over time, but it does not show or bring in more than one person or more than one role - just himself.*]

(M, age 41) *Primary Step 4.* Well I felt angry and ripped off!! [*Expressing his emotions upon the loss of the motorcycles.*]

Concrete-stage statements

Concrete-stage statements were also story-telling statements; however, they either showed the basic coordination between two people, or between two attachment entities.

(M, age 8) When I was like 2 years he walked away cause he didn't like me right from the beginning 'cause we always got in fights [*"He didn't like me because we always got in fights" - a very tangible reason why "he didn't like me."*]

(F, age 9) I guess when I lost my friend Jill, when she moved away I guess that was kind of a loss right then 'cause she had been my best friend since like, kindergarten and like, I was always over her house and everything and we slept over each other's houses a lot. [*The basis for friendship is spending time together and sleeping over at each other's houses.*]

(F, age 25) I guess right when I left college there were a series of losses because I went straight from college to work out West and worked out West with some people for about 6 months and then after that, at the end of that 6 months, we all left each other again. [*At this point this is a story about her and these other people and what was happening with them; leaving each other is*

concrete, there is mutuality.]

(F, age 25) Yeah, I wrote for awhile, and we planned a trip, uhm, some of us. They left in the middle of September...at the end of August, and I met them in uhm, California for two weeks at the beginning of October. [*A story with at least two perspectives fully coordinated in it.*]

(M, age 23) D... is the name of the young woman I've been going out with for the last two years. She is a senior at Yale now, and it looks like we'll be together for a very long time now. [*A story with a specified time mentioned, and a relationship between two people; an agreement between two people with mutual perspective taking.*]

(M, age 41) I think because there were interactions that I missed with my father. [*There were specific interactions that he missed with that specific father that shows mutuality and coordination of perspective. There is no description of those interactions.*]

Abstract-stage statements

In abstract-stage statements, individuals often quantified their emotions following a loss. Although abstract-stage statements were often relatively short, the statements differed from primary- or concrete-stage statements because they contained some kind of recognition that the reaction to an event could have been different or could be variable under different circumstances.

(F, age 8) I just wasn't afraid. Because, I don't get afraid when I lose something. But if it's something very, very special to me, really, really important and I always loved it, then I would be a little more scared and worried that I lost it. I'll never see it again. [*She seems to have two ideas: some things that are not very important do not make her get very afraid; other things that are very, very important would make her get more afraid - she seems to be beginning to deal with different values of "importance" and of "fear" and relating them to each other - she also seems to be thinking hypothetically - she doesn't have a specific thing in mind but just says "If it's something..."*]

(F, age 41) I didn't have, there was nothing adversarial between her and me. [*There was nothing at all here that was adversarial is a quantification statement; adversarial is a value of the kinds of interactions that can range from adversarial to cooperative.*]

(F, age 41) All I wanted was to have a quiet life. [*All is quantification, quiet is a value of a variable.*]

(F, age 25) And it was just a continual saying goodbye. [*A continual is an abstract quantification statement.*]

(M, age 23) I'm trying to be specific - instead of talking in vague generalizations. [*Value=vague, of a variable that can range from vague to specific.*]

(M, age 23) I have moments of elation [*There is quantification, "moments" of elation; elation is variable.*] and moments of depression.

(M, age 23) This is probably the most painful loss I ever experienced. [*Quantifying the experience.*]

(M, age 41) It was stolen once. I felt bad but that was more a sense of economic loss. [*This little piece here "more ... an economic loss" is a kind of quantification of loss, so that statement is Abstract – 9.*]

(M, age 41) All Americans [*quantification*] had a sort of slow anger at the enemy.

Formal-stage statements

Formal-stage statements about relationships mentioned relationships between two variables or propositions. It can often be discerned that they relate two abstract-stage entities. There is

linear logic, which also is embodied in blaming others for what goes wrong.

(F, age 41) It was very abrupt, yes. And at the time there wasn't much people could do about cancer, so it was a really day-to-day deterioration that you could follow. [*At one time treatment used to have that other kind of outcome, now it has this kind of outcome - so this is a statement about things varying over time. But what makes it formal is that there is a function described - day-to-day deterioration - is a formal statement, increases in deterioration with time.*]

(F, age 41) Well, at the time - she died in '71 - at the time even here I think she wouldn't have lived. [*Variable, being here or there - could have an effect on the outcome (living or dying) - so this is formal.*]

(F, age 25) Attachment to things or people would be something like wanting to be near it, them. [*If you are attached then you want to be close - a formal statement of a rule.*]

(F, age 25) Being able to absolve myself from feeling guilty, for not loving him like he loved me. [*Not loving him caused me to feel guilty - and this event, whatever it is, would absolve me.*]

(M, age 23) I guess the main point would be that someone else is important enough to you that they become a high priority in your life. [*If they become important to you, then they become a high priority: relationship between variables.*]

(M, age 23) When you lose something in a relationship, like with a girl friend, that's lost opportunity and lost self esteem in some cases. [*Relationship between variables.*]

(M, age 23) Well, I think that when you grow up it's a natural process to have an idealized portrait of your parents. [*A relationship between a) how old you are and b) your view of your parents.*]

(M, age 41) Yah, I mean at that time I was mad because I remember part of my anger was directed at Japanese, at the enemy who had killed him. [*They killed him, so I was mad at them, and I now know that was wrong - it is an implicit explanation, looking back, of why he felt that way and how those two events, his father's disappearance and his anger - were related.*]

(M, age 41) You know a kid growing up he wants to play ball with his father. [*Being a "kid" is causal of wanting to play ball with one's father.*]

(M, age 41) I guess if it was a really crummy motorcycle [*9 - abstract - one type of a motorcycle*] or I really hated it in some way [*9 - abstract*] and somebody stole it, I might be potentially happy. [*10 - formal - starts with "if" so the statement as a whole is hypothetical; also it's a chain of events, one leading to the other or causing the other, and even though some can "stand in" for others (like, either it's a crummy motorcycle or I hated it in some way), they don't appear to interact in any real way.*]

Systematic-stage statements

Systematic stage statements about relationships went beyond talking about linear causal relationships between two variables to either explicitly discussing multivariate systems or to referring to such systems. The problems or loss were seen to be part of a system.

(F, age 41) Yeah, you can care for a pet. It's more universal than just an attachment to a person or several people. [*Because it suggests that there is a system of caring that is made up of attachment to specific persons, to several people and potentially to pets or other objects.*]

(F, age 41) I realized that, for instance I was left alone with my dad, and I realized that all my relationship with him was through her, and I had to reestablish my relationship with him and that took long years. [*11 -systematic - I had a certain kind of relationship with him before her death and it was totally depend-*

ent on her being there. After she died I had to reestablish that relationship on different grounds. This seems to be referring to the different types of relationships as systems.]

(F, age 25) Because I just graduated from college and I was sort of looking at, my road maps had run out and I was gonna have to start making them myself. [She is thinking or reflecting on her "road maps" or life plan or plans - therefore this is systematic - a road map, in this sense, is a system.]

(M, age 23) Well, I think that when you grow up it's a natural process to have an idealized portrait of your parents [a relationship between a) how old you are and b) your view of your parents] and then when you become an adolescent I think that's the time you start to judge [10-relationship between variables when and then] and there's a certain loss associated with that [11- there are two variables here: X is the age that you are, Y is how you see your parents (idealize/judge). How you see or view your parents is a relation - between what you see or perceive and what they actually are like. You are therefore looking at a relationship between a variable (age) and a relation (the perception/actuality relation) and that is what makes it systematic.]

(M, age 23) ...but I think that as far as trustworthiness and being able to follow through on one's word, my capital "I" - integrity has been ok. [System of relations. He seems to be saying here that there are two systems of integrity and each one has a different set of things that you have to do in order to compromise your integrity and also that even if you do some of those things you don't necessarily lose all your integrity - there are degrees of losing your integrity.]

(M, age 41) Oh yeah, I had pets, I sometimes think that losing pets is the way we learn to deal with loss in general. [There is a system of dealing with loss, and one of the ways that this system develops is through early losses of things like pets - Systematic 11.]

(M, age 41) ...well the incident that I'm describing as lasting for an hour I'm talking about a specific kind of feeling of grief and anger, both combined, that was a sort of release of pent up emotion regarding my father's death. [This statement has in it several ideas: one is that there can be combinations of emotions; his referring to 'pent-up' emotions suggests that he has an awareness of different kinds of emotions and this is a particular kind - it provides evidence that he views emotions as a system. For example, this kind of very intense emotion may, by its very nature be brief, but the implication is that there are other types of emotional experiences that can last longer and maybe be less intense.]

(M, age 41) I lost my car, my marriage, my job, my health and a whole lot of other things at that same period of time so I can't say, you know, it was point 0. 0 centimeters of sadness associated with losing my motorcycle. [Systematic because there was this whole system of losses impacting on him that he cannot point to one event or one variable as the cause of his sadness. It is seen as transitional step 0 because it is just loss with nothing else.]

(M, age 41) ...maybe I did if I did some childishly seductive things I'm not aware that I did. [Looking back on his earlier behavior and characterizing it as "childishly seductive" is something an adult would do or would say therefore it goes beyond just retelling what he did - it is a characterization, an analysis of behavior - so we can think of this in terms of two systems - what the child did, and then the whole adult way of interpreting, based on some theories or beliefs of the adult, that behavior.]

General Comparisons of Statements made by Children and by Adults

Children discussed their losses with language and ideas that were almost always scored as primary or concrete in complexity. Of the 156 statements that were scored for children, 30% (47) were primary, 68% (106) were concrete, and 2% (3) were abstract. In contrast, of the 240 statements that were scored for adults, 7% (17) were primary, 15% (36) were concrete, 23% (56) were abstract, 23% (56) were formal, 29% (70) were systematic and 2% (5) were metasystematic. A Chi Square test of the differences in distribution of the different orders of responses showed a highly significant difference, $\chi^2 (4) = 214.99$, p < .01, Cramer's $\Phi = .74$, which suggests a large difference.

Discussion & Conclusions

These data show that, in discussing losses in their lives, whether of people or other entities, the responses of children and of adults can be characterized in terms of their hierarchical complexity. Statements scored at the primary and concrete orders of complexity are characterized by the recounting of personal experiences, especially when that recounting focuses on the individual's own perspective. One major difference between primary and concrete statements is that in concrete statements, more than one person or entity is referred to, and the behavior or thoughts of the two entities is related to each other. At the abstract order of complexity, one sees statements in which individuals are comparing their experiences, implicitly or explicitly, to those of others, or in which they are referring to a scaling of emotions or experience that resembles a variable taking on different values. Statements at the formal operational order of complexity refer to simple (one-variable) causal models of phenomena; unlike the concrete statements, "I did this because he did this", formal operational statements are statements of what are perceived to be general rules or relationships, not just ones that occur in this specific situation. Systematic order statements address the complexity of situations and refer to systems: of relationships, of beliefs. None of the statements by subjects in this study were scored as fully metasystematic, although a number were scored as transitional to metasystematic. These findings will allow us to elaborate on the stages originally proposed by Commons (1991).

It was also found that one can characterize the narrations of children about attachment as different from those of adults. Children's narrations tended to consist almost entirely of primary and concrete order statements about what happened and how they felt. While adults' narrations also contained such statements, the adults would tend to further characterize and reflect on their experiences using abstract, formal or systematic statements.

There are two interesting directions that we want to pursue in future work. First, how does the fact that adults can reflect upon their experiences in these multiple complex ways impact their relationships? Would being able to think about a relationship from more than one point of view may help individuals improve their relationships? This surely might be one way to conceive of what marital therapists do.

Second, while this study did not attempt to look at individuals as a whole, there might be the possibility of at least characterizing the order of complexity that an individual used to characterize a particular relationship and then to see what might be related to that. A number of variables might account for such differences, including: (a) time since the individual experienced the loss of the relationship, (b) amount of reflection upon the relationship an individual might have been able to do (as measured, for example, by time spent in therapy), (c) age at which the loss took place, (d) type of attachment entity, (e) role that attachment entity played in

person's life.

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