Concentric Circles of Attachment in Pirahã: A Brief Survey

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To appear in: Keller, Heidi and Hiltrud Otto, eds. **Different Faces of Attachment: Cultural Variations of a Universal Human Need**, Cambridge University Press.

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1. Introduction

This is a descriptive paper sketching some ways in which Pirahã children develop attachments to their mothers and other Pirahãs from birth to early childhood. I am not a specialist in this area and focus on those things that I consider to be among the most salient exemplars of cultural and personal attachment and identification, from mothers to family to village to full social group.

The place to begin is with fundamental questions that bring our foundational assumptions to light. For example, what makes humans different from other species? Of the many answers one might suggest to this question, perhaps the majority fail to capture our core differences by focusing on superficial qualities. For example, humans are largely hairless among the primates. But shave a gorilla and you do not thereby derive a human. Hairlessness is superficial. Another answer might be that humans are cooperative. This is certainly true. Yet that statement alone does not single humans out from the line-up of the animal kingdom. Canines (imagine wolves hunting as a pack), Papios (e.g. baboons defending their troop from lions), and Felidae (think a pride of lions attacking a band of baboons) all cooperate. So humans are not (merely) the 'cooperative species.'

One thing that does set humans apart from other species is their ability to accumulate knowledge by means of language. If a chimp, for example, learns that a particular plant is poisonous, its offspring might learn that valuable lesson if they observe their parent avoid the plant (or get sick and die from it). But European chimps (in zoos) do not know about poisonous plants in 'the old country' (Africa) because of lore passed down through their grandparents. Chimps do not build tools whose basic design is elaborated with additions and improvements in each succeeding generation. Culture entails the transgenerational transmission and elaboration of knowledge.

Through language, each generation learns not only from the generation before them but also potentially from all the generations that have ever lived. Language is not the only tool by which we construct knowledge, values, ways of behaving and so on. But it is the most important, even as it itself is shaped by culture. (Everett (2012a)).

One way is through language, of course. Another is imitation. Imitation is a major part of the transmission of culture, even across generations. And as actions that we imitate change across time, imitation alone can carry some cumulative cultural knowledge (e.g. the transmission of a bow and arrow's design changes down through the history of a specific culture by merely imitating the latest and best design). But imitation alone is not enough. Your local library proves it. Google proves it. I cannot learn the

Theory of Relativity by merely imitating your actions or your words. Language becomes crucial for the construction and transmission of culture.

The principal thesis of this paper is that language and culture are the essential mechanisms of attachment, beyond whatever, if any, innate program for attachment there might be. Language and culture develop symbiotically - neither is possible without the other. Through the development of language and culture, cognitive patterns are formed which recursively cycle back on one another and the larger symbiosis of identity formation and attachment to a particular place, family, people, and so on.

The plan of presentation I adopt here is organized around the acquisition of what we might refer to as "concentric circles of attachment." At each stage of development the child is attaching to various sets of individuals, each more inclusive than the other - mother, parents, family, village, larger Pirahã population.[1] But activities and lessons differ by age. I will discuss many of the cultural and linguistic lessons that reinforce attachment and identification among the Pirahãs.

2. Definitions of Culture and Language

Before we can begin this descriptive discussion, however, I need to make clear what I mean by "language" and "culture" since they are both abstract terms

Let's begin with 'culture.' Culture derives from the Latin word for cultivation. As we cultivate our minds, we simultaneously develop identity and connections between ourselves and others of our community. As others cultivate their own minds in a similar manner, we can in some sense be said to share a form and output of cultivation, a culture. But this is simply to elaborate the metaphor.

There have been many attempts to define culture as a scientific concept over the years, with so little consensus that many anthropologists have just (mistakenly) thrown out "culture" as an outdated and useless concept.

One of the most famous attempts to grapple with culture as a scientific way of talking is found in the 1952 book, *Culture: A Critical Review of Concepts and Definitions,* by American anthropologists Clyde Kluckhohn and Alfred Kroeber. Though the authors suggested their own definition of culture, their work did not resolve the problem:

"Culture consists of patterns, explicit and implicit, of and for behavior acquired and transmitted by symbols, constituting the distinctive achievements of human groups, including their embodiments in artifacts; the essential core of culture consists of traditional (i.e. historically derived and selected) ideas and especially their attached values; culture systems may, on the one hand, be considered as products of action, and on the other as conditioning elements of further action."

We still are left with the question of how to use the word 'culture,' the essential issue. Is religion culture? Is art? Are language, artifacts, and ritual culture? Is the way of life in Alabama culture?

In my own thinking (Everett 2012a) culture is a body of transmitted tacit and overt knowledge, values, and hermeneutics of previous generations, and the aspirations of the current generation. The forms of knowledge, values, and hermeneutics are prioritized

[1] I use "attachment" here in a potentially nonstandard meaning that includes "identification with."

in some way by the group, with individual variation expected. Values are always ranked by the group, with some individual variation inevitable - a form of cultural mutation. Ranked values are the primary determinants of overt behavior, being linked to social constraints to ensure that they are followed as ranked. For example, if "being in shape" and "eating gourmet food" are values of a particular culture and the former outranks the latter, then those who are overweight will have violated the value ranking and will suffer some sort of social sanction, whether ridicule or relative difficulty in mating, etc. Rank them the other way and fat people will be welcome.

Cultural transmission, like genetic transmission, is always corrupted in some way, leading to "mutations" (cf. Newson, Richerson, and Boyd (2007)). For example, among the Sateré people of the Amazon, there is a famous wooden club, the Poranting, that has writing/marking on both sides. The people say that one side tells them the good they should do and the other has the bad things they are to avoid. The problem is that they have forgotten which side is which. Assuming that it was ever clear what the two sides said, this is a case of transmission break down. But cases of smaller magnitude abound. Consider something as concrete as the making of a blowgun. I have witnessed the transmission of this skill in Arawan societies of the Amazon from father to son. Sons observe, imitate, and work alongside their fathers. Surprisingly little linguistic instruction takes place in this skill transmission (at least relative to anything my dad ever taught me how to do). The wood for the blowgun comes from a narrow range of wood species. The vine used to tie the blowgun and render it airtight is limited to a couple of types. The needle used for the darts likewise requires highly specific knowledge of local fora. The kind of large jungle vine used to extract the poison (strychine) and the other ingredients of the poison that help it enter the bloodstream more effectively: all of these steps and bits of knowledge, even without language, can be transmitted faithfully or inaccurately. For example, someone might accidentally use different type of wood. Or a different way of tying the blowgun. A different binding agent for the poison. Error or innovation may occur at any step of the transmission process in one father-son pair leading to a divergence from the cultural norm. From the perspective of the culture it doesn't matter whether the deviation was intentional or not. There is a deviation. A potential for mutation - a different type of blowgun or an inferior or superior weapon. Clearly such deviations have occurred because in closely related Arawan languages, blowguns differ (as do the languages themselves!) in nontrivial ways. The technology varied and the language varied due to imperfect imitation and innovation. Such examples show that not all (however important) cultural knowledge is propositional.

And propositional information is the domain of language. What is language? Well, just as some anthropologists are skeptical of something as abstract as "culture" (Kuper 1999), some linguists consider language to be an abstraction. We talk, for example, about the "German language" or the "English language" but what do such phrases actually refer to? There are many different dialects of both English and German, some so different that it is difficult to consider them the same language. Yet, somehow we all know how to recognize native speakers of our own language, even - in most cases - when they speak dialects radically different from our own. I will define language for our purposes here as: "...a systematic means of communicating ideas or feelings by the use of conventionalized signs, sounds, gestures, or marks having understood meanings." The "means" of communication in this definition, which comes from the Merriam-Webster

dictionary of the English language, is, in my opinion, its grammar, sound system, semantics and so on, the who of which make up a language. However, it is not the case that all members of a society will use exactly the same grammar, sound system, etc. Ultimately, the concrete language that is shared is an extensional set, a corpus, and the language that is not shared is the individual's internalized habits of interpreting, encoding, and uttering. This is sufficient for our present purposes (see Everett 2012a and in progress for more discussion and theory of the nature of language). Now let's turn to facts which bear more directly on the issue of attachment in Pirahã.

3. Circles of Attachment

Sometime in 1985, at about 7AM, a young woman named **Xiotaóhoagí** [eeowe tao HWA gee] set off from her village with some other women to harvest sweet manioc from her family garden.[2] She carried with her a machete, the common harvesting tool for these tubers, as well as a basket woven from palm leaves. The three or four other women with her were similarly equipped. However, what made **Xiotaóhoagí** stand out was the fact that she was hugely pregnant, clearly due any day. I thought to myself that that was a lot of work for a woman so far along and obviously uncomfortable.

I returned to my work and thought nothing further about this common sight. Around 4pm, the women returned from the gardens. I saw **Xiotaóhoagí** pass by my study hut carrying about 40-60 pounds of manioc roots packed in her basket, secured by a tumpline across her forehead, the basket hanging to her lower back. Like other Pirahãs, her arms were crossed across her chest, even as she held her machete, much as a scuba-diver, in order to take up less space while walking through the thickly jungled, very narrow paths. I started to return to my work when I suddenly realized that she was carrying something else. Looking again, I saw a newborn baby in her arms and that her stomach was much smaller, almost flat. She had given birth and then continued on with her work. The baby was born on the ground by the side of the field. After the birth, the mother continued harvesting and trekked back with the other women, carrying two loads instead of the single load she had intended to carry when the day began.

Not all Pirahã births happen at the side of a field or in the jungle. When women are able, they will often wade into the Maici river up to their waist, crouch down, and deliver the baby underwater. Very rarely, births may occur on the raised sleeping platform in the woman's hut.

One could of course characterize such births among indigenous peoples that do not conform to our Western norms and expectations as little more than ignorance and the absence of modern medical care (though "water birth" has been viewed for years as a healthy alternative to standard forms of delivery at some hospitals). But for our purposes here it doesn't matter why the Pirahãs give birth the way they do. We need to understand how this type of birthing's role affects, if at all, the mother-child relationship.

To give birth without pain medication, without a comfortable bed, without the assistance of a physician or midwife, on the jungle floor or crouched in a tropical river with piranha, electric eels, anaconda, caimans, and so on renders inaccurate any description of the birth event itself as being “safe” or a result of "teamwork". It is the

[2] A Pirahã garden will usually be located within a thirty-minute walk from the nearest village. This distance is partly to discourage casual theft from the garden.

hard, painful effort of a single mother - generally unassisted even by those women who went to the field with her - to bring forth a life. The husband is rarely present. This solitary, painful emission of new life leaves even the very happily married mother a greater sense of the unbuffered immediacy of her biological connection to her child. A Pirahã woman will have a different understanding of the physical and psychological act of giving birth than the suburban American woman. Yet, beyond the stoicism of this or that particular Pirahã woman, what does her different attitude towards birth mean for Pirahã culture?

Well, it means several things. First, the immediately post-partum and subsequent experiences of the newborn, as well as the experience, observations, and expectations about birth of other children are also important in group identity formation. But it also means that the Pirahãs live in a very different ecological niche, with no access to specialized partum care. A Pirahã baby is with its mother, barring her death, from the moment it is born until after it is weaned, a period of at least three and more often five years. Birth further leads to the formation of a different personal character is created in response to the different material and cultural circumstances. Third, it means that Pirahã mothers and children will attach differently than, say, American mothers and children, due to the distinct personal, unmediated (by teachers, doctors, and other professional caregivers) nature of their relationship.

An important but non-obvious fact perhaps is the marital status of the mother in relation to identity formation and attachment. Unlike many Western mothers the Pirahã woman is not concerned with stigmas associated with her marital status or age at birth. No one condemns her for children out of wedlock - the concept doesn't even exist, aside from the economic challenges of a woman alone. And even in the latter case, she will always have family of some sort to care for her. Attachment of the child only optionally includes the biological father.[3]

There are no professional caregivers, nor even such a concept. The child is completely dependent on its mother, even though it may spend brief times with other Pirahã relatives who smell (of smoke, fish diet, etc.), look (brown, black hair, little body hair, etc) and feel (calloused, sinewy) and, especially, talk (Pirahã) nearly the same. The average Pirahã infant (and most other children but with greater variation depending on age) will go to almost any other Pirahã who stretches their arms out to them.

But this group attachment is to the Pirahãs only. Most infants will turn and scream if a foreigner, especially a bearded foreign male, tries to take them. Describing the few babies who will reach out to accept my extended hands, their parents usually say "My child is unafraid."[4] These parents appear to take pride in their babies who prove their braveness by coming to me. Yet the deeper value for their parents is that children *not* come to me. The parents who might have appeared proud earlier that their children came to me will tell their children to beware of non-Pirahã (including me) because they will

[3] Personal character is the sense of being a complex whole that includes the individual's sense of their role in their society, their particular responsibilities and rights, and their inculcated community values - especially all ways in which these values differ from one person to another in the same community.

[4] Toddlers rarely come to me - they look at my beard and say I look like a dog. If I insist, they scream.

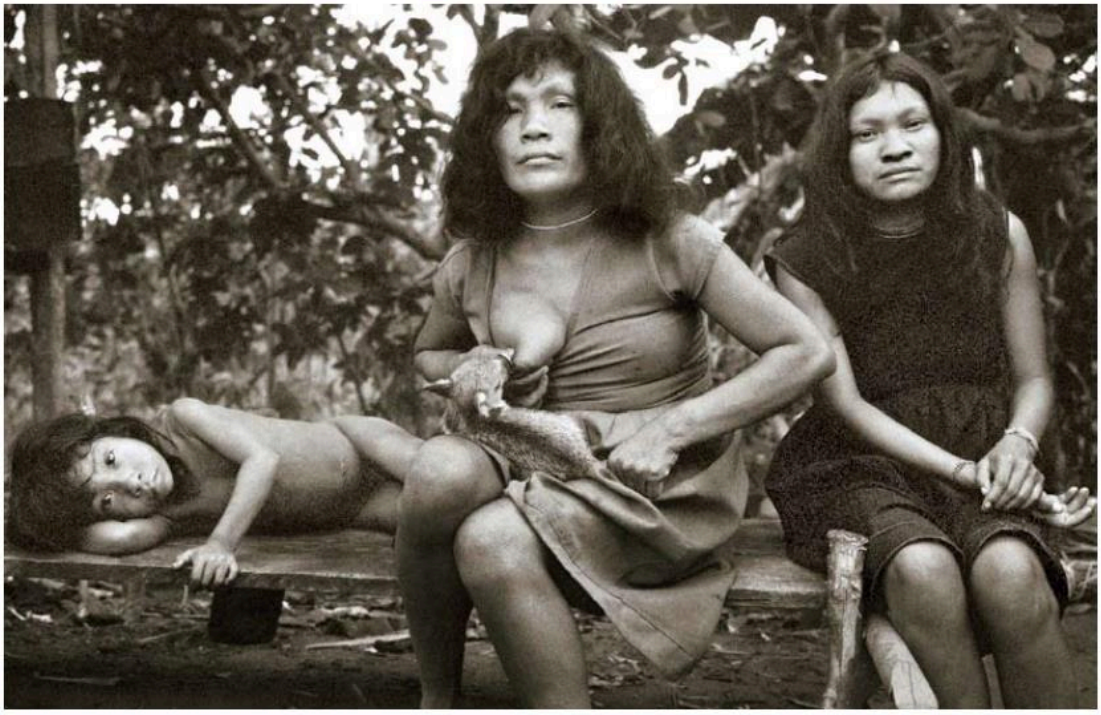
take them away to another jungle. Caregivers will often intentionally scare their small charges by acting like they are going to throw them to me or hand them to me when I am leaving in my boat, etc. This type of caregiver behavior dramatically increases fear of me and most parents laugh out loud when their children scream at my approach - a valuable lesson from their perspective is being learned (i.e. non-Pirahãs can be dangerous; a lesson based on history). Simultaneously, this sharp delineation between Pirahãs and "others" strengthens attachment of Pirahã children to Pirahã adults.

Pirahã children are raised to be physically and emotionally reliant only on other Pirahãs, to avoid imitation of or admiration of foreigners or their ways. Their bond is partially built around the homogeneity of their sensory experiences. Thus, although Pirahãs do not normally talk about the distant future, they do at times, when asked, say something along the lines that their children will be like other Pirahãs.

As is the case with other cultures' infants, Pirahã infants are cared for around the clock. Mothers, nursing or otherwise, are not inseparable from their infants, however. Occasionally one mother may nurse another mother's baby, allowing the latter to spend more time gathering or engaged in other activities. This depends on the supply of food, i.e. how well fed both mothers are, both mothers' health, and the relationship between the mothers (e.g. neighbors in the village, kinship, and so on - with mothers' sisters being the most common surrogate milkgivers, but not the only). Also, older siblings of the infant often care for it between feedings, but even when carrying them about (such as to proudly show them off to the anthropological linguist), the mother is never far away. Others may also carry the infant, but rarely out of earshot of the mother.

Infants are regularly talked to, but without special "baby syntax" or "baby phonology". On the other hand, mothers (and, to a lesser degree, fathers) often use Hum Speech (Everett 1985; 2005; 2008) with their babies. They also often speak to them in a high-pitched voice, full of laughter and punctuated with kissing, tickling, and playing. A strong, somewhat paradoxical attachment/identification practice is the nursing of non-human mammals.

Pirahã mothers not only nurse their own and other mothers' infants, but they also nurse other mammals, as in the picture below (photographer, Martin Schoeller).



I have seen Pirahã women nurse dogs, monkeys, peccaries (as in the photo), and other animals (even the smaller, tree-dwelling anteaters - *Tamanduá mirim*). Pirahã men joke that women will nurse anything except piranhas (then laugh very loudly and raucously). The Pirahãs are aware (based on comments from river traders, government employees and others) that this is an unusual practice, but they continue it for a couple of reasons.

The first is that all Pirahãs love animals and the Pirahã women in particular like to raise young animals. They enjoy playing with them, training them, and so on. But the second, paradoxically to Western thinking perhaps, is that they raise these pets, nursing them as needed, in order to eat them when they reach adulthood. This doesn't prevent a close, caring relationship while the animal is moving inexorably towards esculent adulthood. The Pirahã name these animals, raise them with much affection, and take them almost everywhere they go.

Multiple mothers may nurse the mammal or it may be nursed by only one, depending on factors, e.g. perceived ownership (if one woman or her husband makes a strong claim to possession of the animal, other women are less likely to nurse it); who killed or captured the animal's parent; who has the most breast milk (e.g. a woman just beginning to wean a toddler but who has no new infant); and so on.

The sharing of human breast milk with animals is observed by children keenly, who seem to find it entertaining. Infants occasionally nurse alongside or immediately following animals. Despite the likelihood that the taste of the animal lingers on the woman’s breast, they display no overt reaction.

All of this builds the child's connection to the Pirahã community and to nature - the nursing of other mammals adds a highly peculiar Pirahã sensory experience to the child's development, both conceptually and physically. For example, one remarkable feature of Pirahã children is their almost complete lack of fear or repugnance of animals,

even dangerous ones (e.g. harpy eagles and weasels, which are also raised among them), when in the village. They learn the behavior of many jungle animals from direct observation (even ones that are captured, but not raised, and killed soon after capture, such as caimans). As Pirahã children age, they share not only their mother's milk with animals but solid foods as well, usually sharing their plates with dogs and occasionally other animals, both contentedly eating from the same mound of fish and manioc, etc.

Through their relationship to birthing, animals, and nursing, the Pirahãs establish an immediate and life-long learning, living connection with nature and their community from the moment they are born. This is a connection that distinguishes them sharply from Brazilians and the rapidly assimilating Parintintin and Tenharim Kawahiv-speaking groups whose own reservations abut the Pirahãs'. Animal relationships and knowledge underscore the distinctiveness of their community from the river traders, explorers, missionaries, pilots, and others that visit their village from time to time.

These points of group attachment are strengthened during the children's maturation through other natural experiences of community life as the children learn their language, the configuration of their village and to sleep on the ground or rough, uneven wooden platforms made from branches or saplings. As with other children of traditional societies, Pirahã young people experience the biological aspects of life with far less buffering than Western children.

Pirahã children observe their parents' physical activities in ways that children from more buffered societies do not (though often similar to the surrounding cultures just mentioned). They regularly see and hear their parents and other members of the village engage in sex (though Pirahã adults are modest by most standards, there is still only so much privacy available in a world without walls and locked doors, eliminate bodily waste, bathe, die, suffer severe pain (usually without medication), and so on.[5] They know that their parents are like them. Small toddlers walk up to their mothers while they are talking, making a basket, or spinning cotton and pull their breasts out of the top of their dress (Pirahã women use only one dress design for all), and nurse - their mother's body is theirs in this respect.[6] This access to the mother's body is a form of entitlement and strong attachment. However, it is transitory, leading to the huge shock that is produced by the onset of weaning.

At about 4-5 years of age, or much sooner if the mother gives birth to a new infant, the confident, satiated toddler loses access to its mother's milk. The cut-off is sudden, unexpected and exposes the toddler to hunger, work, independence, and an end to the sense of ownership of its mother's body. The transition is always unpleasant for the toddler who begins to scream and cry most of the night and day, sounding to the unaccustomed ear as though they are suffering horrible pain of some sort (though as one

[5] For example, children experience and see others experience toothaches on a regular basis. A toothache, where there is no dentist, is agonizing. One must simply tolerate the pain until the nerve dies and the tooth has rotted out.

[6] Doesn't matter who is around. Mothers are so nonchalant that they often forget to put their breasts back under the dress for periods after the child has finished (breasts are not sexually charged objects for Pirahãs in any case).

gets to know Pirahã crying patterns, it becomes easy enough to pick out the signs of anger and petulance in the crying).[7]

During the day, one sees children throwing tantrums as a protest against being hungry, cut off from the mother's milk, and losing the privilege of its mother's arms to a newborn infant. I have seen young children writhing in the dirt screaming, pounding their faces with their fists, deliberately throwing themselves full force on the ground, not infrequently close to or even in the fire (serious burns have occurred), spitting, and carrying on as though they were in the throes of epilepsy. The reaction by the entire village is almost always the same - they are ignored. Ignore them even though they carry on for hours and occasionally hurt themselves. Ignore them even though they are in the hot sun, not drinking, seemingly using all of their available energy to the point of exhaustion. Ignore them even though they are pitching their fit in the main path of the village, forcing everyone to step over or around them. The thrashing little discontent will usually tire, stop pitching fits, and become much more stable within a few weeks. Any long-term psychological effects of this non-ritualistic rite of passage are invisible to the external observer. The attachment to the mother has been weakened. In its place now begins the accelerated growth in attachment to the Pirahãs as a group.

This accelerated group identification comes from what I call the "hard edge" learning phase for weaned toddlers or "scooters."[8] From being pampered and having no

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[7] I recall one night with a visiting American dentist when a child near where we were sleeping was screaming and crying all night. The dentist asked me "Dan, what is wrong with that baby? It sounds horribly ill and in pain." I replied "If it were ill, the parents would have already come to us for help. It is just pissed off about something." After about an hour, around 3AM, the dentist said "Dan, I have had medical training and I know a sick baby when I hear one. We have to go over there now." So I wearily grabbed at my flashlight, slipped on my flip-flops and said halfheartedly, "Let's go." We walked to the small hut near the path that was the source of the siren-like wailing. When we arrived, the parents were feigning sleep, with the toddler sitting up by his father screaming at the top of its lungs. I asked the father "What is wrong with the baby? Is he sick?" The father ignored me, pretending to sleep. I turned to the dentist,"They want us to leave and are pretending to be asleep to communicate this." He said "I am not leaving until the father tells us what is wrong." So I shook the father. He looked at me as though he wanted to tell me to go fug myself but said "What?" "What is wrong with the baby?" "Nothing. It wants tit." I communicated this to the dentist and said "Satisfied? Let's go back to bed." The dentist said "It is hard to believe. I would have sworn that this baby is very ill." As we started to leave, the mother pulled the toddler across the new infant at her side and began to nurse it - clearly to keep us from coming back and to communicate to me that the message had been received. Still, however ignorant of the Pirahãs, the dentist was well-meaning.

[8] Locomotion before walking is mainly scooting. Pirahã infants rarely crawl. Rather, they scoot across the dirt of the village clearing on their bare (and calloused) butts, pulling themselves forward by pulling at the earth with the heels of their feet. Scooting is of course found in the development of many babies worldwide. The apparent universal preference for scooting over crawling among Pirahã children is perhaps due to the fact that they are usually moving on dirt or mud and the hands where there are many

work duties at all, the newly weaned child must begin to walk more (to the field, to the river, into the jungle, etc), rather than be carried most of the time; to take on duties, especially carrying small (and always appropriate for its size) loads of firewood, fish, etc; to go fishing with older children; to watch and carry its younger siblings, and so on. They play with less supervision as well, paddling canoes alone. At all stages of life, but especially in this transition to a new independence, the Pirahã child is allowed to take risks. Pirahãs do not generally tell others what to do, not even children. Children run carrying sharp knives, walk near the fire, reach out to touch living, dangerous animals, and otherwise engage in many activities that some westerners would consider unsafe and unwise practices for children. They get bitten, burned, cut, banged up, lost, stung, and hurt in numerous ways during this stage. But they emerge from these traumatic experiences early on (4-6 years of age) with confidence, grace, and pragmatic knowledge. These behaviors are crucial for learning and living in Pirahã culture.

Are Pirahã children innately programmed to carry knives, walk near fires, and be more graceful than Western children? Raising my own children (two girls and a boy) among the Pirahãs and later seeing my grandchildren play in the village, the contrast between the quietness, lack of clumsiness, and common sense and awareness of dangerous things in the environment between the Pirahãs and my own (grand)children was stark. American children run screaming and talking loudly, fall, get stung by wasps and other insects, bump their heads, fall in the river, fall in the canoe, can't sit still and on and on, even into adolescence. Pirahã children show poise and elegance as they move, are relatively quiet, rarely trip and fall, rarely bump their heads or get stung or hurt compared to American children. They know how to paddle a canoe and how to sit still for long periods while canoeing. Watching the two sets of young people, one is amazed by how much the Pirahãs have learned already in the first two years of their lives. It is often tempting to say that the difference is innate, because it appears so early in development. But observation provides ample evidence that it is learned. The Pirahãs do believe that the contrast between their abilities and ours distinguish us as peoples. Thus contrasts in skills strengthen their sense of group identity.

The skills are indeed learned early on. For example, one day while talking to a Pirahã man, I felt a sharp poke on my upper back. The man started laughing as I turned to see a small boy, still wobbly on his feet, picking up his blunt six-inch long arrow from the ground where it had fallen after striking me. He was shooting at a mosquito on my shoulder. The child returned my gaze with a serious expression before turning to take aim at a leaf on the ground. My Pirahã interlocutor said that all Pirahã males learn to handle a bow and arrow the same way - trial and error from childhood. By the time they are adolescents they are good enough to hit just about anything they shoot at.[9]

Sexual behavior is also learned very early among the Pirahãs. A young Pirahã girl of about five years came up to me once many years ago as I was working and made crude

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parasites, e.g. Chigoe fleas. Yet I have not seen Pirahã mothers discourage their babies from crawling. I am not certain why scooting seems to be so universal. It is possible that closer observation of Pirahã children on different surfaces would reveal more crawling. Perhaps imitation plays a role.

[9] A favorite pastime of preadolescent boys is to sit and shoot small lizards running zig zags more than five meters away with arrows while holding the bows in their feet.

sexual gestures, holding her genitalia and thrusting them at me repeatedly, laughing hysterically the whole time. The people who saw this behavior gave no sign that they were bothered. Just child behavior, like picking your nose or farting. Not worth commenting about.

But the lesson is not that a child acted in a way that a Western adult might find vulgar. Rather the lesson, as I looked into this, is that Pirahã children learn a lot more about sex early on, by observation, than most American children. Moreover, their acquisition of carnal knowledge early on is not limited to observation.

A man once introduced me to a seven-year-old girl and presented her as his wife. "But just to play" he quickly added. Pirahã young people begin to engage sexually, though apparently not in full intercourse, from early on. Touching and being touched seem to be common for Pirahã boys and girls from about seven years of age on. They are all sexually active by puberty, with older men and women frequently initiating younger girls and boys, respectively. There is no evidence that the children then or as adults find this pedophilia the least bit traumatic.

Summarizing, much of cultural identification and attachment are achieved by nonlinguistic imitation and learning. This type of knowledge is almost exclusively tacit and difficult, if not impossible, to access via questionnaires or other forms of direct elicitation or short-term observation. The tacit knowledge of a community can only - or at least best - be ascertained by the old-fashioned methods of participant observation, note-taking, hermeneutics, conversations, and the interpretations of a variety of behaviors, looking for the links between them, whether linguistic or below the threshold of consciousness. This kind of knowledge is what I refer to (Everett in progress) as the "dark matter of the mind." However, a more easily observable form of connection for all circles of attachment is the child's native language.

4. Pirahã Language Acquisition

Piaget (1926) and Vygotsky (1978) champion different, apparently incompatible, perspectives on the connection of language and society, such as egocentric language vs. language as socialization, and sociocultural development. Piaget's egocentricism appears incompatible with Vygotsky's views as Piaget develops them. However, I believe that the two may in fact be reconciled if we interpret egocentricism as the "formation of identity," at once a deeply personal psychological process that is nonpathological only during socialization in a specific culture. Thus a child learns language to form themselves as an autonomous psychological being, but this autonomy only makes sense in comparison and contrast to others, i.e. in a social environment.

Pirahã language acquisition, though I have not studied it experimentally, follows the broad outlines of language acquisition in other cultures. The child begins to learn its language and culture from the womb.

Culturally, the fetus learns its mother's biological rhythms, her diet, her pitch range (modulo the wet medium the sound waves must cross), and so on. Linguistically, it is exposed to the mother's prosody (tone, stress, and intonation) and other features of (at least) the mother's speech. As soon as the child is born, it is exposed to the clearer and louder linguistic cacaphony of its native community.

In the case of a Pirahã child, they will be almost immediately exposed to five channels of speech (Everett 1984; Everett 2008) - hum speech, yell speech, musical

speech, whistle speech, and consonant-vowel speech that each plays a different but important role in Pirahã culture.

Mothers and other caregivers do not speak "baby talk" or "motherese" to babies. However, many mothers use hum speech more frequently with babies than other channels. Pirahã children thus learn the importance and use of the prosodic complexity of Pirahã at the very outset of their lives, from the womb. And this prosodic complexity is highly distinctive in Pirahã, setting them apart from any other known group of Brazil. Also, they are exposed as infants to sounds that occur in no other language of Brazil (one of these sounds occurs in no other language of the world) - a voiced apico-alveolar laminal double flap (a form of [l]) and a voiced bilabial trill (Everett 1982).

In addition to sound features of their language, however, Pirahã children must master the structure and meanings of words as well as Pirahã grammar, the range of acceptable story topics, the way stories are told, structures of conversations, and so forth.

Consider first stories. Pirahã children learn the topics that are appropriate in their culture for talking about and discussing - just as American children, German children, and Sesotho children do. Pirahã children will learn that there is no talk of creation, God, the end of the world, oral literature about the forest, and so on. They will learn that talk about nature as they have experienced it - hunting, fishing, gathering, unexplained sights and sounds- are the most common topics.

They will learn about their words and that verbs can take up to 65,000 possible forms (Everett 1983). Perhaps even more importantly than learning the immensely complex verb structure of Pirahã, is the learning of the evidentiality suffixes that are found at the rightmost end of the verb. Pirahã stories are about immediate experience (Everett 2005, 2008, 2012a, 2012b, etc) and the function of these suffixes is to communicate that the state or even reported is based on the evidence of 'hearsay,' 'deduction,' or 'direct observation' (Everett 1983).

Because of their unusual constraints on story-telling and verb structure, as well as the importance of evidence, the Pirahã restrict their sentences to largely single verb frames (Everett 2012a, 2012b). That is, they lack recursive sentence structures (Everett 2005, 2012a, 2012b).

The unusual features of discourse topics, absence of sentential recursion, the prosodic complexity of the language, unique sounds - not to mention that Pirahã is a language isolate and that the people are still monolingual (though this is changing), mean that their language sets the Pirahãs apart from other populations.

Language is the ultimate tool of attachment and group identification for all Pirahãs. If you speak Pirahã natively you are a Pirahã. If you don't, you aren't. But what counts as "speaking" is not merely grammatical structure. Mastery of grammar is a necessary for being a Pirahã, in their terms. But ability to use that grammar to tell appropriate stories is the truly crucial skill, blending both language and culture, as discussed in Everett (2005, 2008, 2012a).

Thus in this view attachment is a process of defining the self, one's place in society, and the separateness of one's group and culture from others. Theories of attachment, like theories of language and culture, can only benefit from careful descriptive field studies by specialists. Since I am not a specialist, this description of

Pirahã can function as a first step, perhaps an indication of empirical riches to be uncovered by such fieldwork.[10]

5. SUMMARY

Pirahã children began life with an attachment to their mother, developing stronger and closer ties with their community as they age. Mothers are affectionate with their children, from infancy on. Their tenderness with infants superficially contrasts with the hard-edge stage of weaning and the toddler age. But their affection never wavers. They are always ready to come to the aid of their child if it is genuinely and seriously threatened. At the same time, the entire community recognizes the necessity of physical and survival characteristics that do not come easy. In an environment with no doctors, no dentists, no police, no one but yourself, your family, and your fellow Pirahãs to depend on, the imposition of toughness on children is not from machismo but from necessity.

There are no attachment-related discourses that I am aware of, developing or explicating the growing relationship between child and mother, child and family, child and village and so on. There might be, but I haven't observed any. Rather, we see that growing responsibility of the child forces upon them the need to form wider friendships and support within the village and the larger community in order to survive. As with so much of cultural learning, imitation and relationship building are essential and without any special language.

I have often thought that the Pirahãs are among the few people anywhere on earth where just about any member of the society could walk naked into the center of the journal and emerge well-fed, healthy, clothed (after a fashion), and armed. When I am there, I depend on them and am always grateful for their knowledge, willingness to instruct me, and their ability to teach me (as I ask questions - i.e. at my initiative). Like many traditional peoples around the world, they represent a richness of life and a possess a set of solutions to life's problems that can never be recovered if this people or their

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[10] After completing this paper, I sent a draft to Steve Sheldon, a missionary who lived with his family among the Pirahãs from 1967-1976 and learned to speak the language well. Sheldon's comments are given below (email from Sheldon, 14/12/12):

> *"We felt they preferred to give birth in the river if possible. (not relevant to this paper). When Linda was expecting Scott, they kept on us about her having the baby in the river like they did.*
> *We saw some instances where a mother would help her daughter give birth. One young girl was having a very hard time with a birth and Linda wanted to go "help." The people did not want her to do so, nor would any of them go help. This young girl's mother had died not long before. Normally they would let us do whatever strange things we wanted to do. Not in this case.*
> *When our boys were young and nursing the people did not like them to cry and would say things like: "we cannot dance if they are crying." This in spite of some of their weaned children carrying on just as you described.*
> *Our problem was we were following an American cultural norm of putting the boys to bed and "letting them cry" till they learned.*
> *Once the boys were weaned they could also scream and carry on with no frustration on anyone's part - except ours."*

culture is lost to the world. Unfortunately, they are now under greater threat than ever before.

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