

**The “Time Bind” and the Cultural Ecology of Stress  
in Metropolitan Atlanta, Georgia**

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## INTRODUCTION

The family and household share two related and equally important roles in child development. First, they form an important unit of economic production (Leatherman, 1998), influencing the availability and distribution of limited resources, including material resources and time (Borgerhoff Mulder, 2000; Geary and Flinn, 2001). Second, they provide the primary ecological context or “niche” of early development (Bronfenbrenner, 1986; Flinn and England, 1997; Super and Harkness, 1986), following from an evolutionary trend toward relative infant immaturity, increased parental investment, and complex social development that must occur in a protected and provisioned postnatal environment (Bogin, 1998; Geary and Flinn, 2001).

In anthropology and human biology, time has been treated as a limited resource, although often only implicitly. For example, human biologists have argued that an important mediator between socioeconomic status and child growth is infant feeding practices, affected amongst other things by the lack of time for breastfeeding amongst lower SES women who must return to work (Bindon and Dressler, 1992; see also Sellen, 1998; Sellen, 2000; Sellen and Smay 2001 for comparable research regarding status, subsistence patterns, and infant/young child feeding practices in non-industrial settings). Little and Garruto (2000) cite escalation in the “pace of life” as a major contributor to increasing stress with global urbanization, and argue the need for detailed analyses of the behavioral environment in relationship to major sources of stress and biological stress indicators. Similarly, James (1991) proposes that rapid shifts between microenvironments in the modern urban context strain the adaptive capabilities of stress-responsive systems to maintain homeostasis, as reflected in higher blood pressures and greater morbidity in urban dwellers. Pollard (1999) reviews data showing that women often cite the “difficulties of combining the many demands they meet,” including workplace and family responsibilities, as a major source of stress. Implicit in Geary and Flinn’s (2001) review of the evolution of the human family is the family’s role in structuring children’s time in a way that permits the development of social competency; in essence, *giving them the time* through parental investment to reach social maturity by maintaining a protected early environment. Kaplan and colleagues’ human capital approach to the evolution of human reproductive behavior and family formation emphasizes that the time-production costs of childrearing necessarily exceeded parental productive capacities and required multi-generation resource flows (Kaplan and Lancaster 2003). Finally, behavioral ecologists have used time as a limiting resource to model optimal foraging (Hames, 1992); however, this construct has rarely been extended to the much more complex demands of modern society.

Historians trace to the Industrial Revolution the quantification and commodification of “clock time,” and the subsequent extension of this regimentation to most of industrialized life, including basic maintenance activities in the home (Picazo, 1997). Yet, within all economic systems, time is an important limiting resource, whether or not it is formally regulated (Munroe et al., 1982; Tiefenthaler, 1997). The availability and deployment of *material* resources within the household has been linked to mental health, blood pressure, and stress (Bindon and Dressler, 1992; Bindon et al., 1997; Dressler, 1995; Dressler et al., 1999; Dressler et al., 1998; Flinn, 1999; Flinn and England, 1995; Flinn and England, 1997; Garruto et al., 1999; James et al., 1987; James et al., 1996; James and Brown, 1997; McDade et al., 2000; McGarvey and Baker, 1979; Newman et al., 1999; Pearson et al., 1993; Worthman and McDade, 1996). Less

frequently has this link been drawn between family function, stress, and the availability and deployment of *time*.

Nonetheless, convincing data suggest that stress within the family and household, in general, can affect health outcomes, with psychophysiological variables and developmental markers as key mediators. For example, Flinn and England (1995; 1997) have described a relationship in Dominica between average cortisol levels of children and household composition, family conflict, and caretaking styles. Those children with higher average cortisol show higher morbidity, possibly mediated through HPA influences on immune function. Stability in the household was amongst the most important *protective* features they described. Pollard et al. (2000) describe relationships among Nepali children's blood pressure, their residence on or off the tourist trail, and elements of the household economy, including where and at what type of occupation fathers work. Similarly, Bindon et al. (1997) describe a relationship between lifestyle incongruity within the household and the blood pressure of American Samoans. Pollard (1999) also has reviewed research showing that the increased spatial density of housing and noise levels in the home, and the consequent perceived loss of control over the environment, are associated with psychological distress and physical and psychological morbidity in an urban context. Again from an evolutionary standpoint, Chisholm has argued that child development will be closely attuned to early signs of family stress, including strained parental relations (Chisholm 1993; Chisholm 1999).

Thus, to understand better both the *effects* of alternative working arrangements on child well-being, and the *constraints* placed upon working arrangements by the demands of maintaining a functioning household, requires an expanded scope of enquiry in work-life research to encompass the developmental ecology of the child. The "time bind" may influence marital relationships, parent-child time together, daily family routines, and more generally the perception of control and predictability in daily life. Time perception and management within the home, in relationship to physiological markers of the stress response and functional health outcomes in children, are thus ripe for further investigation.

Such work first requires the generation of far more sophisticated methodological tools and conceptual frameworks for understanding the "architecture" of daily life – that is, the basic structures through which family members organize their day. How do we best measure the "architecture" of daily life, in a way that is sensitive to individual, social, and cultural determinants? How can we "get inside" families' daily schedules to achieve a detailed profile of daily activities, allowing us to generate quantitative indices of characteristics such as the density of activity? How can we, at the same time, retain enough contextual information to help us understand the phenomenon of "same place, different space" – that is, how multiple people can experience apparently similar sets of circumstances very differently? This is central to any exploration of the determinants of differential childhood well-being.

In this report, we draw upon a theoretical framework extensively outlined in a previous working paper (Worthman et al., 2002), wherein we described a process by which cultural models might be understood from the "bottom up," beginning with their enactment in recordable daily activity. This lens on culture draws upon insights from psychological/cognitive anthropology and psychology (Bruner, 1987; Cooper, 1999; Emde and Spicer, 2000; Gallimore

et al., 1993; Garro, 2000; Hakansson and LeVine, 1997; Larson and Pleck, 1999; LeVine, 1990; LeVine, 1997; Shore, 1996) with special attention to the tradition of developmental ecologists such as John and Beatrice Whiting (Whiting and Whiting, 1981; Whiting and Whiting, 1981b), Charles Super and Sara Harkness (Harkness and Super, 2000; Super and Harkness, 1986), and one of the authors of this paper (Worthman, 1994). The purpose of this report is the outline in detail a new method for pursuing these aims, wherein we move from daily schedule reports, through detailed debriefing and interviews, toward an understanding of overarching goals and organizing themes with implications for cultural models of the family, the home, and the use of time. Data from a pilot project are reported principally to illustrate that method in action, although we also draw a set of substantive insights that suggest the value of our approach .

## **METHODS**

### *Recruitment and Demographics of the Sample*

We recruited a sample of twelve families with children ages 4-9 living at home. Up to two focal adults (both parental figures living in the home, if two are present), and one focal child were recruited per family. Families were contacted through letters sent home at two day care centers, two after-school clubs for children, and one Parent-Teacher Association in DeKalb, Fulton, and Gwinnett Counties, Georgia. These are three core counties of the twenty-county Atlanta metropolitan area. These sites were selected to provide the maximum possible range of ethnic and socioeconomic diversity within the range of the Atlanta “middle class.” All focal children took part in school, day care programs, or camps on a regular basis during the week, outside the home except in one case (where the grandmother ran a summer day camp). Human subjects approval for this project was sought and received through the Emory University Institutional Review Board, and permission to contact parents was granted by the appropriate authorities at each of the recruitment sites.

Of the original sample of twelve, one withdrew before completing the week-long participation in the project. Of the remaining eleven families, 6 included heterosexual couples, 4 included single parents (all women), and 1 included both a mother and a grandmother for the focal child acting jointly in the parental role. All single parents were employed full-time outside the home. Amongst the dual parent homes, both parents worked outside the home in 4 cases; one parent worked outside the home where the other parent worked for pay at home in 2 cases; and one parent worked outside the home where the other parent was a homemaker in 1 case. Following U.S. Census categories, the sample included 6 households where all focal individuals are white/Caucasian, 4 where all focal individuals are black/African American, and 1 household where one parent was white/Caucasian and the other parent was Asian American. This compares to the following overall population profile for DeKalb, Fulton and Gwinnett Counties from the 2000 U.S. Census, by self-identification of “racial” category: 51.2% white, 38.8% black, 4.5% Asian, and 5.5% others (including Pacific Islander, American Indian, those who chose the “other” category, and those who identified two or more “racial” categories) (U.S. Census Bureau 2002). Refugee and recent immigrant populations were not specifically targeted, and no members of such populations volunteered for the study.

The ages of the eleven focal children were: 9, 9, 9, 8, 7, 6, 6, 5, 5, 5, and 4. There were other siblings living at home in 8 families; in the other 3 families, the focal child was the only one in the household.

Except for one of the single-parent families, which rented an apartment, all families own single-family homes. Income and education were not determined for this phase of the study; however, occupation was. The sample comprised two insurance adjusters; an elementary school teacher; a construction contractor; two part-time babysitters/day care providers, one of whom also had a full-time job as clerical office staff; a computer technician; a financial analyst; an undergraduate student, who also had a full-time job as clerical office staff; a university professor; two federal civil servants in research or administrative positions; two engineers; a homemaker; an architect; a lawyer; and a software engineer. The range of occupations spans almost the full range of the American “middle class,” including skilled labor and a considerable diversity of white collar jobs, with varying prestige and average levels of remuneration. However, this sample is clearly weighted toward adults with white collar jobs that have qualifications including at least some post-secondary education. In DeKalb, Fulton and Gwinnett Counties, according to the 2000 U.S. Census, the average household income was \$51,364 for 2.61 people, 93.8% of those in the labor force were employed, and 63.3% of adults 25 and older had at least some post-secondary education (U.S. Census Bureau 2002).

#### *Iterative Guided Self-Reporting and the PROUST System*

The ethnographic process through which the data were gathered is based on the notion of an *iterative guided self-reporting process* within the specific domain of the *scheduling* of daily life within the family. By “iterative guided self-reporting,” we mean a process of moving, through multiple interviews within and across families, from objective records of daily events, through narrative explications of the architecture of the day, to broad themes defining the pragmatic and moral landscape of daily life. That is, relatively “cold” records are constructed by the participants, and used as a starting point. With each iteration in the interview process, these records are imbued with greater meaning and nuance through a joint process involving the participant and interviewer. An outline of how this is accomplished follows below.

First Iteration: Schedule Data Recording Using the PROUST System. PROUST for PalmOS (Programmable Recording Of User-friendly Self-report through Time) is a computer program that runs on any PalmOS v.3.5.x or 4.x-based Personal Digital Assistant/“hand computer” (Worthman, DeCaro et al. 2002b). PROUST was designed to permit research participants, largely on their own, to report discrete events or experiences that occur over time in a user-friendly Palm Pilot-based interface (DeCaro, Worthman et al. 2002). The program can be configured to record events of nearly any kind at varying levels of time resolution (e.g., 15 minutes, 30 minutes, etc), and for varying lengths of time. The program is based on graphical menus that make it unnecessary for the user to have any experience with Palm Pilot graffiti or any other special method of data entry. The menus are designed by the investigator to ask the questions he/she desires, in the order desired, with configurable icons and help text, for each study. The data entry environment can also be customized to the individual, and up to six alarms can be set to remind the participant at various points during the day to update his/her records (DeCaro, Worthman et al. 2002). Note, however, that due to delays in the finalization of the

PROUST application, the first eight of these families completed their schedules using a logically identical paper-based technology, using the same icons, activity categories, and task structure.

For this study, PROUST was configured to guide users through a 24-hour schedule, for seven days, broken into 15-minute blocks. Participants were asked to update their schedules retrospectively, on their own, at least three times per day. Reminder alarms sounded at times identified by the participants as most convenient. Parents were asked to update the schedules for their children, with their children's assistance. For each 15-minute time block, participants identified up to three classes of activities that were taking place, from within a range of 16 options (see table 1). No distinction was made between single activities that fell into multiple categories, and multiple activities that occurred within the same 15-minute block; in each case, all applicable categories were coded. Participants were also asked to identify where they were, from three options (home, work, out); how they recalled feeling from 10 options; and who else was present, from 8-9 options (spouse or mom & dad, former spouse, focal child, other children, family, friends, peers, strangers). In each of these cases except who else was present, only one choice was permitted per time block.

Icon Name	Brief Summary
Solo	Solo leisure time, not work related
Social family	Social time with family members
Social peers	Social time with non-family
Social formal	Formal social activities (e.g., churches, clubs, etc.)
Work paid	Paid work, whether working inside or outside the home
Work domestic	Unpaid work performed for family, including child care activities
Work volunteer	Unpaid work performed for those who are not family
Transit	Any form of transit, including walking
Sleep	Any sleep periods, including naps
Food	Ingestion of anything other than water
Spiritual	Self-defined spiritual or religious activity, alone or with others
Telecom	Telephone, e-mail, letter writing, and other "distance communication"
TV	Television watching
Personal	Maintenance of personal well-being; grooming, doctor visit, etc.
Saliva	Collection of a saliva sample

Table 1: Activity Categories for PROUST

Through the completion of this task, participants created a seven-day, detailed record of the contours of their daily life. While quality-control mechanisms were in place (see below), the highest priority of our study was not to gain the most accurate possible representation of what objectively occurred. Instead, we considered it an advantage that, through the recall process, participants were naturally highlighting the most salient and memorable events in their days, and providing us with some socio-emotional context for those events (where they were, who was present, overall emotional state).

Second Iteration: Periodic Schedule Debriefing. Either one or two days after participants were introduced to the PROUST task, then again two to three days after that, and finally one day

after the completion of all seven days' records, the interviewer visited and reviewed aloud with participants every 15-minute block of data that the participants had coded into the Palm Pilot. These sessions were recorded. The purpose of these sessions was two-fold. One was simply quality-control; that is, by reviewing the data with participants it is possible to correct most data recording errors. However, the larger purpose is ethnographic: the co-construction by the interviewer (through viewing the records) and the participant (through the records and what they trigger in memory) of a narrative describing the day. The interviewer generally takes the lead by "reading" the schedule recorded by the participant, whilst implicitly and explicitly encouraging the participant to offer corrections, interpretations, and elaborations. The narrative exegesis produces a second level of data: the way that a particular participant describes the schedule imbues it with meaning, as participants highlight their most salient memories regarding the circumstances of the events and the way they fit into the day.

Third Iteration: Summary Questions and Feedback. After schedule debriefing on the final visit to the family, which occurred one day after the completion of all seven days' records, participants were asked a series of generic questions about their schedules. These included identifying typical and atypical days, and describing why; indicating whether each day went according to plan, and why or why not; and indicating what kind of things can disrupt the daily schedule, and how these things are dealt with. Then, on the basis of the responses to these questions, as well as the co-constructed narratives from the schedule debriefing, the interviewer verbalized apparent themes that emerged from the participant's description of his/her daily life. In searching for themes, the interviewer focused upon three domains of interest for this study: economic/social achievement, family life, and life course. Participants were given an opportunity to respond to and, as necessary, amend the interviewer's proposed themes.

Fourth Iteration: Community Themes and Household/Individual Positionality. Elucidation of individual or household themes across multiple families revealed a set of repeating themes. These themes constitute a kind of *working cultural logic* of family life within the sample. That is, they are implicitly descriptions from multiple informants' perspectives of the scripts by which families navigate the mundane exigencies of daily life. In this respect, once distinct patterns of commonality are identified, we can begin to delineate an *enacted* cultural model. These enacted cultural models are the set of logics commonly used by families to navigate daily life, and the actual behavior patterns that these logics potentiate. They include both pragmatic and moral dimensions. The elucidation of community themes permits a final step in which the investigator may position individual families or participants with respect to enacted cultural models defined as above.

### *Goals and Hypothesis*

Specifically, this paper describes the outcome of our attempts to:

1. Generate indices of scheduling complexity that can differentiate between and within families.
2. Contextualize the statistical data by exploring themes regarding the architecture of daily life through ethnographic portions of the follow-up interviews. Why do

certain patterns of simplicity and complexity emerge in the architecture of daily family life?

3. Evaluate a hypothesis that unpredictability and lack of control are prime anxiogenic agents, fragility of family members' schedules to disruption, and not just schedule complexity per se, will emerge as an important stressor. This expectation comes directly from an extensive literature on stress.

## RESULTS

### *Indices of Scheduling Density For Parents Exceed Those For Children*

One of the most striking observations regarding families' schedules is a disparity between the complexity and predictability of children's schedules, and those of their parents. This is of interest *prima facie* for several reasons. First, the family is an operating social unit, and the schedules of family members are inherently linked. This is particularly true for dependant members of the family, such as children, and the adults who care for them. Parities and disparities between scheduling phenomena in parents' and children's daily lives have the potential to illustrate broader patterns in how the family operates, including pragmatic and moral aspects of the division of labor. Second, the notion of the "overscheduled" contemporary child has tremendous currency in popular/non-academic literature (Jones, 2004; Oliver and Klugman, 2002; Quindlen, 2004; Villaire, 2003), and also to a lesser extent in the work-life literature (Galinsky, 2003). This has powerful developmental overtones, insofar as "overscheduling" is usually considered detrimental to social and psychological outcomes in this literature, and defined in opposition to ideologies of child development that emphasize the importance of time alone, unstructured, and/or child-structured play.

To test the important of scheduling for child well-being, we constructed two indices. First, we derived an index of scheduling complexity, based on the percent of 15-minute time blocks containing a transition between major activity venues reflected in the actual schedules, as reported participants. Second, we constructed an index of scheduling parallelism, defined as the percent of 15-minute time blocks during which two or more activities are occurring simultaneously (multitasking). Parallelism is only analyzed for those segments of the day when the child is rated as "physically present" with another focal participant (parent), in order to address concerns regarding poor data quality when parents are not able to observe their children's activities directly. This is not a concern for complexity, which relies on transitions between major activity venues, which should be known to parents even when they are not directly observing their children. Together, schedule complexity and scheduling parallelism constitute two discrete indices of "*scheduling density*."

We find that there are, indeed, striking differences between the scheduling density in parents' and children's lives. First, schedule complexity for adults, on average, exceeds schedule complexity for their children by 0.0242 transitions/block. This can be multiplied by the number of blocks in the day (96) to determine the average number of additional major venue transitions that result from status as an adult: on average, parents have 2.3 additional major venue transitions per day, compared to their children. By one-sample t-test, this is significantly

different than the null hypothesis of zero additional transitions ( $t=4.367$ ,  $df=10$ ,  $p=0.001$ ).

We can express this same trend another way by noting that parents' average schedule complexity was at least 0.015 transitions/block higher than their children for eight out of the eleven families. For two families, the children's complexity was marginally higher than their parents (less than 0.015 transitions/block), and for one family, the parents' complexity was marginally higher than their child (less than 0.015 transitions/block). Therefore, we observed real differences among families in schedule complexity, lending statistical traction to the question of whether complexity relates to outcomes.

Three other variables were also examined, as possible confounders or effect modifiers: focal child age, dual-parent status, and the existence of other children besides the focal child. None of these three modified or confounded the relationship between parent/child status and schedule complexity, although there was a non-significant trend toward a greater parent/child difference in families with other children.

Similar, if slightly weaker, patterns appear in contrasting adult and child scheduling parallelism. Evaluating parallelism requires a higher quality data than evaluating complexity, since major venue transitions are more easily picked out of marginal data than block-by-block "multitasking." People rarely do one thing at a time, instead multitasking (cooking dinner, minding children, and chatting with a friend; watching TV, doing homework, hanging out with siblings). But multitasking is so deeply engrained that it can be difficult to induce respondents to reliably disembled all concurrent activities rather than to simply report the most salient or socially valued one (in these examples, possibly cooking, doing homework). Two families' data were deemed unacceptable for evaluating parallelism, leaving a total sample size of nine. Schedule parallelism for adults, on average, exceeds schedule parallelism for their children by 0.17 parallel blocks/block. Stated differently, this means that for each day, parents averaged 16.3 additional "multitasking" blocks compared with their children. By one-sample T-test, this is significantly different than the null hypothesis of zero additional parallel blocks ( $t=2.328$ ,  $df=8$ ,  $p<0.05$ ). Compared to schedule complexity, the trend here was less consistent, although still striking. Of the nine families, in six cases parents' parallelism exceeded children's parallelism by at least 0.10. In one family, the child's parallelism exceeded parent's parallelism by at least 0.10. In two families, the difference was less than 0.10 (with one family in each direction). Again, variation among families was sufficiently large to permit statistical analysis with regard to outcomes.

As with schedule complexity, none of the other factors investigated modified the relationship between parent/child status and schedule parallelism. There was, however, a non-significant trend toward greater parent/child differences in one-parent families.

The conclusion that we arrive at – that these parents are seemingly busier than their children – is more striking than it may initially seem. First, we have evidence for this pattern through two independent measures: schedule complexity (effectively, how much people are moving around), and schedule parallelism (effectively, how much they are doing at once). Further, the notion of "overscheduling" would seem to suggest that children are adopting "adult-like" schedules; at least for the bulk of our sample, however, this does not seem to be the case.

Rather, it appears that parents are largely successful in enacting the cultural model concerning the need for scheduling simplicity to enhance child development. However, they achieve this by having more complex schedules themselves.

The most important upshot is that we have an opportunity to explore the family mechanisms through which this more complex and parallel scheduling pattern for adults is created, and the pragmatic and moral aspects of working cultural logic reflected in this pattern. This provides a segue into the next part of our discussion: schedule debriefing and the cultural logics that emerge through narrative exegesis.

### *The Child's Schedule Reverberates Throughout Family Life*

*One mother says: "our kids [...] would say [the daily family schedule] is very steady, because we make it that way for them no matter what, but our duties [...] are different, trying to keep their boat floating."*

Despite evidence for greater density in parent's schedules, a look at the schedules of parents and children in our samples shows similarity in their basic structure. The majority of the parents in this sample, like all the children, awaken on the weekday at a relatively stable time; go to work or school for the bulk of the morning and afternoon; and then converge with the rest of the family on the home some time in the late afternoon or evening, sometimes punctuated by outside after-school or after-work activities.

However, during the schedule debriefing and summary question phases of this research, a subtler picture emerges, which is compatible with the observation that being a parent adds an additional level of daily schedule density. It would not be accurate to state that parents and children partake in their own several spheres of activities, and parents simply have more elements in their sphere. Rather, examination of the household as a total ecological system reveals that parent and child schedules are interwoven, in ways informed by cultural models of family or household behavior. The actual behaviors within the household constitute the enacted versions of these cultural models, and are the object of study here.

Let us begin by examining an example of some actual data drawn from one of the participants in the study. Figures 1A and 1B illustrate the morning and afternoon schedules, respectively, from the three focal participants (mom, dad, and child) from one particular family, all on the same day. The child's day appears relatively straightforward: home, to school, to after-school, to dance; generally, one activity at a time. But what is required of parents to make this possible?

1. Framing: Parents get up early to ready themselves before the children awaken.
2. Activity wedging: Mom gets to work late so she can participate in an activity at her daughter's school; she is hassled.
3. Multi-tracking: Dad makes arrangements for home remodeling on the way to work and during the work day; he is hassled.
4. Errand chaining: Mom squeezes in errands after work, before she has to be home for the kids.
5. Double tasking: Dad catches up on work during his daughter's dance class.

- Mom and dad “tag team” their supervision of the two kids to permit one of the children to go to an activity that does not involve the other.

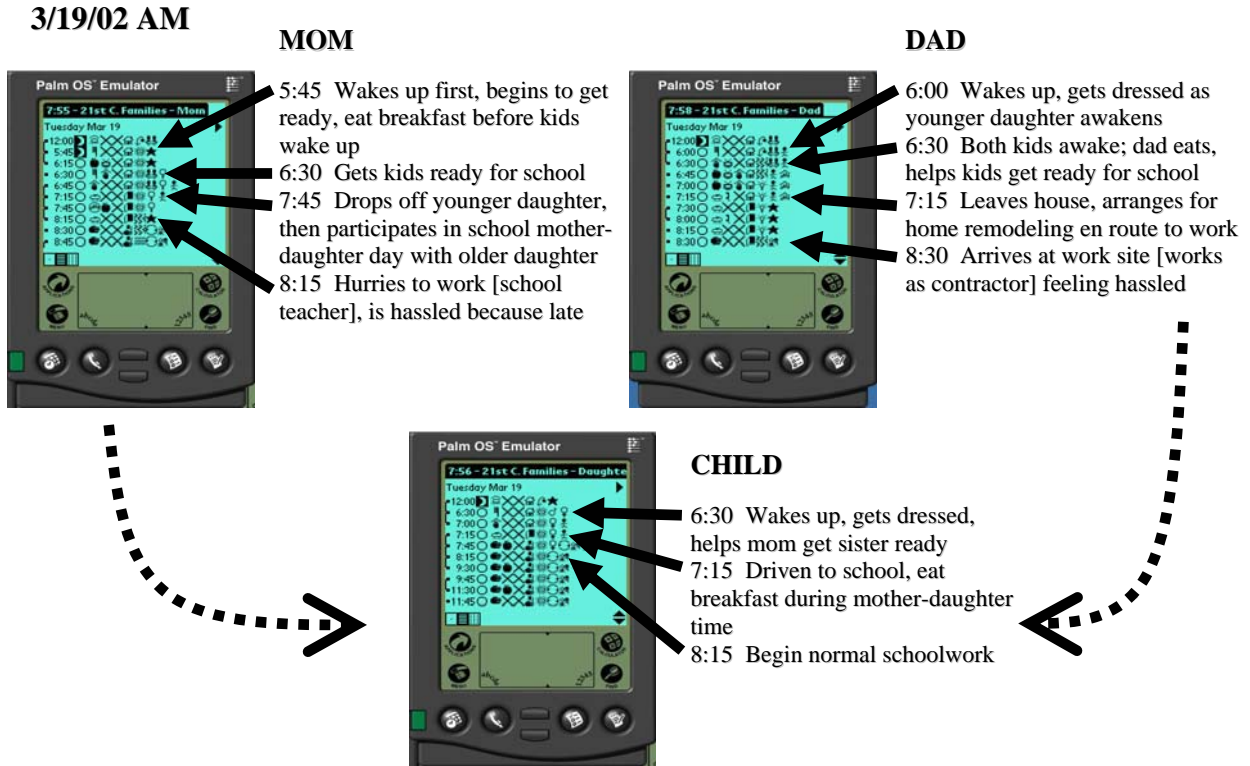
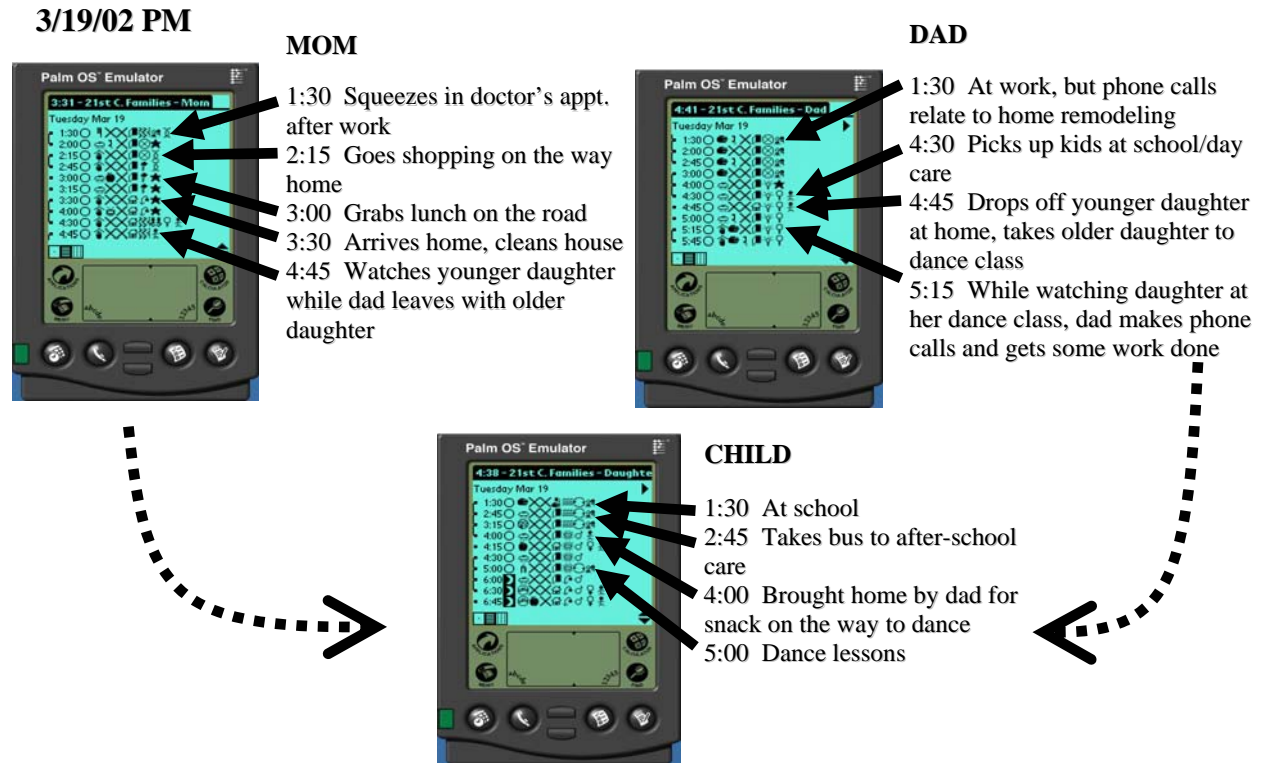


Figure 1A.



**Figure 1B.**

This exemplifies several themes in the scheduling of daily family life with both moral and practical implications. These are:

- Cede primacy to children's needs over those of parents
- Provide continuous child supervision ("tag team")
- Supply opportunities for child's social and physical development (extracurriculars)
- Multi-task as necessary to get everything done
- Maintain a desirable home environment (remodeling)

As we explore these patterns through an ethnographic process of schedule debriefing, we begin to learn that the moral economy of the household places a primacy on providing what is seen as necessary for the long-term well-being of the child, even to the detriment of parental needs or parental psychosocial development. The practical effect is that the *schedule of the child reverberates throughout family life*. Through direct effort (such as child transportation), and indirect effort (such as general household maintenance tasks), parents create stability and predictability within their children's lives, that may not fully reflect the complex logistics involved in running a household. That is, the parents (sometimes self-consciously) create an "eye of the storm" within which their young children are encouraged to reside. While there are numerous domains within which this model of household organization is enacted, we shall focus this discussion upon two: the provision of "security/safety," and "opportunity/development" for the child.

### *Values and Goals for Child Development*

We have described in a previous working paper (Worthman et al., 2002) how parental buffering activity may be informed by parental *values and goals* for child development, which are both individual and inherently cultural. In this pilot sample, we focused upon values and goals fall into two broad categories, identified through that previous work: the provision of security/safety and the creation of opportunity/development for the child. The results are consistent with our previous finding that “children mandate a set of non-negotiables and arrange further priorities that reshape the moral economy of the family.”

Within the domain of security/safety, three principal themes either explicitly or implicitly resounded throughout our dialogue with the pilot families. First, families’ activities were organized around the non-negotiable *requirement to maintain continuous child supervision*. Recall that the children in this sample are all under the age of 10; thus, those parents who do *not* maintain continuous child supervision are potentially vulnerable to legal sanction (including criminal charges) if something goes wrong. So it is hardly surprising that this would emerge as a non-negotiable priority. The point of interest, rather, concerns the choice of the particular criteria for what constitutes adequate child supervision, and how the maintenance of such reverberates through the daily schedule.

*A single mother without family nearby works and attends school. She describes how friends in her extensive network help each other through an informal, reciprocal unpaid babysitting arrangement. She also employs a babysitter.*

Resources including friends, relatives, paid daycare providers, or partners and former partners may be deployed to meet this need, depending on their availability and acceptability. In some cases, such as in the example cited above, a fairly extensive network of support is available, but with an associated cost: the requirement for reciprocity. In other cases, considerable financial outlays are required. Both paid and unpaid child care is vulnerable to disruption, however, and numerous examples emerged in which parents were required to structure their work day (chronically) or leave work/cancel appointments (acutely) in response to the high cost or limited availability of child care, especially if children became ill, or other acute circumstances caused routine day care providers to become unwilling to supervise the child.

Moreover, not every adult is necessarily an *acceptable* caregiver. This exemplifies quite well another theme through our conversations with families, the *requirement to maintain a “safe” social and physical environment*.

*A mom describes the complete set of acceptable caregivers for her son as follows: his father, his paternal grandfather, his school, and the day care center she has chosen. No one else may watch him.*

For some parents, a more extensive network of relatives comprises this set of “acceptable” caregivers; for others, neighbors, or friends. Explicit reasons cited for these choices, when provided, run the gamut of expressions of physical safety: caregivers must be “responsible” enough that they will not allow a child to come to harm; they must meet basic

needs, such as feeding at appropriate times; they must not set a bad example, such as by using drugs. Reasons such as a compatible “philosophies” of child care/parenting also overlap with issues related to opportunity and development, which are discussed in the next section. Despite variance *between* parents in what is considered an “acceptable” caregiver, within families this is another settled and non-negotiable constraint on the scheduling of daily life.

Such considerations support the notion of a *family hinterland*, analogous to the established phenomenon of an urban hinterland. Cities long have been recognized as unable to support themselves entirely, but to draw on a wider territory for food, materials, human capital, water, and other resources. Similarly, families have a “hinterland” from which they draw for resources essential to their welfare and the central project of childrearing. In the case of the middle class families studied here, the prime limiting resource often was adult time, particularly for childcare.

A final theme within this domain of security/safety is the *requirement to maintain a sense of simplicity and stability in children’s daily lives*. This emerges frequently in the context of explicit statements about parental buffering of children’s schedules, as cited earlier in this paper, or statements about moderating the amount of involvement children in extracurricular activities. Says one mother:

*I think they’re so scheduled now that they don’t need any more, I mean when [my daughter] comes home [...] she just needs to chill out in her house.*

This example is particularly interesting, because it sets up a potential conflict with another major domain that organizes parental effort, the provision of opportunity and development. Simplicity and stability suggest the need to protect children not only from the chaotic tendencies of middle-class life, but also from *over-enrichment*. An optimal balance of enrichment vs. simplicity/stability is viewed as determined by the child’s particular developmental state and personal characteristics; the competent parent is seen as one who accurately gauges the child’s needs and accordingly adjusts the balance of stimulation vs. regulation, or opportunity vs. predictability.

The domain of opportunity and development emerges in discussions with these families through another set of three themes. First, there is the *need to provide access to extracurricular/peer-group activities outside the school context*. This is a counterpoint to the provision of simplicity and stability and, in general, to the concept of parental buffering as a means to limit children’s complexity. Discussions regarding non-school activities often stem from descriptions, by parents, of the scheduling gymnastics required to make “extracurriculars” possible. A dad, working and taking college classes, explains:

*It’s hard on us [...] [because] there’s a practice every day, [...] so we alternate days. We changed our school hours to accommodate their sports.*

*Enrichment is similarly an important function of the school environment*, as exemplified by the following expression of that second theme:

*A couple prepares their pre-K child for admissions interviews at a private kindergarten program they want him to attend, and reschedule the week to make these interviews possible; all are nervous.*

Finally, enrichment occurs through scheduled activities not only outside the family, but also within it. Thus emerges the third theme, *the need for parents and children to spend “quality time” together.*

*A mother, despite spending almost all her time outside of work caring for the children, expresses profound guilt that she has become too distant from her older child; at father’s encouragement, she and the child have begun to go bowling periodically so that they will “share more.”*

What unifies these examples is the parental conviction that their resources of money and particularly time can be deployed to not only protect their child, but also to create space in the schedule for personal growth. In this context, parents rarely express explicitly any conflict between the safety/security and opportunity/development domains, whether because the first is simply viewed as a precondition to the other, or because of synergies such as the following one from the previous working paper (Worthman et al., 2002):

**“right” home = “right” neighborhood  
 “right” neighborhood = “right” people  
 “right” people = good school, good playmates and parental supervision, array of desirable extracurricular activities/learning opportunities for children**

### *Schedule Fragility*

Non-negotiable priorities in the daily schedules of families do not always act synergistically, however. This may happen because of any combination of resource limitations (inadequate social support, inadequate finances) with outright conflicts between priorities (such as work, as a financial precondition to security and opportunity, and child supervision, as a non-negotiable component of safety). In such cases, the result may be schedule fragility, which emerges in principle when family activity involved in producing the desired conditions of daily life exceeds the material and social resources needed to sustain it. A restricted family hinterland constrains adaptive capacity. Without sufficient elasticity in the architecture of daily life, the structure of family life can come unglued. For example:

*A single mother, who works in retail, explains that she just quit her job because “I was supposed to be working 32 hours per week [...] then my car broke down and I couldn’t work on Saturdays any more because of kids. Basically over 2 [fewer] hours [per week] they’re not giving me my benefits. [...] If I had a car, I could get those two hours easily.”*

However, either social support or wealth can be leveraged as a buffer against fragility.

*A couple reports that grandparents live locally, and are available almost any time to help with exigencies such as child illnesses, or meeting workers who are remodeling the family's home, or even last-minute errands for the self-employed dad's business.*

*A single professional mother, living in the suburbs without good public transit, reports that when her car broke down she paid for a rental until it was fixed.*

The concept of schedule fragility is challenging to operationalize, because of a series of subtle methodological and conceptual variations related to how this phenomenon might be measured. Because the concept of vulnerability to disruption of the family project is key to our conceptualization of family function and stress, adequate operationalization of the concept of fragility is crucial. We have identified four distinct approaches to fragility: resource fragility, overload fragility, infrastructural fragility, and structural fragility.

High “resource fragility” is a condition in which adequate social and material resources are not available to sustain the activities and pacing of everyday life. An example is a consistent inability to get to work on time because no one else is available to transport the children to child care. Help with key activities such as child care that can be obtained by leveraging material or social capital (e.g., hiring a nanny, having grandma watch the child) mitigates resource fragility.

High “overload fragility” occurs when the routines of daily life become unstable because the schedule is overloaded – there are simply “not enough hours in the day.” This is distinctively an “overload” rather than a “resource” problem when additional resources (e.g., hiring additional help) cannot reasonably be expected to provide a solution. An overload might include the inability to consistently eat dinner together as a family because four nights a week at least one of the children has to be taken to an extracurricular activity. Obtaining transportation assistance would not alter the fact that the family cannot be together during that period of time.

These two dimensions, resource and overload fragility, are challenging to distinguish, because the primary marker is similar: the inability to sustain key daily routines. However, there are several subtle differences that can be helpful. First, the *types* of routines that are affected tend to be slightly different. Routines that rely on the face-to-face family interaction (e.g., all eating dinner together) cannot as easily be scaffolded from the outside, since no one else can substitute for a family member; these are the best candidates for an index of overload fragility. Routines that are principally logistical (e.g., providing transit to work and school at a consistent time) should be much easier to scaffold if *reliable* help is available.

Further, in each case, there are secondary markers aside from routinization. For a strong case of resource fragility, low routinization should be linked with low resources (both low economic status and/or little available social support). For a strong case of overload fragility, low routinization should be linked with a high density of activities (e.g., frequent transitions between settings, such as home to car to work). This leads to two matrices:

	Unstable Logistical Routines	Stable Logistical Routines
Low Resources	<b>HIGH RESOURCE FRAGILITY</b>	(other sources of resilience)
High Resources	(other sources of vulnerability)	<b>LOW RESOURCE FRAGILITY</b>

	Unstable Social Routines	Stable Social Routines
High Density	<b>HIGH OVERLOAD FRAGILITY</b>	(other sources of resilience)
Low Density	(other sources of vulnerability)	<b>LOW OVERLOAD FRAGILITY</b>

Note that in this scheme, the two types of fragility are independent, and can occur either together or separately, since they share in common neither the routines being examined nor the broader ecological condition that is used to provide context.

Infrastructural and structural fragility are judged purely on the basis of the response of an individual's or family's schedule to a crisis. Here no distinction is made regarding possible sources of vulnerability (resource inadequacy, time insufficiency, etc.) Instead, the distinction is about the scale upon which any breakdown does (or does not) occur – the “infrastructural” or “structural” scale.

In this conceptualization, the “structure” of daily life is that small number of major activity groupings that have enormous power to organize daily activities of many different types and through considerable time. For example, having, not having, or losing a job are structural characteristics of daily life: every part of the day (including sleep) is constrained directly or indirectly by working arrangements, and the effects of a single major shift in working arrangements potentially last for years. Having, not having, or losing a spouse, children, or a home are other examples.

*Infrastructural* characteristics of daily life are built upon structural features, but are more variable, and organize other activities through a shorter span of time. For example, a regularly scheduled weekly meeting with a friend, the choice of public versus private transit where both are available, timely attendance at work beyond what is minimally required to keep a job, and even a single doctor's appointment are elements of the infrastructure. Other activities must be coordinated around them, and they may be perceived as very important, but they are more discretionary in the sense that a shift in any of these activities or activity patterns is unlikely to reach into every aspect of daily life, and unlikely to reverberate throughout years. The breakdown of infrastructure is a hassle, but not a disaster.

Clearly, “structure” versus “infrastructure” is only a meaningful distinction in the context of a particular family's circumstances, including their culture – and within any study population, there may be some features of daily life that have the potential to act on either scale, depending

on individual circumstances. This is what we can leverage to distinguish between structural versus infrastructural *fragility*.

The first step is to identify a set of hypothetical crises that could have an impact at a structural level (e.g., by substantially changing work arrangements), at an infrastructural level (e.g., by causing appointments to be cancelled), or which could have very little effect. The crisis, then, is not so much of “moderate” severity between a structural crisis (loss of a job) or an infrastructural crisis (a bunch of canceled appointments). Instead, it must be of sufficiently *variable* severity to divide the sample into three parts.

In a major metropolitan area such as Atlanta, an example could be the breakdown of a car. For one person, who cannot conveniently move between home and work using public transportation and who is unable to find other alternatives (e.g., a car rental), the breakdown of a car can lead directly to the loss of a job. We call the condition in which a person is vulnerable to these kind of serious disruptions “structural fragility.”

For another person, the response to the crisis might involve rescheduling a week’s worth of appointments and taking a day off work, and then getting up earlier to take the bus until the car is fixed. These are infrastructural disruptions: the job is still there, and after an initial adjustment, appointments can be scheduled again. Vulnerability to these kind of hassles in the wake of a crisis is “infrastructural fragility.”

Finally, for a third person, the breakdown of a car may have very little impact: they have a spare car available, so they arrange towing services and continue with their day. While there are still hassles involved, they are mild compared to those experienced by others in the sample, so we say this person shows low infrastructural fragility, and no evidence for structural fragility.

Note that in this example, the largest factor underlying the variation in fragility is probably differential wealth. Indeed, many of the most compelling examples of structural fragility have to do with poverty, directly or indirectly. However, while this is important in contextualizing the results of any analysis, the distinction *per se* between infrastructural and structural fragility is not related to levels of wealth.

The problem with these crisis-based approaches to fragility is the difficulty in capturing the aftermath of a presumably (hopefully!) rare event. The approach taken in this study – in which daily schedules were tracked in detail for only 7 days – is unlikely to adequately capture crisis-response sequences for a large proportion of the sample; a long-term longitudinal study would be needed to truly capture the aftermath of crises in terms of the organization of daily life. Here, instead, questionnaires and interview questions are used to assess *perceived* fragility, which can be linked to actual evidence of instability in the daily schedule (see previous section for examples), or that intermediate step can be omitted and perceived fragility can be linked directly with health outcomes.

Aside from such anecdotal cases as were described in the beginning of this section, further work with data generated by the larger, follow-up sample of 35 families recruited for the 21<sup>st</sup> Century Families Project will help in the construction of specific, meaningful ways of

operationalizing “scheduling fragility” as distinctive from the simple density of a family’s schedule, or from their socioeconomic status.

## CONCLUSIONS

We began this report with the proposal that, in order to understand the constraints affecting choices regarding working arrangements, and the impact that working arrangements have on the home – as well as the factors influencing the differential production of childhood well-being through stress-related processes – we must find adequate ways to profile the architecture of daily life inside and outside of the workplace. To that end, through pilot work, we have generated two indices of the density of the daily schedule: schedule complexity, the frequency of transitions between major activity venues, and schedule parallelism, the frequency of multiple reported simultaneous activities. Further, we have described a related but separate phenomenon, schedule fragility. Fragility is generically defined as a condition in which the complexity of the daily schedule exceeds parents’ ability to deploy financial and social resources to cope. Specifically, we have outlined four ways to view fragility: resource fragility, in which the critical source of fragility is the paucity of adequate resources; overload fragility, in which the source of fragility is inadequate time; infrastructural fragility, in which significant but short-term disruption occurs in response to a crisis; and structural fragility, in which more significant, long-term disruption occurs in response to a crisis. The conceptualization and operationalization of these variables provides a platform for ongoing research in a larger (35-family) sample, which will investigate each variable in much greater depth with respect to parental working arrangements, other aspects of the social ecology of the home, and child well-being.

Additionally, we have described iterative guided self-reporting, a structured ethnographic process wherein families guide interviewers through a “story of their week” during detailed debriefings of the daily schedules they reported on their Palm Pilot PDAs (hand computers). This provides not only critical information about the differential distribution of activities between *and within* families, but also contextual data that helps explain those patterns. Further, explanations provided during these debriefing sessions and the follow-up interviews illuminate values and goals guiding the structuring of the daily schedule, which will eventually prove useful in constructing an “on the ground” view of enacted cultural models.

This process yielded several specific findings. First, children’s schedules are both less complex and less parallel than the schedules of their parents. However, this is not simply because parents are “doing more.” Rather, there is evidence that children’s needs and activities have a domino effect that reverberates throughout parents’ schedules, while parents conversely actively buffer their children against the effects of their own schedule disruptions.

Second, the preliminary description of two major “moral goods” that organize and guide parents’ efforts – the provision of security/safety, and the establishment of an appropriate environment for child development and opportunity – can now be expanded in more detail. In particular, several recurrent themes were profiled. Within the domain of security/safety, these themes are the requirement for continual child supervision, the requirement to maintain a safe social and physical environment, and the requirement to maintain a sense of simplicity and

stability in children's daily lives. These can synergize or conflict with themes in the domain of opportunity/development, such as the need to provide access to extracurricular/peer-group activities, the need to place children in a "good" school, and the need to share "quality time" with children.

Finally, we see that while the perceived needs of children exert disproportionate leverage on parental activities, other constraints can compete (e.g., employment). Elasticity in the architecture of family life based on social support or affluence makes schedules less fragile, and allows families to cope when crises, disruptions, or conflicts occur. Otherwise, schedule fragility may constitute a substantial source of stress.

Through this approach of detailing the architecture of daily life through a highly-structured self-report methodology, followed by the use of debriefing based upon those reports as a form of structured ethnography, we achieve something that could not be achieved as easily through interviews alone. In addition to the usual psychological/sociological dimensions of family life, we are able to outline logistical/temporal-structural factors that intersect with those dimensions and contribute to the ecology of child development. As we have previously suggested (Worthman et al., 2002), the "work of the family" largely comprises *production of the requisite conditions* for achieving overarching goals such as safety/security, child development, and the realization of opportunity, identity, and social position. In this study we have begun to track the process wherein families generate these requisite conditions by crafting an architecture out of the mundane details of their daily schedules. This will eventually lead us to a more profound understanding of family life, through a better understanding of the overarching cultural goals themselves.

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