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The boundaries of participatory citizenship

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Abstract. This paper explores the space between municipal administrative systems and citizens' web use. It addresses the possibilities of drawing new boundaries between public administration and citizens' everyday lives through a shared planning and visualization artifact, embedded into Web 2.0. The case deals with planning, advising and control of parental leave. This process involves several citizens, the municipal office, employers, as well as the laws regulating parental leave, and the collective agreements supplementing this legislation. The municipal office controls that citizens and employers comply with the law. At the same time it is often the only reliable source of overview of the law, and of leave days recorded. This paper analyses the current situation, presents an exploratory design process and outcome, probing the boundaries between citizens and the municipal office. Focusing on boundaries and tribes, the paper discusses how new forms of web technologies may improve communication between citizen and government and facilitate collaborative user empowerment: Participatory citizenship. Where Web 2.0 technology is often thought of as tearing down boundaries between individuals, this case points to the importance of a focus beyond individual users, and a renegotiation of boundaries between citizens and caseworkers in the context of other groups of actors.

Introduction

This paper presents an action research project addressing the practices and technologies of applying for and being counseled about parental leave funding. The setting is a major Danish municipality where expecting parents turn to the municipal office for approval and advice on their parental leave funding scheme. The overall purpose of the project was to explore Web 2.0 technologies for improving cooperation and communication in this field.

In order to understand the context of this study, we take a look at the history and state of Danish municipal government services. Traditionally, the formal interaction between citizens and government has been thought of in terms of one citizen to one service. In 2003 a new citizen to this municipality had to visit 3-4 different physical municipal offices. These visits were required to receive the services needed to become a citizen within the municipal system, and thus qualify for a salary or social benefits (Bødker, 2004). The citizen, in other words, created the connection between municipal services.

For many years the Danish society has been assigning unique identifiers to every citizen at birth. Legislation strongly restrains governmental institutions' cross-use of information, and in practice the IT systems are separate. Accordingly, there is no single point in the public administration where somebody or a certain instance "knows everything about me" (Luitjens, 2008).

The trend in government organization (Wimmer, 2002) has for a few years gone towards "personalized service," and "one-stop-shopping". The focal point of these tendencies has been the idea of the citizen gaining easier access to the whole spectrum of governmental services from one physical location or through one website. Borger.dk is a Danish example of such a website. Such a "personalized service" is challenged when services pertain, not to one, but to several citizens. An example of this is parental leave. Historically the caring of a newborn baby was expected to be a woman's job. Today, however, this job is to a larger and larger extent shared between the parents. Consequently, today, the municipality needs to handle parental leave as a service, which involves several citizens–the mother, the father and the child. These primary stakeholders are surrounded by a web of additional stakeholders consisting of employers, other municipal offices, unions and regulations, relatives and friends of the expecting parents, and not least the circles of (expecting) mothers, organized by the visiting nurse into what is called Mothers' groups. These groups proved to be an important source of information among many parents, and as such they were of interest to our design process.

In the following, we further explore the practices and technologies applied by parents and municipal caseworkers, together or separately, to deal with the issues of planning and controlling the parental leave funding.

Parental leave planning–analysis and design

The parental leave case is part of the eGov+ project, which explores e-governance services and infrastructure. The pivotal idea of the project is to examine how citizens may be supported in achieving as much as possible on their own and in cooperation with other citizens, and how collaboration between citizens and municipal services may be enhanced.

In 2008 we carried out a participatory design-oriented study of practices and technologies of the planning, advising and controlling of parental leave funding, presented here. Over six months we interviewed expecting and new parents. We conducted field studies in the municipal office, including flow-oriented analysis workshops. We carried out iterative, participatory design, prototyping alternatives for shared planning and overview tools. The activities were conducted in the same time order as they are enumerated, with the exception of A4 and A5, which were conducted concurrently (Figure 1).

We recorded empirical data in the form of audio, video and pictures, supplemented with thorough notes.

Activity	Approach	Participants	Prototype
A1	2 days of field study, participant observation	Employees at two municipal offices	
A2	3 workshops on work and document flow	Employees at two municipal offices	
A3	6 hours of workshops	Mothers' groups	
A4	3 sessions of workshops	5 caseworkers	Early paper prototype
A5	7 hours of pluralistic walkthroughs (Bias, 1994)	Citizens (individual mothers)	Early paper prototype
A6	2 hours prototype workshop	Case workers from all city offices	Several alternative prototypes
A7	2 hours prototype workshop	Project members from 3 municipalities	Several alternative prototypes

Figure 1 Overview of activities (activity numbers used as references to quotes in this paper).

As figure 1 indicates, caseworkers participated actively in the design process, as they and their municipal organizations were partners in the process. The caseworkers were to learn from the process and the approaches, which were classical participatory design methods (Greenbaum & Kyng, 1991). As such, our engagement with citizens was more ad-hoc. However, it was in our interest, as well as in the interest of the municipal office, to enroll citizens as volunteers (Gaver et al., 2004)), or informants (Scaife & Rogers, 1998).

We have in particular applied three approaches in the project: Participant observation and interviews were used to get an early understanding of the field. The participants in these workshops were users, designers and researchers who together carried out structured activities in order to explore and discuss specific issues such as document flows. Moreover the participants tried out various prototypical solutions in a structured form. In this particular case workshops included focus group interviews with Mothers' groups, walkthroughs of paper prototypes with parents and caseworkers, situation game-inspired discussions of social network and adaptive document technologies with caseworkers, and finally scenario-based, hands-on use of running prototypes with caseworkers (Greenbaum & Kyng, 1991). Iterative prototyping served the purpose of giving future users access to hands-on experience, while making it possible to work with alternatives as opposed to just *one* solution. When applied in a research setting, prototypes may be used to capture and probe research hypotheses while providing

a practical point of departure for discussions among future users (Bødker, 1999). In the eGov+ project, rough and meticulous paper prototypes, as well as running web-based prototypes were used to illustrate our proposed conceptual solution–a timeline.

Throughout the process we have focused on contradictions between the needs of the stakeholders, which manifested themselves as breakdowns in the parental leave practice. For instance we detected a number of situations where parents gave up in their planning process and settled for a simple, but less satisfying alternative. We also probed for (and identified) contradictory drives in organizational goals (in particular correct case processing versus better service).

Outline and idea of the prototypes

The design case deals with planning and advising as well as control of parental leave. As previously mentioned, it involves several stakeholders. The municipal office supervises that citizens and employers comply with the law. At the same time it is often the only reliable source of information regarding the interpretation of the law, as well as the status overview of the number of leave days spent by the parents. This overview is particularly problematic, since parental leave can be taken in a number of ways over a 9-year time period.

There are a limited number of online information sources available to parents, often provided by unions, employers, or in the form of private online communities (e.g., www.navlestrengen.dk). Such privately hosted online communities are mostly regular public fora, not only concerning the issue of parental leave. As such there exists no one place that gives either an overview of the complex legislation and myriad of agreements, or professional guidance to specific cases. The only way to obtain such guidance is by contacting the municipality, the union, or the employer. In addition, the compensation for parental leave comes from several agencies. If the parent is subject to a collective agreement between a labor union and the employer, both the municipality and the employer contribute to the compensation paid. Employers give different compensations, and therefore it is impossible for the municipality to provide accurate information in this area. Essentially, this complex constellation of stakeholders, rules and regulations makes it extremely difficult for both citizens and caseworkers to maintain an overview of the choices to be made by the citizens, and the rules restricting these choices. As a consequence many citizens find themselves frustrated with both legislation and the service provided by their municipality. Our interviews point towards the fact that citizens are essentially fond of the flexibility, which the legislation grants them, while at the same time being fundamentally unhappy with the complexity that this flexibility entails. One citizen explained her frustration with not being able to find a clear answer to her questions:

> Quote 1: So we think its been really, really, really hard to figure out the rules. […] It hasn't been easy […]. But it's probably because we found ourselves caught in the middle of those collective bargainings for both his and my profession. [Mother, A3]

The fundamental idea of our the design concept was to explore how citizens could help themselves and each other in understanding, planning and applying for parental leave funding. At the same time we wished to enhance the communication between the citizens and the municipal caseworkers, when such communication was needed.

The overall ideas included support to shape and visualize the leave for both parents using a timeline; a shared object of negotiation between citizens and caseworkers; aid in evaluating alternative what-if scenarios in terms of time and money; possibilities of sharing with friends and adding information e.g. from unions; streamlining of the application process by eliminating unnecessary parts of forms and redundant information, some of which would come from other sources such as the employers.

Visualizing the parental leave and the regulations and administrative procedures surrounding it, as a timeline has several advantages. It can function both as a planning tool, showing what is to come, and as a historical overview, showing what has already occurred. As remaining available parental leave is determined by time already spent, the display of previous history is crucial. The timeline cannot be used in isolation with the current regulations. There are still bureaucratic procedures to follow, and actual applications to fill out with a particular timing (Bohøj & Bouvin, 2009). Keeping track of such timely procedures is the second dimension of the timeline (see Figure 1).

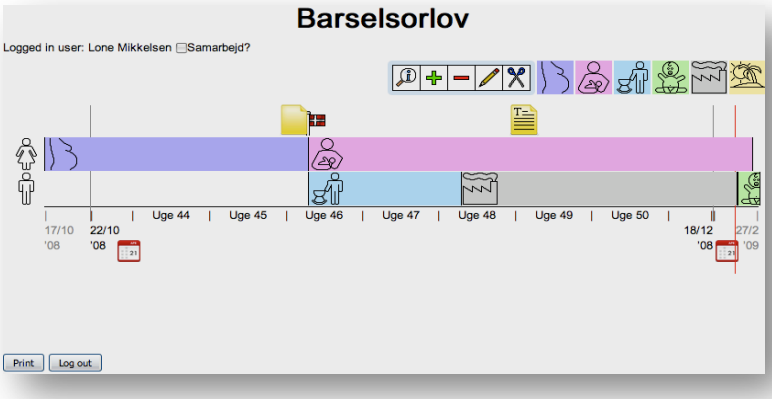

Figure 1 The timeline

The timeline is divided into three horizontal sections. Per default the middle section shows a six-week period centered on the current date. At both ends compact sections show events outside this main section. Users may zoom in or out respectively to render more details visible or to obtain an overview of a longer period. Furthermore, citizens can share their timeline with caseworkers.

Scenario 1 (below) illustrates how the timeline is to be used collaboratively.

It is well established that a timeline can be an appropriate concept for visualizing personal cases in government activity (Plaisant et al., 1996). Our timeline concept is based on it being web-based and sharable between parents, as well as with municipal offices when access is explicitly granted. It flexibly embraces several children and several parents. It makes extraction from municipal systems and generation of necessary documents easy, while still under control of the parent. Furthermore, the timeline can be summed up and shared with friends, or tailored, e.g. by unions or major employers to match information about parental leave conditions pertaining to specific agreements. However, there are many challenges to actually making such complex sharing and collaboration possible. The situation is much more complicated than what is generally believed to be the case within current e-governance: That caseworkers and citizens simply can and should use one and the same web-based solution (KL, 2006, p. 8).

Mette and Jacob are together and have a boy named Magnus, age 5 months.

When Mette and Jacob were first planning their leave, they visited the municipal website to use timeline planning tool. They found a plug-in provided by Jacob's union, which helped them understand his specific situation regarding salary.

Mette has a friend from the University, Anne, who was recently on leave, and Mette asked to have a look at Anne's timeline. Anne shared this with her, and pointed to the fact that several other friends had uploaded anonymized versions of their timelines to a Facebook group, which could be found e.g. via the municipal website.

Once Mette and Jacob have decided on their plan, Mette shares her part with the municipality Jacob places a request for his employer to fill in the necessary information, sign the plan and send it to the municipality.

One day Mette gets a call from an old friend from school. He offers her a job starting in just one month? Mette finds the job very attractive, but the date is earlier than she had planned. Mette and Jacob try to figure out their options: Might Jacob be able to start his leave earlier? How will this affect their budget? Will his employer agree? Maybe he can use some of his vacation instead? They look at the timeline again. Obviously, some things can no longer be changed as Mette has spent 5 months of her leave already. Sitting at the computer they try out various scenarios. They look at what other people have done, by browsing the Facebook group. The sandbox allowing for what-if explorations gives the couple a very good feel for what the legislation allows, what is most beneficial with respect to Jacob's salary agreement, etc.

Once they have decided, Jacob shares the plan with his employer to get approval of the change of plans. So does Mette with the municipality, before accepting the job offer.

Scenario 1 The future use of the timeline

Theoretical framing: Boundaries and tribes

In seeking inspiration from CSCW to address our findings and design, it seems evident that the empirical situation is concerned with the meeting of communities of practices or cultures. Thus future technology ought to support these webs of

actors as opposed to focusing on "within communities" issues. Web 2.0 technologies (O'Reilly, 2005) might in the outset seek to tear down the boundaries between citizens and caseworkers, e.g. by allowing citizens to share electronic web forms from home with the caseworker in the office. Nevertheless this is a much too simplified perspective for a variety of reasons, which we will discuss. Boundary objects (Star & Grisemer, 1989; Star, 1989) are often seen as addressing objects and information that cross boundaries between communities. As discussed by e.g. Lee (2005), this seems oversimplified, and a "sailing across" boundaries is not all that happens. Lee suggests a focus on boundary negotiating artifacts that push or strengthen the boundaries. We have chosen the title of this paper in an attempt to address what it means for citizens and caseworkers to take part, when web technology is placed on the boundaries to municipal services, rather than when web technology aims at tearing down such boundaries.

Bødker et al. (2003) similarly discuss technology for boundaries, and build on Barth's conception of boundaries in the study of an organizational setting. The main argument of Barth's perspective is to focus on contexts and situations in which boundaries are generated. The focal point of his claim is that it is the boundaries that define the group rather than the cultural core. Organizational boundaries become visible in organizational structures and rules, and they exist as invisible patterns between individuals and different groups of people. Boundaries, for example, separate one work domain from another, and one profession from another. Or they can be drawn between groups of people defined by shared interests in for example new technology. Boundaries outline the identity of the community and are marked because communities interact with entities from which they are, or wish to be, distinguished (Barth, 1969). The manner in which they are marked depends upon the specific community–administrative boundaries may be statute, cultural boundaries by language.

Bødker et al. (2003) look at computer technology and the way it supports or prohibits boundary work. The authors show how boundaries between the organization and its customers lead to new needs for the sharing of information and computer applications. Within the organization, boundaries between competencies and areas of responsibility are equally influential on the need for information sharing and computer support. Compared with other studies focusing on borders or boundaries, this perspective is more dynamic in that it does not take borders for granted, but argues for technology designed to support the borders, which might exist. Clement & Wagner (1995) similarly look at boundaries that are enforced by organizations, e.g. with the purpose of reducing complexity. They call this fragmented exchange. Neither of these two ways of looking at boundaries primarily focuses on boundary crossing capacities. Rather, they study how technologies may enforce or move boundaries for various reasons, in the same way as Lee's (2005) boundary negotiating artifacts. In this paper we look at boundaries, the way boundaries get maintained and changed, the roles of technological artifacts in

these boundary negotiations, and in particular the way future technological artifacts may change the landscape.

Taking Barth's lesson that communities are constituted by their boundaries, and that these boundaries are created in the meeting between communities, we look for where communities meet. One such important place is in the objects produced for others to use. However, it should not be taken for granted that these boundaries are neither rationally, nor consciously drawn. Maffesoli's concept of the *tribe* is used to describe how today's society consists of a bricolage of tribes. These are organized by a local common aesthetical experience and localized ethics and customs, such as brand communities, punks, regular commuters, or the village neighbourhood (Maffesoli, 1996). Contrary to the standpoint that the citizen *as an individual* is independently and rationally consuming goods, citizens participate in the consumption of services in a way that cannot be reduced to explanation by an individual, rational purpose in the tribal community. Citizens adjust their interaction with the government in order to satisfy their needs, but their behaviour is seldom strictly rational (March & Simon, 1958). Neither do citizens necessarily act as rational collectives with common purposes (Shield in Maffesoli, 1996, p. xi). In this paper, we use the concept of tribes to differentiate certain citizen communities from more purpose-driven communities. The three main boundary constituents of a tribe, available for empirical inquiry, are aesthetics, ethics and customs.

The *aesthetics* of a community is constituted by collective emotions. Collective emotions are created and shaped through observable interaction; it is not that an individual feels something, which is later externalized. Community rules are what is experienced as "should" or "ought to" by the members of the community: The *ethics*. These ethics also mark the boundaries to those outside the community. Ethics are experienced rules for behaviour, whereas aesthetics are of a more interpretative nature. C*ustoms* are "*The collection of common usages that allow a social entity to recognize itself for what it is*." (Maffesoli, 1996, p. 21). Customs are different from ethics in that they are the actual acts, not the experienced rules according to which one ought to act.

We present a setting into which a number of prototypes were introduced to explore and support the communication between a particular kind of citizens (expecting and new parents) and between these citizens and municipal caseworkers. With the above perspective it makes sense to see these prototypes as attempts to explore and develop the boundaries, similarly to the Lee's (2005) description.

The boundaries and tribes of parental leave

In the analysis we focus on the expecting parents on the one hand, and the caseworkers on the other, with a view to the context of other actors and artifacts such as the legislation, agreements and municipal IT-systems. With an understanding

of these groups as *tribes*, we look at the boundaries relevant to parental leave taking: Where the boundaries are maintained, where they are challenged, and the role that current technological artifacts play in this. In some settings individuals do not act as tribes; particularly the caseworkers sometimes act as a collective driven by a joint purpose. Nevertheless, the concept of tribes reveals interesting CSCW mechanisms in our particular case. We situate the idea of a web-based, shareable timeline artifact in the analytic findings, and use this to expose the challenges and possibilities of such an idea (Figure 2).

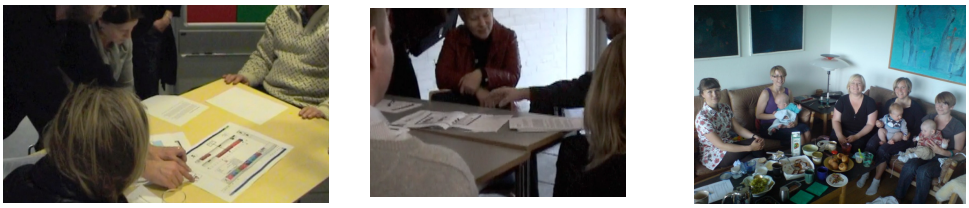

Figure 2. Workshops

Parental leave takers: Continuously changing constellations of peers

Constituent of all parental leave is obviously a child being born. As such, a parental leave case is initiated by the birth of a child. Not the child in itself, but a birth. Once the child, as all Danish citizens, is granted a CPR-number, this number now becomes the object against which information is cross-searched within the municipality. E.g. caseworkers may cross-reference the CPR-number of the father and that of the child to verify that he is in fact the biological father. In contrast to this view of what is constituent to parental leave, the mothers involved in our study gave the clear impression that while the child is of most importance, their maternity leave was a product of negotiation between themselves, their partner and prospective employers. The employers are affected by the leave both by the absence of the parent, and economically by the prospective refund they should receive according to the existing agreement. The time plan can in itself be a complicated matter, as the legislation allows part-time leaves and the scheduling of vacation time intermixed with the leave. Because of the timeframe, parental leave planning sometimes involves the leaves pertaining to several children, and consequently several partners or parents may be involved. It goes without saying that while most couples may have healthy relationships, the sharing of children between broken-up couples can entail challenges in coordination. Even though the configuration of the actors involved stays the same over the potential nine-year duration of the leave process, the boundaries of the family and hence the actors contributing to the planning process may change.

The above-mentioned planning process can be very complex in its constellation of involved actors and is furthermore driven by a difficult balancing of time (spent with the child) and money. Both parameters are central to the

parents' understanding of a sound base for their child. In seeking a solution to this equation, parents in many cases rely on information from a complex network of friends, family, the municipality, their Mothers' group, Internet websites, etc.

When using the services from the municipal office, citizens become members of the tribe of parental leave takers. The tribe that the citizens form with each other, is complex and based on a number of aesthetic and ethical values: The caring of the baby, the distress of being deprived of sleep, etc. Apparently the negative commonness of these tribes is especially forceful in creating a strong feeling of cohesion as numerous quotes in this paper emphasize. This dynamic is related to the way in which the boundaries of a certain community are often consolidated by what *does not* belong; as opposed to which activities or aesthetic value *do* pertain to the community (Bødker, et al., 2003). New parents meet around their shared experience of e.g. sleep deprivation and screaming babies. These are hardships they see themselves enduring in contrast to others, who consequently are not seen as belonging to the tribe. Just as this tribe of parental leave takers overlaps with a number of other values, the citizens are also simultaneously members of many other tribes. In this paper, however, we are concerned with how parents relate to each other in consuming services from the municipality. Quotes 2 and 3 illustrate the emergence of a tribe:

> Quote 2: I think that the biggest difficulty was to figure out where I should send my papers, because I do not have a proper employer. I stopped working before my parental leave and went on unemployment subsidiaries. There were so many instances involved, when I was to report all the information. It was very difficult for me to find out how to do that. (Mother, A3)
>
> Quote 3: It can't be right that you have to spend that much time searching for the rules (Mother, A3)

These two quotes exemplify a collective emotion of *difficulty* or hardship within the tribe. This emotion is the most prevalent within this tribe. There is a rational component of experiencing difficulty–searching for the right solution and making errors along the way due to complexity. However, what we wish to depict here lies closer to the emotion of almost biting the dust or in being the loser in a game you do not really understand. This is an experience not uncommon to many citizens in our case context. These new parents see themselves in contrast to the caseworkers of the municipal office who, in their view, should know the rules and possesses an overview. Despite the fact that the employers of the respective parents and their unions are equal sources of rules (and thus potentially, frustration), they are *not* the targets of the frustration of the parents in the same way as the municipal office. The human face of the municipal office, at the boundary between the municipal office and the parents, seems to have a paradoxical role in the communication and coordination between parents and the municipality. At times it seems to trigger the citizens' frustration; while at the same time many of the new parents find the face-to-face (or telephone) meeting less essential to the communication than do the caseworkers.

The citizens' sense of difficulty is used to legitimize behavior that might be deemed immoral under other circumstances. In other words, the tribe develops a set of ethics.

> Quote 4: If I was told I had made a mistake, I would probably think, why didn't they make some simpler rules, then? (Mother, A3)

The parental leave takers do not feel that they can actually be held responsible. They have a sense of being a community, which does not have to be fully in control of what is happening. Although it is not a pleasant feeling, it also indicates a basic trust in the system. The parental leave takers have in a sense renounced their being fully competent in handling the process. This sometimes shows in their negotiations with caseworkers (Quote 5):

> Quote 5: I had a woman calling; she was quite upset. She couldn't see why she had to go and read law books to get answers to her questions regarding her rights (Caseworker, A6)

Furthermore, although we did not encounter any outright cheating, not everybody felt obliged to tell the caseworkers everything about their situation:

> Quote 6: I spent a lot of time trying to understand the rules in the beginning. (…) You probably shouldn't give them too much information. What if they tell you: "You know what, then you are not getting any money"? (Mother, A3)

To keep some information secret is not a code of ethics that comes from some opportunistic general rule of conduct. It is rather a result of being unable to understand the consequences of the legislation when applied to one's own situation, because of the aforementioned *difficulty*.

It is very difficult for parents to disentangle and overview the overlapping sets of rules and regulations governing parental leave, as illustrated by Quote 5. Essentially parents are indifferent as to whether the leave funding originates from their employer or from the state, as long as they get the money they are entitled to, and as long as the plans they make are legitimate.

The citizens engage in tribal communion when meeting with each other and recognizing themselves as parental leave takers. The tribe, however, does not visit the municipality office together, and in this sense the tribe does not do much to expose its customs to neither itself nor the outside world. In this sense, parental leave takers are not a strong community with a clearly defined set of values, but loosely structured heterogeneous tribes of peers continuously proliferating, changing and dissolving as the involved actors' paths cross.

Caseworkers and the municipal office

Much like the parents, the caseworkers of the municipal offices share a common ethical and aesthetical understanding of their purpose and demarcation in relation to the parents to whom they provide service. The caseworkers and their middle managers quite clearly expressed tribal values through various interviews and workshops. They balanced their everyday activities among themselves and in their encounters with citizens between service on the one hand, and control on the

other. It became clear that the caseworkers often operated with the assumption that the citizens at some point needed to meet a human face in their contact with the municipality:

> Quote 7: There is a lot of psychology regarding money. (…) People like to have confirmed by a person that they are doing the right thing (Caseworker, A7)

Interviews with many caseworkers illustrated how, during phone calls, the caseworkers tried to personally offer as much information as possible. They do not have e.g. a webpage or a FAQ to point to, nor do they guide citizens on to websites where parents discuss parental leave among themselves (e.g. www.navlestrengen.dk). In one of our prototyping workshops, the researcher presenting the prototype pointed to the fact that the caseworkers could tell parents to call back when they had experimented with the timeline on their own. Still, however, the caseworkers took control of the timeline and started adjusting the parental leave proposal. The caseworkers seemed to find direct interaction with citizens' imperative. Consequently, they focused on personal guidance and advice as central elements of good service, as opposed to e.g. advising the citizens on how to explore possibilities on their own. As the above quote indicates, many of the caseworkers believed that this personal dialogue was pivotal in providing good service and creating trust between the two parties. There were, however, still clear limits to the service provided by the caseworkers:

> Quote 8: If she is unemployed she has to go to the people who have the information–her employer or her union. If she has no union she is in trouble. (…) If she has no union and no employer she cannot proclaim that she has a good paternity leave agreement! (Caseworker, about a scenario, A6)

The municipal caseworkers did not see it as their role to advise parents regarding the collective agreements; neither did they have any means of actually keeping an overview of these many agreements themselves. The overall national legislation on parental leave is in itself complex, and some caseworkers even kept from counseling on this legislation as quote 9 indicates. This was indeed an area where the limits of both the tribal responsibilities and boundaries of good service were continuously articulated. In current praxis, they are also clear: the labor unions and many employers have informally accepted the task to explain the collective agreements when a related citizen seeks their advice. Concurrent with this demarcation of responsibility the caseworkers and the middle management often pointed to the office's fundamental responsibility of controlling that citizens complied with the law.

> Quote 9: If she (a persona) is unemployed, she has to see a lawyer about her rights (Middle manager, municipal office in workshop, A6)

It was not only in regards to these aesthetic considerations that the caseworkers addressed the relationship of their tribe with that of the citizens'. In regard to ethics, they were quite openly concerned with reducing their own workload. At times this implied avoiding acts, which would entail more questions or demand for better service from the citizens. This was a result of a complex consideration

of a number of concerns. These included a homogeneous service level for all citizens, and balancing the overall work and cash flow both within the organization and from the state to the citizens.

Having outlined the form and context of citizen and caseworker tribes we turn to actual and exploratory boundary negotiating artifacts, with a view to the future.

The back-office system

There are many ways in which the current technology enforces the boundaries of the office in relation to the citizens. The main system is essentially not made to capture the flexibility of the current legislation. Consequently, when citizens wished to make use of the flexible legislation this often induced a number of case processing tasks within the municipal office. If a citizen coordinated an unevenly distribution of leave days with her employer (e.g. every 5th Monday) a caseworker continuously had to manually start and stop the leave case within the system. The solution was often that the citizen sent emails before every leave day, and/or the caseworker would set reminders within the system to start or stop the case again. The caseworkers accordingly called these situations *start-stop-cases*.

Obviously, a very *inflexible* system combined with a *very flexible* legislation is a problem in itself. The caseworkers worked around this lack of flexibility, based on email messages/calls from the citizens and reminders in the system. This somewhat ad hoc solution had become the main artifact on the boundary between parents in such situations, and the back-office system, which ensures that citizens get their money. At the same time, the municipal organization holds on to this back-office system, because it quite efficiently helps them control and execute the cash flow between the many parties involved: Parents, employers, etc.

The example of the start-stop-cases illustrates how the caseworkers spend large amounts of energy maintaining the boundaries. They do this mainly to support the parents in being granted their legal rights, thus shielding them from the evident problems of their back-office systems. Caseworkers draw these boundaries, fragmenting the exchange in order to reduce complexity. This is an important reason why future technologies do not simply need to grant citizens access to improved versions of the back-office systems. However dysfunctional these back-office system may seem, caseworkers need to handle many complex behind-the-scene matters, which inherently call for more complex maneuvers than performed by citizens. This dilemma challenges a dominating concept within the current e-governance and citizen service discourses: That caseworkers and citizens should use the same web-based solutions (KL, 2006, p. 8).

With this perspective, the timeline idea becomes a thinking tool, not just for us. It challenges social and collaborative web technologies: Our timeline design idea is not a shared web system that replaces existing back-office systems and it is not obvious that they could or should be. Neither is it a matter of simply sharing

information or FAQs. It is inherently collaborative and shared between several users; a simple shared object, which can be seen and handled by both citizens and caseworkers, together or apart.

Information or control

> Quote 10: It is fine with good citizen service, but our hidden agenda is to make it easy for us (…) and to push some further service or information to the citizens will mean a clash of these agendas. (Middle manager A6).

The tension between better service and the workload was mentioned at several occasions by the caseworkers. Moreover the caseworkers pointed to the inherent paradox of being both a control agency and a supplier of knowledge and service. Accordingly caseworkers as well as their managers voiced the concern that if they pushed more information, e.g. referred to a FAQ, it might lead to more questions.

In other words, they worried that such information might open their boundary for what could be seen as further penetration. The above analysis provides a different perspective: The expecting parents seemed interested in clear up-front information, which could qualify and limit their questions to the municipality. The caseworkers were, however, apparently more focused on balancing their workload and as such maintaining their boundary to the citizens, as opposed to providing quality service at possible increased costs. However, one caseworker voiced a different reason for doubting the result of citizen-to-citizen services:

> Quote 11: If I were a citizen and I went to a site where the municipal office supported citizens in sharing case stories and timelines, perhaps I would think–what is this really? Is it just a way for the municipal office to shortcut questions and make citizens do parts of their work? So the office makes it easy on itself, letting me chat with my friends instead of getting proper advice. (Caseworker, A6)

The caseworkers were generally interested in exploring ways of providing information to citizens, while simultaneously reducing their own workload. In a workshop, caseworkers vividly discussed weather the doctors' or midwifes' offices might be better locations for information (pamphlets, on-site computers, etc.) about parental leave. Moving the challenging information obligation away from the office would be a way of clearly drawing the boundaries of the municipal office, allowing for a more direct emphasis on the office's control function. Such a restructuring of boundaries does, however, beg the question "who's responsibility is it then to provide such information?"

Our explorative timeline design challenges current boundaries. It allows for new parties to contribute information and solutions. It is dependent on the sharing of plans, and on various actors being able to validate and provide parts and packages of rules and information. This will inevitably call for a renegotiation of current boundaries for information and control.

Meeting places for the tribe of new parents

New parents typically communicate with the municipal office individually or with their spouse. In this manner, the tribal aspects of parental leave are quite absent from the interaction between the municipal office and the citizen. As such there is no strong sense of community among parents in their present interaction with caseworkers. The tribal aspects are, however, widely voiced where parents meet. The Mothers' groups and networks of friends are particularly often sources of the sharing of experiences with parental leave planning. Here parents recapitulate the hardship and confusion, which the complex constraints often entail. This leaves many of the discussions and recommendations open and ambiguous. As a consequence, advise on how to softly stretch the legislation is quite normal, leaving solutions unsuitable for direct exchange with the municipal office (quote 8).

Parents, in addition, meet through various websites, e.g. Navlestrengen.dk, but these meeting places are in no way connected to the municipality. Although the municipalities as a whole have the richest know-how concerning parental leave planning, there is currently room for actors outside the municipality to create web solutions, which provide citizens with the possibility of feeling they belong e.g. to a parental leave tribe. Such feelings of belonging are neither inherently good, nor bad to the municipal office and the parents. The caseworkers in general know little about such sources of information, and they hesitate to refer to them in their interaction with parents. The caseworkers' main concern is that incorrect information would come from the municipal office. Since the mentioned websites are outside the boundaries of their control, referring to them may jeopardize trust in the information originating from the office. Consequently, caseworkers prefer to draw an explicit boundary between such websites and their own information.

Based on the contrasting perspectives of the parents and the municipal office, a shared social network-meeting place such as a Facebook group does not seem appropriate. It is more likely that parents wish to separate their communication with each other from that of their interaction with the municipal office. Likewise, the municipal office has good reasons for not interfering with parental leave tribes, while targeting other ways of improving the information regarding parental leave.

The timeline design interestingly exposed how issues of sharing may also involve sharing without assessing the quality of the content. Both the paradox of the municipal office's obligation to simultaneously control and provide service to citizens, as well as their fear of taking responsibility for incorrect information originating as a consequence of participatory citizenship, potentially call for a reevaluation of the current legislation.

Sandbox mechanisms

When presented to the timeline in workshops, caseworkers saw this new kind of artifact as a way of obtaining a better overview. They were concerned with how

the rules would be enforced in the timeline, mainly to make sure that they would not have to do such checking while communicating with parents. The parents in a similar workshop focused less on the artifact as a facilitator of the communication with the municipal office, and more on the artifacts potential as a tool for experimentation in the form of a sandbox. This function allows for personal exploration of the rules and agreements, and generation of the needed documents for their various employers, unions and the municipal office.

This exploration of rules and finances can take place before the citizen turns to the municipality or their union. Hence the solution can actually reduce the amount of calls to the municipal office. The idea is that the timeline shows the documents needed for communication between the parents and the municipality or other agencies. Simultaneously it exposes and prompts for the time constraints and deadlines related to the documents. The information in these documents may be generated semi-automatically based on the timeline, but they will only be sent to the designated receiver when explicitly confirmed by the citizen. The timeline may only be shared under similar circumstances.

The timeline accordingly is a new artifact on the boundaries between the municipal office and the citizens. It allows citizens to maintain and control the boundary, while exploring and experimenting in private–alone or with their spouse (Grudin, 2002). In this sense citizens can control and inspect the totality of the information sent to the municipal office.

In summary, the sandbox mechanisms underpin one type of user's exploration of a set of rules (outlined by another type of users). This exploration is left open and uncommitted, until parents explicitly decide to share the information with caseworkers crossing the boundaries. Current web designs to a large extent leave such boundaries unclear. Information entered into web forms can only seldom be saved for personal use or later revision. Our aim is different.

New participants

A timeline-planning tool adds value to both citizens and caseworkers. Even more so if e.g. labor unions or major employers become active participants, providing their regulations and agreements as forms or plug-ins to the timeline. This could potentially fill the gap between the lacking knowledge of both citizens and caseworkers concerning collective agreements. The municipality ought not be responsible for such information. This would move current boundaries making employers and labor unions responsible for providing this information. At the same time it would, however, make the total set of rules and regulations more visible to citizens, and relieve the municipal office from their commitment to informing each and every citizen about the rules that apply to them. It would also address the individual parents' need to overview their salary according to collective agree-

ments and subsidiaries paid by the municipality. This was a need that was strongly indicated in workshop A3:

> Quote 12: There should be a genius somewhere, who gathered all the rules at one website – and that page would be all that was needed (Mother, A3).

A shared timeline with plug-ins would provide the foundation for the work of such a "genius" who might proliferate from within the tribe of parental leave takers. However, it is a very open question still how the municipal office as well as other agencies would take responsibility and guarantee the quality and validity of the timeline elements. It seems that clearly defined plug-in components draw boundaries that render visible the connection between information, constraints and particular communities. Who should be responsible for the maintenance of such components is a question that still needs answering.

Moreover a web-based timeline makes it possible for friends to share parental leave plans. It is even possible that a powerful agent will gather, "all there is to know about parental leave" on the Internet, for citizens to use–possibly at a cost. A very relevant question would then be, if this will and can be done with the cooperation of the municipal office?

What is needed clearly differs from open communities sharing simple information, person to person. Boundaries may be altered, but the main goal should not be to remove these borders. Rather, new forms of boundary control between tribes and communities should be put in place and these new mechanisms of control should be visible to all users.

Participatory citizenship beyond Web 2.0?

Introducing a collaborative technology allowing contributions from both citizens, municipal caseworkers and e.g. labor unions severely challenges the caseworkers' understanding of their own role towards the citizens. It raises both legal and ethical issues in relation to the municipality's responsibility of validating such information. Furthermore, it opens up for new constellations of collaboration and communication allowing citizens to help each other, and e.g. labor unions to provide easily accessible additional information.

Both of these possibilities are, however, dependent on a somewhat philanthropic *participatory citizenship*, where citizens spend time helping fellow leave-takers, and labor unions provide e.g. plug-ins to the web service. Following this line of thought, citizens will accordingly have to change their perception of boundaries and the responsibility within the division of labor between themselves and the municipal office. To a larger extent some citizens have to master the complex legislation if they are to be able to provide consistent answers to their kinsmen. This calls for personal experimentation in exploring the possibilities and limitations of the legislation, and for a move away from what we identified as a common experience of difficulty and frustration.

There are many reasons for maintaining the boundaries between citizens on the one hand, and the municipal office on the other. Several back-office systems have functionality for securing safe case-flows, cross-referencing that only entitled citizens get financial assistance, etc. These functions are a prerequisite for well-functioning e-governance but they are complex. Furthermore, judicial functions cannot easily be transferred to those getting the financial assistance. Caseworkers have to use these systems whereas citizens do not. This reinforces the boundaries between the two tribes, and makes fragmented exchange across a clear boundary important. Nonetheless, new technology at the boundaries may change the aesthetics of both tribes, and e.g. the human face at the boundaries may loose its appeal (to the caseworkers). Such changes might in fact be required if this new technology is to function well. Alternatively, the municipality will have to be kept entirely out of the loop in the development of technologies that allow for participatory citizenship.

Participation may emerge from ethically driven solidarity with other tribe members, and other forms of community mechanisms. Boundaries need to be changed, and in some instances enforced to make this happen. New artifacts on these boundaries may facilitate such changes. Here well-known issues such as trust and openness (e.g. Bannon & Bødker, 1997) call for attention. Trust is at present solely an issue within the direct interaction between the citizen and the municipalities. Other actors may, however, take on new responsibility, e.g. by providing information about the legislation, and both municipality and citizens need to reconsider divisions of responsibility and trust accordingly. Citizens' private experimentation and controlled sharing behind certain boundaries are similar challenges. In this fragmented exchange, caseworkers are spared from issues concerning beliefs in upbringing, family values and other concerns beyond their professional competencies. In their present form most municipal documents and web forms are only used to facilitate a direct information flow between citizens and the municipality. They are neither instruments for the citizens to explore the rules, nor for them to e.g. save information without sending this to the municipality. With a more multifaceted use across tribal boundaries, it seems pivotal that all actors should be able to see and control the boundaries of openness.

Accordingly, a Web 2.0 solution is not just an opening up of communities. Some boundaries need to be maintained and changed as well. A sandbox function enables experimentation in private, while the possibility of sharing opens for collaboration with caseworkers, as well as facilitates a participatory information flow between citizens and within the smaller tribes of Mothers' groups. Altering of boundaries is a complex task involving several stakeholders such as legislators, caseworkers, municipal managers, citizens, and developers.

In order to address the challenges and possibilities we see for social and collaborative technologies at large, we take the concept of Web 2.0 as a starting point. Web 2.0 is based on governing principles such as network effects, where

the quality of the technology increases with more users and continuous development with/by the users, adapted to their behavior (O'Reilley, 2005). The current state of Web 2.0 is that it takes many interesting forms in voluntary communities, but remains to be explored in settings where purpose and efficiency play important roles. The presented case, and the eGov+ project attempt to do exactly this. The case of parental leave, however, also demonstrates some of the major challenges for the Web 2.0 paradigms: Openness is not a one on one exchange of data, and service between individuals does not necessarily imply one big, happy community. We propose that a next important step in moving beyond Web 2.0 is to consider more than individual actors in one voluntary community. Tribes and boundaries need to be recognized and explicitly addressed in design and use.

Tribes as a way of providing a less purpose-driven focus on communities and boundaries has been useful in discussing the community of expecting parents, whereas the caseworkers comply better with more purpose-oriented definitions. Tribes helped analyze the heterogeneous groups of citizens, although we did not identify all groups in play within parental leave. The tribal perspective revealed the naivety of constructing Web 2.0 solutions where both caseworkers and citizens have, or need to have, a strong, shared sense of community. Thus, the concept of tribes proved its merits in addressing boundary negotiation.

We agree with Lee (2005) in seeing boundary negotiating artifacts as a strong concept, analytically as well as design-wise. A strict focus on issues within a boundary, or status quo of such boundaries is likely to result in overlooking important design potentials. In line with Bødker et al. (2003), we propose the turn towards dynamics of boundaries, boundary maintenance and boundary change instead. In doing this we have identified interesting alternatives to current practice.

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