

Personal time and temporal imposition

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ABSTRACT

We introduce the concept of personal social time, which is not directly related to clock time, and varies from person to person, task to task, context to context. We look at how communication causes large changes in personal timescales, and how the degree of imposition of one party's personal time on another is part of the characteristic defining features of a communication system. With this understanding, we can demonstrate why text messaging should be expected to be useful.

INTRODUCTION

The concept of time in interfaces is gaining increasing attention, since it is becoming clearer that a large part of the usability of a system is related to its temporal behaviour. A system tends to either have the required functionality, or it doesn't: if the issue is critical then the system is not particularly useful, whereas if the issue is a subsidiary one, then we may well manage without it. But it is usually a binary issue. However, the temporal aspects of systems are much more in a continuum: a system can respond quickly enough, be a little bit slow - whatever, we expect a range of performance and have tolerance bands inside which we are happy to use a system.

One researcher (unfortunately, I don't know who) has proposed that usability can be measured as a ration of expected time/actual time. If this ratio is close to one then usability is high, with it diminishing as the ratio gets smaller (corresponding to things taking too long) and diminishing more slowly as the ratio gets faster (corresponding to things happening too quickly).

PERSONAL TIME AND CLOCK TIME

Most of the treatments of time, whether based in logic (e.g. temporal logic, time interval logic) or probabilistic (e.g. probabilistic model checking) treat time as a physical property, a variable with an independent existence in the outside world - clock time, if you will. However, whilst in a pure sense this is true, when we consider it from a social

perspective, it is clear that there are very different perspectives. What I consider to be a reasonable time may seem far too long to you: if I'm in a hurry then a few seconds delay on your part may seem ages for me, and so on. Clearly, there is a different perception of time from different perspectives, and so when we are working with any systems that have multiple users, we should be able to model these differences in perceived time. Since the passage of time is task and context dependent too, it also applies to single users of systems: having an extra day to do something when the deadline is a month away is hardly relevant, but having that day's grace on the deadline itself is massively useful!

So, the first concept we have to consider is that we need to be able to model personal time, being aware that this can be different for different people and for different tasks and contexts.

SHIFTING TEMPORAL FOCUS

This becomes more interesting when we consider communication or collaboration systems. Here, two or more people send and receive messages and information over a variety of media to achieve a goal. In these circumstances, we can consider the communication to be a series of messages, with the most current message as the key one and the previous ones providing the background context. The current message is the 'focus' of attention. (This modelling is highly simplified - often there are multiple goals at multiple levels of detail, with many different media streams being used, but bear with the simplification for now). As the focus moves back and forward, so the personal time perspective changes, depending on whose turn it is to act. Is this obvious? On one level, certainly: the message passing is a series of small goals, and once a goal is completed I move on to the next one. There are two sorts of activities I am involved in: creating and sending a message, and waiting for a reply. There is no reason why I should not ascribe different time intervals to each of these, and closure of one goal triggers the next time interval. On a more reflective note, it's generally true that, for most interactive conversations, I

want my colleague to respond much more quickly than they actually tend to, whereas I do want time to consider and compose my replies to them. I'm sure the feeling is mutual, though.

So the second concept is that there are transitions between personal time intervals, often relating to changes in (sub)goal.

IMPOSING PERSONAL TIME

The most interesting part is the interaction of my personal time intervals with the time intervals of my colleague, and whether I can make them work to my time or to theirs. This is because the media themselves do not only communicate information, they also have a temporal component to their nature that imposes itself on the timeline of the recipient.

This is best explained with an example. If I ring someone up, then I am instigating the call, when it is convenient for me, when I have time to both make the call and hear the information that the call is to elicit - the call is run in my personal timeframe. Moreover, it is a short timeframe - I want answers and I want them now, so I make the call. For the recipient, the converse is true. There is no guarantee that it is convenient for them, that they have the time to answer the call, that they have the time to give the required information. However, the phone rings, and it is an insistent intrusion into their timelines. They have two choices: to answer it, and hence work to my timescale, or to ignore it, which potentially puts the focus back on their side so they have to deal with it. The advent of answerphones helps hugely with this: they can now leave the call and know that I can pass my message on to them, and they can deal with it when it is convenient for them.

Compare this to text messaging. Text messaging has proved immensely popular, and is now the basis for many of the mobile operators marketing policies and development plans (photo messaging, etc.). It's popularity came as a surprise to many observers and academics, however. But if we consider it in terms of personal timelines, it becomes much easier to understand. As a mobile device, I have my mobile phone on me at all times. Therefore, I have the capability to send and receive messages whenever and wherever I am. I don't need to be near a computer or a fixed phone. I can use it to make calls, just as with a landline, but I am putting my recipient in a difficult position as I am forcing my timeline onto theirs, by making their phone ring and them need to answer it to reply to me. Instead, if I send them a text message, I can compose that and send it in my own time. It gets sent through to them (not immediately, but for all intents and purposes, it is so) and they can look at it, *in their own time*. They lose

nothing by not looking at it straight away, unlike the call, where if it's not answered then I have to change my communication mode from interactive conversation to voicemail message, and they will then have to get back to me. One of the advantages of text messaging is that the medium is not intrusive either, so they can be sent during other meetings, lectures, and so on. So the recipients own time may be immediately (when a telephone call would have been impossible to take) or equally a while later, when they are able to give it their full attention. And the process repeats itself - they send a message back in their own time to me, knowing I will get it straight away but can choose when to respond.

So text messaging is a pure 'own time' interaction - it fits into the personal time of each of the participants, and does not impose ones timeframe onto the other - and this is part of the reason it is so popular. It is the degree of imposition of one person's timeframe onto another resulting from a change in focus that affects the nature of the different communication media.

Communication media inertia

There is one other thread that can be drawn out of this modelling approach, which is based on observation and reporting by others: there is a tendency to reply using the same medium that the request comes in by. It is not uncommon to have multiple conversations about different topics going on at the same time with one person, but one may be on email, one on the phone, and one via text message. This is partly because of the factors outlined above: there are social expectations and impositions of temporal urgency that are implicit in the choice of medium, and we tend to ascribe the same urgency and approach to our responses as indicated by the initial requests.

WORKSHOP PERSPECTIVE

Within the workshop, I hope to explore these ideas further, and find some practical methods for formalising these concepts. Once they are better described, we can map out the space of interaction methods (email, phone call, face to face, photomessaging, etc.) and understand better how they interact with each other and how they impact on our personal time perceptions. We can also consider whether there are any gaps in the communication matrix that new interaction methods can occupy.

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