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# Textual Multi-Tasking in CMC: Implications and Applications

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# Textual Multi-Tasking in CMC: Implications and Applications

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This is the report of one of our 2005-06 Berglund Fellows, Eli Dresner, Assistant Professor in the Departments of Communication and Philosophy at Tel Aviv University.

## .01 Introduction

The term “Cyberspace” is viewed by many communication scholars today as unhelpful. It is often associated with a period in the academic and public discussion of computer mediated communication (CMC)—roughly, the beginning of the nineties—which consisted of many speculations (both optimistic and pessimistic) and little factual findings. However, I believe that this term and others of its ilk have at least one advantage for those interested in the study of the social and cultural ramifications of CMC, even those more interested in empirical, hard-nosed type of study: It consists of a constant reminder that CMC does indeed give rise to a significantly distinct communication environment, and that our pre-existing concepts as regards communication need to be reexamined and possibly transformed in this environment.

One such concept is that of communication competence (Spitzberg & Cupach, 1989). In the context of real-life, face-to-face (f2f) interaction, the major ingredients of this competence are well acknowledged and studied: the interpretation of body language, the art of turn taking, and others (Parks, 1994). But what does communication competence amount to in computer-mediated, and, in particular, textual interaction? Clearly some of the factors that are pertinent and important in f2f conversation (e.g., the ones mentioned above) are no longer relevant—this much has been noted by many observers and scholars (Kiesler, S, Seigel, J & McGuire, T., 1984). But what new factors are introduced? What new abilities that were of little value in previous technological contexts become instrumental? These questions too have been given some answers, albeit implicit ones. For example, the ability to write well quickly is obviously such an ability, in an environment where your first lines are the first impression you make, as well as mere keyboard ability. The focus of this article will be an emerging communicative competence that has not

been given so far much recognition as such: conversational multi-tasking.

It is quite common for Internet users to be engaged in two or more concomitant textual synchronous conversations—either passively, by following more than one textual conversation thread, or actively, by taking part in more than one such thread. This phenomenon can be observed in a variety of set-ups. One, discussed in detail by Herring (1999), is within a single chat room window (e.g., in IRC, or in its web analogues): It is often the case that the text lines that accumulate in such a window consist in several conversation threads that are intermingled with each other (because of obvious technical limitations of the system). Experienced users can follow more than one such thread. A different set-up is when two or more chat windows are open on the user's screen: Here the multiplicity of (textual) voices is both more a matter of choice than in the previous case, and more orderly. Yet another typical scenario involves instant messaging applications. Here too there are periods of time when attention needs to be divided between two or more loci, or, put otherwise, two concomitant conversational tasks are performed. For the purpose of communication research it seems preferable to characterize the phenomenon in terms of the tasks performed rather than the cognitive resources—e.g., division of attention—employed. However, as will be elaborated below, it is certainly within the scope of the communication-oriented perspective adopted here to inquire into the cognitive underpinnings and implications of this phenomenon.

As already noted, conversational multi-tasking is usually given less attention as a novel communicative competence. Is this because it is of minor, anecdotal significance? A substantial part of this paper consists in an argument that things are otherwise—i.e., that conversational multi-tasking is of great interest and importance, both theoretically and practically. Thus it is more accurate to say that conversational multi-tasking is largely unacknowledged *notwithstanding* the fact that it should attract our attention. The reason for this state of affairs may have to do with its very novelty—it is less of a continuation of features extant in f2f communication than other aspects of CMC, and therefore often viewed as a breakdown of standard interactional standards rather than an emerging alternative standard.

In what follows, then, I shall examine the phenomenon of conversational multi-tasking in textual synchronous CMC. This will be done in two parts. In the first section I review what is known to date as regards the factors that enable and promote multi-tasking in textual CMC environments. In the second part I shall look into the significance and applicability of multi-tasking.

## .02 **The perceptual and cognitive basis of textual multi-tasking**

As noted above, textual multi-tasking has been subject to very little research to this date. Here are several of the findings, observations and reasonable hypotheses concerning this phenomenon that appear in the literature, and that my own research into it (together with Segev Barak) has yielded so far:

.02.1 **Multi-tasking in textual versus auditory conversation.** A basic observation, made by

Herring (1999), is that the phenomenon in question, which is quite common in textual CMC, can hardly be found in auditory f2f conversation. A real-life situation somewhat similar to a reasonably active chat room is a cocktail party, or a large dinner table. In such a situation there might go on several independent conversations at the same time, and a person involved in one of them might overhear a sentence or a word in another (e.g., her name), but even a minimally prolonged juggling of two concomitant conversation threads seems to be rare.

Why is multi-tasking significantly more prevalent in textual, computer mediated environments than in f2f situations? One kind of answers to this question may appeal to social and cultural norms: With respect to f2f interaction we have well established such norms that strongly discourage us to engage in two conversations at the same time. I shall take up this outlook below, in subsection 3.1. However, another kind of explanation, which seems to be more robust and convincing, is cognitive in its orientation. According to this explanation, textual multi-tasking is more prevalent because it is easier for us to divide our attention in textual environments than in f2f situations. And why is that? A plausible answer, suggested in Herring (1999) and elaborated in Dresner (2005), appeals to the characteristics of our visual perception, with which we read text, as opposed to those of auditory perception, which is the modality of spoken, f2f conversation. Vision is inherently spatial and metric: the basic sensory input of each of our eyes is a two dimensional space to which are applicable such notions as above and below, near and far. This spatiality is of course of paramount importance for our daily maneuvering within the physical world around us, but it is also operative in the way we read text in general, and in our dealing with synchronous, conversational text in particular. As of traditional, asynchronous written and printed text, spatial structure give rise to (and helps us absorb) various of its characteristics that McLuhan (1962) speculated about, and that later writers argued for more convincingly (Goody, 1986; Ong, 1982) – e.g., its elaborate logical and semantic structure. And as of textual CMC, this very same visual spatial structure helps us digest multiple conversation threads—e.g., by their appearance in visually separate windows on the screen, or by our ability to refer to previous lines, that still appear on the screen, and thereby sort out the new lines that are constantly added.

With auditory perception, on the other hand, things are different. Our ears are not designed to discriminate sounds according to the direction from which they are emitted. (Such discrimination is made, with varying degrees of accuracy, at later stages of the processing of auditory input, within our brain.) This feature gives rise to various characteristics of the communicative applications of sound that are discussed and researched in Conversation Analysis, one of which is the almost complete lack of overlap in conversation turns (Sacks, H. Schegloff, E. & Jefferson, G., 1974). This feature (among others) renders concomitant independent auditory conversation threads much less plausible.

.02.2 **Visual effects on textual multi-tasking.** Following the general observations made in the previous subsection there can, and should be asked a host of more concrete questions as regards the effects of a variety of visual parameters on multi-tasking abilities. One basic such question is whether following concomitant conversation threads in distinct, separate windows is

easier than doing so when the said threads are intermingled within the same chat room window. Dresner and Barak (forthcoming) gives a positive answer to this question. As regards the question why this is the case there are no clear empirical answers yet. It seems reasonable that the *continuous* appearance of a complete conversation inside each distinct window enhances understanding, but this hypothesis has not been supported by our data yet. Another hypothesis that has been disconfirmed empirically is that the distance between chat windows is positively related with improved cognitive separation between the textual conversations that take place within these windows. Thus the details of the effects of spatial structure on our cognitive ability to multi-task still need to be better researched and understood.

Another feature of visual perception that seems to be relevant to the questions at hand is the perception of color. Experiments show (Dresner and Barak, forthcoming) that indeed when distinct conversation threads within the same window were marked by different colors comprehension was improved. However, the improvement was less significant than that achieved by presenting the conversation threads in distinct windows.

What other factors, perceptual or otherwise, affect multi-tasking abilities? The answer to this question is also yet to be found.

### .03 Applications and Implications

After discussing the underpinnings of the phenomenon of conversational multi-tasking we turn now to consider some of its implications and applications.

.03.1 **Emerging multi-tasking situations in face-to-face communication.** As noted above, in traditional, auditory f2f interaction we find much less conversational multi-tasking than in textual, computer mediated set-ups. However, with the rapid introduction of mobile digital communication technologies into daily life we can see more and more examples of multi-tasking off the computer screen. For example, consider how text applications of mobile phones (SMS) are used, mainly by juveniles: very often such text messages are sent and received in the midst of auditory interaction (e.g., notoriously, in the classroom). A similar example, coming from a different socio-economic context, is the use of Blackberries by businessmen for sending and receiving e-mail—again, sometimes in the midst of another, real-life interactional context.

Several points should be made regarding this phenomenon. First, note how it exemplifies and supports the theoretical considerations overviewed in subsection .02.1. When mobile communications are restricted to auditory interaction the opportunity for multi-tasking is limited, for the perceptual reasons mentioned above. (It is noted in the literature (Ling, 2004), for example, how people receiving an auditory call on their mobile phone disengage themselves from their current social situation, rather than trying to juggle the incoming call with their current interaction.) A textual interaction, on the other hand, can be much more easily combined with another interaction, be it textual as well, on the computer screen, or auditory, in an off-line situation.

Second, consider the following important difference between on-line and off-line multi-tasking. In the on-line case a person can engage in multi-tasking privately, without the people interacting with him being aware of it. Off-line, on the other hand, multi-tasking is public, and therefore it is subject to the norms of f2f interaction. Thus we return to the question (or option) raised above, in subsection .02.1: is multi-tasking uncommon in f2f situations only due to cognitive limitations, or also because the existence of norms that censor such behavior? In view of the examples presented above and the social awkwardness they give rise to, the answer seems to be the second. That is, the practice of multi-tasking in real-life social circumstances is shaped both by cognitive limitations and capacities and by social and cultural patterns and norms—some of which may have their roots in what is or is not cognitively feasible, and some in completely different grounds.

We are thus led to observe the following problem concerning the structural design of communicative interaction—not on-line, but off-line. With the fast changes in our technological environment various kinds of communicative multi-tasking become possible. Should we change our norms and accept these possibilities, or try to uphold our norms and reject these new options, because, as some say, they result in superficial, unfocused interaction?

I believe that neither of these options is truly superior, or acceptable. Certainly we should not just stick with old habits and give up the opportunities that technology offers us. Indeed, in some contexts a lot of efficiency may be gained if people hold more than one channel of communication open at a given time, and the only loss (if it is a loss at all) would be a change in our views concerning what is polite and what is not. On the other hand, not all technological advances are beneficial. It may very well be that in some cases the higher efficiency allowed by multi-tasking is mere illusion, and that the loss has to do not with codes of politeness, but rather with our ability to communicate in effective and creative manner. A safe speculation (and at this point one can do nothing but speculate) would be that the bag is mixed: in the not too distant future we will see some codes of behavior change in order to accommodate new communicative options, and happily so, and, on the other hand, we will see battles (maybe losing battles) to restrict newly possible communication options that are proved to be detrimental in various ways. We have seen this balance with the use of television, for example, and we will probably see it vis-à-vis conversational multi-tasking as well.

**.03.2 Trajectories for the development of multi-tasking on the computer screen.** As is implicit in the previous discussion, we have more freedom in the development of multi-tasking on-line than off-line, and this in two senses. First, there is no rigid (or semi-rigid) set of on-line behavioral norms that needs to be reckoned with. As noted above, multi-tasking on-line is typically a private matter, and thus can be more freely developed according to individual needs and capabilities. Second, and more importantly, on-line reality can be molded and transformed much more easily than physical, off-line reality: As elaborated by Lessig (1999), in many cases code replaces in cyberspace both physical and human law. All this is not to say, of course, that it is clear where the development of multi-tasking can and should lead us. In the light of the (admittedly meager) data reviewed in section 2, here are several remarks concerning (a) the

possible uses of multi-tasking on-line, and (b) how interfaces should be developed in order to cater for these uses.

.03.2.1 *Possible uses of multi-tasking.* Multi-tasking is not usually identified as a communicative capacity, or resource, and thus there is little information where and when it is of use. Multi-tasking typically arises in social on-line situations, but in view of the foregoing discussion it obviously needs to be asked not only where it naturally arises, but also where it should be intentionally introduced. Now clearly this question can be answered only through detailed empirical research, but the following points can still be made. First, clearly some communicative tasks are more amenable to be involved in effective synchronous multi-tasking than others; the class of such tasks should be characterized and distinguished. Our research so far supports (albeit anecdotally) the intuitive notion that the more involved the task (i.e., the more complex the content of the dialogue), the more it requires undivided attention. However, there may be other variables involved that we do not know of. Second, an important question is how the similarity and/or connection between the different tasks affects multi-tasking capabilities. We have some (again, anecdotal) indications, for example, that it is more difficult to follow two independent conversations with similar contents than two threads with distinct contents (e.g., social and political). Therefore in some cases it might be beneficial to be engaged in completely unrelated conversational tasks at the same time. However, this does not rule out the possibility that effective multi-tasking can be achieved when the two (or more) channels are related. For example, the usefulness of synchronous joint reading of a digital text and a (textual) discussion of that text is not yet sufficiently assessed and understood.

A related and no less interesting question is whether single conversational threads can be beneficially broken up into distinct, concomitant such threads. For example, consider a scenario where a textual on-line interaction involves both a social and a professional component, which are temporally intermingled with each other. Does it not make sense to view this scenario as a case of multi-tasking, i.e., as a case where two conversation threads, both involving the same two participants, are interwoven with each other? If it does, then the considerations reviewed in the previous section may be applicable—for example, it might be useful to lead such an interaction not within a single discussion window but within two such windows, each catering for a distinct conversational purpose.

.03.2.2 *Multi-tasking and human-computer interface (HCI).* Concrete suggestions and recommendations for HCI features that will enhance multi-tasking abilities cannot be given at this early stage of research. However, two general principles can be stated. First, multi-tasking is an advantage of some kinds of CMC that should not be unthinkingly given up in the pursuit of other features and improvements. This consideration bears, among other things, upon the on-going attempts to reproduce in CMC ever improving emulations of f2f, audio-visual interaction (Dresner 2005). Such attempts are of great value for some purposes, no doubt. However, as indicated in the theoretical discussion in section 2 above, auditory linguistic interaction (be it either computer mediated or not) may be less suitable for multi-tasking than textual, visual language. Therefore for some contexts textual synchronous communication should be retained and encouraged, even

when technology enables us to use richer channels.

The second principle is that the notion of multi-tasking should be brought to the attention of CMC users, and that software features should be developed in order to allow users to make choices as regards whether and how to multi-task. Of course, in some sense this is already being done: For example, the underlying rationale of the windows HCI design is to allow users to maneuver between several on-going tasks, and when users open and close chat windows they are clearly intentionally manipulating their multi-tasking environment. However, more can be done if and when conversational multi-tasking is better acknowledged and understood. For example, recall the scenario outlined two paragraphs above, in which two participants are engaged in two thematically distinct conversation threads at the same time. It might be useful for them to be able to break their discussion window into two, and deal with each theme in its own distinct window. There is no guarantee, of course, that such an application and others like it will be useful, but the thrust of this article it that they should be articulated and tested.

.03.3 **Multi-tasking and the unity of self.** In her celebrated book *Life on the Screen* Sherry Turkle (1995) discusses in detail how people who are active in a variety of virtual worlds on-line often manifest significantly different personalities in each of these worlds. Some of these personas are quite different from their identity as presented in typical off-line situations. Turkle views this phenomenon as indicating that life on-line exemplifies and supports post-modern conceptions concerning the (dis-)unity and (dis-)continuity of the self. According to these conceptions the integrated, unified self is not a biological or psychological fact, but rather a socio-cultural construct. On the Internet, says Turkle, technology-induced socio-cultural conditions are different, and therefore selves are more fragmented and multi-faceted. Let me close this article with two remarks on the way conversational multi-tasking bears upon the issue of the multiplicity of self on-line and Turkle's interpretation of it.

First, it is clear that multi-tasking consists in a distinctive, even extreme example of the phenomenon Turkle talks about. The cases she describes, of great differences in some people's types of behavior in distinct on-line contexts, would be much less interesting if each of these contexts would have been temporally isolated from the others. The whole point is that people exhibit these different types of behavior in different 'cyber-places' within a single period of time. Therefore cases where they behave differently in different 'cyber-places' *at the same time*—i.e., by multi-tasking—are indeed the most indicative and telling as regards the psychological and philosophical significance of the phenomenon in question to our understanding of the self.

Second, the consideration of so called fragmented on-line selves in the context of multi-tasking casts some doubt on Turkle's interpretation of this phenomenon. We are inclined to think of the different tasks that a person performs—at the same time, or otherwise—not as representing different, independent aspects of her self, but rather as interdependent efforts of a single unified self. If we apply this general principle to the case at hand we get an alternative picture to the post-modern one presented by Turkle, a picture which is more in the spirit of Goffman's (1959) 'modernist' outlook. According to this outlook people present different personas in different

contexts not as an expression of a dispersed, fragmented self, but rather in order to advance the goals and desires of a coherent person. Admittedly, in cyberspace the different shows we put up, sometimes at the same time, can be more diverse and disconnected, but this does not imply that there is no one, single identity that is pulling the strings.

Of course, all this is not to say that multi-tasking, if and when it becomes much more prevalent, will not have any psychological effects and ramifications. As indicated in subsection 3.1, for example, some worry about its effects on our ability to sustain concentration on a single involved task, be it communicative or otherwise. However, I believe that the question what such effects will be will have to be answered through empirical rather than philosophical means.

#### .04 **Conclusion**

My aims in this article were (i) to articulate the notion of conversational multi-tasking, (ii) to outline a theoretical basis for assessing the multi-tasking potential of different communication media, (iii) to present the little that is known about factors that affect multi-tasking capabilities, and (iv) to look ahead and hypothesize what implications and applications multi-tasking has in store for us. I hope and believe these aims have been achieved. In all probability, more questions were raised than answers given, but from a discussion that deals with as fast-moving and dynamic a domain as computer mediated communication this is to be expected.

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