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TECHNOLOGY, TALK AND THE SOCIAL WORLD:  
A STUDY OF VIDEO-MEDIATED INTERACTION

By

Susan L. Irwin

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## ABSTRACT

### TECHNOLOGY, TALK AND THE SOCIAL WORLD: A STUDY OF VIDEO-MEDIATED INTERACTION

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Susan L. Irwin

In 1985, the Systems Concept Laboratory at Xerox's Palo Alto Research Center became a geographically distributed work group; for the first time, lab members were physically located in two different places: Palo Alto, California and Portland, Oregon. This dissertation resulted from a lengthy study of that research lab and of one of the communication systems used as lab members experimented with and developed ways of working across space. The study was aimed at answering two questions. Generally, how can we understand technologies as social objects? More specifically, in this distinctive situation what can we learn about technology, its use, and its place in a particular social world? By focusing on a routinely used technology (in this case, one involved in the intimately human activity of interaction), there is a basis for appreciating technology as a truly social object as well as for reformulating the arguments usually made about technologies and their impacts. The emergent, contingent qualities of talk along with people's actual engagement with the technology disallow a simple version of technologically determined human action or socially determined technological use.

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## Chapter 1

### Introduction: Technology in a Social World

In 1985, the Systems Concept Laboratory at Xerox's Palo Alto Research Center became a geographically distributed work group; for the first time, lab members were physically located in two different places: Palo Alto, California and Portland, Oregon. This dissertation resulted from a lengthy study of that research lab and of one of the audio-video communication systems used as lab members experimented with and developed ways of working across space. The study was aimed at answering one general and one specific question. Generally, how can we understand technologies as social objects? More specifically, in this distinctive situation what can we learn about technology, its use, and its place in a particular social world?

These questions, about the general relation of technical objects to the lived in world and about a particular case of technology-mediated interaction, frame what follows. By focusing on a particular technology (in this case, one involved in the intimately human activity of interaction) and on that technology in routine use, there is a basis for



appreciating technology as a social object as well as for reformulating the arguments usually made about technologies and their impacts.

There is a recurring theme in the literature on technology and society (and in our culture as well): change, particularly in science and technology, shapes the future.<sup>1</sup> In "Sound of Thunder", Ray Bradbury wrote about adventurers who traveled back in time seeking dinosaurs. This was done with careful monitoring and extensive restrictions to prevent changing the future. But when one person accidentally stepped on a butterfly, the present world was altered enormously. Just as the accidental killing of one prehistoric butterfly can, at least in our imaginations, irrevocably alter the future, so too can the use of digging sticks or of stone tools forever change the world.

It has often been argued that a given technology, or complex of technologies, has reshaped the face of social life in particular ways. Concurrently it has been suggested that any given technology is a product of its age. In other words, a technology may shape what comes after its introduction (technology as cause), or the social situation governs what technologies are developed and how they are used (technology as effect).

If the technology is a cause, we can at best modify or seek to control its effects. Or if the

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1. Change of this sort even defines the "future" as a cultural construct. Consider, for example, the start of decade predictions emphasizing the technological and scientific changes anticipated for the coming ten years.

technology, as used, is an effect, to what other kinds of cause, and other kinds of actions should we refer and relate our experience of its uses. These are not abstract questions. They form an increasingly important part of our social and cultural arguments, and they are being decided all the time in real practice, by real and effective decisions (Williams 1975:10).

In these formulations, it has not much mattered what the technology is, how it came to exist in this particular form at this particular time or who has access to it in what ways. Any technology (the cooking stove, the plow, the wheel, the sewing machine, the steam engine, the television, etc.) can be dubbed as changing the face of social life or as resulting from other changes in that life.

Technologies may appear to be autonomous or contingent, but in either case they have correlated social impacts -- either they liberate us from toil or they enslave us in mindless, detailed labor; they are saviors or they are devils. Technology is wonderful, saves labor, frees us to be wholly human; technology is awful, enslaves us in detailed production, robs us of our humanity. The human condition has been either facilitated or diminished. In their extreme forms, these views inevitably lead either to the conclusion that humanity is lost in the massive movement of sociotechnical forces or that true humanity may be saved only with the refinement and proper application of laborsaving devices.

The remainder of this introduction is devoted to the general question of how to understand technology in the



social world; the second chapter covers related ways of understanding the intimately human activity of talking (necessary for understanding a communication technology in use). The third and fourth chapters include a description of the study, information about the setting and the organization of work, and a general review of how the technology was used in daily work. Chapters five, six and seven summarize detailed analyses of technologically mediated interaction taking particular aspects of sequential and topical organization as points of departure. The concluding chapter reviews the major findings and returns to the general question of technology in a social world.

## 1.1 Technology and Society

Technologies have been part of human activity for millennia. From the times of digging sticks to the present, human existence has involved the appropriation or design of objects.<sup>2</sup> As human products, these objects have always been used for further human activity. This activity (social activity involving technological objects) is the focus here. There are many ways to describe discussions of technology and society. Developments might be traced through history; theorists could be grouped by their disciplinary

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2. Indeed, some definitions of humanity hinge on the invention of technologies.



associations, by their positive or negative valuations of technology or by their versions of cause or explanation.

Here I discuss several important theorists according to their (sometimes implicit) evaluations of technology in the social world. There are essentially two positions: One is technology-focused and deals primarily with questions of individual freedom and action; the second sets particular technologies and the nature of personal action aside and considers the structure of society. In both approaches is a universalizing evolutionism that treats technology as either the guidepost of development or the bedmate of capitalism. Further, technology itself is often undifferentiated; its uses, meanings, and influences on people remaining undefined along with the extent to which technology shapes and is shaped by complex social contexts.

### **1.1.1 Technology-Focused Approaches**

The basic assumptions here include (1) a difference between ancient and contemporary technology (human skill with tools versus automation) and (2) technology as an autonomous or semiautonomous system with enormous power to liberate or enslave individuals. The main division among these theorists concerns their views on where to locate technological effects: within acting subjects or in a material world. The former tend to see technology as a

threat; the latter often consider technology a positive instrument.

#### 1.1.1.1 The Inner World of Subjects

The work of Friedrich Georg Junger (1949)<sup>3</sup> emphasizes the the malevolent influence of technologies on people. While Junger assumes that people use technology as a means to gain power, the destructive influence of technology comes not only from this distorting use but also from technology as a dominating force in world view, in work and in play. As machines take over more and more work, there is not increasing freedom; instead, more and more time is spent with the machines themselves. Under these circumstances, technology does not increase individual wealth and freedom; it brings instead less of both so that "unfreedom" and "dead time" predominate. Once begun, the process is irreversible and humans are continually alienated from others and from themselves.

Martin Heidegger's (1962,1977) phenomenology also takes technology to be an encompassing power that reduces authentic thought (or thought that deals with meaning) to calculation. Technology shapes the world in such a way that humans cannot truly encounter themselves. Thus, people are limited to objectivity and technical instrumentality. Both Junger and Heidegger assume that technology and

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3. Or see Schuurman (1980) for a more available summary of Junger's work.

technological thought are not only autonomous but also deterministic. This is also true of Jaques Ellul (1980).

While Ellul's early work emphasized the radical social transformation effected by science and technology, more recently he has argued that society is dominated by growing power, "complexification", automation and decentralized information. Technology, led by state planning and regulation, controls an economy in which people participate as functions not as humans. Unlike Marx (1964) who argued that technology could facilitate freedom, Ellul has concluded that technological control dominates all aspects of life emphasizing efficiency at the cost of freedom and leading only to subordination in the service of reason, quantification, order, and explanation. Technological rationality dominates both mind and interpersonal relations so individuality is lost and moral judgment overwhelmed. The only possible escape is to recognize the myth of technological liberation and develop a new unity of thinking and acting (in other words a theological solution).

In these three approaches is an appreciation for the loss of the spiritual and social elements of life, as technology increasingly mediates human contact with each other and the natural world. While there are clear concerns for society, the primary emphasis is on individual freedom and the arguments are reasoned, not empirical.



### 1.1.1.2 The Inner World of Machines

Unlike theorists who come to technology through concern for individuals or society, some come to consider people because of a primary concern for machines. With issues like feedback, information, entropy, and communication, analysts in cybernetics and computer science (c.f. Wiener (1951), and Newell and Simon (1972) for influential versions of this approach) have set out to develop systems to substitute for particular human functions (e.g. proposing medical diagnoses or engineering subsystems for photocopiers). In order to model machines after people, human activity is often represented as information and formal procedures.<sup>4,5</sup> It is ironic that cybernetics, a field that led students of face-to-face interaction to pay attention to the active influence of listeners in shaping conversations, has led others away from actors taking each other into account and towards a concern for programmable machines. Such machines, of course, may either liberate (e.g. make services easily available) or enslave (e.g. replace human flexibility and skill).

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4. See Suchman (1987) for a description and critique.

5. While many interested in intelligent machines emphasize modeling machines after people, machines have also become models for people thinking and talking about themselves -- c.f. Turkle (1984).

### 1.1.2 Society-Focused Approaches

Society-focused approaches differ in degree from the technology-focused approaches described above. There is less concern for people as free individuals and more for a potentially free society. While there are many important differences among such diverse theorists as Marcuse, Habermas, Marx, Weber and Mumford, they all consider technology and society in the most general, often abstract terms. They pose ideology, the systems of production, meanings and historical context as the primary features of social organization that limit or facilitate freedom. Technology happens to be associated with these features in particular ways at particular times. The association may be necessary (as with Habermas) or secondary (as with Marx or Mumford).

While Marcuse (1964, 1968) speaks about the loss of human freedom, he locates the reason for that loss in an interplay of factors familiar in social theory. It is not that technology is a power that dominates human freedom, but that science and technology, given the economic relations of our time, have become ideologies that legitimate institutional power and oppress humanity. "The liberating power of technology -- the instrumentalization of things -- is perverted into a fetter of liberation; it becomes the instrumentalization of [humans]".

While Marcuse's solution for oppression is a revolution, Habermas's (1989, 1979) is not. He agrees that science and technology are ideologies that legitimate power; he agrees that the state takes an active role in maintaining industrial stability. Science and technology (research and development) as ideology have replaced other forces of production as determining factors of our times; they do not respond to democratic control. Habermas distinguishes between labor and communication; only the latter can lead to freedom as it is the fundamental action in reaching understanding.

While the familiar social science theorists were hardly silent on industrialization, they did not focus exclusively on technology. More than Weber, Marx (1964, 1970) addressed technology. He considered technology to embody knowledge and have use value, but his primary focus was on technology as integral to the system of production. For Marx, the history of technology was the history of class relations; human activities had always been mediated by technology, and were becoming more so. Still, technology was not inherently evil; since machines could take over the most alienating detail work, people could be relieved of such burdens. In technology, given appropriate relations of production, we have the possibility of human freedom (this is even more clear in Marxist utopias such as Andre Gortz's [1982]).

Weber (1949, 1968) did not deal directly with technology; rather it is related to two other emphases in

his work: as an outcome of Protestant regulation and economic rationality, and as related to subjective meanings in human conduct. While objects or processes could influence people without being imbued with meaning, those objects and processes related to human purposes would likely be more important in human action. Thus a particular technology would be important to the extent that its production or use were meaningful for people. Thus, for better or worse, technology becomes integrated into meaningfully oriented human conduct.

While Lewis Mumford (c.f. 1934) focused directly on technology, he did not claim tools as the primary human capacity; instead he emphasized language. Mumford recognized that a range of people influence the development of technology (women as well as men; the powerless as well as the powerful) and that technology could fill a multiplicity of purposes from expression to domination. The relationship between technical forces and other institutions is described as reciprocal and multifaceted. Mumford's historical habits-of-mind approach dated the "will to order" to early monasteries, armies and counting houses; people had become mechanical long before the industrial revolution. Mumford reminded readers that to understand technology we must understand the ideological and social order.



### 1.1.3 Limitations

With the exception of Mumford, who provides volumes of historical data, these theories are more speculative than empirical. The level of generality is quite high -- even though most speak about industry and work, their conclusions are given as if they apply to all domains of human behavior. Almost all of them are limited to Western, industrialized countries and they argue either for or against technology. Among those who debunk technology, there is little or no room for individual resistance. Capitulation or revolution (either in consciousness or in production and property relations) are the only possible outcomes. One way to moderate this generalizing, universalizing perspective is to consider technologies through time, across cultures and in particular situations.

## 1.2 Anthropology and Technology

Technology has been equated with development or even social evolution; it has been used as a barometer for culture contact or diffusion; it has been described as a dehumanizing agent or promoted as a liberating, modernizing force. But for students of Western societies, technology is most often assumed to be industrialization's correlate and little attention has been given to its uses. Technology has been virtually ignored in the ethnographic literature on the

United States; yet technology has considerable material and metaphoric force in this country. "Technology is like a set of spectacles: those who see through them and who have become accustomed to them, do not notice them" (Ihde 1983:44).

Social anthropology, to the extent that it has looked at Western cultures, does so in one of several ways: as a comparison on a particular point (e.g. David Schneider [1980, 1984] on comparative studies of kinship), as a field to investigate a particular topic (e.g. ethnicity) or as a particular community studied in part because of the vagaries of the times or funding (e.g. Powdermaker [1966] or Myerhoff [1978]). Yet in traditional anthropological work lie the keys to understanding technology in context.

### 1.2.1 Close Analysis

One of anthropology's strengths is the unraveling of the unique social realities in which people move. Anthropology, through particular studies of technology-rich settings as human realities, can provide a careful look at social practices involving technologies, in so-called high tech settings, in social worlds supposedly driven by technological control and technological metaphors. Such studies of people together actually using things in various

situations will prove indispensable for unraveling the interplay of people and things.<sup>6</sup>

Theorists writing about technology often assume technology as a constant. But ethnographic work highlights cross-cultural variability and will likely challenge notions that the design, construction and use of machines are culturally neutral.

So is technology culturally neutral? If we look at the construction of a basic machine and its working principles, the answer [only] seems to be yes. But if we look at the web of human activities surrounding the machine which include its practical uses, its role as a status symbol, the supply of fuel and spare parts, ... and the skills of its owners, the answer is clearly no. [Technology is] ... a part of life, not something that can be kept in a separate compartment. If it is to be of any use, [it] must fit into a pattern of activity which belongs to a particular life-style and set of values (Pacey 1983:3).

## 1.2.2 Prehistory and Ethology

In most literatures technology is tied to urbanization and particularly to industrialization; however, the archaeological record reminds us that technologies' existence is not new. While a discussion of prehistoric technologies, the growth of cities and the relation of technologies, settlement and culture is beyond the scope of this thesis, the importance of prehistory to the question of technology in the social world must be noted. For example,

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6. Such studies are beginning to appear, c.f. Blomberg (1987, 1988), Frankel (1984), Jordan (1987), Orr (1990), Suchman (1983, 1987), Traweek (1988). See Kidder (1981) and Rose (1984) for journalistic versions of this kind of study.



the flowering of crafts seems to have come after the formation of city-states (Adams 1976); and social stratification and specialization predate technological specialization. These two examples display technology (or some technologies) as an outcome or as part of reciprocal development and change (i.e. not as causes). While city living began about 5500 years ago, a significant proportion of the world's population did not live in cities until a century ago. Growing technology is indeed correlated with settlement, but settled living is not necessarily correlated with growing technology. Furthermore, not all technologies are associated with a settled life style, never mind urbanization. This variability complicates any linear or growth model of technology.

Another problem with the literature on technology has been a narrow definition of technology itself (e.g. metallurgy and its eventual use in weaponry are almost always included; devices of transportation and child care are less often described). or more The crank, a technically important innovation, can be seen in many early rotary devices such as the spindle, grain mills and potter's wheels. Yet, histories of technology exclude these associations (Rothschild 1983). Considering archaeology and animal models, we find evidence of technologies associated with a wide range of activities -- gathering, grooming and preparing living sites accounts for at least 90% of animal tool use with agonistic behavior making up the balance

(Tanner 1981:75). The selectivity that fails to recognize such things as ceramics, textiles, digging sticks (probably one of the first levers), load carriers and cradles as technology undoubtedly contributes to the ubiquitous association of technology with urbanization and industrialization.

Where technology is often uncritically considered a unitary phenomenon, we might prefer to describe technology in much the same way Wittgenstein (1958) describes games -- as a fluid, indefinable category in which members are related by family resemblance, not by rules of definition. We might focus not only on the products but also on the process of production, the producers and the family of beliefs and practices surrounding both production and consumption.

### 1.3 Studying a Particular Technology in Use

Much work in anthropology has implicitly or explicitly embraced the Durheimian division between individual and society, person and culture. Given this starting point, it was reasonable to say that the goal of anthropological work was the description of culture and society; and the anthropologist's work was to look well beyond individual behavior for more general rules, themes, or structures. Like Saussure's (1959) distinction between *langue* and

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*parole*, anthropologists have often distinguished between culture and behavior, between the general and the particular.

This approach has been challenged from several vantage points. Sahlins (c.f. 1976) argues for the importance of history and structure, Giddens (c.f. 1984) for the synthesis of action and structure, Foucault (c.f. 1979) for the importance of particular epistemological and historical configurations, Bourdieu (1977) for objectively intelligible practice. These various approaches propose that in one way or another the particulars of actual situations must be taken into account in producing synthetic social theories. We must come to terms with historically specific local moments and the situated construction of social action, action which always takes account of others.

It is not just the construction of new and improved social theories that requires looking at the particular. To the extent that culture exists, it exists in given moments with real people carrying out their rounds of sacred and profane activities in a physical world. Thoughts, images, modes of expression, means of production, etc. are all a part of a lived-in world, a world of action and experience. It is through experience that culture is created and re-created as a human phenomenon and that people are created and re-created as cultured animals. It is with this experience that I am concerned here. By asking how this experience is organized, how it is locally determined (and

eventually, what historical and social relations embed it [c.f. Smith 1987]), we can understand important aspects of culture.

The particulars of local action both fill out social theory and illuminate the construction and reconstruction of cultural phenomena in mundane, everyday activities.<sup>7</sup>

"Everyday" is not a time of day, a social role, nor a set of activities, particular social occasions, or settings for activity. Instead, the everyday world is just that: what people do in daily, weekly, monthly, ordinary cycles of activity.... It is the routine character of activity, rich expectations generated over time about its shape, and settings designed for those activities and organized by them, that form the class of events which constitutes an object of analysis in theories of practice (Lave 1988:15).

The evaluation of technologies such as the one considered here has often been speculative and has assumed the technology as a given or constant removed from its particular history and situation of use. This isolation (described by Habermas as ideological) ignores how the technology plays into being a member of a particular social group as well as into the allocation of power and the control of resources. A close analysis insists that at least part of knowing about technologies in the social world requires understanding their continual creation and recreation in everyday life. As Williams has pointed out (1975:127), isolating a technology as either cause or as

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7. This does not disallow the importance of the sacred or of the unusual; it does side step the sacred-profane dichotomy and display the aspects of culture found in activity as performed moment to moment.

outcome ignores the practice embedded in social relations, ignores content, ignores association of technologies with different groups, different interests and different intentions.

The concentration of this study was on a particular technology in use -- an audio video communication link. This technology was central to the activities of those who used it; it was a key symbol, a part of the identity of a work group -- understanding how it was used, how it fit into the everyday round of comings and goings should allow a better understanding of who these people were and how they worked as a social group. As Ortner (1984:154) suggests, here is the way to understand "... the fundamental notions of temporal, spatial and social ordering that underlie and organize the system as a whole". Before describing the people, the communication medium and the setting in more detail, a brief review of ways to look at communication itself is in order.

## Chapter 2

### Studying Interaction

#### 2.1 Communicating Through Space and Time

Historically, for anything like face-to-face interaction to occur, the interacting parties have had to be in the same place; physical copresence once was required. In order to achieve this, people have relied on transportation to reach each other. One way to eliminate distance has been to travel by foot, horse, boat, train, or some other means so that one could be in the same place with certain other people. Another has been to use some medium of transportation to carry a message to others. Both of the strategies bridged space but both necessarily take time. Either time was required to achieve copresence or messages and their replies were discontinuous (as with letters).

With the invention of the telegraph, this situation began to change.<sup>8</sup> Telegraphed messages could be sent and answered with minimal delays. Telephone and radio

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8. Earlier examples of relatively timely communication, such as the line of sight flag signal stations used by the Roman army, were specialized and not widely available.

communication marked an even more dramatic change -- people could have real time conversations over long distances. Now, with the advent of audiovisual communication media, space and time can be bridged with a visual presence that stands in for actual copresence, and multimedia technologies mediate interaction across space in real time.

There are a range of such technologies already in use. From the many examples of video conferencing and video phones to experiments with shared computing and shared drawing technologies, the technologies that allow ongoing human interaction through space are many and varied.<sup>9</sup> Links such as these usually have specialized purposes related to facilitating interaction across space for particular people who work together. They are based on the belief that some visual presence is imperative to the optimization of that interaction and the related collaborative work.

An assortment of businesses, universities and government agencies have experimented with computer and audio-video conferences that explicitly substitute for actual physical copresence. The experiments range from occasional meetings to an electronic version of campus life with classes, library access and some informal connections meant to create informal student interactions or a sort of cafe society. Of one such campus, an observer said:

The talk was civilized and reminiscent of  
countless conversations in countless colleges over

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9. I refer here to concurrent computing or drawing; see Chapter 1 for references.



countless years. There were solemn discussions about the state of the Universe, the meaning of reality and the search for absolute truth. Wistfully, I wished I were there. And then I suddenly realized that, electronically, I was there. This was a nowhere place and, as part of it, I could be anywhere (T. Allen 1988:93; italics in original).

While the remote classroom was meant to substitute for known activities and to be permanent, others are designed to be innovative and temporary. In December, 1980 Mobile Image, as part of a series on public participatory art, opened "A Hole in Space" between a shopping mall in southern California and a department store window on 42nd street in New York City (Galloway and Rabinowitz 1980). The three day audio-video link was unannounced and unpublicized; Christmas shoppers found themselves faced with a bigger-than-life view of other shoppers dressed for a rather different climate staring back. On the first day, conversations sprang up between strangers; by the third, relatives and old friends were meeting each other by appointment. This very public link was planned to be time-limited and available for improvised use in the moment.

Such technological arrangements, whether temporary or permanent, are thought to have radical implications. They allow distant people to have real time access to each other changing the flow of activities and changing the relation among people; the technologies may even change the structure of conversational participation. It has been argued that technologies such as these change the shape of our social

and material world (technology as cause). Likewise, it has been noted that these arrangements are only possible because of technical advances leading to the current technology and the deployment of resources to assure the technology's use (technology as effect). While this technology may facilitate participation (technology as enabling), it may also dehumanize the process by removing real human contact (technology as disabling). These assessments are versions of the various interpretations of how technologies influence the social world. However, the extent to which these assessments are applicable to particular people using specific communication technologies as part of their daily round of activities is unknown. To understand any communication technology (and in particular the audio video link considered in this study), we must understand it as a medium for interaction. Fortunately there is a rich interdisciplinary tradition in studying interaction that will inform studies of communication technologies in use.

## 2.2 Studying Face-to-Face Interaction

The concern with interaction as a focus of study has come not just from anthropology but from an interdisciplinary community of scholars. There is a history of interest in communicative behavior among animal ethologists, information theorists, linguists, students of

therapeutic process, researchers in nonverbal behavior, ethnomethodologists, symbolic interactionists and sociolinguists. Without tracing each of these specializations in detail, it is possible to see the concern with communication and the developing appreciation of communication as a contextualized, social activity par excellence. There are several key concerns that have developed from work in various disciplines and inform the work reported here.

## 2.2.1 Key Concerns

### 2.2.1.1 Creating the Social Order

Since the early 20th century, ethnographic work has relied heavily on face-to-face participation in a community to provide the data and understandings necessary to describe what people do and how they understand the world. There has been a long-standing recognition that the local doings are the stuff of which the social world is made. This is true of farming, of ritual performance and of just plain talk.

In every moment of talk, people are experiencing and producing their cultures, their roles, their personalities. Not just "the natives," but you and I live lives of talk, experience the social world as motivated talkers and listeners, as tongued creatures of the social order; each with our own bursts of pleasure and pain, each with our own proud differences of personal style. [Studying interaction] has some promise of precisely locating and describing how that world of talk works, how the experienced moments of social life are constructed, how the ongoing operation of the social order is organized (Moerman 1988:xi).

### 2.2.1.2 Speaker's Point of View

In American linguistics one of the first problems (for Boas, Sapir, Bloomfield, etc.) was to identify significant sounds so that speech could be written down.<sup>10</sup> This early work led to the development of a contrastive method for identifying important sounds and patterns (c.f. Sapir 1927). Because analysts did not know what was important, there was a need to attend to the details of speech as it was produced and to look to speakers (and hearers) for a definition of what was actually meaningful. This resulted in a focus on talk (versus text), and also an emphasis on the participant's point of view (over the analyst's). Thus speech could be appreciated as a social activity embedded in a complex configuration of action (Kendon in Scherer and Ekman 1982:453).

### 2.2.1.3 Taking Account of Others

If the social world is created by people together, one element in that creation is taking others into account. Information theorists and students of cybernetics (c.f.

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10. One of the major divisions in American linguistics exists between the work of Chomsky based on an ideal or imagined speaker and the work of Hymes et al. Much of what is described here is explicitly at odds with Chomsky's approach (beginning with the requirement of working with actual speakers and hearers). While the debates between Chomsky and Hymes are fascinating, the issue here is not a full description of any field or type of inquiry; rather, it is to highlight some of the perspectives (and their origins) important to the current work.

Bateson 1972, 1979 and Wiener 1951) argued against the tendency to look at interaction (or communication) as a simple chain of events. These researchers defined communication as signals transmitting information, signals adjusted to take the receiver into account. The cybernetic concern with self-regulating systems (i.e. those that respond to the consequences of their own actions) focused on the importance of feedback, or adjusting to the responses of others, in shaping communication. From this insight, participants came to be viewed as shaping their actions in terms of each other. The ongoing, contingent, complicated process of interaction was accomplished by participants taking account of each other.

#### 2.2.1.4 More than Just Words

From Darwin on, people have attempted to catalog and explain nonverbal behaviors, and these efforts are tremendously varied. Many applied linguistic methods to other aspects of behavior (e.g. Pike's often used emic-etic distinction [1966]). Birdwhistell (1970) and Hall (1969, 1973, 1976) studied motion, interpersonal distance and time drawing heavily on linguistic approaches. They assumed that body motion and other elements in interaction were structured and patterned in the same way speech was and might even have morphology and syntax. Work such as theirs emphasized that movement patterns were regular, and that these regularities were culturally shared.

This research lent weight to the growing recognition that more than sound was involved in interaction and that people guide their behavior in relation to others. Nonverbal communication has come to be defined as all the ways communication is effected between people present to each other by means other than words. This includes bodily activity, gesture, facial expression and orientation, posture, spacing, touch, smell, and even aspects of utterances apart from the referential content of what is said Kendon (1981, 1982).

#### 2.2.1.5 Context

Students of nonverbal behavior, cybernetics and others had begun to appreciate the ways in which people formed environments for each other. Work on group process, beginning in the 1930s, also highlighted the importance of context after detailed analyses of psychiatric interviews and interpersonal behavior. In 1956 two psychiatrists, two linguists and two anthropologists<sup>11</sup> attempted to examine in detail all aspects of behavior recorded on film. The method developed, called context analysis, has been described as the analysis of patterns of behavior according to the contexts in which they occur (Scheflen 1973). The method required beginning with an audiovisual record, transcribing it, and looking for patterns and the situations in which

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11. (Brosin and Fromm-Reichman; McQuown and Hockett; Bateson and Birdwhistell)

they develop. While there is often a tendency to "turn away from words" to get at what is happening between therapist and patient (Labov and Fanshel 1977:21), this work has emphasized what is actually being said and the context of the saying: both the verbal context and going beyond the words themselves to the physical and social worlds in which they are uttered. Such studies have also involved studying therapy as conversation (i.e. studying the event itself rather than an individual).

#### **2.2.1.6 Encounters as Ongoing Accomplishments**

In contrast to other approaches, ethnomethodology<sup>12</sup> is a concerted, empirical effort to uncover the common sense knowledge or practical reasoning (knowing that plus knowing how) of members of a culture. It seeks to display the ways people create and sustain a sense of order in the world. Meaning is situated, or constructed, in particular contexts by actors engaged in continually ordering and making sense of what is going on. One of the principle arguments is that social encounters are ongoing accomplishments based on common interpretations of jointly constructed events. In talk, ways of speaking are indexed to aspects of context;

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#### **12. Ethnomethodology refers**

... to various policies, methods, results, risks, and lunacies with which to locate and accomplish the study of the rational properties of practical actions as contingent ongoing accomplishments of organized artful practices of everyday life (Garfinkel 1972: 309).

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thus, sense is made by people acting together reflexively, taking account of each other. Culture is thus akin to rules of interpretation, and their surrounding circumstances; the employment of such rules makes everyday life intelligible. What seems natural and easy is actually intricately created as people hold each other accountable moment to moment. One example of such rules are those suggested by Sacks, Schegloff and Jefferson (1974) for conversational turn-taking. The focus has been the achievement of orderly events by actual participants and the need to study practical action or the mundane everyday details of social life.

#### 2.2.1.7 Structure, Organization and Participation

Since 1955 when "On Face Work" was published, Goffman has been a leading proponent of the notion that interactional events have structure and organization. He and others argue that human interaction, including conversation, takes place in a situation or social frame that must be identified and analyzed. The often ambiguous details of talk are made sensible by the rights and obligations of the conversational partners -- something determined by context (see also Campbell 1986, C. Goodwin 1981).

### 2.2.1.8 Ways of Speaking

From a history of dialect studies, sociolinguistics has maintained a concern with ethnicity and race. There is a long tradition of correlative work (i.e. correlating features of speech with social indicators), of defending nonstandard English, and of studying linguistic variability. Firmly grounded in linguistics, sociolinguists have deviated from both structural linguistics' focus on language (versus talk) and generative grammar's insistence on ideal speakers. Primary concerns have included: communicative codes (the social organization of body and voice and their valuation), native knowledge (more an emphasis on publicly available, contextualized knowledge than on stuff in peoples' heads) and information management (how people manage how others will treat them) (McDermott and Roth 1978). Whatever the tradition or concern, sociolinguistics insists that ways of speaking are a focus of study.

### 2.2.2 Issues in Studies of Face-to-Face Interaction

If, as Weber and others<sup>13</sup> suggest, social interaction is behavior oriented by taking the actions of others into account, this interdisciplinary array of scholars have begun to take a serious look at just how such interaction works,

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13. C.f. George Herbert Mead and the symbolic interactionists

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how social encounters are focal in the creation and maintenance of the social world. Both historically and currently, there are different methodological approaches and assumptions.

If communication were the message a person intended to send, it would be important to know about participants' motives and intentions. If communication were what was understood and interpreted, it becomes essential to find out how people make sense of what is going on. And, if communication were defined in terms of strictly visible and audible behavior (leaving intention, interpretation and out-of-awareness systems alone), analysts do not need to "get inside the heads" of participants. While each of these options has a long history in both empirical and theoretical work, the tension among them has not been resolved.

Broadly speaking, there have been two approaches to studying interaction: the study of individuals and the study of events. They represent different disciplines (biology and psychology or sociology and anthropology) with different methods (experimental and naturalistic). As Scherer and Ekman (1982) suggest, the two approaches raise different issues. A focus on the individual is marked by a concern for states and traits, for making inferences from behavioral cues and for the individual organization of behavior. A focus on events emphasizes such things as the cultural nature of communicative codes, the mutual coordination of behavior and interpersonal relationships.

### 2.2.2.1 Individual or Social Focus

The differences between studying social events and studying individuals cannot be dismissed as merely a preference for one approach or the other. Individual-centered approaches typically have a greater concern for individual expression, biology and biologically based phenomena (e.g. evolution, perception, developmental processes). Event-centered approaches focus more on what people do together or on people as environments for each other.

Consider this contrast in two cases: studies of therapy sessions and studies of nonverbal communication. In studying psychotherapy, some researchers have been interested in finding out how what is said and done reveal a patient's or client's pathology, personality or level of development. This contrasts with studies of therapy sessions as a conversation of a particular kind where the goal is not to make inferences about the participants but to describe how the participants manage to coordinate their actions and create an event recognizable as a therapy session.

A similar contrast can be seen in studies of nonverbal communication. Kendon's studies of greetings (1973, 1981) look at contextualized, naturally occurring behavior and breaks the event down according to a logic inherent in greetings themselves. Ekman (1982) studies facial

expression because the face conveys information about individual characteristics -- both how the individual feels (i.e. states) and who the individual is (i.e. traits such as gender, race or age).

#### 2.2.2.2 Method

Another difference is between laboratory studies and studies of naturally occurring behavior.<sup>14</sup> In experimental and statistical methods, sampling and research design are issues related to generalizability and inference. But not all research is aimed at causal inferences. Some seeks to understand particular cases or classes of occurrences in other ways.

Along with the differences entailed in causal versus interpretive inquiry, are those attributable to how one looks. In doing research, measurement may or may not be appropriate. When things are described numerically, there are the questions of what is measured and how; whether the categories and units of measurement are determined in advance; and if the measurement is inclusive (i.e. including everything recognizable) or exclusive (i.e. including only target behaviors, excluding others). Looking across researchers interested in facial expression, for example, one finds that some record or code only data on the face;

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14. I am drawing these dichotomies rather sharply, almost to the point of caricature. Garfinkel, for example, is noted for tinkering with naturally occurring events to test the rules; and some events, like religious services or riots, are not easily studied experimentally.

others record the entire event and study expression in terms of the unfolding event.

There is a growing trend among many researchers to make and analyze audiovisual records; however, the analyses differ markedly. On one hand, analysis may involve coding schemes, categorized behavior counts, interrater reliability, and so forth; these are ratings that can be done on the scene or from records. On the other hand, concern for the structure of events almost mandates a close analysis of audiovisual records.

Questions about transcription are similar to measurement questions -- e.g. is everything (or as much as possible) transcribed or just the basic flow of talk? Transcribing conventions are far from standard. While most people influenced by conversation analysis refer to conventions developed by Jefferson (c.f. 1984), there is variation in the particular conventions used, in which aspects of verbal behavior are attended to (e.g. prosody, tempo, pitch) and in how it is, or is not, integrated with other aspects of the situation (e.g. body movement, facial expression, arrangement of space).

#### **2.2.2.3 Regularities and Beyond**

There are many differences among those who have studied events in the social world. As an example, Sacks, Schegloff and Jefferson (1974) have shown that turn-taking in conversations is the creation of conversational partners who

follow identifiable though out-of-awareness procedures. Goffman (1981) has taken issue with the conversational rules proposed. He suggested including intention as well as mutual understanding, and allowing for ambiguity in the later. Content is also at issue turn by turn. As Goffman (1981) noted, a respondent responds to a meaning, not the meaning since there is not one simple meaning; a response cannot be relied upon as a complete interpretation of the preceding turn. It may not even respond to the first part but to something else entirely.

While conversation analysis may have begun with formality, recent developments have included such things as gesture, scene and content. Content is vital to recognizing what is going on as well as structuring what goes on. Particularly in institutional settings like schools, courts, or medical facilities content, in part, defines the event. One of the things that makes a class a class and not a church service is the reading, math or whatever that is being done (after Garfinkel). The form and content of talk continue to be central issues in the study of interaction.

#### **2.2.2.4 Beyond Interaction Analysis**

Capitalism creates a wholly new terrain of social relations external to the local terrain and the particularities of personally mediated economic and social relations.... These extralocal, impersonal, universalized forms of action become the exclusive [visible domain for organizing action and explanation] .... (Smith 1987:5-6)



Smith argues that abstract theory often works to further current ideologies rather than actually displaying peoples' everyday relationships. Having accounts that begin with actual experiences, no matter how diverse they may be, is perhaps a way to avoid these ruling ideologies. Indeed this has been one goal of the many different disciplines studying interaction. The dilemmas include how to be true to the details of the empirical work and how to merge those studies with the concerns raised once one steps outside these ruling ideologies.

### 2.3 What Studies of Interaction Have and Have Not Done

While there has not been disagreement on what interaction is (two or more people coming together with some kind of mutual orientation and shared focus), there has been little agreement on what to study: Meaning constituted in the participants' heads? Mechanisms for carrying out encounters? The degree to which one participant gets others to carry out her wishes? Perhaps because of this diversity, much has been accomplished. Still, there are some things students of interaction have not done well. This section will first return to the individual-event controversy, then the micro-macro debate, the problem of conflict and change,

the definition of language and the issues of action research.

### 2.3.1 Individuals and Events

One of the issues running through the preceding sections is the contrast between those who interpret interaction as individual expression and those who interpret it as cultural material or social institution (after Geertz 1983:147). In the former case, particular pieces of interaction are the products of individual functioning (e.g. facial expression reflects some internal state, some reaction to a situation or some genetic inclination); in the latter, interaction is a process where meaning (variable as it may be) is jointly constructed. The former approach lends itself to evolutionary or developmental interpretation; the latter supports more structural descriptions, such as turn-taking at talk, and a focus on meaning. Empirical studies of face-to-face interaction have been successful on both fronts, but this success has not eliminated the dichotomy. What we have not done well is specify a relationship between individuals and events.

Talk is too variable to allow fixed meaning; instead, meaning is constructed in the doing of real occasions and encounters. Thus there is a focus on everyday life, on variability, and on evermore apparent and fine-grained differences. To study interaction in this way is to

approach social organization as an active contingent process engaged in by individuals.

### 2.3.2 The Micro-Macro Non-Issue

The many studies of interaction have vastly increased our understanding of particular cases, situations, types of encounters, languages, speech communities, and so forth. Yet, knowing all these details does not illuminate general issues about society or culture. There seems to be an assumption (perhaps facilitated by general systems theory and a supposedly defunct structural-functionalism) that a lot of particulars should add up to something general. If we know enough about the nuts-and-bolts of interaction, eventually we will construct a general theory of society. This, plus competing paradigms that emphasize society as a whole, has led to the belief that we have a micro-macro problem.

While it is true that some people analyze the details of face-to-face interaction while others speak on a grand and abstract level about societies or relations of production, it is a mistake to take this as a primary and significant division. Some who study interaction focus on the interaction; others focus on individuals who happen to be interacting. In a similar way, some who study society or culture focus on variable processes; others focus on invariant structures. There is more affinity between some

students of interaction and of society than the micro-macro distinction would allow (c.f. Boden forthcoming, Mehan et al 1986).

Studies of interaction have amply demonstrated joint production in actual situations. They have shown how things unfold over time and how meanings and relationships, rather than being fixed are constructed in the course of events. As Giddens (1979) suggests, the issue is not micro-macro but action in time and space. This implies a general move away from studies of individuals or collectivities in favor of situations -- something very familiar to students of face-to-face interaction (see also Lave 1988). Of course, elements of every situation transcend the immediate. The macro is not a layer on top of everyday life but resides in micro-episodes where it results from the structuring practices of agents (Knorr-Cetina and Cicourel 1981:34).

### 2.3.3 Stability, Order and Integration or Change, Conflict and Coersion

Stability, order or integration were assumed by many students of face-to-face interaction. The basic agenda has been to examine how things work. Even when conflict, institutional miscommunication and resistance are studied, it is with an eye to determining how they are ordered. Mehan et al (1986) report an investigation of institutional decision making (assigning children to special education or

not); he and his coauthors display the progressive negotiations in the special education referral process, each carried out under particular institutional, political and fiscal restraints. Here, across many related contexts, the authors show how social "structures" are constructed. Here, as Foucault (1979) argues, power emerges from the local transactions. Power, struggle and conflict are acted out in close encounters rather than impersonal ones.

Weber (1949) and Mead (1934) emphasized the importance of subjective meanings in social life, of shared understandings (intersubjectivity) as the basis of interaction (and reciprocally as the basis of self-construction), of ordinary perception and intention. In looking at the process that allows sense-making and the linking of that process and the context in which it occurs, the focus has been on order and meaning not on chaos, passion or change. Some notable theorists now argue for action. Habermas (1979), for instance, suggests a trilogy of interests common to all knowledge: technical (ways of control), practical (ways of meaningful communication) and emancipation (ways of criticism) -- in this last, we are perhaps to find the impetus to develop a critical social theory.

## 2.4 Conclusion

One of the enormous contributions of interactional approaches has been to challenge the emphasis on the esoteric. Especially in anthropology, but in other disciplines as well, there is a tradition of exalting the unusual and the atypical rather than the ordinary. An insistence on the importance of everyday events dictates a more balanced approach to social phenomena. Going back to Tylor's often quoted definition of culture (1871), we see an appreciation for the whole of experience. Culture "in its widest ethnographic sense, is that complex whole which includes knowledge, belief, art, morals, law, custom, or any other capabilities and habits acquired by [people] as members of society". While this definition was aimed at encouraging general descriptions of society, it is oriented toward the social (not the individual), toward people as members of society, and toward social experience broadly construed. If, as has been argued, that experience is born of the mundane and local particulars of everyday life, it is through interaction in those contexts that social life in its fullest sense is created and sustained. And it is through looking at those particulars that we can understand such things as technologies in use.

## Chapter 3

### The Study, The Laboratory and The Link

#### 3.1 The Study

Face-to-face interaction is the basis for much of the social world -- of work, play, family life; indeed, most peoples' lives are played out in the company of others. While there are culturally shared regularities in face-to-face interaction, the process is also tied to particular situations in which participants construct their actions and interpretations in terms of each other. Both the shape of the event and the shared understandings about what is going on are collaboratively produced through mutual access to the same, situation-specific resources. Still, humans throughout history have managed a variety of encounters beyond the immediacy of the face-to-face world. From the flag signals used by Roman army outposts in Gaul to the telegraph, long distance communication with a minimum of delay has been available.

The interactive situation changes as machines mediate and facilitate human contact. Encounters are no longer

necessarily limited by the immediacy of space or even time, and human images and messages are presented in ways that may differ significantly from face-to-face encounters. Since the advent of the telegraph and the telephone, these mediated encounters have become more frequent and more generally available. Familiar, long-standing technologies now have a place and a conventional use in most peoples' lives; however, introducing new technologies means introducing new communication environments. The influence of such novel situations on the interaction and the relationships among participants is an open question.

While much is known about face-to-face interaction, about such things as the management of turn-taking or the repair of misunderstandings, when interaction is mediated by computation and communication technologies, we do not know the consequences for the structure of actions and the construction of understanding. Considering an actual occasion of mediated interaction can provide a detailed understanding of how interaction is accomplished when such technology is used.

### 3.1.1 Setting and Questions

One such system was in use experimentally at Xerox Palo Alto Research Center (PARC) to connect collaborating scientists in Portland, Oregon and Palo Alto, California. The researchers in Portland were linked to those in Palo Alto via a continuously available audio-video channel as



well by computing and messaging systems. In both places, offices were organized around a public "commons" area that contained the audio-video link, seating, several work areas and reference material. In one part of each commons was a large projection television that provided an open window into the other site. Walking out of an office in Palo Alto (or Portland), one could see the Portland (or Palo Alto) commons and surrounding offices. If someone from the other site happened to be in view at the same time, the experience was analogous to passing in the hall. The two could nod to each other and move on or could stop and talk.

The audio-video link, plus computer conferencing and messaging, were meant to facilitate cooperative work in a situation approximating one in which face-to-face encounters were easy and frequent. At the same time, interaction via these technologies deviated from face-to-face interaction in many ways. Participants were not present to each other spatially; and their co-presence was mediated by a technology that restructured the available conversational resources. To understand what happened, both to the interaction and to the work people did together was the research problem.

More specifically, the study sought to answer the following questions:

1. What were the particular uses made of the link?
2. How did mediated communication fit into daily work? Did technology-mediated interactions

replace or supplement other forms of interaction?

3. How were technology-mediated encounters, as ongoing accomplishments, actually carried out?
4. How was interaction similar and different when people used communication technologies or met face-to-face?

### 3.1.2 Methods: Participant Observation and Video Taping

Since the use of machines was not a disembodied event separate from the rest of laboratory life, understanding how that world was constructed was crucial to understanding how any particular technology, or set of technologies, was used. My efforts along these lines extended over almost two years. I made a total of six trips to both sites ranging in length from four days on the initial visit to six months.<sup>15</sup> In addition to participant observation, video-mediated interaction was documented with two weeks of videotaping. Video recordings of interaction allowed both a detailed analysis of the structure of machine-mediated interactions and the review of these events with participants.

The primary focus here is on the structure and organization of interactional events. This only becomes apparent by looking carefully at a variety of interactions and the contexts in which they occurred. A close analysis

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15. During each sojourn, I divided my time between Palo Alto and Portland and worked on one of the lab's projects.

of particular events as part of a broader ethnographic study facilitates understanding both the use of the technology itself and its part in a network of social practices (see Moerman 1988). Furthermore, understanding technology-mediated interaction can, by comparison, increase the understanding of the essential features of unmediated, face-to-face interaction.

### 3.2 The Larger Organization

While this study focused on a particular situation (the use of a technological device in communication) at a particular time, the link and those who used it were part of a larger organization and a longer history. Both the formation of this particular work group and the experiment with the link were related to events that came before. This laboratory and the remote experiment evolved in a particular time and place. They were a part of a research center that was itself a relatively new part of a major corporation.

#### 3.2.1 PARC: Beginnings

By the late 1960s, mainframe computers were becoming a part of business life. Executives in Xerox, a corporation that had specialized in one sort of office technology, were interested in the commercial possibilities of the "office of the future". In 1969, Xerox acquired a southern California computer company; at about the same time, corporate

officials decided to open a research center aimed at computing and business information systems. The Palo Alto Research Center officially opened in June, 1970 to do basic research on computing and electronic technologies. One of the earliest projects was the development of the personal computer. As PARC grew during the 1970s, one idea that developed was to link powerful computing systems with Xerox's imaging technologies; the resulting information systems were to create a new approach to work and to managing and using information.

The work done at PARC included research on integrated circuits, communications and distributed computing, lasers, printing, programming languages, displays and user interfaces. This work led to many, now familiar developments such as laser printing, Ethernet, bit-mapped screens on powerful engineering work stations with windows, icons and a mouse, and several programming environments (e.g. Smalltalk<sup>16</sup>). There were new business units created within Xerox to manage some of these developments (e.g. laser printers) as well as spinoff companies started to market particular products (e.g. ParcPlace Systems with Smalltalk).

While PARC has always been a part of Xerox Corporation (major funding comes from Xerox and there are clear administrative ties), it is also a separate entity and

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16. An object oriented programming language developed at PARC

unusual in several ways. Not only is PARC physically separate from other Xerox facilities, but its employees are also charged with basic physical science and computer science research rather than with the product development, sales and customer support typical of most Xerox divisions. One PARC alumnus described PARC's relation to the company:

PARC had three roles: to be a resource to the rest of the company, consulting and advising and assisting; to be viewed as an absolutely first-class research facility by the rest of the world; and to have some discernible impact on Xerox Corporation's product line (Richard Shoup quoted in Perry and Wallich 1985:65).

From the beginning, the emphasis at PARC had been on new technologies and on creating a research environment populated by smart people. "Xerox PARC had this aura of being a very far-out place. It was corporate, but it was very unusual for anything corporate ... to bring some of the best people in the world together and let them do anything they wanted" (Alvy Ray Smith quoted in Perry and Wallich 1985:65). Dressing casually and working at odd hours on novel technologies were and are usual occurrences. While the freewheeling days once written up in *Rolling Stone* (Brand 1972) have passed, that image is still part of the way researchers at PARC describe the place and their background. Research (not business), new technology and artificial intelligence are important themes in the present work life of PARC.

One feature of corporate research is a concern for private or proprietary data. Ideas and processes developed

at PARC have the potential to be incorporated into marketable products. While working on a project, it is difficult to predict what, among the many ideas and developments, will both work well and have commercial potential. Often, what is really proprietary in a project cannot only be determined in retrospect. Still, efforts are made to treat project information with care. There are clearance procedures for public presentations and PARC, while it is not secured in military fashion, is a closed building. Visitors without a contractual relationship to Xerox must be escorted. Proprietary data bind employees and consultants in a loose sort of secret society. They also place some, but not all, of the day-to-day details of the work done at PARC beyond these pages.<sup>17</sup>

While questions of organizational change are beyond the scope of this study, it must be noted that PARC constitutes a complicated social and political scene. Given its size (between 300 and 400 employees during the 1980s), its

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17. In any fieldwork, one is likely to find that people have secrets and a successful researcher will probably learn some of them. There are many reasons to respect the status of these data ranging from those specified in general codes of ethics to keeping individual promises. In this case, there is a particular kind of injury that might result if the details of the work were freely available. Things being developed by PARC researchers might be marketed by other companies (and there are many stories of this having happened in the past). While this represents a financial loss for Xerox, it is also a loss of both prestige and income for the person or persons whose work might become public. In a setting such as this, the respect for privacy covered by university and professional guidelines is both a part of daily life and a contractual obligation.

resources, its major activities and its corporate and organizational ties, it is perhaps not surprising that there has been a continual coming and going of personnel and various internal reorganizations. These kinds of change have been a continuing aspect of life at PARC.

### 3.2.2 PARC: Organization

PARC began small and grew quickly. At the time of this study, PARC was divided into three physical science laboratories and three computer science laboratories -- a laboratory being the organizational unit equivalent to a department or a division. In addition to the six laboratories, there was an array of administrative and support departments (e.g. computer maintenance, audio-video production, library, and contract and patent law).

Within each laboratory, there were a varying number of projects and areas (the basic work and administrative or supervisory units at PARC). A laboratory member worked with a group of other scientists on one or more research projects. That member also reported to an area manager who was responsible for such things as performance appraisals and semiannual progress reports.

Originally, areas were to be organized around projects, research questions or disciplinary orientations so that the people in each area had a variety of links. As the number of projects grew and as personal alliances and enmities waxed and waned, this scheme was not always followed.

Researchers collaborated with others outside their areas and their laboratories;<sup>18</sup> and some people preferred supervision by area managers outside their projects. While projects could be organized and coordinated by persons who were not area managers, areas tended to grow around managers' research agendas. This was particularly true of the lab studied here which evolved out of the area responsible for Smalltalk.

While there have been continuing themes to the work at PARC and some continuity in employees throughout PARC's history, the doing of specific projects has shaped the rhythm and social ties of the place on a day-to-day basis. People in the physical sciences laboratories worked on a range of research that included such things as exploring new xerographic processes (photocopying or imaging), laser technologies, and circuitry. Those in the computing sciences laboratories were, as the name implies, involved in computer-related research. One of the computer science laboratories specialized in artificial intelligence research; another worked mostly with machine-level system problems; the third, and the focus of this study, was the Systems Concepts Laboratory (SCL). SCL was a product of several long-standing PARC involvements: information systems and object oriented languages.<sup>19</sup> In addition, the work of

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18. This crossing of boundaries has been increasingly encouraged.

19. Object oriented computer languages represent a particular approach to programming. In many computer languages, programs are written as a long file or



SCL reflected an early 1980's change in emphasis from personal computing to interpersonal computing, from individuals working at their machines with their data, to small groups working on connected machines sharing data. People in SCL worked with Smalltalk, an object oriented programming language and with studies of media and design, as well as investigating the technical requirements of collaborative work among people who were physically separated from each other.

### 3.2.3 The Systems Concept Laboratory

SCL became an officially recognized entity in 1984. With the formation of the laboratory came the opening of an experimental remote site in Portland, Oregon. This arrangement -- a group of researchers who were physically divided yet worked together -- was meant to be a testing ground for computing and communication systems for groups which collaborated in their work but were geographically separated. By working in that situation, researchers could both identify problems of remote collaboration and try out technological solutions first hand.

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sequence of instructions. This program is then run through the computer along with the appropriate data files. Object oriented programming languages such as Smalltalk take a different approach. Relatively independent units, or objects, are created. These objects may be particular program functions, data or program instructions plus data. These objects act on or send messages to each other to accomplish computing tasks.

Dating the "beginning" of Portland, like pinpointing any exact beginning, is difficult. One beginning was 1984 when discussions about the new laboratory and a remote site began at PARC and then were aired at various levels of the corporation for approval. Another beginning occurred in October, 1984 with the hiring of two people for SCL-Portland: one researcher from PARC (who had previously lived and worked in Portland) moved north and a second researcher and site manager was hired from another company in the Portland area.

For the first three or four months, the two of them worked out of their houses with little technological support beyond computers and modems. There was some work on programming, but the two of them reported feeling isolated from the life of SCL even though there were many trips up and down the coast. The first, temporary office was opened in February, 1985, and three months later they moved into permanent quarters. Once there, a full-time audio conferencing link was established between Portland and Palo Alto. During 1985, six new people were hired -- four of them in Portland. Portland added a computer support person from the local area plus a laboratory secretary and another researcher; several more were added in the fall. The last hire, also in Portland, was in mid 1986.

While the emphasis in Portland was on starting up, the situation in Palo Alto was different. The Californians almost all had a history at PARC and had ties to particular

projects and people. While work was being reorganized and redirected in the new lab, these people were all engaged in ongoing activities and relationships. One of the most obvious differences between Portland and Palo Alto had its roots in this situation: for Portland, Palo Alto was the major focus, a reason for being; for Palo Alto, the Portland branch was an addition to an already full life.

By May of 1985, the Portland group had moved into regular offices; they were expanding their computer resources, and the two sites were using audio conferencing. Still, everyone described this situation as inadequate.

You had new people up here; and a couple of new people down there. The people up here didn't really know the people down there all that well .... most of the people here had only spent a day at a time or a few days down there. And so it wasn't really very satisfactory not to have more to go on than this voice, because you're supposed to be working with these people. And, of course, that means a certain kind of camaraderie; without more familiarity with the people and some level of comfort with informal interaction it just wasn't easy.

People did travel back and forth (all researchers got at least one trip to the other site per year) but occasional face-to-face contact and audio conferencing were not satisfactory; plans were made to link Portland to the existing video network in Palo Alto.

### 3.2.4 Structure and Work of the Laboratory

At the time of this study, there were eight permanent PARC employees in SCL-Portland and fourteen in SCL-Palo Alto. That included a laboratory secretary in each site, a computer support person in Portland and a media specialist in Palo Alto. There were a total of eighteen researchers working on the various laboratory projects. While the Portland people mostly had backgrounds in computer science and computer systems, those in Palo Alto were computer scientists, architects (doing studies of design) or physicists. This was occasionally supplemented by temporary consultants (one was in Palo Alto during the time of this study), student interns (there were two in Portland and four in Palo Alto during the study) and other researchers (me and one other university-based person doing research on the lab).<sup>20</sup>

Administratively, SCL had a full-time laboratory manager and three area managers, one of whom was in Portland and acted as site manager as well. The area managers were all

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20. This was a situation populated by people who were homogeneous in age, education, income, skin color and sex. In SCL there were five women (three of whom were not researchers) and two people of color; most researchers were in their 30s and many had post-baccalaureate degrees from American Universities. It was a situation built around some of the primary themes of middle-class American culture -- big business, technology, science and research, the primacy of individual action. Competence was displayed through working on machines -- indeed, the most uncivil people would be tolerated for their technical prowess.

active researchers who had project responsibilities as well as supervisory responsibilities. The shape of project work and supervision varied with individual style and with working situation. One area manager met with the people supervised on a weekly basis, was involved in several concurrent projects and had ties to projects outside SCL. Another area manager, whose project coincided with the people managed, had frequent project meetings, but handled supervision on a less scheduled, day-to-day basis. These differences were visible in the number and type of cross-site meetings and encounters.<sup>21</sup>

Cross-site relationships included supervision. All three area managers, at one time or another, supervised at least one person from the other site. At the time of the study one Palo Alto area manager was working only with Palo Alto researchers; the other two area managers supervised persons cross-site. Just as hierarchical relationships extended across sites, so did project associations (see below). The people in this lab did computer-based research related to user interfaces, data bases, computer languages, design and media studies, and collaborative work (see

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21. In addition to differences that co-occurred in time (e.g. differences among managers), there were also changes over time. People came to and left PARC and there were administrative and programmatic reorganizations. There was one such reorganization in 1984 that created SCL and the Portland site. In 1986, several key Palo Alto researchers left PARC to form ParcPlace Systems, a company to market Smalltalk and related products. Another reorganization in 1988 merged SCL with another lab and closed the Portland site.

below); they worked with people at the same site and across sites.

If one walked down the hall, the visible scene would be of people sitting in individual offices working at computers. There might be a small group working with video, talking in a common area or meeting room or drawing on a white board. One would also find people in each others' offices talking or looking at computer screens together, and there would be some coming and going through the halls. Still, the overwhelming first impression was of individuals working in isolation at computers. It took some familiarity with the local technology to realize that each computer was a link to others via shared files and electronic mail (both of which were very important in the work people did). Also, lab members (some voluntarily, some with the encouragement of their managers) set out to create a "media village"<sup>22</sup> as part of their work. Well over half of the offices were linked by video cameras and color monitors.<sup>23</sup> Thus people could be in contact with each other or just be in view while they worked.

The three major directions or organizing themes of work in the lab provide an overview of the projects being done in

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22. See the description in the next section.

23. Looking only at researcher offices, 72% were part of the video network; adding in others active in the lab (such as the secretaries, media specialist, me and a particularly active and influential student), 68% of offices were part of the media system.

SCL. The work emphasized design and media studies, object oriented languages, and collaborative systems.

Design and Media Studies: Studies of design as a social process, as an activity that could be facilitated by the use of media and computers, and as something that could be preserved on video tape formed the core of these projects. Early on, these researchers began experimenting with video connections among their offices. They also did some studies of video-mediated architectural design.

The local use of video connections was pioneered in Palo Alto as these researchers investigated ways to link their own offices and do their work together. The initial link included four offices and several common areas<sup>24</sup> in an audio-video network that allowed the connection of offices to other offices, offices to commons areas and offices to tape players. Participants could each sit in their own offices and still talk and work together via video. Alternatively, they could have a coworker's office or a commons area on the TV as a background activity as they worked individually. With this sort of user controlled video, it was possible to initiate conversation and return to independent work without even leaving one's desk. The video also allowed researchers to record or to view previously recorded events from their offices.

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24. The large, open area surrounded by offices was called "the commons"; there were other common rooms such as the copier and mail room and the meeting room in Palo Alto.

For the people involved, this way of working was like opening up a new kind of space -- a "media space" (Stults 1986). The media space was a metaphorical extension of physical space created by computer controlled video technologies. The technologies allowed people to be visible and audible to each others while occupying physically noncontinuous space (e.g. office-to-office), or after events had occurred the technologies allowed one to "attend" later by watching a video recording. This allowed a new type of technology-mediated participation, an experience distinguished from the familiar constraints of space and time by this composite of technologies.

The media space is an electronic setting in which groups of people can work together, even when they are not resident in the same place or present at the same time. In a media space, people can create real-time video and acoustic environments that span physically separate areas. They can also control the recording, accessing and replaying of images and sounds from those environments.

The media space network included offices, common areas and meeting rooms and allowed any number of local connections and one cross-site connection at a time.

Object Oriented Languages: People in the laboratory produced many novel computer programs (or "tools") to carry out particular tasks using "shared, computational objects". During the time of this study the principal work in this area related to object oriented database technologies and the writing of a new language. The language project, which involved seven people across both sites, was aimed at



developing a new generation of Smalltalk that incorporated shared databases and data base management. It required a step beyond current programming languages, in that it was to support collaborative work.

Doing a cross-site project of this scale required all the available communication technology, some face-to-face meetings and careful organization of the work. In developing this new language, "we've cleaved the project into relatively independent pieces". The Portland members were working on a preliminary version of the program while those in Palo Alto were doing particular design functions like windows, a shared browser<sup>25</sup> and integration of a powerful printing and display control language. With this cross-site project one saw the effects of remoteness and technology-mediated communication links most directly.

Collaborative Systems: The collaborative systems project, which was started in Portland and then gained a Palo Alto member, initially emphasized computer tools to support meetings and more general collaborative work -- particularly remote or long-distance collaborations. That meant considering the equipment and the computing support required for distributed work groups beginning with the laboratory itself. There were experiments with a range of communications technologies and development of computer tools such as a computer interface that allowed laboratory

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25. A programmer's tool for looking through available functions and processes

members to control the media technologies from their work stations. In addition there were studies in progress of interaction over the link and of informal interactions among a work group. This was the newest of the projects in the lab and the one most associated with Portland.<sup>26</sup>

Across projects and administrative matters, lab members were continually interacting with one another. People met casually in the halls or by the mail boxes; they dropped into each others' offices; they called each other on the phone; they had regular meetings and work sessions. While these kinds of encounters could happen using the link, casual encounters in hallways or nearby offices were more likely to happen in a single site. For casual encounters to occur over the link, both participants had to be in the commons at the same time. Still, such encounters did occur cross-site (see Chapter 5). Both face-to-face and cross-site, these encounters always involved a small number of people (between two and five). Casual encounters, while regular, were less scheduled than the weekly or biweekly round of meetings.

Regular meetings included the administrative staff (lab manager and area managers plus one observer), budget committee, and reading groups (during this study there was only one of these in the lab related to the collaborative systems project). Project meetings were scheduled as needed

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26. In addition, there were two researchers working on individual projects not described here.

-- the language project met as often as daily and as infrequently as biweekly during my tenure there. In addition, there were short-term, PARC-wide committees that involved lab members in both Portland and Palo Alto (working on coordinating research and increasing inter-lab contact and communication). Most meetings involved some subset of laboratory members; only the weekly lab meeting included everyone. The weekly laboratory meetings relied on the link, but they differed from other cross-site events. These meetings included everyone and typically were organized around a series of short topics ranging from brief announcements to 25 or 30 minute demonstrations of new programs.

Project and committee meetings usually involved between three and seven people (depending both on which project or committee was meeting and who was available to attend on that particular day). Since working as one lab was an explicit part of the SCL agenda, efforts were often made to involve people from both sites in most activities from work to holiday parties. Only the design studies and media space group, which did not involve Portland researchers during this study, confined their meetings to Palo Alto (and this project had done cross-site work in the past).

### 3.3 The Link: What was it?

At the technical center of the media space was one audio-video switch at each site; the switch<sup>27</sup> performed routing or connecting operations taking audio-video signals from any specified source and sending them to any selected destination. The switch could be controlled either manually or by computer message. It electronically connected a set of offices and common areas each with camera, microphone and monitor plus the necessary cabling, amplification and power supply. Having such a switch provided the flexibility to connect any one of these offices or common areas to any other.

The Palo Alto and Portland switches were connected to each other by long distance phone lines. Video signals sent cross-site were run through a coding and decoding process<sup>28</sup> that compressed the complex video images into a form that could be transmitted over a 56 kilobit phone line. The compressed signals were then sent over a dedicated line and decoded at the other end. Sound from both commons areas and conference rooms was transmitted over a separate phone line using a half-duplex,<sup>29</sup> omnidirectional mike.<sup>30</sup>

Media equipment was available in most offices and in various public areas. In Portland, the public areas

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27. Technically, a crossbar or matrix device

28. Using a Widcom Codec

29. As with early telephone, only one side, the loudest, could transmit at a time.

30. Quorum microphone

included the common open area surrounded by offices, the meeting room, the break room and, on occasion, the video lab. In Palo Alto, video nodes were set up in the commons, the meeting room, the video laboratory and the copier and mail room. These set ups, while not meant to be portable, could be and were moved.

While the same model camera<sup>31</sup> was used in every node, there was a 40 inch rear projection television<sup>32</sup> in each commons which, when the link was on, showed the other site. Entering either commons, one would see a seating area facing the big screen television. Displayed on that television would be the corresponding commons area at the other site -- there might even be people sitting in each area talking with each other. Near the sitting area was a microphone and next to the big screen television was a camera and a 13 inch color feedback monitor, so that those sitting in Palo Alto could see what they were sending to their coworkers in Portland and visa versa (e.g. they could tell if they were seated in camera range so their conversational partners might see them). A feedback monitor was usually in place in conference rooms but not in individual offices.

While there was only one set of lines devoted to carrying audio-video signals from each site to the other, there was not simply one particular room in Portland linked with another room in Palo Alto. With the flexible switching

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31. Magnavox with 1:1.2 zoom and 8.5-51mm macro

32. Pioneer model SD-P40

mechanism in place, the cross-site link could be used to connect any two commons rooms or offices. For example, the usual commons-to-commons link was switched to meeting room-to-meeting room for committee meetings or to Palo Alto office-to-Portland office for area managers' regular meetings.

Most offices in both Portland and Palo Alto were linked to the media network. Offices thus connected had a 13 inch color monitor,<sup>33</sup> a camera either with a built-in mike or a freestanding mike with an off-on switch controllable separately from the camera.<sup>34</sup> The office camera, when turned on, would send a live image of the office and its occupant(s) to the local video switch to which all cameras and monitors were wired. The switch channeled audio-video signals from a selected camera and mike to an identified monitor. Turning on an office camera made a view of that office available; for anyone to see that view, it had to be selected through the switch.

Office-to-office links could be cross-site or within site. One area manager used the link for cross-site supervision; occasionally people did cross-site collaborative work office-to-office. Lab members often tuned their office monitors to the other site. In addition, people used the media space for within site contact. Two

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33. Sony KV1365

34. All offices also had at least one engineering work station, a telephone, a white board, desks or tables and chairs, file cabinets and bookshelves plus personal effects, books and papers.



persons might work together or have a video conversation. For example, as I was getting my office in Portland set up, I had a video visit from the Portland site manager whose office was a few doors from mine. He had electronically connected our offices -- I could see and hear him on my 13 inch monitor and he could see and hear me on his monitor. At the end of the conversation (a sort of official welcoming call), he switched off the connection. In this situation, I could see him at the same time he was seeing me; in addition, there was an indicator on my computer screen that showed me someone was looking in. If I wanted privacy, I had several options: I could turn off the microphone (a common practice), I could point the camera to some other location (e.g. out my window), or I could turn off both the camera and microphone.

The primary public connections for both Portland and Palo Alto were in the commons areas. Since there was only one set of lines between Portland and Palo Alto, only one cross-site connection could occur at a time. Lab members could use the cross-site link for a "private", office-to-office conversation linking an office in Portland with an office in Palo Alto. While the content of such a conversation would be private (i.e. the audio connection, done on a separate phone line, was private), the fact that such a conversation occurred and how long it lasted would always be public as everyone had access to the video signals being sent between the two sites. Apart from this office-



to-office, video-phone type use, office monitors displayed whatever signal the viewer selected. Often, office monitors were tuned to whatever was being received from the other site, so people in Palo Alto offices would see the Portland commons and visa versa.

### 3.4 Video Technology and the Social World

Some (especially in Palo Alto) would say that the work of the laboratory was to provide technical support (including audio-video and computing) for people doing collaborative work over distances; others (especially in Portland) said that the work of the laboratory was to study how people worked together and how to support that work with technology. The difference, while subtle, reflects the similarities and differences among projects.

The sites were connected and interdependent, yet they were not alike. Portlanders claimed to be more "video-centric" than Palo Alto -- they paid more attention, answered more quickly, and watched more. The Palo Alto commons was arranged before the video arrived; the video was added to an already existing floor plan. In Portland, things were organized around the communication media from the start.

Everyone in both Portland and Palo Alto agreed that there were two problems with the link: the lack of shared

workspaces (e.g. sharable drawing surfaces like a large sheet of paper or a white board) and the "low density of information" or "low band width" that made social relations more difficult across the link. The link provided a narrow view of the other site through a camera lens. Not only were there many things that happened out of camera range, but what happened in range had neither the visual nor the auditory quality of actual presence. Given the limitations, one of the primary issues was staying in contact. Indeed, the name of one of the programs written to control the various connections possible with the link, *Contact*, was derived from the contacting function, from putting one person in "contact" with another both to talk and to "share space".

This assemblage of technologies, like any other, was a human product that was shaped by, as well as shaping, the situations in which it was used. The link was designed and assembled by its users to serve particular communicative and social functions. It looked as it did in part because it was put together in a particular context to serve particular needs. But knowing how it came to be configured as it was, does not explain how it worked as part of the intimately human activities that went on day to day in the lab.

## Chapter 4

### General Description of Use

Technological objects are active participants in situations of use (c.f. Latour 1988). When the use is primarily human interaction, the technology is part of the intimately human, locally constituted activity of talking. A new communication technology becomes a player on the local stage -- a participant, albeit a nonhuman one, in the regularities of talk and locally created meanings.

The Palo Alto to Portland link was clearly a technological object -- a machine, a tool, an inanimate conglomeration of electronic and mechanical things available for human use. Yet a technical description alone does not suffice. The link was a thing with certain characteristics adopted by particular people and used in particular ways. Understanding this or any other technology in use requires understanding both the relationships among actors (human and nonhuman) and the activities in which those relationships are formed and played out.

Questions about technology and the social world are often phrased in terms of the effect of one upon the other. However, just as technology cannot be understood apart from

its use, so the lab cannot be understood apart from its technologies (c.f. Lave 1988 on activity and setting as mutually constitutive). A step toward understanding can be made by analyzing how the link was used. This chapter reviews general patterns of use; more detailed analyses appear in the following chapters.

#### 4.1 How the Link Was Used

The link was turned on at 3:30 p.m. on October 7, 1985 and there was little grief over the displacement of the audio conferencing system the link replaced. The newly added video allowed people to see each other -- something lab members valued highly. Visibility as well as audibility proved important in getting to know people from the other site. This change, from a commons-to-commons audio link to a full video link, occurred shortly after the Portland group became fully functional. The link was started up a year after the first Portland hires, five months after the move into permanent offices, and at about the end of the lab's growth through hiring.

The early days of cross-site video were remembered for two related things -- considerable attention to the new technology and lots of clowning and playing. When the link was first turned on, people reported that it was in almost constant use. Lab members who had not yet seen each other were eager to get a look at each other cross-site, and

almost everyone wanted to see what could and could not be done with the new technology. People vividly remembered clowning around and experimenting with the link.<sup>35</sup> What happened if one moved or juggled balls while talking (because of the video sampling and transmission technologies, movement caused a peculiar video distortion); what happened if two people talked at once (because of the half duplex audio, only the louder side was transmitted)?<sup>36</sup> In this setting, where novel technologies were always compelling, a general interest in something new is predictable.

While people remembered the early clowning and play, there were also many immediate uses for meetings and talks among lab members (more fully described in the following

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35. Most peoples' stories about the early days of the link began with play. Of course, many other things about the link, such as selection and installation, were remembered. However, use of the link was salient for those involved with its past and, in this case, use began when it was turned on and available for everyone.
  36. I have observed the introduction of several new technologies at PARC and the reactions were similar to those reported for the link -- first, general excitement among a particular group or groups of people while a core group works hard to get the new technology in and functioning -- a preparatory and anticipatory phase. Then there is a short period when the core group has access to the new object and others wait eagerly or distantly on the sidelines. As the novel technology becomes available to interested others, they begin using it and learning to handle it -- this is an almost reverential phase of use. Once there is a growing core of people who have access and are on the way to becoming competent users, experimentation and play begins in earnest. As the newness wears off, some of those who were excited fall away and others may join in. Either the thing then comes into regular use or it is abandoned.

chapters). From the first, features of these meetings and talks differed from face-to-face in ways that were readily apparent to participants. In one early meeting, Portlanders were attending but the content and participation were Palo Alto centered. Eventually the Portland attendees left; only a video image of an empty sofa remained. Such exits are fairly easily to manage politely in shared space, but over the link, the subtlety of a sidelong glance was lost. A muttered excuse that would be audible but not an interruption was impossible cross-site because of the half-duplex audio. Thus, while it was a simple enough matter for the Portlanders to step out of camera range, the Palo Alto contingent was left with an unaccountably empty field of view. This was perceived in Palo Alto as rude.

Incidents such as this, and the ensuing discussions, led to better understanding of the technology and what it did and did not project successfully (e.g. people came to understand that efforts to leave quietly might be interpreted as rudeness because of the way the video and audio worked). These incidents also contributed to the development of local patterns of use (e.g. it was reasonable to stay out of view until one was sure one wanted to join; alternatively, one avoided simply walking out on a cross-site event).<sup>37</sup>

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37. Though this was an unsolved problem when speeches or colloquia were done cross-site.

In addition to discussions about how the technology worked and how things appeared cross-site, there were numerous discussions about what came to be called "ethical video". Lab members were concerned about what it meant to see beyond one's bodily presence and what rights and obligations obtained in such a situation. "Big brother" was a frequent topic in these discussions; the rule was no spying. If I were looking at you, it had to be apparent to you that this was the case. The switching software, when it connected two offices, showed one to the other as well as displaying an icon on the computer screen that someone had made such a connection.

The initial euphoria or dislike (depending on one's reaction to the link) extended into figuring out how to use (or avoid using) the link. The "figuring out" included such things as where to point the camera, whether to use a feedback monitor and how to call someone. "Figuring out" involved either discussion of how to solve an apparent problem or the trial of a solution;<sup>38</sup> both contributed to developing conventions of use.

The toy xylophone in each commons next to the microphone was one result of this process. The xylophone had been adopted as a way to call people. Initially, each lab member

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38. For example, one may be standing half out of camera range during a link discussion; either the viewer told the stander or put up with the situation. This problem caused discussion and eventually led to the use of feedback monitors. Eye contact was another problem. It was discovered that if the camera were set right next to the monitor, eye contact seemed more natural.

had a tune so that a caller could play the tune of the person called and that person could answer directly. In practice, this never quite worked. Many lab members never memorized each others' tunes; if one did play a tune and no one answered, it was impossible to know if the intended recipient had not heard or was not there. The xylophone developed into a generic calling signal. Rather like a ringing phone, anyone in the receiving commons might answer (but particular people often assumed that responsibility).

"Figuring out" also included ideas and fantasies about extended uses of and possible modifications to the technology. Part of the initial interest in the link was evident in the flurry of electronic mail about the link, its uses, its limitations and its modification. One proposal, made via electronic mail a few weeks after the link was started, involved "teleportation". One could enter a special booth in either Palo Alto or Portland and be "teleported" via controls and a video link to a robot at the other site. The robot would have the visitor's face (provided by the video link) and the robot's camera would act as the visitor's eyes. This scenario would allow considerably more mobility than the static video located in the commons. This, fanciful as it sounds, led to some experimentation with remote controlled cameras to try to get around the fixed position of the link.



A "telecomments" distribution list<sup>39</sup> was set up to handle discussions about the link among those who were interested. The distribution list was first proposed three weeks after the link had been turned on and was last used on March 18, 1987. While interest in the link had not died out, the link itself was no longer a hot topic of public discussion. The technology and its use were stable; its continued development was projected and small groups were working on various aspects of that future (e.g. investigating alternative video compression technologies). As the link became a regular feature of lab life, the novelty diminished. The link was still used for play and experimentation, conversations and meetings, but its uses were rooted in activity rather than the novelty of a brand new technology.<sup>40</sup>

#### 4.1.1 Day-to-day Use

The people in SCL made an explicit effort to join the two spatially separated work areas with the link and with computing technologies. The goal was to provide numerous electronic meeting places that would establish an almost

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39. An electronic mail forum devoted to a particular topic

40. It was during this period of more routine use that this study took place. When I first saw the link in Palo Alto, sixteen and a half months after it had been turned on, people no longer clustered in the commons to meet each other. However, several people in Portland wanted to meet me even though I was going to Portland two days later. Indeed, we made this into an experiment to see if we could recognize each other at the Portland airport after only having met via video link. We did.

physical connection between Portland and Palo Alto; the technologies were to provide a window, a gateway, a bridge between the two sites. The link was a part of the media space -- that special place created by media technology in which people could be together, meet, talk and work (Stults 1986). It was also part of a general effort to create one lab. Lab members made an explicit effort to avoid them-us talk as part of an effort to maintain one lab. This effort to be equitable in language and in other practices (e.g. no single-site distribution of electronic mail) was not meant to hide the fact that resources, including personnel and decision-making authority, were not equitably divided; it was meant to parallel the linking function of the technology and emphasized the fact that there was one laboratory.

There is no question that the link was recognizably special both in use and in display. The link was often shown off to people visiting PARC -- it was a regular occurrence for a group to come through Palo Alto and call someone in Portland to come describe and demonstrate the link.<sup>41</sup> The visitor's reaction was always smiles and expressions of amazement followed by questions on how effectively it worked. Visitors would then begin enumerating situations in which they could imagine such a thing working.

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41. Touring and demonstration are both important and frequent in settings such as PARC (c.f. Brand 1987 on the importance of demonstrations at the MIT Media Lab).

My first encounter with the link (meeting several Portlanders) was similar -- I had of course heard about the link before I was taken to see it by someone who was not a regular user. We stood outside camera range and that person described for me what I was seeing (no people, just a view of Portland). Later we returned with a third person who was more familiar with the link and the lab and who called Portland to introduce me -- I stood there talking about travel arrangements for a few minutes (for a visit to Portland) and was also concerned with two things -- first, that I was having a very public conversation and second, that it was amazing to be involved in a face-to-face-like conversation with a TV or with people who were 700 miles away.<sup>42</sup>

The link and its use was an always available topic of conversation (e.g. "*Did you hear that William<sup>43</sup> was talking about trying ....?*" "*It's awfully quiet down there; do you suppose any one's around?*"). In addition to providing topics and partners for conversations, the link (like other technologies) cost money. The technical set up and possible improvements to that set up were of interest to everyone either in terms of the work per se or of the resources it would divert from some other project.

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42. This was a common first reaction to using (versus viewing) the link.

43. All names are pseudonyms.

#### 4.1.2 What the Link Did

The link provided a view of the other site. The link acted like a window that spanned 700 miles and allowed Portlanders to see into Palo Alto and Palo Altoans to view Portland. One could have some knowledge of everyday events at the other site simply by monitoring the link. One might know, if the lab manager had just been seen on the link walking through the commons, that it might be a good time to call and discuss pending business. If someone were working on a special project, people at the other site could know about it and even discuss it locally. In one instance, a person in Palo Alto was concerned about improving eye contact in the media space. (Since the camera and the monitor could never be in one place, when one watched a speaker on the monitor, one could not be seen to be gazing at the speaker but to be looking slightly down or to the side.) He and a few other Palo Altoans conducted an experiment with mirrors that drew the attention of several Portlanders. This would not have been possible had the Portlanders not been able to see the activity in Palo Alto.

One could always see and hear what was happening in camera and mike range at the other site. If one were in Palo Alto, one might see people in Portland picking up their mail or hear the Portland front door. There was considerable audible and visible information available over the link beyond cross-site events. Even when "nothing" was happening cross-site, one could at a minimum see offices

surrounding a quiet commons; often one could see and hear much more.

The link made it possible to know many things about the other part of the lab without physically being there and it did this in a way that other available technologies such as the telephone did not. This possibility was made real by the placement of the technology, the visible activities of people and the ways the link was used. It was hoped that the link would contribute to the integration of the two sites into one lab with shared practices and joint projects.

The link allowed various cross-site events. What occurred over the link varied in number and kind from day to day and month to month. When the link was first connected, there was considerable initial experimentation; then routine patterns of use developed. While play remained a part of its use, this phenomenon faded as the focus of activity changed. Typical events included various regularly scheduled meetings such as meetings of the entire lab, administrative staff, budget committee, collaborative systems reading group, new language project and any PARC committee that included Portland-based lab members. In addition, there were special presentations and special topic meetings such as one on the use of space in SCL. Lab members also used the link for office-to-office talks and experiments.

Beyond the appropriation of the link for office-to-office or conference room-to-conference room use, what

occurred over the link occurred in the commons. Aside from language group meetings, which were sometimes ad hoc and sometimes prearranged, most meetings were scheduled. In addition to formal meetings across sites, the open channel was meant to facilitate chance encounters like the ones that ordinarily occur on the way to the coffee pot or the mail room. These encounters, as well as one person calling another, happened regularly. Most conversations that occurred in the commons were impromptu. There were long conversations on multiple topics, short conversations about special issues or particular requests, quick greetings in passing and tours for visitors to PARC. On any single day there may have been almost continuous events or there may have been very little in the way of cross-site interaction.

What mattered to lab members was the cross-site view and the interactions: both being able to know what was going on "up there" or "down there" and conversations and meetings with people at the other site. It would be easy to assume that the various interactions were the substance of what happened over the link. Indeed, for most lab members only when people were talking cross-site was "something happening" over the link; when there was no cross-site talk, "nothing" was going on. When there had been few cross-site interactions noted during a day or part of a day, people would comment that the other site was "quiet" or that the link was "dead". Yet the link was rarely completely "dead".

While scheduled meetings, informal meetings and chance encounters occurred on a more or less regular basis, the local happenings of the other site were continually available for people to see and hear. As a window, the link allowed everyone to keep up with what was happening at the other site. Further most link events (like conversations and meetings) were public happenings and available to any lab member (participant or nonparticipant) for the looking. This was part of the way the link was meant to connect the two sites so that interaction would be easy and natural.

#### 4.2 A Day in the Life of the Link: What was Audible and Visible?

For the purpose of this study, fourteen days were video taped for eight or more hours each.<sup>44</sup> One day was selected for presentation here based on several criteria: no equipment failure,<sup>45</sup> neither a very large nor a very small number of cross-site interactions (the two days of each week with the most and the least time in cross-site interaction

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44. During the first week, taping began at 9:30 and proceeded continuously until the link was turned off at approximately 5:45 in the afternoon; during the second week, taping began at 8:30 or whenever the link was established, was discontinued during lunch since people were rarely around during that time and then continued from 1:00 p.m. until the link was turned off in the late afternoon (between 5:30 and 6:00).

45. This occurred twice during recording and involved some error in recording rather than a failure in the link itself.

were eliminated; a day described as "typical" or "unremarkable" by the participants themselves (in other words, a day without unusual interactions or events). The day selected began with the link being turned on at 9:00 a.m.; there were no cross-site interactions between 9:00 and 9:30 when recording began. Taping continued uninterrupted until 5:45 in the afternoon.<sup>46</sup>

#### 4.2.1 "Live" Time

Out of a total recording time of 8 hours, 14 minutes, 15 seconds, 12% of the day (almost 59 minutes) was devoted to cross-site talk.<sup>47</sup> In addition to the 59 minutes of cross-

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46. Initially, a 30 minute segment of tape was reviewed with another analyst to determine what might be seen and heard, particularly in the segments that did not involve cross-site talk. It was apparent from that initial analysis that considerable audible and visible information (e.g. a phone ringing, people walking through) was transmitted across the link during times when there was no cross-site talk. For this analysis both sights and sounds that were identifiable (e.g. a door closing, someone's arm flashing through the frame) were recorded and those that were not recognizable to regular users of the link were ignored. A second analyst and I logged several hours of tape together to refine recording procedures and then separately logged the same two hour segment to check interrater reliability. In two hours of tape, we noted only half a dozen disagreements. Four of the six were noncontradictory differences in identification of sights and sounds (e.g. a loud noise vs. a closing door, a person walking through versus Perry walking through). This high level of agreement in part reflects the fact that the people involved were accustomed to the link. Familiarity with both sites, with the people and activities usually seen and with the technology made it much easier to accurately view the tapes.

47. People react differently to this total. Those unfamiliar with the setting or with studies of interaction, consider 59 minutes a small sum. Lab members found this unremarkable, but students of



site talk, close to 5 hours of recognizable, identifiable video information originated in Portland and just over one hour originated in Palo Alto. Table 1 contains the total time that recognizable video and audio data were coming from each site excluding cross-site interactions. A big part of the Portland video total is attributable to the visibility of a person sitting and working in an office which happened to be in camera range. The asymmetry in the Portland and Palo Alto video totals (4 hours 52 minutes 41 seconds versus 1 hour 1 minute 10 seconds) is, at least partially, a function of camera position.<sup>48</sup> The camera in Portland was pointing at an office with a visible occupant for over three and a half hours. The equivalent people in Palo Alto (the ones whose offices were fully in view) were working in other places on this particular day. About half an hour of audio came from Portland and well over an hour came from Palo Alto. (The Portland and Palo Alto figures should not be totaled as there is some overlap. For example, people walked through the Palo Alto commons or had off-camera conversations at the same time people were visible in Portland.)

Table 1 Total Single Site Information

| Portland |         | Palo Alto |         |
|----------|---------|-----------|---------|
| Video    | Audio   | Video     | Audio   |
| 4:52:41  | 0:35:51 | 1:01:10   | 1:17:13 |

interaction remark on how much time was spent communicating via an apparently awkward technology.

48. On other days with other camera positions these figures could be reversed.

Given that the link cameras were located in common meeting areas surrounded by offices, it is not surprising that much of what was available over the link, beyond the 59 minutes of cross-site talk, included people coming and going through the commons, parts of conversations occurring out of camera range, and the office occupants adjacent to the commons. In addition to these audio-only or video-only images, there were some local conversations that were both audible and visible. On this particular day, there were three occasions (totaling 7 minutes 48 seconds) when people talking in one site were both audible and visible to the other.

#### 4.2.2 "Dead" Time

Knowing something about audibility and visibility, the specification of a quiet period or "dead time" becomes more arbitrary. Clearly, a long stretch of time, say 30 minutes, with no audio or video information qualifies as a period of non-use. Ten minutes or even five minutes also qualifies especially for a person monitoring the link as one watches a TV. Under that condition, even periods under 30 seconds might qualify as "quiet" or "dead".

For the purpose of summarizing the use of the link, breaks longer than one minute were counted. While one minute was an arbitrary choice, it was both easy to measure and gives a conservative estimate of silence. One minute is longer than the quick scan (up to several seconds) that link

habitués used to determine if things were quiet. One minute is also longer than most pauses in cross-site talk.

Intervals between recognizable audible or visible events may be a few seconds or many minutes. While intervals during a conversation may be judged by the sense that conversational partners make of them in the context of ongoing talk, these intervals (the real "dead time" of the link) were the products of multiple streams of ongoing activity. Things were quiet because of the intersecting comings and going of lab members. Likewise, these pauses, rather than being constructed in a conversation and responded to by conversational partners, were judged by an invisible audience involved in a range of activities.

Over the course of this day there was surprisingly little time that actually bereft of some sort of human activity or presence. During the entire day, there were only two hours with neither audio nor video activity from one of the sites. Half of this time involved quiet of one to two minutes duration. The three longest quiet periods (25, 16 and 6:40 minutes) occurred during lunch -- a time when most lab members left the area of the commons. Because these periods were the result of multiple intersecting activities rather than one ongoing activity, it is difficult to interpret and compare them. While one could say that the link carried information for six to seven hours on this particular day, total duration does not shed much light on specific social practices. It does highlight the extent to

which this window between two places connected the sites beyond visible cross-site talk.

#### 4.2.3 Attention through the Day

These times highlight the kinds and amounts of information available to people in the course of their daily round of activities. While total transmission times are important and support the notion of the link as a window, no one in the course of their daily activities could possibly monitor all audio and video signals from both sites. The figures in the previous section indicate the availability of information at any time a lab member might be paying attention. But was there an audience for all these audio and video data?

The figures in Table 1 represent what someone at one site might have seen and heard from the other if that person paid attention to everything coming over the link during that particular day. But people attended to the link in a variety of ways depending on the business at hand and on their involvement in and commitment to the technology. Some lab members monitored the link in their offices while others only saw it when they walked through the commons. What garnered attention under this range of circumstances. Furthermore, it is a question answerable only in terms of specific circumstances and multiple streams of activity. If one were involved in an intense phone conversation, one or

two minutes of quiet time on the link would be unremarkable; likewise, several minutes full of comings and goings might also be unremarkable. If, on the other hand, one were sitting watching the link, 90 seconds of silence would be noted as silence.

While the link may have supplied sights and sounds most of the time, there was rarely a guarantee that anyone was watching. The question of audience might be approached by a simple tally of who was watching (or listening to) a monitor at any given time. But this turns out not to be simple at all. Short of continually taping every office all the time, it would be impossible to closely track viewing. Monitoring listening would be even more difficult. Such a count would provide little insight into who typically watched and how this watching played into the use of the link and the life of the lab.

There were different ways of watching (and of not watching) the link related to different styles of using the link. There were people who always had their office monitors on and tuned to the link; no matter what they were doing, they could see and hear the other site as long as they were in their offices, in the vicinity of the commons or near some other venue with a monitor (e.g. the meeting room or the video lab). Four people at each site regularly kept their office monitors on and tuned to the link. One of these had as many as four office monitors tuned to both ends

of the link plus two other local views. The others with monitors used them but not all day, every day.

Just as some people "always watched", there were people who resisted having monitors in their offices; one person insisted on having an office as far away from the commons as possible to avoid being disturbed by noise from the link. Having no monitor represented either personal preference or technological limitation -- only so many offices could be easily wired and hooked to the video switch.

Even for habitual watchers, monitoring the link was tied not only to patterns of using this technology and what was going on over the link, but also to that viewer's daily round of activities. People were out of their offices attending meetings or getting mail; they were on the phone; they were deeply engrossed in their own work. While viewing the link was a legitimate activity, participation as a viewer was irregular for many reasons. Further, this kind of participation was not obvious to others in the scene.<sup>49</sup>

### 4.3 Cross-site Patterns

During the life of the link, people used the technology for many different cross-site events from chance encounters to formal meetings. Detailed analyses of how these

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49. Most of this section has dealt with visibility for two reasons. First, because this was a prime concern of lab members, and second, because it is analytically easier to see someone seeing that to see that same person hearing.

interactive events were carried out are presented in the following chapters. The events recorded during the two weeks of continuous video taping are described here in terms of how long the interactions lasted, who was involved, how they started, and what topics were and were not discussed.

Length: There were 54 cross-site interactions during the two weeks of taping ranging from 8 seconds to 1.8 hours long. The most striking feature of these interactions is their variability. While the average interaction was 15.4 minutes long, the standard deviation was almost 25 minutes. There were far more short encounters than long ones. Thirty-three were less than 5.5 minutes long; 46 were less than 30 minutes long; but the remaining eight were from 58 minutes to 1.8 hours.

People Involved: Everyone used the link on some occasions if only as a peripheral party to a conversation or meeting. Even those who preferred to avoid the link attended lab meetings and committee meetings or had occasional, brief exchanges with people at the other site. While no one was entirely absent from the link, there were some who used it frequently, some who used it occasionally and some who appeared only rarely.

Personal preferences were certainly played out in patterns of using the link, but they are not, by themselves, an adequate explanation for who was involved in cross-site talk and who was not. The determinants of involvement extended beyond support for or avoidance of the technology

to patterns of activity. For example, the language project was very active and meeting almost daily during the first week of taping; during the second week, project members were just getting back from a major conference on programming languages and there was little cross-site project work going on. During the second week of taping, two researchers were collaborating on the mechanics of taping in both Palo Alto and Portland. This occasioned daily, brief talks to coordinate the joint work.

Length, participation and content of encounters were tied to activity as well as to the relationships among available users. If one knew a particular person well and worked with that person on a project, one would be much more likely to call that person on the link (and on other technologies as well) than someone who did not meet those two criteria. Those with offices next to link space<sup>50</sup> were more likely to be called for demonstrations than people located further away.

How Interactions Started: Cross-site interactions began in one of three ways. First, a person in one commons called out to someone in the other site; in this situation, the caller always had a particular purpose or topic to discuss.

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50. Link space refers to the special area of each commons uniquely devoted to the cross-site video link. While it is true that the cross-site line could be appropriated for other connections using the media space switch, the existence of this specialized area (constructed out of objects and activity) is important in the construction of interactions (see Chapters 5-7) and in the ways lab members used the commons areas.



Second, a person in one place saw or heard a recognizable person in the other place and responded to the video or audio. In this situation, the recognized person was available either intentionally or serendipitously. Third, two or more lab members prearranged a time for a conversation or meeting. (For more detailed analyses of beginnings, see Chapter 5.)

What was discussed: The content of talk over the link ranged from family matters such as reports on children's health to the lab budget to the details of a particular programming problem. Indeed, one is struck by the ordinariness of the content of cross-site conversations. There was one feature of the link that exerted a continuing influence of content: its publicness. Talking over the link was, by definition, having a conversation in a public place; and the interacting parties could not monitor who might be listening. Not only were intimate topics not discussed so publicly, certain aspects of work (e.g. design specification, writing code, debugging) were not done over the link which did not provide access to a shared work space for such activities (though see Bly 1988, Suchman and Trigg in press, Tang 1989, and Tatar in press, for more on shared work space).

#### 4.4 Regionalized Activity and Spatial Specialization

The link was not the center of the lab, yet it publicly displayed both interactive events and a direction the lab was taking in its research work. While most work at PARC was invisible to a person walking through the building, the link was not only visible, it was the centerpiece of tours. This visibility and the organization of things around it were important. The commons area around the link, particularly that which was within camera range, was a specialized space. This specialization was marked and maintained by the technology and the furniture, by the reactions of people to a presence on the link, and by the conventional activities that went on there.

What ever happened over the link was certainly part of a web of tasks, projects and relationships; what happened was also located spatially and that spatial location helped give it meaning. For example, standing in a Palo Alto office door in view of the link, I would be available for someone in Portland to call, but I would not be mistaken for someone who wanted to talk to Portland. Sitting on the Palo Alto sofa, I would be likely to draw someone out of an office to talk with me especially if they had something to talk with me about. Such orientation to the link was one indication of spatial specialization and an indication of availability for particular kinds of interaction.

The physical space around the link was marked both by the presence of things (the equipment and the furniture oriented to it) and by peoples' patterns of movement. Lab members either walked around that space or walked quickly through it leaving no doubt that they were in transit. Anyone who entered link space (the commons area within camera range and thus visible to people at the other site) and lingered was likely to garner a response from someone at the other end. According to the link the time-out-of-time liminality of a ritual place (Turner 1969) is clearly an exaggeration; but, as the media space designation suggests, it was a space apart from regular space. While link space was continuous with ordinary space, it was a special region clearly marked by video technology and furniture; and it was accorded special attention by lab members. One could always know when one entered link-space (via feedback monitors and a likely response from the other end of the link); once there, one was available to distant others in a way that was otherwise impossible.

The regionalization of activity is a matter of objects arranged in space and bodies positioned *vis a vis* the link and each other. People's activities (such as starting a conversation over the link) were keyed by the orientation of things in space, as well as the orientation of other people (see Chapter 5 for more on how this was accomplished). People attend to what they are doing in various culturally specific ways, but they do attend and display this attention

in locally particular, recognizable ways. Aspects of attention are indicated by bodily attitude -- facing an office or facing the link makes one available in different ways to different audiences. At the same time, it indicates and maintains one's current activity.

## Chapter 5

### Making Contact: Starting Cross-Site Talk

A question frequently asked about the link is: given the narrowness and limited quality of the channel, how did people manage to have conversations at all? The answer is at once obvious and obscure. It is obvious because using the video link was tied up with who these people were and what they did. They were the sort of people who experimented with fancy new technologies. More specifically each was engaged, to a greater or lesser degree, in this distributed work group experiment. The answer is obscure in that, allowing for peoples' commitment to using the technology, one still does not know how lab members managed actually to start and carry out conversations.

In starting to answer the question of how people managed to talk over the link, I want to focus first on the beginnings of conversations and how people initiated encounters. Understanding how people started encounters will begin to illuminate how people used the link; it will also be a basis for comparing link talk to other kinds of talk as well as for drawing conclusions about the role of

technology in the intimately social activity of talking. Once beginnings are understood, it is reasonable to ask about what comes next (see Chapter 6).

This chapter begins with a summary of the literature specific to starting conversations and then examines precisely what a beginning might be, based on both the literature and these data. With that as background, it is appropriate to look at beginnings as they were done over the link. Having reviewed both the literature and these data, a comparison of link beginnings to those done over the telephone and face-to-face uncovers some conclusions about link encounters as socially accomplished, technologically mediated events.

## 5.1 Starting Talk

There are many diverse scholars interested in the details of how people (or other animals) manage their lives together and how they construct actual encounters (c.f. Chapter 2). While the work on beginnings in human conversation is not voluminous, there are a few crucial studies. In particular Goffman (1961, 1963), Schegloff (1968), Kendon and Ferber (1973), and Charles Goodwin (1980, 1981) are important -- Goffman for pointing to the importance of beginnings, Schegloff and Kendon for detailed looks at particular sorts of beginnings and Goodwin for both the importance of mutual attention and for applying the

structure of beginning sequences to achieving alignment at the beginning of turns at talk.<sup>51</sup>

### 5.1.1 Attention and Engagement

In describing public behavior, Goffman made a number of distinctions relevant to understanding to people's involvements with each other. Every activity can be viewed as appropriate (or not) to the social situation in which the activity occurs. These are occasioned activities produced by people involved within situations and marked by concerted, though not always continuous, attention to the activity at hand (1963:36-43). For Goffman, activities done in the presence of others necessarily involve interaction.

Goffman distinguished unfocused interactions from focused ones. In the former, people are mutually present but not mutually involved while the latter hinge on mutual involvement. Unfocused interactions include a range of attention from staring to complete ignoring. These forms of attention, like other facets of interaction, are constructed by participants in one place at one time. In civil inattention, for example,

... one gives to another enough visual notice to demonstrate that one appreciates that the other is present (and that one admits openly to have seen

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51. There are also psychologists and sociologists who have taken the findings of the conversation and interaction analysts into the laboratory for experimental study (c.f. Carey 1978; Miller, Hintz and Couch 1975). The concern here is solely with naturally occurring talk.

him [or her]), while at the next moment withdrawing one's attention from him [or her] so as to express that he [or she] does not constitute a target of special curiosity or design. (Goffman 1963:84)

From the unfocused interaction of civil inattention, people can move into a focused interaction or a "face engagement".<sup>52</sup>

Face engagements comprise all those instances of two or more participants in a situation joining each other openly in maintaining a single focus of cognitive and visual attention -- what is sensed as a single *mutual activity*, entailing preferential communication rights. (1963:89, *italics in original*)

These encounters begin quickly with gaze playing an important role.

An encounter is initiated by someone making an opening move, typically by means of a special expression of the eyes but sometimes by a statement or a special tone of voice at the beginning of a statement. The engagement proper begins when this overture is acknowledged by the other.... There is a tendency for the initial move and the responding "clearance" sign to be exchanged almost simultaneously [and often via an exchange of glances]. (1963:93-94)

Goffman not only highlighted the importance of getting started but also indicated that beginnings rely on some set of necessary, public mechanisms. Two other points bear restating -- first, the often crucial role of gaze in

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52. While Goffman specifically excluded technologically mediated encounters from the definition of face engagement (1963:n 12, p. 89), his concern was more with excluding interaction distributed in time such as letter writing. He allowed for the importance of such mediated "point-to-point" interactions as those under consideration here (1963:n 5, p. 16).



starting things quickly and uneventfully, and second, the importance of a response in establishing an encounter. This raises a definitional issue about openings. Are they uniquely defined by the successful start of an encounter? Might it not still be an opening or a bid for an opening (part of a first speaker's intent and action) even when a visible opening move fails to get a response and thus fails to actually begin an exchange? Schegloff defined an opening as a summons and a response.

### 5.1.2 Summons-Answer Sequences

While Goffman's concern with encounters and forms of attention evolved from an interest in public behavior, Schegloff (1968) dealt specifically with conversational openings and their sequential organization. Schegloff proposed a two-part opening sequence composed of a summons and an answer.<sup>53</sup> Summons-answer sequences have two important properties. First, they are nonterminal. In other words, if there is both a summons and a response, things cannot stop there; the summoner is obligated to speak again or to be held accountable for the silence. Only if there is no answer may a summoner repeat the call (and then

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53. A summons can take various forms including mechanical or physical devices (like phone rings, touches or waves), terms of address, or courtesy phrases such as "pardon me" (1968:1080).

for only a limited number of times).<sup>54</sup> The second property is conditional relevance. Given a summons, an answer is expected; "... upon its occurrence it can be seen to be a second item to the first; upon its nonoccurrence it can be seen to be officially absent -- all this provided by the occurrence of the first item" (Schegloff 1968:1083).<sup>55</sup>

The properties of the summons-answer sequence assure the availability of conversational partners and facilitate their coordinated entry into talk. The first thing a summoner must do is to establish interactionally that someone is there to collaborate (1968:1089). In answering, the answerer is both prompting the summoner and making a commitment to listen to what the summoner has to say. Thus answering is like asking a question; it requires something further. "The obligation of the summoner to talk again, is ... the obligation of a member of a society to answer a

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54. There is at least one candidate counter example to this property of nonterminality: the hallway greetings where two parties exchange "hi"s and continue on their way. While one would have to look at particular cases, it would probably be possible to locate the initial summons and response in mutual gaze, to recognize this type of encounter as an identifiably special class, and to define the ways in which these encounters are constructed as only greetings. These terminal greetings may be part of the ongoing interaction between two people over some definable time; such greetings also exemplify Kendon and Ferber's (1973) point that initial exchanges do not mandate continuing interaction in many settings. However, Schegloff's work involved telephone calls where, once there is an answer, nonterminality is the rule.

55. Conditional relevance applies not only to the relevance of an answer to a summons but also to the relevance of what comes later to the summons-answer sequence as a unit.

question if he [or she] has been asked one" (Schegloff 1968:1090). This simple two-part opening brings people together in a coordinated fashion and provides for ongoing talk; it is a powerful social organizer.

Two frequent criticisms of this work are: first, that it is based on phone conversations -- a situation that may differ from face-to-face interaction where copresence is direct and unmediated. Second, the material (taken from phone calls to a police complaint desk) has rather specialized content. Analogous criticisms could be applied to most if not all individual pieces of research. Each setting is in some significant ways unique. Nonetheless, participants bring to bear mutually intelligible interactional resources (useful in a variety of settings) and it is those resources that we seek to understand.

While the video link data are unique in the medium employed to mediate human interaction (as well as in each specific encounter), there are clear parallels between the video link and the more familiar telephone. In both cases people are not physically copresent, and a technological device is crucially involved in the interactions. As will be seen, Schegloff's formulation applies in many cross-site video link conversations and meetings including those involving more than two people and those dealing with a range of purposes and topics.

### 5.1.3 Greetings

A greeting is "... that unit of social interaction often observed when people come into one another's presence which includes a distinctive exchange of gestures or utterances ..." (Kendon and Ferber 1973:592). Greetings are of particular interest for their social functions: getting encounters rolling, establishing the relative social positions of the participants and the roles they will play vis-a-vis each other on this occasion.

While the greeting sequence includes sighting, a distance salutation (e.g. a wave or a call), a physical approach and then a close salutation (e.g. a hand shake, or an embrace), the entire greeting is not always completed. People may begin a distance salutation and, depending on context, either continue or stop there. The greeting, especially the close salutation, occurs "... within a distinct spatial and orientational frame" (Kendon and Ferber 1973:601) highlighting the importance of bodies in space, as well as words, in enacting the social world.

Following the greeting the participants move, both physically and topically, to other things (or to other conversational partners). "How are you" is a frequent next event, also news of one another or mutual acquaintances, explanation of the purpose of the visit, information on their identity -- things that are important to the maintenance and development of relationships. The behaviors seen in these phases are tailored not just to the phase of

the greeting but also to the relationship that exists between the persons involved and the kind of relationship to be created on this particular meeting.

#### 5.1.4 Mutual Orientation

Two necessary features of interactive talk are that at least two people are oriented to each other while at least one acts as speaker and the other as hearer.<sup>56</sup> Both mutual orientation and reciprocal speaking-hearing are jointly produced by conversational partners. Charles Goodwin's (1980, 1981) analysis of restarts and pauses, features of talk usually considered to be errors or error correction, demonstrated how these features facilitate ongoing talk by constructing mutual orientation between speaker and hearer.

Speakers may be seen to begin a turn, apparently stumble and start again. During the stumble, the listener's gaze moves to the speaker so that, when the speaker begins anew, the hearer is visibly attending. Alternatively, a speaker may pause noticeably during a sentence. Again, the hearer looks to the speaker who, having procured the listener's gaze, proceeds. Goodwin concluded that a speaker works to obtain the gaze and attentions of the hearer during turns of talk (1980:275).

Both the pause and the restart are requests for attention like the summons in Schegloff's summons-answer

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56. Though this is not necessarily continuous; people can be in a state of incipient talk.

sequence. Restarts exhibit conditional relevance in that a speaker will repeat the restart until the hearer gazes; then the speaker will continue. In the same way, a pause requests evidence of listening.

[S]ummons-answer sequences ... function not only to provide coordinated entry into a conversation as a whole (Schegloff 1968:1098) but also to establish the availability of participants toward each other within the turn itself. (C. Goodwin 1980:282-3)

Mutual gaze is, of course, far from continual and restarts and pauses are not produced in every sentence. The restart occurs when the speaker looks at a hearer first and finds no reciprocal gaze; the pause followed by a completion occurs before or while a hearer is bringing his or her gaze to speaker. Goodwin demonstrated that the gaze of the hearer is related to the gaze of the speaker but not altogether limited by it as a hearer may look at the speaker when the speaker is looking away.

Features of talk that have often been regarded as errors or as evidence that a speaker is unsure about what to say "...can also function interactively and demonstrate the competence of the speaker to construct sentences that are oriented to appropriately by a recipient" (1980:294). There are two other important features of Goodwin's work. First is the demonstration that gaze, and its avoidance, are organized with respect to both speaker and hearer and figure in the production of each turn (1980:293-4); second, the

summons-answer sequence is a general feature of conversation, and not just applicable in phone calls.<sup>57</sup>

### 5.1.5 Greetings, Openings and Beginnings Defined

In common use, a greeting usually designates the exchange Kendon and Ferber described as a close salutation; an opening or beginning represents the first move that starts an interaction. Schegloff (1968) took openings to be the summons-answer sequence which brings people together in a way assuring ongoing talk. Kendon and Ferber (1973) defined greetings in terms of the gestures and utterances associated with people first coming into each others' presence. Greetings serve to start encounters plus define the relationship between the parties on the particular occasion of meeting (see Irvine 1974). While Goffman (1961, 1963) highlighted the transition from civil inattention to engagement, others referred to external preliminaries and initial calibrations (Pittenger, Hockett and Danehy 1960:14) to starting new phases or topics within an encounter (Carey 1978) or realignment during talk (C. Goodwin 1980).

No matter what the particular definition or term, the emphasis in these analyses has been on a transition from some kind of noninvolvement to some kind of joint

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57. Goodwin, while using a range of materials, did not claim universality for these findings. What he described, while undoubtedly of general import, may not always take the same form.

involvement.<sup>58</sup> The terms opening, greeting and beginning all refer to what is done to start an encounter from the first person's apparent availability until at least several turns have been exchanged. As analytic terms these words designate the part of conversations where people initiate contact with each other. That openings, greetings and greetings actually exist for the participants can hardly be doubted. Both Schegloff and Kendon have demonstrated clear sequential behavior relevant to people initiating engagement with each other, the phenomenon is clearly meaningful to participants as an activity to be accomplished.

In the discussion of link use, it will be helpful to hold descriptive terms constant. I will use opening to mean a first visible move *vis a vis* another taken in a presumably inhabited space, a sort of encounter on the verge of

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58. This raises the issue of degree of involvement -- what criteria define involvement and how are more and less involvement possible? The literature on openings has emphasized situations where people contact each other in some way and proceed to talk. There are, however, some clues about more or less involvement. Goffman, of course, pursued such topics as civil inattention and is an excellent resource for this question. Kendon and Ferber noted that the greeting pattern they described was not always completed though they did not detail how this happened. There are also several experimental studies that, while not providing a fine-grained analysis of what the participants did together in their normal haunts, do at least describe situations of copresence with waxing and waning mutual involvement (c.f. Carey 1978; Miller, Hintz and Couch 1975). Below, I describe the importance of how people arrange their bodies as they begin to talk over the link. This, while it does not completely answer the degree of involvement question, points to both its continuing importance during talk and its potential as part of the jointly available resources for constructing encounters.



starting. While it may or may not involve intention, an opening is a diversion from some other line of activity not something created in the blankness of time or space. It displays that the activities of at least one person have been reformulated and possibly directed toward an interaction. An opening move will be the first available indication of an interaction to come (or a failed attempt to initiate an interaction). If successful, it leads to the reshaping of others' activities as well.

Mead (1934) indicated that all social events have beginning, middle and closing phases. Beginning is the general term that covers openings in this sense. A beginning, in the context of the link, includes all the events and behaviors from the first audible or visible sign through the first several turns of a cross-site conversation. The summons-answer sequence is Schegloff's particular formulation and will be used as he defined it; likewise, greeting will be used according to the standard set by Kendon and Ferber. The general term, beginning, encompasses both.

Some have argued that beginnings are preliminaries during which

... participants are not yet really concerned with getting to work at the main ... task. Rather, so to speak, they are "squaring off." Each is trying to find out what modalities of communication to expect from the other and what modalities can successfully be used in transmitting to the other. (Pittenger, Hockett and Danehy 1960:15b)

While beginnings may be preliminary, they are integral parts of encounters and form the environment for whatever comes next. Thus, they are crucial to constructing (and to understanding) an encounter and will be the first place to look for the effect of any mediating technology. The next section will review the beginnings of various events that occurred over the link. These data permit comparison of link openings with phone conversations and face-to-face interaction and partially reveal how the link, as a technology, mediated talk.

## 5.2 Looking at Link Beginnings

Unquestionably the link provided narrower sensory access to the other site than actual copresence. Using the link was not like standing in a room and having full access to what was in that room; it was more like standing outside and looking into a room through an open window though with even less possibility of shifting the line of sight. One could see only what was already in view. If a person were standing there, that person would probably be available for a conversation; if a person were not in view, one would have to call out to start a conversation. These, indeed, were two sorts of beginnings -- a person was in view and could, therefore, be seen and hailed or a person was not in view

and had to be called. But this is only the most general description of types of beginnings.

One concern in reviewing beginnings (or any event) is how to categorize them -- which ones are of the same sort and which ones differ? Further, which differences are important? The categorization used here is organized according to two considerations. First, what differences mattered to the participants both in what they said about the link and in how they used it. In describing the link, lab members distinguished three types of beginnings: calling someone; seeing someone and calling out to them; and seeing or hearing something interesting in progress and going up to the link to join in.

In the first and most frequent type, calling someone, the designated person may answer directly or someone else may answer and go off to summon that person in the caller's name. So there are two ways to accomplish this calling: call-answer and call-answer coupled with a local call-answer. The second type of beginning lab members described, seeing someone and calling out to them, followed the pattern of presence-call-answer. And finally, there was the effort to join something in progress at the other site. This took two forms: either presenting oneself at the link and waiting for recognition or trying to take a turn at talk. It is these mechanisms for beginning that are described in detail below. These patterns cross cut such standard indicators of participation as who was involved as

well as whether the interaction was prescheduled (such as a project meeting) or ad hoc.

Another concern in describing these beginnings is externally imposed. One of the criticisms raised about studies of interaction is that the studies often have been of dyads (though see Erickson 1982 and M. Goodwin in preparation for analyses of multiple participants in a single event). Behind this criticism is the possibility that talk involving more than two people differs significantly from two-party talk (and that face-to-face encounters differ from phone calls). Because of this, I have, whenever possible, included examples of two-party and three-or-more-party beginnings. It will thus be possible to partially examine the contention that multiparty beginnings differ from two-party beginnings (and that telephone conversations are a special case).

While using a video link may not always be like face-to-face interaction, in this context as in the many others that occur in the course of people's daily activities, the participants bring to bear considerable resources for and experience with jointly constructing encounters. While this situation is particular, and in some ways exotic, it is also one built around the mundane encounters of daily life. Thus, it is not surprising that many elements in these beginnings are routine and familiar. And, as will be seen, these beginnings are very much like those done face-to-face and over the phone.

### 5.2.0.1 A Note on Transcript Presentation

The following conventions have been adopted here:

(x.x) pauses are in single parentheses in seconds  
and tenths of seconds  
[...] descriptions are in square brackets  
all talk is bold with Portland in italics,  
Palo Alto in plain (in descriptive text,  
names associated with Portland are also  
in  
italics)  
/ overlapping talk is marked where it occurs  
, an untimed, short pause  
? rising intonation  
. falling intonation  
((....)) questionable transcription  
= words that are run together

Transcript segments have been selected for variety (I have avoided using the same transcript over and over) and clarity of presentation. English pseudonyms have been substituted for all actual names including the several nonnative speakers of English who were members of the lab during the study.

### 5.2.1 Call-Answer

When members of the lab described the link to visitors, they most often described walking up to it, calling someone and having a conversation. This kind of beginning resembled phone calls. One person walked up to the link and called for someone at the other end and waited for an answer. If the person identified by name in the call answered directly, the two people, one in Portland and one in Palo Alto,

VC 3.8<sup>60</sup>  
in Portland: in Palo Alto:  
Joel Sandra  
Jo [out of office, walking toward back of sofas,  
looking at the link]  
Sandra, are you in the general area of the  
commons (7.5) Sandra going once, Sandra  
going twice (3.4) No Sandra  
[turns, walking back to office] (7.6)  
Sa /[on]  
Jo /[sees this on an office monitor which is  
visible as soon as he turns away from  
the link]  
Oh there she is  
[back out to sofas]  
Sa Were you calling me?  
Jo Yea. I was wondering if you were going to  
the ...

This interaction began with Joel walking into the area of the link and calling Sandra three times. Joel then explicitly assumed that, in the absence of an answer, there

60. Designations such as this index the example that follows to a particular tape and segment.

was "*no Sandra*". Sandra was not answering and therefore was not there. The caller produced his conclusion verbally and therefore made it available to anyone (including the callee) who might be listening. As Schegloff (1968) suggested for phone calls, the caller, *Joel*, made the strong assumption that, in the absence of an answer, Sandra was not around. This caller had some reason to believe that Sandra should be there as they were collaborating on a joint activity. While the presumption of presence was based in this shared activity, it was not grounded in the activity of the moment as was the assumption about Sandra's absence. This assumption was quickly revised when she did in fact respond.

Sandra's appearance on the link occasioned another turn from *Joel*, "*Oh there she is*", before Sandra's answer, "*Were you calling me*". This sequence involved both spoken turns and visible actions. *Joel* was both visibly and audibly present when calling for Sandra and receiving no initial response. Sandra was then visible and it was this visibility that occasioned *Joel's* "*Oh there she is*". *Joel* then moved back to the link and Sandra asked "*Were you calling me*". This question allowed the summoner to produce a reason for calling. One notable feature of this organization is that *Joel's* "*Oh there she is*" introduced *Joel's* movement back to the link; it allowed *Joel* to face the link and therefore to face Sandra.

While Sandra and *Joel* had been involved in a joint activity, this call came at an unusual time vis-a-vis the

joint work. There was no work-related reason for Joel to expect Sandra's presence. Joel also went on to present a topic unrelated to that work (requesting a report on a Palo Alto meeting that he could not attend). By contrast the next example was predictable in both timing and topic from Joel and Sandra's collaborative task.

VC 3.3

in Portland:

in Palo Alto:

|    |                                                 |        |
|----|-------------------------------------------------|--------|
|    | Joel                                            | Sandra |
| Jo | <i>[walking on, glances at link]</i>            |        |
|    | <i>Sandra are you around (7.0 until</i>         |        |
|    | <i>Sa appears)</i>                              |        |
|    | <i>[faces link, one foot on table]</i>          |        |
| Sa | Yea                                             |        |
| Jo | <i>Did I hear a yeah (1.8)</i>                  |        |
| Sa | /Yea:a                                          |        |
|    | /[on]                                           |        |
| Jo | Oh hi                                           |        |
| Sa | <i>[stands facing link]</i>                     |        |
|    | Hi                                              |        |
| Jo | <i>Uh since I was at the parent teacher</i>     |        |
|    | <i>conference nothing got done Are you ....</i> |        |

Unlike the first example, here there was only one call for Sandra and a 7 second delay until she appeared. The summoning question first received an audible response. In the absence of a visual presence, Joel asked "*Did I hear a yeah*" which was then confirmed both audibly and visually. Following Sandra's confirmation, hellos were exchanged -- Joel's "*Oh hi*" being issued while Sandra approached the link and got oriented to it and to the caller. Once that had been accomplished, Joel moved into the work related topic.

These two examples are similar in that both involved two people; both began with a visible and audible call and both involved the face-to-face orientation of the two parties via



the video link before the preliminaries were completed. One visible difference is the number of initial calls Joel made and the timing of Sandra's response. A possible explanation for this is to be found in the rhythm and sequence of their ongoing joint activities, but this is not something that can readily be verified in the segments presented so far. It is interesting that those competent with the link included extended pauses before making an inference of non-response.

Another difference is in the activities done at each turn. In the first example Joel began with a question directed at Sandra and then assumed Sandra's absence. Sandra's appearance was then followed by a remark on its happening, *"Oh there she is"* from Joel. Sandra then produced a question reflecting back on Joel's call; Joel answered and proceeded to other business. In the second example the sequence differed. Joel's first question was answered verbally and as was the confirmatory question, *"Did I hear a yea"*. Sandra then appeared and Joel produced a close salutation which got a response before Joel moved on to other business. These two examples exhibit two characteristics of cross-site talk. First, it is desirable to be frontally oriented to the link. Second, the answerer's coming into visual presence can constitute a turn or response that, like any turn at talk, provides for further turns (Sacks et al 1974). More generally, audio and video presence may figure separately in the construction of beginnings; one may proceed the other (as the audio

proceeded the video in the last example and in the next one).

### 5.2.1.2 Three Parties

The next segment involved three people -- two in Portland and one in Palo Alto. Like the previous example, it was predictable based on the joint work Joel and Sandra were doing that day.

|              |                                              |               |
|--------------|----------------------------------------------|---------------|
| VC 4.7       |                                              |               |
| in Portland: |                                              | in Palo Alto: |
| Joel         |                                              | Sandra        |
| Bob          |                                              |               |
| Andy         |                                              |               |
|              | [Andy and Bob talking -- Andy standing       |               |
|              | in front of the link, Bob at edge]           |               |
| Jo           | [looks at and talks with Andy and Bob,       |               |
|              | moves to mike; Joel is mostly obscured]      |               |
|              | Oh Sandra (3.5) Sandra are you around?       |               |
| Sa           | I'm her:e                                    |               |
| Bo           | /Hi Sandra [from off]                        |               |
| Jo           | /((Sandra))                                  |               |
| Sa           | /[on]                                        |               |
| Bo           | /[on]                                        |               |
| Jo           | D' I think that we're going to end taping... |               |

Here, Bob inserted a "Hi Sandra" between Sandra's verbal response and their visual copresence. Bob's salutation did at least two things neither of which would necessarily elicit a responding "hi" from Sandra. It showed that Bob is there and was aware of Sandra's audio presence (i.e. it built on Sandra's answer to Joel). However, it overlapped Joel and this might have been a problem as overlapped utterances were very difficult to understand over the link. Further, it came before Sandra was visually oriented to the link (and before Bob was even there to be seen). Given the

overlap and the necessary entering and orienting to the link, *Bob's* opening got dropped and *Joel* continued.

*Sandra's* answer and *Bob's* "*hi Sandra*" were audio only (and audio-only answers may not be oriented to in the same way as audio-plus-video in an audio-video medium). The confusion marked time until they both appeared.

Except for the overlap, there could arguably be just two people involved in this beginning. Multiparty talk over the link may have been a series of two-person interactions with occasional breeches like the missing answer to *Bob's* "*hi Sandra*". However, both the placement of *Bob's* remark and *Joel's* move into other business without a responding "*hi*" from *Sandra*, illustrate a three person situation influenced by the windowing effect of the link. *Bob* had entered this conversation with a "*hi Sandra*" timed both to *Joel's* talk and to *Sandra's* upcoming appearance. And *Bob* did this from off camera while moving out of an ongoing conversation with *Andy*. The (possibly) unexpected bid to join from a bystander produced an overlapped turn; none of this was visible to *Sandra* because of the technology. *Sandra* could not see *Bob* nor hear *Bob's* salutation -- a situation unlikely to have occurred had all the players been in the same room.<sup>61</sup> As this interaction got underway *Andy* moved

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61. It may be that audio preceding video in complex openings (or in the first part of a salutation exchange) is more difficult over the link (or more difficult than in answering turns).

off; Bob oriented to the link and, later, another Palo Alto person joined.

### 5.2.1.3 An Inept Caller

The examples presented so far have all involved people who were not only accustomed to the link, but accustomed to using it on a regular basis. They were familiar with the practices and procedures developed around the link's use including how to initiate cross-site encounters. While a newcomer to the link would not immediately know how the technology worked or how to get someone to respond such people did occasionally use the link. If link interaction were radically different from other sorts of talk, a novice would not know how to proceed and would not have any facility at the special skills, procedures or rules involved. If what the novice did were radically different from what most lab members did, it would be worthy of attention. One might also see a lab member responding to an inept call by providing the newcomer, directly or indirectly, with special guidance or assistance. Both the ineptness and special assistance occur in the following example.

VC 4.6

in Portland:

Joel

in Palo Alto:

Carl<sup>62</sup>

Carol<sup>63</sup>

Pat

C [on followed by 3 guests who stand behind

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62. A PARC employee from another area

63. A visitor

sofas; comes up close to link, looks around]  
 ((Anybody in Portland ))  
 [this to Pat who is next to the link working  
 on a computer]  
 [back to mike -- rubs it 2 times]  
 Hello (4.8)  
 Anyway /that's part of the (( / ))  
 Jo                    /[[leaving office]  
 Ca                                            / Oh there look  
      at, he's coming out someone's coming out  
 Pa    [on]  
      Oh there we go  
      /Joel hi [off]  
 C     /(( ))  
      Joel How are /you (1.5)  
 Jo                                            /[[leaning on sofa back]  
 C     Have some visitors here from ATT ...

There is evidence here that Carl was unsure how to proceed. Carl was indirect in assuming a place in the link area, initially approaching and addressing Pat (a move designed to solicit assistance) who was otherwise occupied. After Carl rubbed the mike (an unusual thing to do) Pat did get involved. When Carl turned back to the visitors to continue talking ("Anyway that's part of the..."), Pat stepped on, noted that there had been a response and returned to work. As in the last example, Pat's "Joel hi" was lost in the overlapping talk; so Pat's brief visibility and few words were not oriented to across the link. However, Pat's actions made a local expert available to help if such help should have been needed; Pat also demonstrated a directly addressed greeting in contrast to Carol's third person observation, "he's coming out".

Unlike earlier examples where both visual and audible response seemed standard, Joel's presence alone appeared to count as a response and Carl began to talk about the purpose

of the call. Joel was getting oriented to the link at the same time Carl was allowing for an answer to "Joel How are you"; with no answer forthcoming, Carl proceeded to explain the reason for calling. Posing a question before the person called has oriented to the link was a very rare occurrence and is further evidence of Carl's novice status.<sup>64</sup>

This sequence differs in another way from the previous examples. In those examples, particular people were called; here, Carl was calling anyone in Portland who could help demonstrate the link to the visitors. A general call of this sort was not unusual; however, the construction of the call was. Rubbing the mike made a very unpleasant noise, something I never saw a lab member do as part of a normal call.<sup>65</sup> While I have not marked volume, pitch or prosody on these examples, Carl called in a very quiet voice -- something that an experienced user, trying to get someone to help with a cross-site demonstration would not have done.<sup>66</sup>

While there were differences between regular link users and novices, people unaccustomed to the link could manage to

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64. See especially VC 3.3, 5.2.1.1

65. I did see lab members demonstrate it when explaining in detail how the technology worked; they also used it for emphasis, for joking and as a last resort in trying to get a response from the other site.

66. Typically, a lab member would arrange with someone ahead of time to assist with a tour or would call out several names when asking for help. This was just one of several ways in which both caller and his guests showed themselves to be novices. Perhaps one of the most notable contrasts is the way in which these people treated the video more as a television, i.e. they could watch others rather than actually be copresent with them.

begin a conversation. All the callers, whether novices or regulars, had a definable purpose. In fact, it was bad form to call for fun and some people found it offensive when calls were unexpected, saying, for example, "You know there is such a thing as the telephone". In addition all the parties, both newcomers and old hands, oriented to each other by orienting themselves to the link early in the encounter. These observations apply to other kinds of beginnings as well.

#### 5.2.1.4 Nonspecific Calls

A completely general or nondirected call could initiate an interaction. In the next fragment, *Mary* walked up to link and said good night to Palo Alto, an indication that someone in Portland was preparing shut down their end of the link for the evening. *Joel* who was doing some taping and wanted to keep the link open, interrupted saying someone would shut it down when the tape was done.

VC 3.5

in Portland:

in Palo Alto:

*Mary*

*Doug*

*Joel*

*Ma* [in, leaning over and looking at mike]

*Good night Palo Alto*

*Jo* (( ))

*Ma* *What*

[off toward Joel]

*Jo* (( ))

*Ma* *Oh OK you're gonna ((take care of it))*

*Do* [in, leans on back of sofa]

*Someone tryin to talk to us (1.5)*

*Ma* *No, forget it Doug ...*

By the time Doug entered the scene ("Someone tryin to talk to us"), what might have been an exchange of "good night"s required a brief explanation. This is partially attributable to the narrowing of access or windowing characteristic of the link. While anyone listening in Portland had access to the exchange between Joel and Mary, no one in Palo Alto could have understood their words.

This opening, "Good night Palo Alto", raises a question: were responses sometimes optional? In other similar situations (e.g. "I'm gonna switch the camera for a minute") an audible acknowledgment or a joking comment were expectable. In general, people did not address the link unless they expected someone to hear. In this case, no answer has the ambiguous status of indicating either that no one heard or that anyone who heard agreed to turning off the link.<sup>67</sup> With the link, the issue of audience is complicated by the fact that announcing something to the other site also serves to announce something locally -- precisely what proved important in this example.

Unlike the calls with an identified recipient where answers were first heard from off camera (i.e. audio preceded video), Doug came on and looked before speaking. This was also what Joel did in responding to the inept call. Joel appeared, looked and then spoke. Ambiguous calls

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67. This is analogous of "anybody home" or "are you asleep" or "I think the answer's no" in VC 2.7 (5.2.2.2).



elicited visible presence first -- a more investigative sort of response.

## 5.2.2 Call-Answer Local- Call-Answer

In the preceding section, a person called the other site and was answered directly; the answerer was either the specific person called or a person who could fill the caller's general request. When a specific person was called, that person was not always near the link and able to answer. A third person (not the identified recipient of the call) would respond; this third person usually called the identified recipient who then appeared. If the recipient were unavailable, the third person would supply a reason why the recipient could not come to the link.

### 5.2.2.1 Two Parties

In the next example, Joel called Mike for help solving a problem with the video image coming from Palo Alto.<sup>68</sup> Joel was answered by Elliot who went off to call Mike in Joel's name.

VC 1.11  
in Portland:  
Joel

in Palo Alto:  
Elliot  
Mike

Jo [on] (3.0)  
[sits on table near monitor looking at Palo

---

68. Joel and Mike were among the people expert in the workings of the audio-video equipment and the link; they (along with several others) were likely to be consulted on setting up or modifying the system.

Alto] (3.3)  
 [turns head toward mike] (0.2)  
 Mike Herrington, are you around (8.0)  
 El Joel, who you looking for (0.6)  
 Jo Ah,  
 El [on]  
 Jo Mike, is he around Elliot  
 El ((I'll)) check  
 Jo Mike Herrington  
 El [off to find Mike for Joel] (21.5)  
 Mi Hi Joel  
 Jo Hi Mike (0.3)  
 Mi [on close to camera]  
 What can I do ((fer ya))  
 [off]  
 Jo Well, uhm,  
 Mi [on near sofa]  
 Jo I've been watching the the  
 Mi [seated]  
 Jo image coming from Palo Alto out of the  
 corner of my eye for a good deal of  
 the day...

While this summons involved an extra person, more time and, as a consequence, more turns in getting started, the structure is very much like that of the more streamlined call-answer examples. Joel, the caller, came out first and looked at the distorted video image of Palo Alto. Joel then called out to Mike but only once, waiting a full eight seconds for an answer. Elliot, having heard the call, responded with a question, "Joel, who you looking for?" (either because Elliot had not heard the details of what Joel wanted or because this offered an audible response while allowing Elliot to enter link space. Elliot asked this while approaching the link but while out of camera range. As Joel hesitated, (0.6) "Ah", Elliot came into view. When Elliot was oriented to the link, Joel repeated

the name called, clarifying which Mike in the next turn.<sup>69</sup> This apparent hesitation was not a failure of interaction but provided time for Elliot's orientation to the link (as did the repeated "the the" in Joel's talk as Mike was sitting down at the the end of this fragment).

Unlike the exchange between Joel and Elliot, Mike and Joel exchanged "hi"s before Mike was in view. Certainly in this situation Joel had a strong basis for making an assumption about who might have been saying hi beyond the recognizable features of Mike's voice. Like several examples in the previous section, Mike, as answerer, spoke before coming into view (his audio presence preceding his video presence). Unlike the direct call-answer sequences of the previous section, Mike's "hi Joel" was not a second part to Joel's call. Mike was answering Joel but was also a first speaker after a lengthy pause. Nonetheless, everything up to this point could stand in for Schegloff's summoning phone ring (1968) with Mike's answering "hi" followed by Joel's response, then Mike's question that opened the way for further talk. Joel did not launch into

---

69. This use of Mike's last name is interesting. There were others with the same first name in the lab so the first name alone could be an ambiguous summons. However, one such person was in Portland and thus was not a possible recipient of this call; the other, because of work associations was an unlikely recipient of this call. The call was designed not so much for these possible recipients, but for the people (like Elliot) who were likely to answer and pose this question of identity either in earnest or jokingly. This precise specification of callee was typical and reflected both the purpose of the caller and attention to the multiple possible hearers of the call.

the business of the video distortion until Mike was in the area of the sofa, and audibly hesitated, "*Well, uhm ... the the*", until Mike was seated. Again, answer's orientation was visibly important for the caller.

All the examples given so far have involved people calling out to others at the opposite site, but words were not the only way to make cross-site calls. There was a xylophone next to the mike in both Palo Alto and Portland; anyone wishing to call the other site had the option of calling out or of playing the xylophone. In the next example, William came up to the table, played the xylophone twice in close succession (running the hammer up and down the keys), waited five seconds and then called for *Abbot*. The question, "*Abbot around?*", specified the recipient of the call, but it was also an open question answerable by anyone in ear shot. As it happened *Sam*, who worked closely with *Abbot* and knew *Abbot's* whereabouts, had been working in an adjoining office; *Sam* stepped out of the office (but not into camera range) said something to William ("*William I think he just got here*") and then called *Abbot*. *Abbot*, not understanding what *Sam* had said, came across the commons heading for *Sam*. As *Abbot* passed through camera range, William called out ("*Abbot, it's me*") and the cross-site conversation was well underway.

VC 2.5

in Portland:

*Sam*

*Abbot*

W1 [on, stands by table] (2.3)  
[xylophone] (0.2)

in Palo Alto:

*William*

[xylophone] (5.0)  
**Abbot** around? (9.1) [(15.6) until Sam's talk]  
 [up to camera, moves and refocuses it;  
 /starts back to table]  
**Sa** /William I think he just got here. **Abbot**  
**Ab** yea  
**Sa** William wants you.  
**Wi** [stands by table] (6.0)  
**Ab** ((Say)) what (0.5)  
 [Abbot walking on, (0.3) looking at link]  
**Wi** Abbot, it's me  
**Ab** Oh hi William  
**Wi** Hi (1.3) I gotta remember to get you your  
 tapes back before you go  
**Ab** [sits]  
 I guess we see at OOPSLA right<sup>70</sup>

In this example, there was no apparent hitch as *Abbot* sat; however, *Abbot's* next turn, "I guess we see at OOPSLA right", was only loosely coupled to *William's* topic of returning some borrowed audio tapes. While it was in fact a suggestion of how to return the tapes, it took the two of them another turn to sort that out. *William's* purpose in making this call had nothing to do with the tapes but with some work *Abbot* was doing -- a topic *William* raised after they were both seated and jointly oriented. Again, initial exchanges, here in an elaborate and extended version, extend at least until mutual orientation was achieved. In contrast to the first example in this section where *Joel* called *Mike* directly, here *William* used a generally addressed question to call for *Abbot*.

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70. OOPSLA is a regularly scheduled conference on object oriented programming languages that many lab members were to attend a few days after this conversation took place.

### 5.2.2.2 More Than Two Parties

The following example differs from many in that the people who made the call had a significant accomplishment to report. The Portland contingent of the new programming language project had just gotten the new environment to display on a computer screen for the first time; all that could be seen was a gray screen, but this was an event worthy of announcement and celebration. The first to hear the news were those present in Portland not because they were specifically called in but because they heard the shouts and went to see what was up. The first people called to officially announce the news were the project members in Palo Alto and they were called using the link. Someone in Palo Alto answered the call and found Jack, the only one of the three Palo Alto project members around at the time.

|                                                              |                                                  |
|--------------------------------------------------------------|--------------------------------------------------|
| VC 2.7                                                       |                                                  |
| in Portland:                                                 | in Palo Alto:                                    |
| Abbot                                                        | William                                          |
| Sam                                                          | Laura                                            |
| Evan                                                         | Jack                                             |
| <i>[activity and cheering in commons; talk in an office]</i> |                                                  |
| W1                                                           | <i>[through in PA]</i>                           |
| Ab, Sa                                                       | <i>[l/ to /r]</i>                                |
|                                                              | <i>/[look to link]</i>                           |
| Ab                                                           | <i>/gray</i>                                     |
| Sa                                                           | <i>/[cheering] (2.1)</i>                         |
| Ev                                                           | <i>[on looking at link]</i>                      |
|                                                              | <i>Hello is anybody home (1.2)</i>               |
|                                                              | <i>[leans over table, looking down]</i>          |
|                                                              | <i>[xylophone, xylophone]</i>                    |
|                                                              | <i>[glance at link]</i>                          |
|                                                              | <i>[xylophone xylophone]</i>                     |
|                                                              | <i>[looks up at link and begins to stand up]</i> |
|                                                              | <i>Pat or Jack or (1.1) Doug</i>                 |
| Sa                                                           | <i>I think the answer's no</i>                   |
| Ab                                                           | <i>nobody can see it there</i>                   |

*Ev*    *hello*  
*La*    *Hello (1.0)*  
*Ev*    *Is Pat or Jack or Doug there?*  
*La*    */Who?*  
*Ab*    */[on and sits]*  
*Ev*    *Pat or Jack or Doug*  
*La*    *((            )) (27.1 until Ja comes on)*  
       *[local talk and some movement; Evan*  
       *mostly watching link]*  
*Ja*    */Hi Evan I was just writing you a message.*  
       */[on, glances at link (3.5) gaze again as he*  
       *sits facing the link]*  
*Ev*    *Hi Jack=*  
*Sa*    *=Guess what we got!*  
*Ja*    *What have you got?*  
*Sa*    *We got a screen a gray=*  
*Ev*    *=we got gray bits*

One striking feature of this example is the persistence with which *Evan* called Palo Alto. Discounting for the moment *Evan's* visual presence on the link and the noise that preceded it, *Evan* made five explicit calls in succession (two using the xylophone) and finally got someone in Palo Alto to help. One warrant for this persistence was the importance of the news to be told. Even so, the news was not produced until Jack was oriented to the link and visibly watching it. Visible attention to the link, even though it did not involve direct eye contact in the way face-to-face encounters do, was important to ongoing talk in both mundane and consequential situations.

The multiple presences during this beginning were related to the local flow of activities; *Abbot* and *Sam* had been walking around cheering and became involved in the cross-site encounter as it unfolded. *Sam* and *Abbot* at first took the stance of observers; they directed their comments to *Evan*, comments related to the lack of an answer

("I think the answer's no") and the difficulty of sharing the experience ("Nobody can see it there"). Further, neither Sam nor Abbot were visible until cross site contact had been established. Just as in earlier examples where a third party did not enter the video space until someone from the other site had answered, here Abbot did not move into view until Laura had answered. However, once Jack appeared, they participated fully in cross-site talk. Beginnings do not appear to be fixed scripts that differ according to how many participants are involved but are open transitions that can be constructed in multiple ways by the participants.

### 5.2.3 Presence-Call-Answer

It was not always the case that a cross-site summons was the first move in an interaction. A visual presence could precede a call. This happened in two ways. First, a person sitting in view at one end of the link saw someone walking through at the other site and addressed that person directly. Alternatively, someone might be in view and a person at the other site would note the visual presence and respond to that presence by walking up to the link and saying hello. In both these situations (either walking through or being in view), the presence triggering an interaction was not in the moment directed at initiating a cross-site interaction with a specific partner. In the first case (walking through), it was directed at getting somewhere. In the second case (being in view), it might have



been directed at talking with someone locally (i.e. being around the the link only incidentally), at sitting by the link in case something developed (i.e. being by the link to monitor for possible talks) or at demonstrating the link to visitors.

### 5.2.3.1 Two Parties

In the next example, *Bob* had taken a break from working and was headed out to sit by the link and see what there was to see. *Bob* approached the link, caught sight of *Ben* walking through the Palo Alto commons and hailed *Ben* directly.

|                                                      |               |
|------------------------------------------------------|---------------|
| VC 1.13                                              |               |
| in Portland:                                         | in Palo Alto: |
| Bob                                                  | Ben           |
| Bo [on looking at Palo Alto and moving to sit] (0.1) |               |
| Be [on walking through] (1.5)                        |               |
| Bo 'Ben [spoken while sitting] (0.4) <sup>71</sup>   |               |
| Be [off] (4.1)                                       |               |
| [back on stepping over sofa] (2.5)                   |               |
| Hi Bob                                               |               |
| Bo I got your/ most recent mail message              |               |
| Be / [siting down.....]                              |               |
| Oh good (1.5)                                        |               |
| /you wanna talk about any a that                     |               |
| Bo /I sent you a                                     |               |
| I sent you a reply.                                  |               |
| Be Oh OK I'll read it ...                            |               |

Like previous examples, *Bob* was visible when calling *Ben*, but unlike those examples was still in the process of orienting to the link. *Ben*, who was passing through,

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71. Careful review of *Bob's* lip movements indicates that he said "*hi Ben*" but only the second word was picked up by the mike and transmitted to Palo Alto.

stopped just out of view, saw Bob and climbed over the sofa to sit and talk. Bob said "I got your most recent mail message" as Ben was sitting down but, while sitting, Ben was clearly facing the link.<sup>72</sup> This beginning is comparable to that seen in VC 1.1 (see VC 5.2.3.2) where, as Dick was walking through, Bob said hi and Dick, responding from off camera, finished an errand before coming back to talk with Bob. The person walking through, Dick, was the recipient of the call but was in the ambiguous situation of being greeted by someone involved in an obviously ongoing interaction.

Contrasted to saying hello to someone walking through link space at the other site, is the situation in which a lab member saw someone present at the other end and moved up to talk with them. In the next example, a five person meeting including Abbot but not Ben was ending. All five were standing; three were moving off. Observing this, Ben, who had been waiting in the wings to talk to Abbot, called out to Abbot. Ben, wanting to talk with Abbot, took advantage of the end of this meeting to call out.

VC 1.3

in Portland:

Abbot

Evan

in Palo Alto:

Pat

Doug

Ben

...

Ab ah, see you la:ter

Pa see you la:ter

Do /[off]

Ev /[off]

---

72. The overlap seen here may be accounted for by the precipitous nomination of a first topic or by the surprise of the call. Since Ben had not seen Bob's approach, the call was unexpected.

Be [on]  
 Ab [off]  
 Be Abbot?  
 [standing, leaning to mike, looking at link]  
 Ab Yep (1.0)  
 /[[looking on]  
 /Oh:h /Ben  
 /[[moves on toward seats]  
 Be Hi Did you get any music to play last  
 week/end=  
 Ab /[[seated]  
 =Sure Actually I wanted to send mail  
 around make some concert this evening

Abbot had moved out of camera range by the time Ben called him but answered "Yep" from just off camera. Abbot then extended the "Oh:h" while he looked to see who was there; he explicitly recognized Ben and came back to sit down. Unlike the previous example, there was no overlapping talk. Neither did Ben wait for Abbot to sit before asking about Abbot's work with the music synthesizer. There are several possible explanations: Abbot, in looking on, demonstrated clear orientation to Ben -- he was close to the camera and both his eyes and his words demonstrated recognition and orientation. This encounter, as an extension of a previous conversation, may not be an entirely new beginning. As such, it could follow somewhat different patterns (i.e. a reorientation to the link may follow a different, more subtle pattern than a new orientation). Perhaps because Abbot had just been involved in a cross-site interaction, he could be counted on to continue once he answered and explicitly recognized Ben. It may be that this was simply a breach made less obvious by Ax's respect for

Ben's seniority. Without further examples, I can neither confirm or disconfirm these alternatives.

### 5.2.3.2 More Than Two Parties

In the next example, Bob was sitting in the area of the link talking with Sandra and Evan (both of whom were out of camera range) when he saw Dick walk by in Palo Alto and said "Hi Dick". Dick responded, "Hi", and continued on his brief errand only to return. After returning he was visible standing through several turns before Bob acknowledged him again and brought him up to date on the conversation in Portland. That done there was a speaker change as Evan came on from off camera to ask Dick a question.

VC 1.1<sup>73</sup>

in Portland:  
Bob  
Sandra  
Evan

in Palo Alto:  
Dick

...  
Di [l |to r]  
Di-g |bbb  
Bo-g sss... /ddd  
Bo uh, huh=Hi Dick (1)  
Di Hi 'ob (3.4) [from off]  
Bo That wasn't just for your, benefit I would  
have said hello  
Bo-g s.....  
Bo to him anyway (6.6) So did you see the  
Bo-g LL s....  
Bo preamber news that's been going by?  
Sa Yes  
Bo Did you read today's about the bachelor  
farmers, and Andy

---

73. In this example, gaze is indicated at the point it occurred in the talk. The transcript should be read in this way: Di-g refers to Dick's gaze; bbb means that Dick has began looking at Bob on the first b and continued to do so until a change is indicated; | indicates co-occurrence in gaze.

Bo-g s.....  
 Di [on, stands watching]  
 Sa I read ah the last one on late Friday.  
 Bo-g dd  
 Ev He's not a bachelor  
 Bo-g eeeeeeeeeeeeeeeeeee  
 .  
 .  
 .  
 Ev I left a/ word out  
 Bo-g /dddd  
 Sa Oh you did?  
 Bo Oh h' yea Dick ah Sandra an and uh umm one of  
 the bachelor farmers [Ev on and sits], Evan  
 Perry i' is also here we were just chatting  
 up the amber news an  
 Di 'ogg Yea, great message (1.4)  
 Ev uh I have a question Dick Whre are we in  
 terms of ...

In the first example of sighting (VC 1.13, 5.2.3.1), Bob had entered the area of the link, sighted Ben at the other end and called out. In the second (VC 1.3), Ben had seen Abbot finish talking and used the link to call him back, catching Abbot at the end of another conversation. In this example, there were elements of both of these. Bob said hi to Dick as Dick walked through on his way to the mail room. Unlike Ben in the first example, Dick continued on his errand. On his return, Dick stopped to watch the link. As can be seen in the transcript, Bob's gaze moved to Dick about one second after Dick reappeared (as Sandra was saying "I read ah the last one..."). As soon as he could, Bob took a turn explaining to Dick what was going on.

This situation is more complex than the previous two presence-call-answer beginnings. Dick's first appearance, walking through, differs from other walk throughs with no interaction in that Dick and Bob were gazing at each other

just before *Bob's "hi"*. Dick's appearance also coincided with a break in the Portland talk. Furthermore, *Bob* inserted the *"hi"* into his ongoing local interaction. He was not available for a new interaction in the same way as in the previous two examples. This is joining an ongoing interaction from Dick's point of view though *Bob's "hi"* serves as a possible invitation to do so (see the next example also). The status of this (as a beginning or as an intendedly terminal greeting) is ambiguous. After seeing Dick return and maintain his presence (note the second glance at Dick), *Bob* included him.

In the next example, Several people were talking and laughing in Portland in full view of the link but not oriented to it. William approached the link in Palo Alto, looked, sat down and was greeted by *Joel*. The proceedings then re-formed around the link and a long conversation ensued.

|                        |                                                           |               |
|------------------------|-----------------------------------------------------------|---------------|
| VC 4.1                 |                                                           |               |
| in Portland:           |                                                           | in Palo Alto: |
| <i>Bob</i>             |                                                           | William       |
| <i>Anne</i>            |                                                           |               |
| <i>Joel</i>            |                                                           |               |
| <i>Andy</i>            |                                                           |               |
|                        | [ <i>An, Bo, Jo, and And</i> by an office door            |               |
|                        | talking about <i>Bo's</i> and <i>An's</i> tour of the JFK |               |
|                        | space center]                                             |               |
| Wi                     | [through looking at papers, not at link]                  |               |
|                        | (36.6)                                                    |               |
|                        | [on, into <i>Do's</i> office and out of view but not      |               |
|                        | earshot]                                                  |               |
| <i>Bo, An, Jo, And</i> |                                                           |               |
|                        | [loud laughter, major postural shifts]                    |               |
| Wi                     | [out of <i>Do's</i> , looking and coming up to link]      |               |
| <i>An</i>              | <i>I reached over an I I touched the glove an it</i>      |               |
|                        | <i>squeezed me back</i>                                   |               |
| <i>Bo, An, Jo</i>      | /[laughter] (1.1)                                         |               |
| Wi                     | /[walking up]                                             |               |

Bo **Ve:dy stra:nge**  
 Jo *[glance to link -- possibly seeing Wi]*  
   **Ah luv it, ah luv it**  
 Wi *[enters link space]*  
 Be **So after that, see if we'd done this**  
   **/before,**  
 Wi */[standing]*  
 Bo **doing Disney World,**  
   **/instead of after then we could have taken**  
     **advantage of**  
 Wi */[turning to /sofa and sitting down]*  
 Jo */[looking at Wi]*  
 Bo **that ((an go over to**  
   **/ )) cause they were real**  
 Jo **/((yea))**  
   **Na, na, na, that probably wouldn't work**  
   **Hi William**  
 Wi **Oh hello**  
 Bo **Hello William /(( ))**  
 Jo */Have you heard the,*  
   **have you heard the space center tour story**  
 Bo *[in]*  
 Wi **No:o, space center**  
 Jo **Ah this is/ this is great**  
 Bo */[seated]*  
 Wi **Ah this is ah what ah/ Bob and Anne did**  
   */[points at link]*  
 Jo **/yea**  
 Bo **/on Friday ya we went /to the John Kennedy...**

This joining had an atypical technological feature. Ordinarily, a person walking up to the link in Palo Alto would be able to see Portland on the big screen and the Palo Alto image (i.e. the person's own image) on the feedback monitor. However, someone had been switching video feeds around and while William could see Portland, the feedback monitor showed something unexpected -- a different room. William assumed that the image on the feedback monitor was being sent to Portland and, therefore, that the folks in Portland could not see him as he approached the link. He mentioned this later in the conversation saying that he had

intended to sit down and wait for a break in the talk to say hello.

In this example, *Joel* glanced (seeing *William*) at the link as *William* was approaching; he looked again at the time *William* was first seated and oriented to the link. At the next opportunity, taking the next available turn, *Joel* first responded to the live topic and then said "*hi*" to *William*. *William* responded and *Bob* acknowledged *William*'s presence with a "*hello William*". As *Joel* asked if *William* had heard the space center tour story, *Bob* moved into orientation with the link and began repeating the story. *Joel*'s "*Have you heard the space center tour story*" announces to the joiner what has been going on in much the same way that *Bob* said to *Dick*, in the previous example, "...we were just chatting up the amber news". It is also of note that in both examples another participant in the talk being described got oriented to the link during the update.

A beginning such as this required the collaboration of people present at each end of the link. Once *Joel* in Portland had publicly called attention to *William*, the Portland focus shifted to the link and the talk was constructed to provide time for *Bob* to turn and get into link space. (*Joel* later moved in too.) One difference between this and the previous example was that, while he walked through earlier, his presence was not marked by any visible attention. Once he reappeared, *William* was continuously visible throughout the beginning. Further, all



the Portland participants were both audible and visible to William as he approached; there were no out-of-view players like *Evan* and *Sandra* in the last example. This visibility made transitions smoother by allowing participants to physically align themselves with each other displaying their intention to be there and their availability publicly. In this example, *Joel* could see William's intention to stay as he walked into link space and seated himself. William had visual access to *Joel's* glances at the link (i.e. at him [though in this case he might not have identified them as such]) and to *Bob's* physical reorientation. (See below for an example of joining a conversation without visual presence.) In this example, the people involved in the Portland conversation were fully visible on the link. In the next example, the conversation was mostly off camera.

### 5.2.3.3 An Example of Trouble

Here again, there was a conversation at one site, this time Palo Alto; *Bob* and *Anne* noticed it but were not noticed in return -- even when they began asking each other about the identify of the speaker. Perhaps because they called out to the wrong person, or perhaps because the Palo Alto conversation was too far away from the link, getting a response proved difficult.

VC 2.4

in Portland:

*Bob*

*Anne*

[*Dick* and *Curt*, standing off left, having an audible conversation related to an earlier

in Palo Alto:

*Dick*

*Curt*

cross-site meeting]  
 Di [moves into view at left edge of screen]  
 (33.0)  
 Bo [on; going by on way out to lunch] (1.1)  
 [looking at link] (0.5)  
 An [on] (0.7)  
 Bo [off] (1.0)  
 An **Hi people**  
 [off]  
 Bo **What kind of people**  
 [back in, looking]  
**Is that William?**  
 [turns to mike] **William?** [turns back] (2.3)  
 An ((no))  
 Bo [sits]  
 you're not=  
 An that's not a William=  
 Bo that's not William  
**It's hard to tell; everything's**  
**sorta/ blurred**  
 An /Dick,  
**it's Dick** (1.0)  
 Bo **Hello**  
 Di **Hi**  
 [has been engaged with Curt; he is  
 interrupted and drawn into responding by  
 the escalating interest from Portland]  
 Bo **Oh hi Dick** (1.2) **We can't tell who it is**  
**because the, top, six inches of our TV**  
**screen is just waving back and forth ...**

The demand of talk (responding when directly and  
 repeatedly addressed) eventually intruded on Dick's  
 conversation with Curt and forced a brief interruption.  
 (After the interruption, Dick returned to his local  
 conversation.) Because of Dick's position vis-a-vis the  
 technology he could neither be clearly seen nor clearly  
 heard so identification was indeed difficult. His location  
 also made it impossible for him to monitor the link in the  
 way Joel did in the last example (with glances at William).  
 The technology limited both parties -- Bob and Anne in what  
 they could see and hear (plus how they could tailor their

talk) and Dick in what he could easily see from the margins of link space. This (and the previous examples) shows an orientation to visible presence as a possible opening. The next example also illustrates this orientation to visibility.

#### 5.2.3.4 An Inept Presence

In the case of William (VC 4.1 above), William could not tell that the Portland folks could see him, but he knew he was in the area of the link and he knew he could join that conversation by taking a turn at talk (see below). In this example, a newcomer from another lab waited for some one by the link. He visibly watched both televisions without realizing he might attract attention from Portland. When a Portlander asked if he were waiting for someone, he was visibly startled and left quickly.

|              |                                                                                                   |                    |
|--------------|---------------------------------------------------------------------------------------------------|--------------------|
| VC 4.11      |                                                                                                   |                    |
| in Portland: |                                                                                                   | in Palo Alto:      |
| Anne         |                                                                                                   | Ivan               |
|              |                                                                                                   | Will <sup>74</sup> |
| Iv           | [walks through] (5.1)                                                                             |                    |
| W            | [on, stands oriented to link, appears to be checking out the feedback monitor -- using movements] |                    |
|              | (21.0 from first appearance to An)                                                                |                    |
| An           | [out of office]                                                                                   |                    |
|              | <b>Are you looking for someone?</b>                                                               |                    |
|              | [leans on sofa back]                                                                              |                    |
| W            | Oh no sorry jus waiting for someone                                                               |                    |
| An           | ((waiting)) OK                                                                                    |                    |
| W            | (( ))                                                                                             |                    |
| An           | (( )) OK                                                                                          |                    |
| W            | ((See ya ))                                                                                       |                    |
|              | [off]                                                                                             |                    |

---

74. A stranger

As in the previous example, this illustrates that lab members do orient to someone's visible presence as a possible opening. Like walking into a service area as an opening, one expects visibility to draw some response (e.g. "may I help you"). Anne even left her office to respond to the visible presence in link space.

#### 5.2.4 Taking a Turn

In the following example, the usual cross-site audio-video availability of people oriented to the link was missing. The video was being used for an office-to-office conference and the commons were connected only by audio. There was an ongoing conversation in Palo Alto which Bob heard and joined by taking a turn at talk. This startled the conversationalists and caused a diversion, centering on who was there, before the talk got back to the topic to which Bob's initial comment was directed.<sup>75</sup>

VC 4.13

in Portland:

Bob

in Palo Alto:

William

Mike

Ivan

[the video shows an office-to-office conversation using phones for audio; the commons-to-commons audio link is still available so that an ongoing Palo Alto conversation among Mike, William and Ivan is audible in Portland]

...

Wi Ok the one thing we don't have now (( ))

Bo Right, we don't have that yet (2.6)

---

75. Not all attempts to take a turn succeed. In another instance, Bob's efforts to join a technical conversation failed. While he timed his talk to theirs, he did not make his turn topic-relevant as in the previous example.

Mi I don't know there's a mysterious voice  
 without a picture (1.8) in Portland  
 Bo Yea I was just listening sort of, to ah to  
 the conversation It's hard without the video  
 link at the same time  
 Mi yea  
 Wi ha  
 Iv whose that  
 Mi That's Bob  
 Iv Oh, OK  
 Mi /Can't you tell by the glasses  
 Wi /Iv Iv This is  
 Mike and Ivan down here Bob  
 Bo Oh OK well you can ...

Limited visual access was important across different conversational moves. The identification of the "mystery voice" here was based solely on audio clues; there was no video channel. Once that had been accomplished, William introduced the out of view players just as Bob had introduced the off camera people in VC 1.1 (5.2.3.2). In the previous section, Bob and Anne tried to break into an out of range Palo Alto conversation. What Bob and Anne did grew out of their local conversation and not out of orientation to and interest in the ongoing talk from the other site. Also, as the audio was unclear, they eventually produced a call rather than a topical turn.

### 5.3 How Beginnings Work

In analyzing link beginnings special attention has been paid to who was doing what when, or in other words, to sequential organization. In all cases there was an opening presence available to, though not always purposefully

directed at, the link.<sup>76</sup> Beyond direct calls someone's presence in link space, especially someone oriented to it, worked as an opening. Thus, the stranger standing by the link (in VC 4.11, 5.2.3.4, an inept presence) produced an interaction even though he was not even aware that he was "calling" Portland. Likewise, the first space center tour story was not a call; it was part of an ongoing local conversation and was not purposefully oriented to the link. It was told behind the ring of sofas and the Portland participants were standing in a circle rather than facing the link as full orientation would require. William's response to it was treated as an opening-joining as he positioned himself in relation to the technology clearly oriented to the other site.

The first space center tour story was readily available to the link unlike other single-site activities that were

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76. This points to another feature of openings -- they are not always intentional in the sense of being planned in advance. Intention was clear in the call-answer and the call-local summons-answer sequences. A person stepped forward and called someone at the other site; there was at a minimum an intention to try to begin an interaction and possibly to conduct specific business. But not all cross-site interactions began with a clear call. Some began because of a person's visibility over the link either intentionally or unintentionally. Because the area around the link was a specialized space and orientation within it had specialized meaning, an unintentionally positioned body drew an answer as easily as an intentionally positioned one. Beyond eliciting a response intention also influenced what came next. The unintentional presence might participate in a conversation or might withdraw upon discovering that standing in link space would produce a conversational partner; the intentional presence produced a reason for calling.

off camera or only partially on camera. This contributed to the beginning. Where all participants were on camera, the transition to a cross-site encounter was smooth; in other situations, where the same-site interaction was all or partly off-camera (or off-mike), the transition to cross-site was more difficult.

The limitation of the camera's view and the microphone's range influenced the beginnings of interactions. If the participants were face-to-face, their mutual orientation and interpersonal distance would be a matter for joint negotiation. Because given the nature of the link people could be on camera or off, what would have been a highly flexible, negotiable arrangement became more dichotomous. While the field of view set limits, they were not all or none. Consider the instance of two Portlanders trying to determine if William were talking in the Palo Alto commons (VC 2.4, 5.2.3.3). Once they had gotten the speaker's (Dick's) attention, he moved more fully into view just as once Joel had said hello to William in the space center tour story example, people reoriented to the link. Being on or off camera was not a simple, all-or-none situation but one managed in terms of the activity of the moment and other available information (e.g. audio, the orientation of visible others).

Over the link, the video and audio environments were noticeably separate. The audio space extended beyond the video and people could be in a shared audio environment

without seeing or being able to see the other. Coming into each others' vision was a different matter over the link than with geographic copresence. An overhearer interested in joining can enter the conversation only in particular ways -- by walking into link space and waiting to be seen or by entering the audio environment.

There were a variety of opening moves from intentional calls to unintentional presences that served to start interactions. However, an interaction could only begin if there were a recipient. Responses ranged from direct answers to calls to responses to presence. The forms both of openings and of responses extended link beginnings over several turns until mutual orientation had been achieved.

As Schegloff pointed out over 20 years ago, interactions may begin with a summons-answer sequence that is recognizable and meaningful to the participants and that provides for continuing talk. The opening moves described here took one of three basic forms: to call, to see and react and to bid for inclusion. In the first type, a lab member called out in an effort to begin an interaction; the answer might be direct or might involve a third person who conveyed the call through a local summons. These beginnings were analogous to telephone calls and fit Schegloff's description nicely.

In the second type, a lab member saw a person (or persons) and called out to that person (or, depending on whose perspective is adopted, someone was seen and then



called). Here again, the summons-answer sequence applies with visual presence substituting for a verbal call as the summons. For Schegloff, the summons was the phone ring (or a number of other substitute moves); whatever specific summons is produced, it is produced and presented by one person. However, this requires the presence of two parties for a summons -- one person must be visibly available to be seen while another person does the seeing; there must be both a being there to be seen and a seeing. (This is implicit in Schegloff's argument. A phone ring without a hearer may be a summons but it cannot unfold into an opening.)

In these data the response to a visual presence may take the form of a verbal summons (recall *Bob* calling out to *Ben*). The visual presence, while eliciting a response in a summons-like way, was not intended as a specific opening move. A telephone ring is designed as as a summons; sitting in front of the link, while more ambiguous than a phone ring or a link call, at a minimum displays availability and may garner a response. Walking through the area of the link, while making one available, is also a part of a recognizably different stream of activity (e.g. going to the mail room and versus sitting down to call the other site).

In the third type, bidding for inclusion by taking a turn at talk, we can easily see an orientation to the link and to joining a conversation. The person who initiates a cross-site encounter by taking a turn is starting something

identifiably different. However, the identification of this as a beginning is, in part, a consequence of an analytic strategy that focused on the initiation of cross-site encounters. Under other circumstances, this would be considered joining an ongoing conversation. Still, the ongoing interaction in link space provided the event to be joined (or summons equivalent). The first cross-site turn, while not an answer to a call, displays an orientation to the available event, like a response displays an orientation to a summons.

Joining an ongoing event can also be described in terms of Kendon and Ferber's work on greetings. Kendon and Ferber identified a distant salutation, a more or less elaborate approach and a close salutation followed by both spatial and topical reorientation. They also specified that all phases were not seen in every encounter (e.g. a close greeting that does not involve an approach represents a subset of the entire pattern). In cross-site encounters, there was a mutual sighting that was often separated in time from verbal production (though over the link, the audio also played an important role in mutual orientation); there was an approach and a display of recognition and there was a reorientation of bodies in space before talk really get started. Bids for inclusion (taking a turn) were unlike greetings in that they did not involve the reciprocal recognition and mutual alignment of this sequence.

Charles Goodwin pointed out the importance of calling for attention within turns of talk and he defined several mechanisms by which a speaker requested or summoned, through restarts and gaze management, the visible attention of a hearer. In these data, many beginnings were organized in terms of the summons-response sequence Schegloff proposed. Likewise, turns during beginnings were organized to allow respondents to get oriented to the link and, at the same time, to their conversational partners. As speakers audibly hesitated in anticipation of this orientation, they were also making visible their expectation that orientation should occur before talk proceeded.

The precise details of each sequence were defined by those present, by the spatial and technical configuration of the situation, by the interactive situation of the beginning (call or encounter), and by the moment-to-moment contingencies of the situation (e.g. when *Bob* encountered Ben, Ben was on his way through the commons necessitating a call [VC 1.13, 5.2.3.1]). It is also likely that some elements of the beginnings are shaped by the identities, rights and responsibilities of the persons involved vis-a-vis each other.



## Chapter 6

# Continuing to Talk: Topics and Closings

### 6.1 What is a Topic?

The word "topic" is commonly associated with the subject, content, theme or business of talk. It may refer to news, information, a report, a story, or tidings and directly or indirectly it includes such things as situation, position, locale, status, footing, and standpoint (Woolf 1974). While this listing does not emphasize the joint creation of topics by people mutually engaged in the activity of talking about some jointly relevant thing(s), it allows for three important things: a topic is the content of talk (what talk is about); a topic is somehow related to the form of that talk (as news, a story, etc.); and a topic is contextually produced by people in a particular place and relations to each other. All these aspects point to actual talk as mutually constructed, situated activity.

A topic is surely what a conversation, or some part of a conversation, is recognizably and reportably about; it is the conversation's subject matter. But the subject matter

is something people create together as they talk. In the following example, identifying "the" topic proves difficult.

VC 1.13  
in Portland:  
Bob

in Palo Alto:  
Ben

...  
Bo I got your most recent mail message  
Be Oh good  
/((Did you want to talk about any a that))  
Bo /((I sent you a reply))  
I sent you a reply  
...

While the first line ("*I got your most recent mail message*") was unequivocally about receiving mail, it is unclear whether this was an announcement that the mail had been received or a bid to bring the subject matter of that mail up for discussion. The recipient of this line, Ben, took it in both these ways, essentially saying good that the message was delivered and asking if the content of that message were to be the current topic ("*Did you want to talk about any a that*"). The third turn ("*I sent you a reply*"), displayed that this was a status report about the exchange of mail and not, at this moment, a discussion about the issues raised in the mail message. What this talk was about unfolded turn by turn and could have changed with each turn. These two continued:

Be Oh OK I'll read it he he /he  
Bo /ya  
I didn't realize about the ah non,  
ownership, issue...

Here was a promise of future action ("*I'll read it*") and a rationale (i.e. I said what I did in an earlier message

because I didn't realize about the non-ownership issue). This entire stretch of talk may be characterized as having been about the receipt of a mail message, the non-ownership issue, or both. (This is also an example of two people negotiating the management of multiple overlapping communication media. The primary discussion, for the moment, was to remain in electronic mail; over the link, these two acknowledged to each other the status of this piece of pending business.)

To say that a given conversation was about fixing the video, children going to school, space use in the lab, etc., it not saying much about how such things are accomplished and by whom. One wants to know how topics are constructed and how people get from one to another. Describing what some bit of talk has been about can be done turn by turn according to what the participants notice and respond to or it can be a summary done over multiple turns. If a topic is created through talk, it can be examined as an accomplishment, as something constructed in turns at talk and across a series of turns.<sup>77</sup>

### 6.1.1 Eliciting New Topics

One way of opening a new topic during a conversation is by offering another speaker the chance to bring up something new. Button and Casey (1984) call this a topic elicitation

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77. This becomes even more challenging when there are multiple and simultaneous topics.

and identify a three-part sequence composed of a topic initial elicitor (a turn that marks the segmentation of talk, that does not present anything new and that provides an opening for a new topic, e.g. a question such as "anything else?"), possible topic initials (a next turn in which something new is proposed or in which the speaker moves toward a closing, e.g. an answer such as "yeah, last night I...") and a topicalizer (an acknowledgment of the nominated topic and a warrant for further talk on this topic, e.g. a recognition such as "oh yeah").

The full sequence of topic initial elicitor, possible topic initial and topicalizer is most often seen right after openings, at topic-bounding turns, and during closings (Button and Casey 1984). As can be seen from the following example, this new topic elicitation is done over the link.

|              |                                                                                                                                                                                                                     |
|--------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| VC 2.3       |                                                                                                                                                                                                                     |
| in Portland: | in Palo Alto:                                                                                                                                                                                                       |
| Joel         | Pat                                                                                                                                                                                                                 |
|              | Laura                                                                                                                                                                                                               |
| Jo           | ...Anybody else have an item () All right<br>the only item that remains is who's doing<br>this next week                                                                                                            |
| Pa           | oh wait ohh I want a repor' I want, somebody<br>who went to antenna theater to make enough<br>of a report that anybody else else who would<br>like to go gets, to hear about it, gets<br>excited by it, (( )) (( )) |
| ?            | ((yeah))                                                                                                                                                                                                            |
| La           | I would recommend it highly...                                                                                                                                                                                      |

The meeting moderator, Joel, asked if anyone had any remaining agenda items (a topic initial elicitor); Pat responded with a request for a report (possible topic initial) which someone ratified by saying "yeah"



(topicalizer). Then talk continued on the theater visit for several turns before returning to Joel's outstanding request for someone to act as moderator at the next meeting. As with openings, topic elicitation techniques standard in other contexts were easily used over the link.

### 6.1.2 Topic Transitions

There have been two modes of topic transition described for conversation: stepwise progression in which the speakers link "... whatever is being introduced to what has just been talked about, such that, as far as anybody knows, a new topic has not been started, though we're far from wherever we began" (Sacks Spring 1972 lecture 5:15-16 cited in Jefferson 1984; Sacks Feb. 19, 1971 lecture cited in Button and Casey 1984) and sequential segmentation<sup>78</sup> which opens the floor for an immediate and obvious topic change (Button and Casey 1984:176).

No matter what the topic, both disjunctive and stepwise transitions may be employed. For clear topic junctures, Jefferson (1984) listed several mechanisms, all of which shift the topic through attention to the other party: opening a closing, referencing a plan for getting together or making other arrangements, restarting a conversation, or bringing up pending biographicals. These are all ways to open the floor for an entirely different topic by suggesting

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78. Also called disjunctive

something of mutual interest or making room for the other to do so.

In the example in the last section (V.C. 2.3), Joel allowed for a possible closing by asking if anyone had any other agenda items. After a pause, he proposed choosing the moderator for the next meeting (typically the last piece of business at these meetings). Both these moves were clearly oriented and addressed to those present in Portland and Palo Alto; both allowed for disjunctive topic shifts. When in fact he got a response to the first, his second was put on hold. Both the new topic proposed in response to his first request and his own proposed next topic were dealt with in order: other proposed topic first.

Creating an environment for a new topic can also be done gradually or stepwise. Stepwise transitions involve five steps: (1) summing up and (2) moving to an ancillary matter which is (3) stabilized by the recipient. There is then (4) a pivotal utterance recognizably on the topic but with independent potential followed by (5) the target. The conversationalists are far from where they began without having obviously changed topic (Jefferson 1984).

In the following example, William began discussing an unappreciated gift and ended up describing earring shipping. (While at a conference William, Bob and Anne had been shopping together for gifts to bring home.) The five steps are numbered on the transcript.

VC 4.1

In Portland:

in Palo Alto:

Bob  
Anne

William

...

- W1    yea that was really nice, and then I  
       got her this shirt and she just said  
       what were you thinking  
 Bo    are you kidding () she said that  
 W1    yea, what were you thinking  
 Bo    ... didn't like the shirt that  
       [said to Anne who just walked up]  
 An    oh that's too bad  
 1    W1    never wear it I'm sure  
 2    An    ((you should have gone for the))  
       **Mickey Mouse earrings**  
       [an alternative they had discussed while  
       at the conference]  
 3    Bo    yea **Mickey Mouse earrings** that would  
       have been better  
 4-5 W1    I can, to buy her earrings I'd have to  
       spend half a day just going through  
       shops trying to find earrings an  
 stuff...

While these particular patterns are pervasive they are also malleable. It is not the case that each speaker has a specified role to play in changing topic or that all steps will always be followed. The doing of any given step may even suggest a different topic entirely. "...[T]he deployment of an open topic ... can incidentally provide an environment ripe for the introduction of other matters ..." (Jefferson 1984:221). For the introduction of new topics, the conversationalists must create a different environment such as that created by a summary or a joke. Who tells the joke and who introduces the next topic are not predetermined matters. These are among the conversational resources available to create various forms of talk.

### 6.1.2.1 What Topics When?

One feature of topical talk is that order matters. Some topics can have any immediate next topic while others, like talk about some troublesome matters, are more restrictive (Jefferson 1984). Following talk about a friend's terminal illness, for example, with talk about a funny clown at the circus may not be acceptable while the reverse is. In part because of the public nature of this link, there were few examples of troublesome matters being discussed over it. However, the importance of order was visible in several ways. First, topics often presented reasons for calling (see below) and meetings often began and ended with informal or personal topics bounding the official business (see Boden forthcoming (1991) for more on meetings).

While the order of topics is influenced by the topics themselves, both the nature of the event and the status of the participants also influence topic. Topic is not always an open matter to be negotiated among equal conversational partners. For example, American physicians often begin a medical interview with an open question like: what brings you here today? After the initial narrative this elicits from the patient, the physician topically controls the encounter through closed-ended questioning. The medical encounter is thus an event where most topics are physician-initiated and patient talk is controlled both in terms of

when it occurs and what it is about (Erickson and Rittenberg 1987; Frankel 1984; Michler 1984; West 1983).<sup>79</sup>

In the cross-site data, there was less formal status differentiation than between physician and patient; however, the frame or event was especially influential. As has been noted, the link was public. Further, the kind of event (e.g. meeting or casual encounter) was visibly influential. In particular, personal news (e.g. the status of a child's health, a brother's marriage, a weekend trip) only appeared before and after work sessions and meetings and never during the official business.

### 6.1.3 Moving Out of Topics

At the beginning of an encounter the participants have a common starting point -- opening talk.<sup>80</sup> Once that has been accomplished, conversations can go in any number of directions. In closing a conversation, the situation is reversed. The participants must get to a common point so they can say goodbye. They must suspend the normal organization of talk, where someone always speaks next, by moving out of topic talk.<sup>81</sup>

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79. This interactional maneuver requires two parties facile in both the moment-to-moment conduct of talk and the frame expectations for the event as a whole (Erickson and Rittenberg 1987:4, 14).

80. What follows is summarized from Schegloff and Sacks (1973).

81. This describes continuing uninterrupted conversations having a marked beginning and ending -- a description that applies to the encounters under discussion here.

In principle, a topic should not be cut off without some special warrant and people should have the opportunity to mention appropriate new and old business. So there has to be some way to get into a closing without cutting off topics and without precluding further business. A possible preclosing like *"Anybody else have an item"* (from the transcript of V.C. 2.3 above) serves this function. It occupies the floor without reference to any topic and passes to other speakers who can bring up a new topic or also pass. A second pass such as *"I don't think so"* verifies that all possible mentionables have been mentioned, that both parties are oriented to the possibility of a closing and that an ending can now be done.

A closing sequence can be initiated at any topic boundary, but of course topic boundaries are not always clear. Some topics do not have recognizable ends; they just hook onto or shade into something else. In this case there are ways to suggest closing down a topic. For example, a topic may be closed with a possible preclosing like *"OK?"* or *"All right?"*; an aphoristic formulation or moral lesson can be given to summarize and to lead into a closing. Bounding techniques like these allow previously unmentioned topics to come up through the *"etiquette of invitation"* (Schegloff and Sacks 1973:309). In these preclosings, the floor is always offered to the other. If that person claims the floor, talk proceeds; if not, a closing ensues.

Floor-offering is a general device and can be employed by either speaker at the end of any topic. By contrast, there are caller's and callee's devices which, while formed in a similar way, refer to the particular interests of the other party and the context of the shared activity. For example, after a phone has rung six times at 10:00 PM, a caller may ask "did I wake you". This pre-first-topic closing offer, like all preclosings, neither cuts off nor guarantees talk.<sup>82</sup>

Closing sections may contain many components such as making arrangements or reinvoking previous topics, but two components are crucial -- this initiation of the closing section, which serves to warrant the closing, and a terminal exchange such as "OK talk to you soon, bye", "Bye".

...[T]o capture the phenomenon of closings, one cannot treat it as the natural history of some particular conversation; one cannot treat it as a routine to be run through, inevitable in its course once initiated. Rather, it must be viewed, as must conversation as a whole, as a set of prospective possibilities opening up at various points in the conversation's course.... Getting to a termination ... requires accomplishing (Schegloff and Sacks 1973:324).

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82. Talk may be cut off by an overt announcement of an ending but such announcements include their own special warrants.

## 6.2 First Topics: Mutual Concerns

Cross-site talk began when someone called another or when someone encountered another over the link. Once the parties had exchanged greetings and gotten physically situated and oriented to each other in the area of the link, they could move on to some first topic.<sup>83</sup> First topics were broached in particular ways using a pointer to some jointly held interest. This orientation to mutual (or potentially mutual) concerns was a consistent part of the nomination of first topics.

In cross-site calls there was a pervasive feature of the turn in which first topics came up. The caller's topic was immediately preceded by an explicit, verbal orientation to the jointness of the activity, project, plan or concern about to be mentioned. The caller began with "I.....you..." or "I.....we....." as in the following examples.

(VC 3.8)  
*...I was wondering if you were going to the...*  
 (VC 1.2)  
*...I think that we're going to end taping...*  
 (VC 1.11)  
*...I gotta remember to get you your tapes...*

None of the first topic initiators were formulated syntactically as questions, but the joint orientation expressed by "I" and "you" (or "we") plus the wondering,

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83. The fact that this happened regularly and successfully is, in and of itself, a validation of the experimental use of this technology.



thinking, remembering established an environment in which an answer-like response was provided. The people called took up the topic directly and produce either an agreement/disagreement or a proposition for how to deal with the situation mentioned by the caller. These turns parallel question-answer adjacency pairs as the first part sets up for and is incomplete without the second.

(VC 3.8)

*...I was wondering if you were going to the...*

*...Uh undecided...*

(VC 1.2)

*...I think that we're going to end taping...*

*...Well, fine with me...*

(VC 1.11)

*...I gotta remember to get you your tapes...*

*...I guess we see [each other] at ... [and you can return them there]*

This joint orientation was pervasively present in calls, both in those answered directly by the person called and in those involving a local summons. There was a call and an answer (followed by a local summons and a second answer sequence if needed). Both parties were physically oriented to the link (and thus to each other) and leading into a topic of mutual relevance. But not every call involved this formulation in precisely this form (and not all cross-site interactions began as calls).

In this example, Joel introduced the first topic after saying he was off doing something over lunch and a particular task did not get done; and he then asked whether Sandra was doing this task at the other site.

VC 3.3

in Portland:

in Palo Alto:

|    |                                               |        |
|----|-----------------------------------------------|--------|
|    | Joel                                          | Sandra |
| Jo | <i>[walking on, glances at link]</i>          |        |
|    | <b>Sandra are you around (7.0 until Sa)</b>   |        |
|    | <i>[faces link, one foot on table]</i>        |        |
| Sa | <b>Yea</b>                                    |        |
| Jo | <b>Did I hear a yeah (1.8)</b>                |        |
| Sa | <b>/Yea:a</b>                                 |        |
|    | <i>/[on]</i>                                  |        |
| Jo | <b>Oh hi</b>                                  |        |
| Sa | <i>[stands facing link]</i>                   |        |
|    | <b>Hi</b>                                     |        |
| Jo | <b>Uh since I was at ... nothing got done</b> |        |
|    | <b>Are you ...</b>                            |        |
| Sa | <b>No problem...</b>                          |        |

In this call, as soon as Sandra was on and oriented, Joel initiated some joint, pressing business that had been affected by his absence. He told where he had been and formulated the other-oriented part of this first topic as a question. This I...you orientation was, perhaps, more elaborate than the previous examples because it brought up a possibly troublesome matter.

In the last example Joel, the caller, began the first topic (presumably the reason for the call) with a report about what-I-was-doing and a question about what-you-might-be-doing -- both related to a joint project. In a variation on this pattern, both callee and caller produced joint verbal orientations. The callee's version came before mutual physical orientation had been accomplished.

|              |                                                                |
|--------------|----------------------------------------------------------------|
| VC 1.11      |                                                                |
| in Portland: | in Palo Alto:                                                  |
| Joel         | Elliot                                                         |
|              | Mike                                                           |
| Jo           | <i>[on] (3.0)</i>                                              |
|              | <i>[sits on table near monitor looking at Palo Alto] (3.3)</i> |
|              | <i>[turns head toward mike] (0.2)</i>                          |
|              | <b>Mike Herrington, are you around (8.0)</b>                   |
| El           | <b>Joel, who you looking for (0.6)</b>                         |

Jo Ah,  
 El [on]  
 Jo Mike, is he around Elliot  
 El ((I'll)) check  
 Jo Mike Herrington  
 El [off] (21.5)  
 Mi Hi Joel  
 Jo Hi Mike (0.3)  
 Mi [on close to camera]  
 What can I do ((fer ya))  
 [off]  
 Jo Well, uhm,  
 Mi [on near sofa]  
 Jo I've been watching the the  
 Mi [seated]  
 Jo image coming from Palo Alto out of the  
 corner of my eye for a good deal of the  
 day because I've been working down in the,  
 with the ed, with half the editing system  
 while the other half was taping what's  
 coming across and you guys have had the  
 horizontal distortion all day long and  
 it's beginning to drive me batty so I  
 thought I'd ask if you knew about it and  
 if so if there was anything you could do  
 Mi No I didn't know about it; tell me about it  
 Jo It's the standard....

In this case, Mike asked a question while he was  
 approaching the link ("What can I do fer ya"), and the  
 question was oriented to the jointness of the encounter.  
 Mike's question, like the opening question in many medical  
 interviews (e.g. what can I do for you today; what brings  
 you here today), anticipated some pending issue and elicited  
 a narrative from Joel. In the course of telling Mike what  
 he could do, Joel began before Mike was fully physically  
 oriented to the link with a report of his (Joel's) topic-  
 relevant activities ("I've been watching the image...");  
 once Mike was oriented, Joel produced two I-you  
 constructions.

... I've been working ... and you guys have

had the horizontal distortion...  
 ... so I thought I'd ask if you knew about  
 it...

This differs from the previous examples in two ways. First Mike, the callee, opened the floor for an explanatory narrative with his question "What can I do fer ya" before joint physical orientation was achieved. Second, while the call was about matters jointly relevant to Joel and Mike, it was not predictable in the course of the ongoing activities of the day. While the immediacy of current shared work was not an element in this call, the call was possible only because the state of the technology was always relevant to Joel and Mike, and because, at the particular time of the call, the image was distorted. Indeed, the call transformed the distorted image into a joint problem. This variation of the jointly orienting construction occurred in situations like this with mutually relevant, temporally current but unanticipated topics.

In another example of an unanticipated call, Joel was calling Sandra to ask if she were attending an upcoming seminar. While this call did not relate to the immediately relevant details of joint work, the seminar was a topic of mutual relevance and, like the trouble with the video, had temporal currency.

VC 3.8

in Portland:

Joel

in Palo Alto:

Sandra

...

Sa Were you calling me

Jo Yea, I was wondering if you were going to  
 the ...tech talk...

Like the previous example, this conversation could not have been anticipated by the recipient yet the initial topic was of mutual relevance. The verbal orientation to mutual interest in the about-to-be-introduced first topic appeared when the encounter was expectable in terms of the immediate flow of work or when the joint relevance of the topic was apparent on other grounds (such as a well known and characteristic concern with the state of the media space equipment or an upcoming tech talk). The caller consistently established what the first order of joint business was to be.

In cases where where at least one of the partners was inexperienced in using the link, this formulation was not so clearly present.

VC 4.6

in Portland:

Joel

in Palo Alto:

x = an employee  
from another

area

v = one of the  
visitors

...

v Oh there look at,  
He's coming out someone's coming out

.

.

x ...Joel How are /you (1.5)

Jo /[leaning on sofa back]

x Have some visitors here from ATT ...

In this example, x moved from asking "How are you" into "Have some visitors...". The the you-implicit-I in this formulation reversed the usual order (I first) and was constructed out of elements that, while related to the present encounter, did not bear on any previous encounters

or work between x and Joel. This lack may be related to the lack of joint business and the lack of facility in using the technology. X was also proposing that his business (touring visitors) might become, for the moment, joint business. In the next example, there was no joint business and no formulation that even resembles this orientation.

|              |                                     |
|--------------|-------------------------------------|
| VC 4.11      |                                     |
| in Portland: | in Palo Alto:                       |
| Anne         | y = from                            |
|              | another lab                         |
| y            | [on, stands ...] (21.0)             |
| An           | [out of office]                     |
|              | <b>Are you looking for someone</b>  |
|              | [leans on sofa back]                |
| y            | Oh no sorry jus waiting for someone |
| ...          |                                     |

Here y was completely unaware that his presence in link space would act as a summons; Anne did not know who he was or what he might have wanted.<sup>84</sup> In this situation, which lacked both mutual recognition and potentially joint business, the I...you formulation was missing.

The I-you orientation was present in calls between people with joint business and was a way to constitute the first topic as having to do with that business. But not all

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84. Anne might have asked "Can I help you" which implies a potentially longer future for the encounter than "are you looking for someone". "Can I help you" commits the asker to do more than attending to an answer; it says that asker will continue to be available after the answer and will help if the request was possible and reasonable. "Are you looking for someone" projects a more limited future -- it commits one only to provide information on a person's whereabouts if possible and perhaps to go look for that person. This question shaped the scope of the possible answer; it also shaped the future obligation the asker had to the other person.

cross-site conversations began as purposeful calls. In encounters that began opportunistically, this orientation was present when reference was made to joint business and absent when such a reference was missing. Consider, for example, "...I got your most recent mail message..." in the next segment.

|                                                      |  |                                    |
|------------------------------------------------------|--|------------------------------------|
| (VC 1.13)                                            |  |                                    |
| in Portland:                                         |  | in Palo Alto:                      |
| Bob                                                  |  | Ben                                |
| Bo [on looking at Palo Alto and moving to sit] (0.1) |  |                                    |
| Be [on walking through] (1.5)                        |  |                                    |
| Bo 'Ben [spoken while sitting] (0.4)                 |  |                                    |
| Be [off] (4.1)                                       |  |                                    |
|                                                      |  | [back on stepping over sofa] (2.5) |
|                                                      |  | Hi Bob                             |
| Bo I got your/ most recent mail message              |  |                                    |
| Be / [siting down.....]                              |  |                                    |
|                                                      |  | Oh good (1.5)                      |
|                                                      |  | /you wanna talk about any a that   |
| Bo /I sent you a                                     |  |                                    |
|                                                      |  | I sent you a reply                 |
| Be Oh OK I'll read it ...                            |  |                                    |

Contrast this to the question Ben asked when he caught Abbot at the end of a project meeting: "...Did you get any music to play...".

|                       |  |                                              |
|-----------------------|--|----------------------------------------------|
| VC 1.3                |  |                                              |
| in Portland:          |  | in Palo Alto:                                |
| Abbot                 |  | Pat                                          |
| Evan                  |  | Doug                                         |
|                       |  | Ben                                          |
| ...                   |  |                                              |
| Ab ah, see you la:ter |  |                                              |
| Pa see you la:ter     |  |                                              |
| Do / [off]            |  |                                              |
| Ev / [off]            |  |                                              |
| Be [on]               |  |                                              |
| Ab [off]              |  |                                              |
| Be Abbot              |  |                                              |
|                       |  | [standing, leaning to mike, looking at link] |
| Ab Yep (1.0)          |  |                                              |
|                       |  | / [looking on]                               |
|                       |  | /Oh:h /Ben                                   |

Be        *Hi*    *Did you get any music to play last*  
              *week/end=*  
 Ab        *[/seated]*  
              *=Sure ...*

In the first example, Ben (the person called) announced he got Bob's mail message; Ben used pending business to offer a supposition about why Bob called out to him. While typically, it was the caller who pointed to the joint pending (or anticipated) business, here the callee used the same formulation to anticipate an opening topic in the conversation.<sup>85</sup>

In the second example, where Ben happened on Abbot and knew of his music work, Ben began with a direct "you" question. This encounter has a feature that differentiated it from other examples. Abbot's computer music was of mutual interest but not the subject of joint work. This suggests that mutual relevance and joint business are independently available resources for constructing conversations.<sup>86</sup>

---

85. Jack's answer to Evan's call, "Hi Evan I was just writing you a message" in VC 2.7 was not quite analogous. Ben raised a particular topic -- the one in Bob's mail message; Jack's offer of a topic was more opaque -- he pointed to something about to be jointly known and left the pursuit of the particulars up to Evan.

86. There are other possibilities. Perhaps because Ben was Abbot's manager he had rights to be more direct; perhaps because the encounter rather than beginning anew was tagged onto another it had a modified first topic form; perhaps because the two participants were standing (a more transient position) rather than sitting facing the link, Ben framed his sentence in this way; perhaps the implicit "I was wondering" is carried by recent conversations on this topic. I do not have the data to



In another sequence (VC 4.1), Joel, having seen William walk up and watch the Portland conversation in progress, asked William, "...have you heard the space center tour story?" Just as when Ben asked Abbot about his music, the question was other-attentive; there was no joint work under consideration.<sup>87</sup> Likewise in another encounter (VC 1.6), Linda opened the first topic of a child going to school with "*How'd it go t' how'd it go this morning William?*". In such cases, the other-attentive questions pointed to activities removed from the situation of joint work but within the realm of joint concern or interest. It is also important that neither of these encounters began as calls.

In the next example, Bob said hi to Dick as Dick walked through; when Dick came back, Bob told him with whom he was talking (Evan and Sandra were off camera) and about what. The local topic (the amber news), which could become a topic for Dick as well, received a summary judgment from Dick ("yea, great message"). It was not until Evan came on and announced "*I have a question ... Where are we ...*" that topical talk of mutual relevance was taken up.

VC 1.1

in Portland:

Bob

Evan

...

in Palo Alto:

Dick

---

substantiate or disallow these alternatives; in all likelihood, they each play some part in formulations such as this.

87. Also Joel was standing outside link space though he was visible (see the full example in Chapter 5). This suggests that physical location and body position were related to verbal formulation.

Di [l to r]  
 Bo uh, huh=Hi Dick (1)  
 Di Hi 'ob (3.4) [from off]  
 ...  
 Di [on]  
 ...  
 Bo Oh h' yea Dick ah Sandra an and uh umm one of  
 the bachelor farmers [Ev on and sits], Evan  
 Perry i' was also here we were just chatting  
 up the amber news an  
 Di 'ogg Yea, great message (1.4)  
 Ev uh I have a question Dick Where are we in  
 terms of ...

Here, where Dick was joining an ongoing conversation, the first obligation was not so much to point to joint business but to include the new arrival in what was going on. Hence the report of who was there and what they had been discussing. However, when Evan entered visible space and brought up some pending business between himself and Dick, he began with I...we.

First topics were often introduced by a verbal indication of their mutual relevance. There was a consistent joint orienting feature leading into first topics (or nominations for first topics). The I-you form occurred when the caller was physically oriented to the other through the link<sup>88</sup> and about to introduce a topic of mutual relevance. It was missing when there was no pending joint business to which a speaker might refer or when the business at hand, rather than being part of a continuing relationship, had to be created de novo. This points to the importance of joint, relevant business. Further it displays

---

88. Or the callee was in the process of getting oriented and prompted the caller for a topic

the creation of mutual orientation through situation specific work physically to achieve alignment<sup>89</sup> and topically to produce something of mutual relevance.

### 6.3 Different Beginnings: Different First Topics?

While initially it seems reasonable to assume that first topics are those that occurred after the orientation phase of cross site encounters had been completed, looking closely this logically defined first topic slot challenges the assumption. Such first topics only appeared in some sorts of interactions -- those with the clear, joint beginnings seen when one person called another. As calls involving more than two people, scheduled meetings and encounters are considered, it becomes less and less clear that a "first topic" can be consistently located as a thing that comes right after the parties have said hello and gotten oriented.

Cross-site talk began either with a call or a chance encounter. What happened topically, and how that topic was produced, depended on what had come before. Different types of openings allowed different types of first topics. With calls there was then a period in which the parties got oriented spatially to each other via the technology. After that, a first topic could be nominated usually with explicit verbal orientation to the jointness of the topic. First

---

89. See Chapter 5

topics provided the reason for calling; in encounters among people who worked together, first topics were more various -- there was not a reason for calling but potentially joint concerns were still referenced first. When the ongoing talk among parties was joined by the encounterer, the new presence might shift the topical focus of the ongoing talk or the topic in play might stay on the floor.

### 6.3.1 Calls

#### 6.3.1.1 Calls with Two Parties

VC 3.8

in Portland:

Joel

in Palo Alto:

Sandra

...

Sa Were you calling me

Jo *Yea, I was wondering if you were going to the ... tech talk on Thursday*

Sa Uh undecided

Jo *If you are I'd love to hear about it*

Sa *Yea it looks interesting...*

As soon as Sandra was on and oriented, Joel produced a reason for calling that opened talk about going to Thursday's seminar. Joel said: "*I was wondering if you were going to the ... tech talk on Thursday*". Joel's wondering, while prefacing an indirect request, also made available one of his recent activities -- wondering if anyone who had access to the seminar in Palo Alto were going and specifically, if Sandra were going. Sandra equivocated: "uh undecided". In the face of this maybe-like response, Joel persisted: "*If you are I'd love to hear about it*". This turn also served as a request (to tell the caller about the

seminar should Sandra attend it) -- a request that reinforced the reason-for-calling as something important to Joel (as well as a reason why Sandra should attend). In the next example, there was also a reason for calling.

|              |                                                                                                     |
|--------------|-----------------------------------------------------------------------------------------------------|
| VC 3.3       |                                                                                                     |
| in Portland: | in Palo Alto:                                                                                       |
| Joel         | Sandra                                                                                              |
| ...          |                                                                                                     |
| Jo           | Oh hi                                                                                               |
| Sa           | Hi                                                                                                  |
| Jo           | Uh since I was at the parent teacher conference nothing got done, Are you guys taping through lunch |
| Sa           | Uh no:we stopped at twelve fifteen...                                                               |

Again after the initial call, reply and orientation, Joel produced a first topic framed by what he was doing (going to a parent-teacher conference) and his topical concern (taping through lunch). This reason for calling was grounded in coordinating the shared activity in which Joel and Sandra were engaged that day.

The first topics in the previous two examples are parallel: both came after the parties were mutually oriented; both were introduced by a verbal indication of the potential joint business (first example) or actual joint business (second example) about to be mentioned; both callers provided a sense for their own situations just prior to the calls from which the need to call arose; and both initiated topics directly related to shared work interest or activities. In the first case, the reference was to a topic of shared interest (to be covered at the tech talk) while in

the second there was a joint project (taping today) that had to be coordinated through lunch.

### 6.3.1.2 Calls with Multiple Parties

In the previous calls, involving only two people, the first topic immediately followed the orientation and greeting of the beginning. When there were more than two parties, a similar pattern can be seen.

|              |                                                                                                                     |               |
|--------------|---------------------------------------------------------------------------------------------------------------------|---------------|
| VC 4.7       |                                                                                                                     |               |
| in Portland: |                                                                                                                     | in Palo Alto: |
| Joel         |                                                                                                                     | Sandra        |
| Bob          |                                                                                                                     |               |
| Andy         |                                                                                                                     |               |
| Jo           | Oh Sandra (3.5) Sandra are you around                                                                               |               |
| Sa           | I'm her:e                                                                                                           |               |
| Bo           | /Hi Sandra [from off]                                                                                               |               |
| Jo           | /((Sandra))                                                                                                         |               |
| Sa           | /[on]                                                                                                               |               |
| Bo           | /[on]                                                                                                               |               |
| Jo           | Sandra I think that we're going to end<br>taping for the day                                                        |               |
| Sa           | Well fine with me                                                                                                   |               |
| Jo           | Looking bloody quiet down there and ah and<br>so I'm just going to to ahead and kill it                             |               |
| An           | Oh no                                                                                                               |               |
| Sa           | This isn't quiet, the're even two of us<br>standing here                                                            |               |
| Jo           | What ()                                                                                                             |               |
| Sa           | [pointing at William who has just walked up]                                                                        |               |
| Bo           | Sandra don't give up on oh Hi William                                                                               |               |
| Jo           | Hi William                                                                                                          |               |
| Bo           | Sandra don't ah don't ah throw away those<br>papers we're going to talk about them a<br>week from Friday instead... |               |

In this example, Joel who called Sandra again about taping, suggested ending taping for the day as the reason for the call. Sandra agreed; then Joel justified this by saying how quiet it looked. In this call, the first topic came after the mutual orientation of caller and callee. The

topic was introduced with an I...we... and involved the immediately relevant activity of taping.

Joel had produced an official first topic, a reason for having called Sandra, in the appropriate first topic slot -- right after the call and initial orientation. It was a topic of relevance to the two of them and the work of the day. However, as soon as Sandra answered the call, Bob who was just off camera and paying attention, said "*hi Sandra*" and not only came into view but oriented himself physically to the link. As the first topic unfolded, Joel suggesting it was quiet enough to turn off the tape, Sandra indicated that it was anything but quiet and Bob jumped in with a next topic -- "*...don't ah throw away those papers we're going to talk about them a week from Friday instead...*". This was a first topic of sorts; it was a first between Bob and Sandra and related to joint work (for Bob, Sandra and Joel).

While the presence of others was accidental, the unfolding of multiparty talk was accomplished by those who happened to be present by several mechanisms. Bob made his presence plain during the beginning by saying hi and stepping into view. Sandra actively indicated William's presence, and Bob, after the first topic, introduced a different piece of pending business in the next available topic slot. He even did this by recycling this topic -- stopping to say hi to William (responding to Sandra who is pointing) and returning to the topic.

Looking at the three previous examples, first topic provides a reason for calling that points to joint business between the caller(s) and the callee(s). What Bob said in the last example was not a first topic -- he did not make the call. He did, however, encounter Sandra as Joel called her and his entry into this conversation was shaped like those seen when someone on one side of the link joined an ongoing conversation (see Chapter 5). He was present for and clearly oriented to the beginning. Bob's turn was a divergence in the line of talk begun by Joel. It was not a reason for calling, as Bob did not call, but it provided a reason for saying hi and coming up to the link. It was a piece of pending business -- one that opened a line of talk between Sandra, Bob and Joel about the papers Bob mentioned. Bob not only engaged Sandra, he produced a topic of relevance to several of the people present. Both taking a turn at this point and the content of that turn were designed to continue talk and expand its constituency.

#### 6.3.1.3 Call-Local Call with Two Parties

When calls were not answered directly, first topics of the form described here did not appear until the recipient of the call responded. These topics still provided reasons for calling and referred to joint activities or concerns.

VC 1.11

in Portland:

Joel

in Palo Alto:

Elliot

Mike

Jo *Mike Herrington, are you around (8.0)*

El Joel, who you looking for (0.6)



Jo    *Ah, Mike, was he around Elliot*  
 El    *((I'll)) check*  
 Jo    *Mike Herrington*  
       *(21.5)*  
 ...

In this example, as in many calls, Joel was first answered not by Mike, the person called, but by Elliot, whose office was close to the link and who often answered calls from Portland. The exchange between Elliot and Joel was not a make-talk situation (Maynard 1980) like that occurring at parties, on air planes, or in check out lines. Instead, it was one in which a particular activity was carried out -- the activity of helping Joel find Mike, the person with whom Joel wanted to talk. The exchange was brief and to the point with Elliot checking his understanding of Joel's call ("Joel who you looking for") and then announcing that he would go check to see if Mike were around. This activity-oriented exchange was characteristic of a situation in which a third party, not the recipient of the call, answered. This talk was not oriented to any mutual engagement or conversation; there was no I-you orientation and the content was not pointing to anything jointly pending between Joel and Elliot.<sup>90</sup>

The encounter continued:

...  
 Mi    Hi Joel

---

90. This is also very much the form of Anne's response to an inept presence in 6.3.2.3. The phrasing of the response indicates an orientation to what is most likely to happen next, i.e. answerer will go find the designated party.

Jo *Hi Mike (0.3)*  
 Mi [on close to camera]  
 What can I do ((fer ya))  
 [off]  
 Jo *Well, uhm,*  
 Mi [on near sofa]  
 Jo *I've been watching the the*  
 Mi [seated]  
 Jo *image coming from Palo Alto out of the*  
*corner of my eye for a good deal of*  
*the day ...*

Once the callee appears, Mike solicited a first topic from Joel while getting oriented to the link. Here was a called party who was not only physically orienting to the technology but was also verbally orienting to Joel as the provider of the first topic or the reason for the call. Mike's question, like the physician's opening question in a medical interview (e.g. "what brings you here today"), elicited a story about what was wrong with the technology that the two of them then attempted to remedy. The first topic, trouble with the video image, provided a jointly relevant reason for calling. That the first topic was produced as a story may demonstrate Joel's responsiveness to Mike's question or may relate to the nature of the topic and a projected future course of action (i.e. the story contains information Mike must know before the two of them can proceed). The next example contains a much less elaborated first topic.

|                      |               |
|----------------------|---------------|
| VC 2.5               |               |
| in Portland:         | in Palo Alto: |
| Sam                  | William       |
| Abbott               |               |
| W1 [xylophone] (0.2) |               |
| [xylophone] (5.0)    |               |
| Abbot around (15.6)  |               |

Sa William I think he just got here, Abbot  
 [Sam is working in an office out of view]  
 Ab yea  
 Sa William wants you (6.0)  
 Ab ((Say)) what (0.8)  
 Wi Abbot, it's me  
 Ab Oh hi William  
 Wi Hi (1.3) I gotta remember to get you your  
 tapes back before you go  
 Ab I guess we see at OOPSLA right  
 Wi That's true; yea I can bring them along, I  
 also would like to bother you to mail me ah,  
 ah the filing for your note class, Smalltalk  
 note class...

William had produced a generic call designed for any hearer who knew Abbot and the link. Sam, who had been working in an office out of view but within earshot of the link, stopped his work and did two things: he directly answered William providing the information that Abbot was around and he called Abbot to the link (a call that William could easily hear unlike many local calls). Sam then returned to his work. This activity, while it was talk, was also doing a particular thing responsive to William's call. Ordinarily topical talk is assumed to be an ongoing affair based in the turn taking system by which participants organize themselves to speak one after another (Maynard 1980). When talk and activity are coincident, as in this example, topic and activity are also coincident. Here Sam talked to William about whether Abbot were around.

In this example the talk between William and Abbot began with a series of reasons-for-calling. William began with the pending business of the borrowed tapes then moved on to a second item also introduced by I...you: wanting some



computer code Abbot had developed. This sequence of pending items was in itself the reason for calling. Unlike most lab members, Abbot was leaving in a few days, perhaps permanently. This status made all pending business exceptionally timely.

#### 6.3.1.4 Call-Local Call with Multiple Parties

|              |               |
|--------------|---------------|
| VC 2.7       |               |
| in Portland: | in Palo Alto: |
| Evan         | Laura         |
| Sam          | Jack          |
| Abbot        |               |

...

Ev Pat or Jack or (1.1) Doug  
 Sa I think the answer's no  
 Ab Nobody can see it there  
 Ev Hello  
 La Hello (1.0)  
 Ev Is Pat or Jack or Doug there  
 La Who  
 Ev Pat or Jack or Doug  
 La (( )) (27.1)  
 Ja Hi Evan I was just writing you a message  
 Ev Hi Jack=  
 Sa =Guess what we got!  
 Ja What have you got  
 Sa We got a screen a gray=  
 Ev =We got gray bits  
 ...

In this example, Jack indirectly suggested a topic as he entered and got oriented ("I was just writing you a mail message") making it possible for Evan to ask what the message was about. Instead, after Evan's hello, Sam interrupted to initiate important news. Unlike most talk, this was an event of great news worthiness -- the first gray screen run by the new program was a cause of great celebration and was worthy of announcement to all. Such news, clearly the reason for the call, took precedence over

Jack's indirect topic nomination and the excitement over this accomplishment warranted Sam latching onto Evan's utterance. Even so, Sam prefaced the news with an implied you-we ([You] "Guess what we got") again showing an orientation to the multiple parties physically copresent with the speaker and the joint interest in the topic to come. Jack willingly gave up his nominated topic (the subject of a mail message he was just writing) in favor of the caller's reason for calling.

Across the different kind of cross-site calls, first topics appeared in relatively stable form. They displayed an orientation to some joint activity or project as well as being tailored to the particulars of the situation. The next question is whether other sorts of beginnings engendered the same sorts of first topics.

### 6.3.2 Other Beginnings

#### 6.3.2.1 Presence-Call with Two Parties

In initiating cross-site encounters, there was a difference between calls and responses to visible presences on the other end of the link. One way this difference was apparent in the latter is in the diminished importance of the reason for calling. Such a beginning may even warrant its absence altogether.

VC 1.13

in Portland:

Bob

[Bob sees Ben walking through]

in Palo Alto:

Ben

Bo    /'Ben  
       /[sitting] (0.4)  
 Be    [off] (4.1)  
       [back on stepping over sofa] (2.5)  
       Hi Bob  
 Bo    I got your/ most recent mail message  
 Be           /[siting down.....]  
       Oh good (1.5)  
       /you wanna talk about any a that  
 Bo    /I sent you a  
       I sent you a reply.  
 Be    Oh OK I'll read it ...

This encounter, unlike those previously described, has no particular reason for calling other than the fact that when he happened to come into the Portland commons, Bob saw Ben in Palo Alto. Still, Bob produced a first topic related to pending joint business. While the topic was known to both (as both were privy to the recent exchange of mail), the issue was raised only by oblique reference to the mail message in which it was more fully described.

Bob provided a topic which was a status report ("I got your most recent mail message") and Ben, saying "oh good", paused for more. When no more was forthcoming, Ben asked Bob if that was what he wanted to talk about, but Bob, sensitive to the long pause, continued with more of the status report ("I sent you a reply"). The lack of a reason for this call caused a little trouble at the beginning -- perhaps because Ben, only hearing Bob call out to him, responded to this interaction as if it were a call rather than an encounter. In fact, later in the exchange, Ben specifically asked:

Be    ... so were you just sitting here by the  
       ah ()

Bo no I just wandered by  
 Be oh well I'm glad you () /called me  
 Bo /I s' actually I saw  
 you about the same time I came in to sit  
 down. I got a bunch a stuff I need to go  
 do ...

This explicit request for clarification on how the encounter started plus the trouble with the first topic both display that a reason for calling was expectable in encounters that seemed like calls. As the next example shows, when the beginning was equally understood by both participants and a reason for the call was provided, things proceeded more smoothly.

|                                                                                |               |
|--------------------------------------------------------------------------------|---------------|
| VC 1.3                                                                         |               |
| in Portland:                                                                   | in Palo Alto: |
| Abbot                                                                          | Ben           |
| [Abbot and several others off after a meeting]                                 |               |
| Be Abbot                                                                       |               |
| Ab Yep (1.0)                                                                   |               |
| Oh:h Hi Ben                                                                    |               |
| Be Hi, Did you get any music to play last week end=                            |               |
| Ab =Sure, Actually I wanted to send mail around make some concert this evening |               |

Here there was a clear reason for calling; Ben had seen Abbot and wanted to know if Abbot had succeeded in getting the synthesizer to play music from his program. There are two observations to be added: this topic, while of interest to many people in the lab, was Abbot's sole project thus the orientation to "you" and not "I...you"; the encounter was latched to Abbot's previous meeting and, while Abbot greeted Ben and had to reorient physically to the link, this extension (versus beginning completely anew) may make a difference in how such encounters are constructed.



### 6.3.2.2 Presence-Call with Multiple Parties

VC 1.1

in Portland:

Bob  
Evan

in Palo Alto:

Dick

Bo

Oh h' yea Dick ah Sandra an and uh umm one of  
the bachelor farmers Evan Perry i' was also  
here we were just chatting up the amber  
news an

Di 'ogg, Yea, great message (1.4)

Ev uh I have a question Dick where are we in  
terms of ...'s paragraph...

Previous to this segment, Dick had walked through and Bob had said hi to him (see Chapter 5). Dick returned and Bob summarized for Dick what the ongoing talk in Portland had been about (they had been "chatting up" a project report just circulated by Evan). Dick produced an assessment of the message and Evan, after a pause, jumped in with a topic of concern for Dick and him: the status of a problematic paragraph in someone's contract.

This type of encounter required no reason for calling as no call was made. Dick was first included in the ongoing topic but with a summary -- a move which can invite closing down a topic. Dick treated it as an ending offering only a summary judgment ("Yea, great message"). There was then a pause used by Evan as a place to bring up a topic pending between the two of them (though he tied his new topic to the prior utterance with an "uh"). Shortly after this, Bob (and Sandra) left.

In this case, the notion of a first topic in a conversation is limiting. Dick showed up during an ongoing

conversation. There was a first topic only to the extent that interaction over the link had a special status, or to the extent that a new person joining a conversation provided an opportunity for the conversation to begin anew. Here talk changed course after Dick's arrival, but that change was less attributable to a fixed first topic slot than to Dick's presence, to the turn he produced in response to Bob (i.e. the summary, "yea, great message" followed by a pause), and to the possible joint topics and combinations of conversational participants.

In the next example, William appeared and was greeted just at the end of Bob's story about touring the John F. Kennedy Space Center. In this case, when "*the space center tour story*" was proposed as a topic by Joel, it was taken up and the entire story was repeated for William.

|              |                                            |               |
|--------------|--------------------------------------------|---------------|
| VC 4.1       |                                            |               |
| in Portland: |                                            | in Palo Alto: |
| Joel         |                                            | William       |
| Bob          |                                            |               |
| Jo           | Na, na, na, that probably wouldn't work Hi |               |
|              | William                                    |               |
| Wi           | Oh hello                                   |               |
| Bo           | Hello William /(( ))                       |               |
| Jo           | /Have you heard the,                       |               |
|              | have you heard the space center tour story |               |
| Wi           | No:o, space center                         |               |
| Jo           | Ah this is/ this was great                 |               |
| Bo           | /[seated]                                  |               |
| Wi           | Ah this was ah what ah/ Bob and Anne did   |               |
| Jo           | /Yea                                       |               |
| Bo           | /On Friday ya we went to the John Kennedy  |               |
| ...          |                                            |               |

Like the last example, the possibility of joining the current topic was available. William, unlike Dick, took that option and the story was recycled for his benefit.

This difference is understandable in the turn by turn construction of the interaction (and in the fact that William had not heard the story while Dick had read the "amber news"). William walked up while several speakers were relating the story of touring the space center. He sat down, apparently waiting either to be noticed or for a possible point when he might inject a comment. He was greeted at the first opportunity by Joel who asked if he had heard the story. When he said no, the story was reproduced for his benefit.

As in the first example in this section, someone entered a scene with ongoing topical talk. In this case, he was recognized, asked if he had heard the story and his response ("no:o, space center") opened the way for his involvement in the topic already on the floor. This cross-site beginning had no new first topic.

#### 6.3.2.3 Encountering an Inept Presence

|                                       |                |
|---------------------------------------|----------------|
| VC 4.11                               |                |
| in Portland:                          | in Palo Alto:  |
| Anne                                  | x = a stranger |
| x [on] (21.0)                         |                |
| An [out of office]                    |                |
| Are you looking for someone           |                |
| x Oh no sorry jus waiting for someone |                |
| An ((Waiting)) OK                     |                |

While the beginning of this interaction was unusual because x was completely unacquainted with the link, the move after orientation was familiar. Anne asked "are you

*looking for someone*".<sup>91</sup> This was occasioned both by a stranger's presence in an area where one might be looking for someone 700 miles away and by making one's self available for the activity of getting someone.

"Are you looking for someone" was constructed not only in terms of a short future but also in terms of what had just happened. A person had appeared in link space and had not made a call; the person was clearly not a member of the lab nor a recognizable visitor. Anne therefore solicited an answer with the question "*are you looking for someone*". This provided both a way for a novice to say who was wanted and prepared for the activity of finding whomever might be wanted. It turned out that x did not want anyone in Portland and had not realized that this space was special in any way. While this talk was instrumental and oriented to the potential for cross-site activity, it produced no topical future; there was no joint matter to be discussed.

#### 6.3.2.4 Taking a Turn Cross-Site

In the next example, the first cross-site turn, while remarkable in certain ways, cannot be characterized as a first topic.

VC 4.13  
in Portland:  
Bob

in Palo Alto:  
William  
Mike  
Ivan

---

91. Versus the way Elliot asked Joel in VC 1.11 "who you looking for": "are you" does not presuppose in the same way that "who you" does.

[the video shows an office-to-office conversation using phones for audio; the commons-to-commons audio link is still available so that an ongoing Palo Alto conversation among William, Mike and Ivan is audible in Portland]

Wi' Ok the one thing we don't have now  
 (( ))  
 Bo Right, we don't have that yet (2.6)  
 Mi I don't know there's a mysterious voice  
 without a picture (1.8) in Portland  
 Bo Yea I was just listening sort of, to ah to  
 the conversation, It's hard without the  
 video link at the same time  
 Mi Yea  
 Wi Ha  
 Iv Whose that  
 Mi That's Bob  
 Iv Oh, OK  
 ...

There was ongoing talk in Palo Alto about some aspect of technology and William noted one thing not yet available in the lab. Bob took a turn to agree with what William had said. The immediate next turns were devoted to the identity of the mysterious turn-taker. First Mike commented on the mysterious voice, expanding his turn after a 1.8 second pause. Bob then reported what he was doing -- a maneuver that apparently allowed Mike to recognize the voice and tell Ivan who was talking. After this identification the talk returned to the previous topic. Here again topical talk resumed after cross-site contact was made. Unlike calls, which initiate new interactions with mutual orientation and first topics, the beginnings of encounters may or may not occasion a topic shift (a sort of first topic) depending on the talk itself and the participants.

First topics clearly occurred at the beginning of conversations -- when two or more people initiated contact and were getting oriented to each other. They displayed mutual orientation to each other, to their joint work and to the fact that this was a first encounter in this place at this time. Caller typically initiated first topics -- usually as a reason for the call. When encounters did not begin as calls, there were variations on this pattern including trouble, joining existing talk, closing down the previous topic and starting a new one, and revisiting the previous topic.

First and last topics provide possible slots for mentioning privileged business. The topic proposed first is thus of interest on several counts -- for getting potentially important items on the table, for moving things along and, as with any topic, for establishing and maintaining joint concerns. Having accomplished a first topic, participants can either go on to other matters or close down their conversation.

## 6.4 Beyond First Topics

### 6.4.1 Topics and Turns

One pervasive feature of talk is that it is most often made up of people taking turns, of one person talking and then another. Sacks, Schegloff and Jefferson (1974) show how people jointly structure conversations out of turn

construction units (the smallest unit that can count as a turn). For example, in answering a question, one may say "yes, I'm going to the tech talk." The "yes" counts as a turn construction unit. After it, the current speaker may go on or speakership may change. What happens at points like this is locally managed by the immediate participants. At the end of the first turn construction unit in any speaker's talk, that speaker can explicitly select the next speaker and stop. If that does not happen, any one can be the next speaker including the current speaker. This pattern applies to each turn construction unit. In the example ("yes, I'm going to the tech talk"), the speaker paused after "yes"; the other party could have used the pause to say something; when that didn't happen, the speaker went on. If this speaker had not paused but had latched the "yes" to the following word, a hearer would know that was more to come. Just as a question like "Have you heard the space center tour story" proposes what is to come.

This model of turn-taking, pointing as it does to the local construction of what comes next, leaves each next turn open. But what comes next can hardly be said to be arbitrary. Some kinds of turns request or require certain kinds of responses. For example questions elicit answers; furthermore, with questions there is a turn-to-turn topic relationship to be upheld. Question-response, and other commonly occurring pairs like greeting-greeting, invitation-response and farewell-farewell, have been called

adjacency pairs (Schegloff and Sacks 1973) and link turns from different speakers that expectably come one after the other. Adjacency pairs, more than other types of turns, make particular next turns expectable; if the expected next is missing, the absence is noticeable.

How turns are negotiated and managed determines the structure of a conversation. Given that conversations are always explicitly about something(s), what gets done in topic talk is intricately related to turn taking. Topics are co-generated in situ by people talking, by a sequence of turns that produces or closes down further talk. A series of adjacent pairs (turn a and the following b, turn b and the following c, etc.) displays how topics are generated since this is a turn by turn accomplishment.

There are, of course, situations where the turn to turn flexibility is responsive to the structure of the event. In a courtroom or a doctor's office, for example, a question usually requires an immediate answer. In a classroom, the physical arrangement and the method of instruction frames<sup>92</sup> what will go on in the particular lesson (Erickson 1982b, Florio 1978, Mehan 1978, Philips 1983, 1972). In cross-site situations there was considerable flexibility.

Topics are created or produced during talk; they are in some way objective, describable things created by some

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92. The use of frame draws on Goffman's definition: principles of organization governing events and participants' subjective involvements in them (1974:10-11).



identifiable authors in a conversation or some definable segment of a conversation. This definition of topic is behind such descriptions as "they were trying to decide how to fix the camera". Such summary descriptions are themselves parts of conversations or elicited in some conversation-like context (Suchman and Jordan 1990). These descriptions represent some one, acting as analyst, describing what happened in another context. Rather than emphasizing these descriptions, the following section analyzes the production of topical talk as an activity based in turn taking. Talk is always some kind of doing, some particular kind (or kinds) of activity that can be understood in part by looking at the doing of that activity itself.

#### 6.4.2 Talk as Focused Activity: Single and Multiple Foci

In most of the examples presented so far, people approached the link, sat down, and talked. But this description assumes a single focus of activity shared by all participants, i.e. every one was oriented to the person who had the floor (Shultz, Florio and Erickson 1982), to what that person was talking about, and to the fact that at the end of a turn that person could continue talking or another may begin talking. There were times in conversations, especially with more than two people, when talk became

multifocused -- several conversations were going on at one time or several strands of a single conversation were in play. There were also times when talk was interspersed with other kinds of activity like working on a joint design or fixing a piece of the technology -- this kind of talk could be single and multiply focused.

In link talk as a single-focused activity, people maintained a physical orientation to each other and the single activity at hand. This kind of talk could easily move into and out of multiple foci in ways already documented for face-to-face situations.<sup>93</sup> Cross-site conversation involved the waxing and waning of these foci.

#### 6.4.2.1 When One Person Had the Floor

In the next set of examples, one person had the floor, and others paid attention to what that person was saying. The first example was from a lab meeting; Joel, the moderator had turned the floor over to Abbot who was soon to be leaving.

|              |                                             |
|--------------|---------------------------------------------|
| VC 2.3       |                                             |
| in Portland: | in Palo Alto:                               |
| Joel         | Bill                                        |
| Abbot        |                                             |
| ...          |                                             |
| Jo           | ... why don't we go with short items first  |
|              | Abbot                                       |
| Ab           | Oh, OK Well some of you may know that       |
|              | that I'm: taking off for holiday pretty     |
|              | soon next week or whatever after OOPSLA and |
|              | a extended holiday so this was actually my  |

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93. See for example the examples of multiple streams of talk presented by Erickson (1982) and of multiple lines on the same talk analyzed by M. Goodwin (in preparation).

? last ah lab meeting this summer  
 ? this summer  
 Ab yea this sounds optimistic /And  
 ? /this year  
 Ab this year right Uhm I really enjoyed  
 working here in the lab an was a very  
 nice atmosphere I did lots of things I  
 always wanted to do and I want to wanted  
 to thank you all down there and up here um  
 for the atmosphere you provided and and the  
 stimulus, the conversations and discussions  
 well thanks allot  
 ? thank you Abbot  
 [applause]  
 Jo OK, Bill Smith  
 Bi uhm now this was a ah this was a piece of  
 video, with ah about, which shows a ah ah  
 use of of ahm knowledge-based productivity  
 tools in design ahm it's actually a  
 prophetic piece of video that was made in  
 1961 and ah ah it includes with it a critique  
 of ah what happens when one uses such ()  
 systems () to ah automatically turn (( ))  
 design (( )) into products, So here we  
 go ()  
 ...

In the last example, there were two instances of one  
 person, first Abbot then Bill, talking and others listening.  
 There were no side conversations and no side sequences as  
 Abbot and then Bill talked. In the next, one person began  
 with a story about what was wrong with the video image and,  
 after the story, the second joined in to help figure out  
 what was wrong.

VC 1.11  
 in Portland: in Palo Alto:  
 Joel Mike  
 ...  
 Mi Hi Joel  
 Jo Hi Mike  
 Mi ((What can I do'f ya))  
 Jo Well, uhm, I've been watchin the, the image  
 comin from Palo Alto out of the corner of  
 my eye for a good deal a the day cause I've  
 been working down in the, with the edit with  
 half the editing system while the other half

*was tapin what's coming across, an you guys  
 have had the horizontal distortion all day  
 long and it's beginnin to drive me batty so  
 I thought I'd ask if you knew about it an if  
 so if there was anything you could do*  
 Mi No I didn't know about it, tell me about it  
 Jo *It's the standard horizontal () ahh wiggly  
 distortion up e' very near the top a the ah  
 image ()*  
 Mi OK I'm goin' go up on'am looking now at, up  
 at my image  
 ...

Here one person, Joel, held the floor and explained what was wrong with the image. At the end of the explanation, Joel asked Mike ("*...I thought I'd ask if you knew about it...*") a question that invited his participation. In these two examples, one person talked and produced the topic.

#### 6.4.2.2 Shared Floors

In the last example, Joel had the topical floor for the initial presentation of the problem. Then he and Mike began to share responsibility for the unfolding activity. In the next example, Evan, Pat and Abbot all contribute to the development of talk about progress on their joint work.

|              |                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------|
| VC 1.2       |                                                                                                         |
| in Portland: | in Palo Alto:                                                                                           |
| Evan         | Pat                                                                                                     |
| Abbot        |                                                                                                         |
| ...          |                                                                                                         |
| Ev           | <i>An that's where we are this morning we<br/>haven't ah we haven't made any progress yet<br/>today</i> |
| Pa           | <i>You ran a hundred and ten thousand byte<br/>codes before you hit a fix temps operation</i>           |
| Ab           | <i>M /hum</i>                                                                                           |
| Ev           | <i>/That's correct</i>                                                                                  |
| Ab           | <i>Yea because we are rehashing the Smalltalk<br/>dictionary first</i>                                  |
| Pa           | <i>Ohhhh</i>                                                                                            |
| Ev           | <i>It was it was actually getting ready to ah</i>                                                       |

create um a sorted list off ah processes  
 Ab Of the delays I guess, right  
 Ev Yea  
 ...

Here participants shared the floor by alternating turns at talk. In this segment, Evan, Pat and Abbot changed turns producing a sort of stepwise development of the topic. There was still another way in which the floor could be shared over the link.<sup>94</sup> That was when talk and some other kind of activity were coordinated. In the next, already-introduced example Joel had called Mike because of a technical problem with the video image coming from Palo Alto. Together, they tried to fix it. Mike had been moving the camera and asking Joel to observe the result of each move.

|                                               |  |               |
|-----------------------------------------------|--|---------------|
| VC 1.11                                       |  |               |
| in Portland:                                  |  | in Palo Alto: |
| Joel                                          |  | Mike          |
| ...                                           |  |               |
| [camera moving]                               |  |               |
| Jo An now it's not there                      |  |               |
| [camera moving]                               |  |               |
| Mi Now when I move the camera it went away    |  |               |
| Jo Yup ()                                     |  |               |
| Mi OK () And you don't see it here on on this |  |               |
| at all do you                                 |  |               |
| Jo Nope                                       |  |               |
| ...                                           |  |               |

In this example, rather than coordinating multiple streams of talk, the participants were coordinating two kind of activity. The striking feature of this instance (and of

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94. Other types of shared floors such as multiple parallel conversations and byplay occurred over the link as well, but are not considered here.

others like it) is that the activity took a turn that would otherwise be open for talking. Furthermore, since the encounter happened over the link and Joel could not see what Mike was doing (and could not always be expected to know what Mike was up to), Mike gave occasional, repeated descriptions of his activity. Here was an instance of adapting to the limitations of the visual frame with familiar conversational resources.

#### 6.4.3 Patterns in Topical Talk

Whether topic shifts are dramatic (disjunctive) or gradual (stepwise), their turn to turn construction is important. In the following three examples, there were topic shifts after a remarkable pause. In the first, a face-to-face conversation, after the speaker's pause, he took up the floor again. In the second, a cross site conversation was in progress and the speaker, after answering a question, paused and after a passing move ("So I don know") and another pause, reclaimed the floor. In the third example, a different speaker shifted the topic. (It is interesting that the longest pause occurred in the face-to-face conversation.)

Face-to-face, same speaker, change of topic<sup>95</sup>  
VC 1.1

i...  
1 That wasn't just for your, benefit, I would

---

95. In these examples speakers are numbered and \* indicates the topic shift.

\*     *have said hello to him anyway (6.6)*  
       *So did you see, the preamber news that's*  
       *been going by*  
 2     *Yes*  
 ...

Cross-site, same speaker, stepwise change  
 VC 1.6

...  
 3     *Everything's fine once he actually gets in*  
       *there*  
 4     *Oh yea () within seconds (5.5)*  
 \*     *So I don know (2.2) I think maybe if I jus*  
       *made it clear (1.4) Ya know, jus made it*  
       *really clear that there's this moment he jus*  
       *has to face up to*  
 ...

Cross-site, different speaker, change of topic  
 VC 1.2

...  
 5     *ahm so the claim was that I'll alsoo get ah*  
       *three point four ahh unix today or tomorrow,*  
       *so that'll that'll make us all in the same*  
       *environment an that'll be useful (2.8)*  
 \*6    *well Abbot sure looks happy in the picture*  
 7     *[laugh]*  
       *it's /true*  
 ...

Shifts of this sort display the beginning of a new topic -- either a completely new topic as with the first and third example, or a bridge to a related topic as with the second example. These topic shifts depend on serial adjacency -- not one speaker doing something in one turn, but one turn and its next; then the second turn and its next. This kind of adjacency was constantly in play, a moving target as talk unfolded.

This turn-to-turn topic management appears in various forms in the cross-site data. First, is a turn containing

topical matters followed by a solicit for more.<sup>96</sup> Next is a topical turn followed by a topical solicit and finally are two topical turns. These should not be viewed as pairs in the question-response sense (i.e. the first does not require the second) but as pointing to the continual flow, turn by turn, of collaborative topic construction. Each second becomes a first in the next pair. The fact that this variety was easily and frequently done over the link demonstrates the facility of its users and the ease of adapting well-practices topical mechanisms to this medium.

Topic-Continuer: In the next example, Bob was talking about preschool and William was producing what might be called tokens cooperating in continuing Bob's talk. These tokens were placed at turn relevant points, at places where William could bid for the floor, but instead he was acknowledging and warranting Bob's topical talk, saying in effect, yes go on.

VC 1.8

in Portland:

in Palo Alto:

Bob

William

Bo ...we used to talk to our teacher, d'ah our preschool teacher, about it

\*Wi uhuh

Bo and she said it was just, it was, it's they have this real big act they'll go through at the door because it it's this letting go process they have to go through

\*Wi yea

Bo and as soon as they get through the door...

---

96. Sometimes called a back channel though in these turns it played such an active part that such a title is unacceptable



William (in the turns marked with \*) was warranting Bob's continued talk on the topic and Bob kept producing his story.

Topic-Topical Solicit: Later in the same conversation, William was talking about parent's night and Bob remarked that he also went to parents night last night.

VC 1.8

in Portland:

Bob

in Palo Alto:

William

...

Wi now we had parents' night last night

Bo ya so did we

Wi OK and according to the teacher, he's fine  
he's great in school He he enjoys  
himself ...

The extra bit of information from Bob, on the same topic (going to parents' night), was acknowledged by William ("OK") and William continued to talk about what the teacher had said. William was talking about a topic; Bob added some relevant information which William acknowledged before going on. One option here would have been to ask Bob about his experience with parents' night (to respond to the solicit -- to the offering of a possible direction for the topical talk to go); another was to do just what William did -- acknowledge what Bob had said and go on.

Topic-Topic: There are at least two forms of topic-topic generation: one in which the topic was expanded or pushed in new directions (leading to the stepwise transitions so elegantly described by Jefferson (1984) and already demonstrated for cross-site talk); another in which

the topic of the moment was reiterated in various playful forms.

In the next example, Bob built on what William has been saying but shifted from a child's particular behavior to talking with the teacher about the same issue -- pushing the topic along without any dramatic shift.

VC 1.8  
 in Portland: in Palo Alto:  
           Bob William  
 ...  
 Wi (( )) he enjoys himself, he's doing well  
      he's well adjusted, he has friends,  
 Bo It's quite common (( )) Allot a it was  
      just show for the parents We used to talk  
      to our teacher, h'ah our preschool teacher,  
      about it...

Lab members played with topics in a joking way (see also Frame Play in chapter 7). In this segment, Joel was proposing a way for William to leave his kindergartener at school in the morning.

VC 1.8  
 in Portland: in Palo Alto:  
           Joel William  
           Bob  
 ...  
 Wi Yea, Once he's in that door he's fine  
 Jo I got it William () spray yourself with PAM  
      in the morning  
 [laughter]  
 Jo In addition to being slightly ((kinky)),  
      this ah this will let him slip off of you  
      very easily  
 Wi You've heard of the Teflon president  
 Jo Yes the the Teflon physicist was what we need  
 [laughter]  
 Bo That's gross  
 Jo Well, I gotta...

One additional characteristic of topics is that they have potential though indeterminate time depth. That is,

unlike turns with such things as "hello", "how are you", "right", "anything else", "we can't hear you, just a moment" which usually have limited and mostly known futures, topical talk has an unspecified potential trajectory. Many topics also have a past known to certain participants (e.g. a question like "How did [your child] do in school today" does not come out of the blue but from previous discussions about the child's unhappiness going into kindergarten).

In peoples' lives, topics are temporally discontinuous; they may come up again and again in one form or another. Talk about X for people who regularly encounter each other was not simply something for some here and now but something for some series of conversations. Further, talk about X changes as X changes over time. In considering topic, there are two separable issues -- what gets done at any particular here and now and what happens over repeated heres and nows. What transpires on the first occasion of discussing X (say X1) may inform and shape X2 in regular ways. Having already discussed the trouble of a child going to kindergarten (X1), X2 can be any number of things but a replay of X1.

## 6.5 Closings

Over the link, as in other conversational settings, topical talk must be brought to an end before the parties disengage. Schegloff and Sacks (1973) note that the crucial elements of closings are the initiation of the closing

se  
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no

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97

segment and the terminal exchange itself. Both these elements were also important in link closings. Like other aspects of talk over the link, people drew on the resources of other interactional contexts to produce closings that were very familiar.

People employed "OK" and "all right" as possible preclosings as well using various summary statements to offer the floor for topics that others might want to bring up before a conversation was ended. While link preclosings were fairly standard, closings showed some variation from forms already described. After topical talk was closed down, the participants usually disengaged by exchanging specialized closing turns like "bye" or "see you later". When one or both parts of the terminal exchange were missing, the absence was notable. Link closings are described here as no terminal exchange, simple closings (with a symmetrical terminal exchange), variations on simple closings (with an asymmetrical terminal exchange), and notable absences (with part or all of the terminal exchange missing). Link talk differed from telephone talk in the range of possible terminal exchanges.

### 6.5.1 No Terminal Exchange

There were a few occasions when a formal final exchange was unnecessary.<sup>97</sup> When cross-site talk began with a call

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97. This is analogous to greetings-in-passing and also to some service calls.

and a local call, the intermediary person (the one doing the local call) was clearly a party to an interaction but participated in neither a greeting nor a terminal exchange. In this example, Anne moved from her turn at talk into doing some next thing (walking down the hall to call in Doug's behalf) which Pat acknowledged with a "thanks". Neither greetings, nor a terminal exchange appeared relevant.

|              |                                          |
|--------------|------------------------------------------|
| VC 1.10      |                                          |
| in Portland: | in Palo Alto:                            |
| Anne         | Doug                                     |
|              | Pat                                      |
| ...          |                                          |
| Do           | Hello Portland object service folks (3)  |
| An           | I don't know if they hear you (4)        |
|              | You may have to yell a little louder but |
|              | I'll walk down the hall (3)              |
| Pa           | Thanks Anne                              |

On some occasions, a person walking through on one end of the link may insert a greeting into an ongoing conversation. In the next example, Paula, walking through the commons, said "hi" while continuing to walk. This exchange was inserted into conversation; it was done in the course of other activities (Paula going to a meeting, Joel talking with Linda and William); and it did not require any extension beyond the exchange of greetings.

|              |                                         |
|--------------|-----------------------------------------|
| VC 1.6       |                                         |
| in Portland: | in Palo Alto:                           |
| Nick         | Paula                                   |
| Joel         | William                                 |
| Linda        |                                         |
| ...          |                                         |
| Ni           | That's where it hit                     |
|              | [showing a disk to Joel]                |
| Pa           | [walking through]                       |
|              | Hi Joel ()                              |
| Jo           | Hi() P:aula() hi (1.6)                  |
| Li           | How'd it go t' how'd it go this morning |

*William*

...

In both these cases the cross-site interaction was like an aside or an insertion into the course of another activity) for people at both sides of the link. The participants in the aside returned to their previous activities. In the first example, Anne called some one to the link and returned to her work while Doug and Pat waited for the recipients of the call; in the second Paula continued on her way and the already established cross-site conversation continued. In neither case did the parties engage each other in mutually oriented, topical talk, and no termination of such talk was necessary.

### 6.5.2 Simple Closings

In simple closings, once the cross-site closing sequence had been negotiated, the terminal exchange was always symmetrical. If one person said "bye", the other said "bye" also; if one said "see ya later" so did the other. The next example begins with the last bit of business, a piece of information reported at the end of a long technical discussion among five coworkers.

VC 1.2

in Portland:

*Evan*  
*Abbot*

in Palo Alto:

*Pat*

...

*Ev* Ahm so the claim was that I'll alsooo get  
ah three point four, ahh unix today or  
tomorrow, so that'll that'll make us all in  
the same environment an that'll be useful ()  
*Pa* Well Abbot sure looks happy in the picture

Ab    [laugh]  
       It's true  
 Ev    You call that the natural speed of youth  
 all    /[laughter]  
 all    /[laughter]  
 Ab    Well, see you later  
 Pa    See you later

The pause at the end of Evan's work-related turn was ended by Pat's comment about how Abbot looked. This represented a switch in topic registers from the official business of the gathering (progress on their joint work) to other things which got quickly and jokingly wrapped up. The exchange ended with two, almost identical versions of "see you later" one from Portland and one from Palo Alto. Interestingly only two people, one at each site, produced this terminal exchange.

In the next segment, Abbot had done a demo and, in the first turn given here, was explaining part of the demo in response to a question from Ben.

|              |                                                                                                                |
|--------------|----------------------------------------------------------------------------------------------------------------|
| VC 1.9b      |                                                                                                                |
| in Portland: | in Palo Alto:                                                                                                  |
| Abbot        | Ben                                                                                                            |
|              | Vicki: a                                                                                                       |
|              | visitor                                                                                                        |
| ...          |                                                                                                                |
| Ab           | ...when it generates these leaves first ah<br>it will, create, t t t t ah well sequences<br>which are going up |
| Be           | Uh hu (1.5) well thank you very much that<br>/Sounded good yea (2)                                             |
| Vi           | /Thank you                                                                                                     |
| Be           | See you Abbot                                                                                                  |
| Ab           | See you                                                                                                        |

After Abbot's explanation, Ben thanked him and did a summary assessment followed by a pause. There being no new topics brought up here, Ben began the terminal exchange



which Abbot completed. As in the last example, only one person on each end of the link engaged in the final exchange.

In the next example, the terminal exchange was recognizably symmetrical in spite of an interruption. The conversation had been between Abbot and Ben with Abbot asking Ben to set a switch on the synthesizer located in Palo Alto out of camera range. As Ben moved off to do that, Pat walked up and began talking to Ben.<sup>98</sup> The terminal exchange was smoothly constructed around the interruption with Pat, the interrupting party, orienting to it and participating in it.

VC 1.3

in Portland:  
Abbot

in Palo Alto:  
Ben  
Pat

Ab *=Um actually you can set the synthesizer before that to to be a piano with without any kind of modulation in there just a plain piano which ah runs as long as I press a button*

Be Yea I'll do that right now  
[moving off toward the synthesizer]

Ab Great

Pa Oh Ben you know (( ))

Ab *See you guys la:ter:*

Be I don't think so did you turn on your  
((display))

Pa No it's unplugged  
See ya

Be See you

---

98. This in itself is interesting. Pat, seeing Ben break his physical orientation to the link and walk out of link space, opened an interaction with Ben as if there were no ongoing interaction in play.

Pat had began talking to Ben after he moved out of physical orientation to the link. At the end of Pat's turn, Abbot inserted "See you guys la:ter:" into Pat and Ben's talk about a technical problem. Then Ben answered Pat with a question and Pat replied first to Ben's question and then to Abbot saying good bye. This closing interlocked with the conversation beginning between Ben and Pat. Pat's participation in this terminal exchange was made relevant by the timing of his entrance (interrupting a closing).<sup>99</sup>

With even more participants, symmetrical endings were still possible. In the next example, four people had been talking but only three said "bye, bye".

|              |                                            |               |
|--------------|--------------------------------------------|---------------|
| VC 1.5       |                                            |               |
| in Portland: |                                            | in Palo Alto: |
| Abbot        |                                            | Ben           |
| Evan         |                                            | Dick          |
| ...          |                                            |               |
| Be           | Well good I'll look I'll look around about |               |
|              | five to hear some more then Abbot          |               |
| Ab           | OK great                                   |               |
| Di           | That's great                               |               |
| Ab           | (( ))                                      |               |
| Ev           | Play along with bush he he he              |               |
| Ab           | Bye bye                                    |               |
| Be           | /Bye bye                                   |               |
| Di           | /Bye bye                                   |               |

The two who respond to Abbot in unison were at the Palo Alto end of the link and were ending a conversation. Evan,

---

99. It is also interesting that Pat approached Ben without any greeting or opening moves. This was possible because of the potential availability of people for encounters in a shared working environment and because Ben had physically disengaged from the link and thus appeared available for local encounters.

who was staying with Abbot did not end that contact and, in fact, the two of them continued talking together.

Large group meetings also ended with symmetrical exchanges. Lab meetings concluded with the selection of the next moderator and then the actual termination of the event. In the next example, the meeting was closed down with pauses, "OK", "all right", "thank you"; then Abbot began the termination with "bye bye" which was echoed on both sides of the link.

|              |                                                                       |
|--------------|-----------------------------------------------------------------------|
| VC 2.3       |                                                                       |
| in Portland: | in Palo Alto:                                                         |
| Joel         | Paula                                                                 |
| Abbot        |                                                                       |
| ...          |                                                                       |
|              | [Paula has just been nominated as the moderator for the next meeting] |
| Jo           | Well Paula                                                            |
| ?            | (( ))                                                                 |
| Pa           | Boy I tried so hard to be quiet                                       |
|              | (( )) (1) OK                                                          |
| Jo           | All right Thank you                                                   |
| Ab           | Bye bye                                                               |
|              | /[multiple echoes of bye bye]                                         |
|              | /[multiple echoes of bye bye]                                         |

This two-site multiple response was limited to situations such as this where a large group was gathered. Across all these examples, one person initiated the terminal exchange and it was answered from the other site. Only in this large group situation, were there choral responses from both sites after the initiation of the terminal exchange.

### 6.5.3 Variations

The variations resemble the simple closing in that there were terminal exchanges. While there were not paired

exchanges of like terminal phrases, there were analogous moves among the participants. In the next example, unusual in that it involved a child (Amos), William's "Toodl-oo see you around" was followed by "See you later William".

|              |                         |                        |
|--------------|-------------------------|------------------------|
| VC 1.6       |                         |                        |
| in Portland: |                         | in Palo Alto:          |
| Amos         |                         | William                |
| Linda        |                         |                        |
| Joel         |                         |                        |
| ...          |                         |                        |
| Wi           | OK                      |                        |
| Li           | Good luck               |                        |
| Wi           | ((That's it))           | /Nice to see you again |
|              |                         | /[standing up]         |
| Li           | /Yea bye William        |                        |
|              |                         | /[standing up]         |
| Wi           | Bye Amos say bye (.6)   |                        |
| Am           | Bye                     |                        |
|              | [Wi starts off]         |                        |
| Wi           | Toodl-oo see you around |                        |
| Jo           | /See you later William  |                        |
| Li           | /Ok William             |                        |

When William said it had been nice seeing Linda again, she responded affirmatively and said good bye ("yea bye William"). William responded to this by saying goodbye to Amos (not to Linda), then "toodl-oo see you around". This elaboration may have been fashioned particularly for a child. William repeated Linda's "bye" to Amos. With prompting, Amos replied "bye". William then, when leaving, offered another version to the adults whom he had not yet addressed in the terminal exchange. At this point Joel, returning from his office, responded to William with a similar "See you later" while Linda responded with "OK William". William's starting off broke his visual and bodily orientation to the link; and this was coordinated

with his final "toodle-oo". The nonverbal symmetry in standing and the complementary if not identical utterances made this a smooth and unremarkable (to the participants) ending.

In the next example not only were the terminal exchanges complementary (not identical), but one complete cross-site exchange of turns followed the terminal exchange. Paula said "night you guys" to the two people with whom she had been speaking; as with several of the previous examples, she got a response from only one of them and this response involved a "bye bye" rather than a good night. It also was overlapped her next turn about the state of part of the link technology.

|              |                      |                                  |
|--------------|----------------------|----------------------------------|
| VC 1.7       |                      |                                  |
| in Portland: |                      | in Palo Alto:                    |
| Abbot        |                      | Paula                            |
| Sandra       |                      |                                  |
| ...          |                      |                                  |
| Pa           | night you guys       |                                  |
| Ab           | you welcome /bye bye |                                  |
| Pa           |                      | /((you realize)) the telephone's |
|              | on                   |                                  |
| Ab           | mm yea               |                                  |

The post-closing exchange in this last example, while not a frequent occurrence, was also not unique. This phrasing of an after thought is not possible over the phone once the phone has been hung up; if an after thought is inserted just before hanging up, a new terminal exchange is in order. However, over the link, as with face-to-face situations, such an addendum is possible without repeating the terminal moves.

The next example, Anne had given a demonstration of the link for three people in Palo Alto. They began talking among themselves and, after 20 seconds, she announced that she needed to get back to work.

|              |                                            |
|--------------|--------------------------------------------|
| VC 1.9a      |                                            |
| in Portland: | in Palo Alto:                              |
| Anne         | Ben                                        |
|              | Vicki (a                                   |
|              | visitor)                                   |
|              | Paula                                      |
| ...          |                                            |
| An           | well I am, struggling with my presentation |
|              | slides so I'm gonna                        |
| Be           | OK thanks for stopping by Anne             |
| An           | [off waving]                               |
| Be           | we just /wanted to show Vicki              |
| Vi           | /bye                                       |
| Pa           | /bye                                       |

Ben thanked Anne and repeated the reason for the call. Overlapped with this, Paula and Sandra said "bye" which seemingly responded to Anne's wave.<sup>100</sup>

In the next example William's last turn opened the closing ("OK"), assessed what had come before ("good") and thanked Abbot for his help ("well thanks a lot"). While this was a polite closing move, it was not symmetrically terminal. Abbot acknowledged the thanks ("yea") and offered a "see you" to which there was no response, no second.

|              |                                     |
|--------------|-------------------------------------|
| VC 2.5       |                                     |
| in Portland: | in Palo Alto:                       |
| Abbot        | William                             |
| ...          |                                     |
| Wi           | What a, what a world traveler Abbot |
| Ab           | [laugh]                             |
| Wi           | OK good well thanks a lot           |
| Ab           | Yea see you                         |

---

100. Like 1.8, all were standing, the business was happenstance and Anne left an ongoing activity.

This was perhaps the least symmetrical example in this set. However, the turns were matched in that each began with an acknowledgment of what had come before ("OK good" and "Yea") and each continued with an other-directed move ("thanks a lot" and "see you").

Like some previous examples, in the next not all participants joined in the terminal exchange -- just one from each site or one representative of the two groups that were breaking off contact. Again, their terminal exchange lacked symmetry -- "see you guys later" and "bye bye".

|              |                                           |               |
|--------------|-------------------------------------------|---------------|
| VC 1.10      |                                           |               |
| in Portland: |                                           | in Palo Alto: |
| Evan         |                                           | Jack          |
| Abbot        |                                           | Pat           |
| ...          |                                           |               |
| Ja           | No, at least I know the source of the     |               |
|              | reference                                 |               |
|              | [laughter]                                |               |
| Ev           | Ah Pat can ah give you some background on |               |
|              | that                                      |               |
|              | [laughter]                                |               |
| Pa           | OK () See you guys later                  |               |
| Ab           | Bye bye                                   |               |

It was not always the case that the visible ending of a particular cross-site conversation coincided with the termination of a joint activity and interaction about that activity. In the next example, a cross-site interaction was suspended to make some adjustments to the technology; the participants made explicit arrangements to re-establish contact almost immediately.

|              |                                              |               |
|--------------|----------------------------------------------|---------------|
| VC 1.11      |                                              |               |
| in Portland: |                                              | in Palo Alto: |
| Joel         |                                              | Mike          |
| ...          |                                              |               |
| Jo           | I know, so, he, we're just going to set this |               |

*all up again*  
 Mi So you want me to wait here and ((answer  
 when)) you call back  
 Jo Yes I'll call you back, in just a moment  
 Mi /Call me back in just a moment  
 /[[leaning over to pick something up]  
 Jo [turns away]  
 Mi Bye

Making arrangements, something typical of closings in  
 general was followed by a bodily realignment with Mike  
 bending over and Joel turning away. Mike, who waited near  
 the link for the return call, said "bye" after seeing Joel  
 turn away. Joel, who went off to do the technical  
 adjustments, simply proceeded. The breaking of physical  
 orientation to the link coincided with the breaking off of  
 talk. Mike's "bye" coordinated with Joel's breaking  
 orientation, was not taken by Joel to require a second part  
 perhaps because it was a second to Joel's moving away.

The next example involves a similar nonverbal-verbal  
 pairing.<sup>101</sup>

|                                  |               |
|----------------------------------|---------------|
| VC 1.13                          |               |
| in Portland:                     | in Palo Alto: |
| Bob                              | Ben           |
| ...                              |               |
| Bo /Oh well                      |               |
| Be /Yea                          |               |
| Bo I guess I'll get to work      |               |
| Be OK me too thanks for the chat |               |
| [turns to pick up papers]        |               |
| Bo Bye bye                       |               |
| [up and off]                     |               |

After Ben said "thanks for the chat", he turned to pick  
 something up losing eye contact with the link. During that

---

101. Further, the verbal exchanges are like those in VC 2.5  
 and VC 1.10.



move, Bob said "bye bye" and started to get up. When Ben looked back to the link, Bob was already clearly out of orientation -- not looking and moving away. This breaking of mutual orientation at least partially accounts for these terminal exchanges. The person who might have completed a symmetrical terminal exchange has visibly broken the mutual alignment through the link. The visual access provided by the link allowed for these elaborated and varied endings.

#### 6.5.4 Notable Absences

In some cases, there was a notable absence of terminal exchanges (notable in that the participants show evidence of attending to the absence). In the next example, the topic (working out a paragraph in someone's contract) had been decided; Dick said he would put it on his list of things to do and Evan thanked him for that. This, the last spoken turn in this interaction, opened the way for a terminal exchange which never occurred. The two lab members looked at each other for 2.2 seconds and then got up at the same time and walked out of view at the same moment. Without coordinated good byes they were nonetheless able to coordinate an exit. The pause after the last spoken turn and the expectant facial expressions both indicated an orientation to a missing final exchange.

VC 1.1

in Portland:

Evan

in Palo Alto:

Dick

Di

OK so as far as you're concerned we could  
draw one up with that language and ah sign

it  
 Ev Yea  
 Di OK good well I'll ah put that on my list of  
 things to do  
 Ev OK, thank you (2:12)  
 [both up and off]

While in the last example the absence of a terminal exchange was marked by a pause before a coordinated exit, in the next example William's leaving was recognized in Joel's falling intonation as William left and the next topic oriented to closing the interaction with Bob.

VC 1.8  
 in Portland: in Palo Alto:  
           Joel William  
           Bob  
 ...  
 Bo [standing out of view]  
 Jo I got it William (2) Spray yourself with  
   PAM in the morning  
 [laughter; Wi reaches back for briefcase]  
 Jo In addition to being slightly ((kinky)),  
   this ah  
   /this will let him slip off of you very  
       easily  
 Wi /([reoriented, case in hand]  
   You've heard of the Teflon president  
 Jo Yes the the Teflon /physicist was what we  
   need  
 Wi /([walking off]  
 [laughter]  
 Bo That's gross=  
 Jo -Well I gotta spend the morning ...

In this case, the presence of another moderated Joel's orientation to the link; he was standing rather than sitting and talking with someone (Bob) who had already gone out of view. Joel was standing with a coparticipant out of view so William was not leaving him seated and alone. William's leave taking was constructed in terms of Joel's joke and orientation. The leave taking was oriented to Joel's

alignment with another which William's exit in turn made more relevant. As William left, Joel's orientation progressively shifted -- he began looking off and tossing a book from hand to hand; his voice dropped and his next topic was directed at extricating himself from the local conversation.

In the next segment, Evan opened the way for a terminal exchange with a summary assessment ("*yea that's exciting, OK*") but none was forthcoming even after Evan stood up and did a second assessment: "*nice work*" (it is this repeat, combined with the timing of Evan's and Abbot's standing that provides evidence of orientation). As in the previous examples, the participants left the link without a terminal exchange. Evan and Abbot did not coordinate their standing up with Pat and Doug but delayed until Evan's second assessment.

|              |                                       |               |
|--------------|---------------------------------------|---------------|
| VC 1.12      |                                       |               |
| in Portland: |                                       | in Palo Alto: |
| Evan         |                                       | Doug          |
| Abbot        |                                       | Pat           |
| ...          |                                       |               |
| Do           | /[up]                                 |               |
| Pa           | So:/o just thought you'd like to know |               |
|              | [up]                                  |               |
| Ev           | Yea /that's exciting,                 |               |
| Ab           | /great                                |               |
| Ev           | OK [up] nice work                     |               |
| Ab           | [up]                                  |               |
|              | [both Evan and Abbot off]             |               |

It is possible that the local orientation of the parties contributed to this termination. Doug stood up in concert with Pat's closing remark ("So:o"). this made it relevant for Pat to stand also, and he did at the end of his turn.

After one summary assessment ("*yea that's exciting*") and starting a second ("*nice work*"), Evan also stood up and finally Abbot did too.

In the next example Dick (who was out of view working on a computer workstation making modifications suggested by Joel) opened the way for a possible terminal exchange.

```
VC 2.6
in Portland:                in Palo Alto:
    Joel                    Dick
Jo  ... when it returns from that tell me
    and I'll go check the switch ()
Di  OK (57.0 -- [Joel goes off to check the
    switch and returns])
Jo  OK Dick it's workin fine
Di  OK good ()
Jo  See many things
    [off]
```

Dick's "OK good" (a second to Joel's report that things were now working) was followed by a pause and Joel's apparently directionless comment about being able to see many things (now that the program was fixed and the video switch was working again). Joel's eventual exit was timed by the broken orientation without a terminal exchange. The vague, non-directed last turn of Joel's may have been a second attempt to open a terminal exchange. In this encounter, visual orientation was not a factor as Dick was out of view working on a computer; it was only because Joel remained in view and produced a last turn that there was evidence he was expecting more.

In the final example, Dick has been at the very edge of the screen<sup>102</sup> talking with someone out of view. Bob and a companion (who were walking by the Portland link on their way to lunch) mistook Dick for William and called out to him.

VC 2.4

in Portland:

Bob

in Palo Alto:

Dick

...

Bo *...So we thought you were William and if you were William I had something to say because I was ah just talking to ... about some stuff that he was going to call William on ()*

Di No I think William's in his office

Bo OK () Then go'bye, Have a nice lunch

This whole interaction began from a mistake in identity based in the narrowness of the view of the camera and the difficulty of recognizing someone who was not oriented to the link. In addition, the call interrupted a conversation being held outside of link space -- one that was only accidentally visible and occasionally audible. Both these factors made this a potentially awkward situation and the interaction revolved around establishing the mistaken identity. In the same way that there were no terminal exchanges after a third person answered the link, there was not one from Dick. He delivered a report that William was in his office and went back to his conversation; however, Bob who had gotten oriented to the link and produced an

---

102. This is a specific location made possible only by the link.

explanation for why he was interrupting Dick's talk, did work to terminate his involvement.

As with beginnings and topical talk, a range of endings were possible over the link. In some, the technology was virtually invisible; in others, like in the last example, the technology played a part in the shape of the interaction. In the next chapter, the issue of the technology as a visible player in interaction is considered.

## Chapter 7

### When the Technology was Visible

Generally experienced link users, like inveterate telephone users or facile users of pencils, were so accustomed to doing link talk successfully that they did not pay special attention to using the link. For these people the link was well integrated into the daily round of activities, and its peculiarities were transparent. Yet there were times when, even for lab members, the link itself became an apparent focus of attention, when the technology or its use was clearly not transparent. These events, with the technology playing an active, visible part in interaction, provide another context for examining the influence of technology on interactions. These, in fact, are the very instances in which positive or negative consequences of such a technology might be most visible.

The technology itself became focal either when people were specifically doing something with it or when the technology played some visible part in the conduct of talk. People sometimes had to adjust the technology in some way or repair it in order to carry on with their work. Changing

camera angles or adjusting the microphone were common occurrences. Less often, lab members had to repair or update parts of the system. Paying attention to the technology (adjusting it or fixing it) implies, among other things, bodily reorientation in space (e.g. the activity requires that participants move away from the usual seating arrangements to the audio or video equipment) and, on occasion, a different management of turn taking to allow for talk interspersed with technology focused activity and the accompanying changing foci of attention.

In addition to adjusting and fixing the equipment, features of the technology provided interactional resources and limitations. For example, the framed field of view provided by the camera could be used to either enter or avoid interactions; it provided an opportunity for play, e.g. one could partially enter to tease a viewer. This same feature limited what a viewer could see; a fixed camera was not a substitute for the flexibility of peripheral vision and head turning. Likewise, features of the audio set-up were both resources and limitations. Sound could be switched off to guarantee private conversations or side sequences that did not interrupt ongoing talk; the nature of the audio (half duplex) made some interactional maneuvers, such as interruption or overlapping talk, more difficult.

The following sections address each of these situations in which the link technology became visible: routine adjustments of various sorts; equipment repair and



modification; and features of the link as interactional resources and as limitations. Finally, mediated versus non-mediated interactions are examined.

## 7.1 Routine Equipment Adjustments

It was not unusual for the equipment to be adjusted and readjusted throughout the day. Adjustments were made during morning set-up, when showing the other site a different view, in preparation for or during an interaction. In some cases, this adjustment was part of the predictable flow of routine activity (as with turning on the equipment each morning or setting things up for a meeting); in others it was relevant to the unfolding of a particular interaction.

### 7.1.1 Making and Terminating the Connection

The technology became visible was when it was turned on in the morning and off in the evening. By the time of this study, this was a routine happening. Many lab members who were around early or late in the day knew how to connect or disconnect the link (or how to give verbal instructions to others).

The start-up procedure went something like this. A lab member at one site would come into the commons (usually before 9:00 A.M.), notice the video, switch on the video

equipment and thus begin sending a video signal to the other site. Shortly after this, someone at the other site would arrive and turn on the local equipment beginning to both broadcast and receive video. Usually the second person would place a call to the first site to initiate the audio connection which required people synchronously pushing the appropriate buttons at the two sites. There would then be some verbal exchange accompanied by any necessary volume adjustments and an adjustment of camera view if such were suggested by the recipient at the other site.

This maneuver made the other site visible and audible -- something attended to by people walking through the commons and by people who monitored the opposite site from their offices. The state of the link (e.g. off or on, focused on this or that) was something to be noted if not directly commented upon. Whether the was on or off and, if on, what it showed was continually relevant. If it showed people, it became a potential medium for contact; if it did not display any activity, the lack of activity was available as a topic for conversation. What could be made of a video image or its absence was time-dependent. The lack of an image at midday might call for comment and action; a blank screen at 6:00 p.m. was unremarkable.

Evening shut down was equally routine. The last person to leave one of the sites (or the Portland secretary as part of her closing round of activities) would say goodbye to the other site and turn off the audio and video equipment.

Someone at the other site would follow suit. If a regular link user were working at night, that person would often broadcast a video signal just in case someone either locally or at the other end came in and decided to look. On such occasions an audio channel might or might not be established -- shared video possibly being enough.

### 7.1.2 Changing Views: Sending Images

In making and terminating connections, the primary activity was turning the equipment on or off; the initial observable result was a change in access to the other site. This change of state was both procedurally conventional and time-relevant. There were however, changes in what could be seen over the link that were not so clearly related to scheduled or routine events. On occasion, someone would simply change the view to send the other site a different "image" -- something deemed more interesting than the commons.

During fall, 1987, major construction was underway next door to the Portland offices. On one occasion, for fun, someone in Portland aimed a camera out an office window at the construction site and sent that image to Palo Alto. This particular view drew considerable attention; the construction project was repeatedly featured on subsequent occasions and was even requested by folks in Palo Alto. It was videotaped to be used in demonstrations and was reported

to visitors as an example of how the link was used to convey environmental information beyond cross-site interactions.

Another occasion involved a cartoon placed in front of the camera for almost three minutes.<sup>103</sup> The cartoon showed two people looking out over a spectacular canyon; one said to the other, "I dunno. We're just so far up. I think this'd be better on the tube." There was a discussion in Portland prior to the sending of the cartoon image of how the image related to the lab's use of video and of showing it cross-site. What might appear to be an individual action (changing the image) actually came about through local discussion (in Portland) and in a context that had a tradition of such activities (sending images related to how lab members view themselves and their enterprise).

In the minute before the change of view in Portland, there was audible talking and Joel was visible showing off the cartoon. Beginning about 30 seconds prior to the cartoon's visibility, Ben and Paula in Palo Alto began audibly talking and continued while the cartoon image was being sent from Portland to Palo Alto. In this example, there were separate lines of activity in Portland and Palo Alto. Eventually, there was cross-site comment.

|              |                                               |               |
|--------------|-----------------------------------------------|---------------|
| W1 T3        |                                               |               |
| in Portland: |                                               | in Palo Alto: |
| Joel         |                                               | Dan           |
| Bob          |                                               | Paula         |
|              |                                               | Ben           |
| Jo           | [on, adjusts and refocuses camera on cartoon] |               |
|              | (58.8)                                        |               |

---

103. Two minutes 44.6 seconds



Da [walks through] (3.5)  
 [back on looking] (34.6)  
 [off]  
 (48.7) <-----| ...  
 | Pa [pointing to  
 image]  
 | Be I saw that,  
 ya  
 | ...  
 Jo [returns camera to Po commons]  
 (5.0)  
 Be Thank you for the cartoon  
 Jo Certainly [from off camera]  
 Pa Who is that  
 Bo Joel [from off camera]  
 Pa That's great Joel  
 Jo It just seemed appropriate for us  
 Pa Right  
 Be He he he he  
 [walks through]

On this occasion, the participants never oriented to each other over the link. There were several ongoing, local streams of activity that intersected over the cartoon. First Joel, who had the cartoon on his calendar, was showing it around Portland as an item worth a quick look and a laugh. Joel, having shown it to the available folks in Portland, made it available for cross-site viewing. And it happened that people saw it. Dan stopped to have a look while walking through the commons; Ben and Paula commented on it during their talk and when it was removed (a sure sign that some Portland recipient was there to hear a "thank you"), Ben said, "Thank you for the cartoon." Dan, Ben and Paula were bystanders to the link. Dan's looking and Ben's and Paula's looking and talking were brief encounters with the link spaced into their other ongoing activities. Still

these interludes display orientation to a changing video image.

In addition to close-focus images such as this cartoon, people would set the switch to send views of other rooms (e.g. the video editing room, someone's office) or would send an embedded picture-in-a-picture image of some room or of an interesting video tape. Beyond these intentional changes in view, it occasionally happened that the view was changed accidentally by someone inadvertently switching the electronic channel control; this produced an unexpected image which was noticed and changed in fairly short order.

### 7.1.3 Encounter-related Video Adjustments

Some adjustments, like the view changing described above, were initiated apart from ongoing cross-site encounters. Others were specifically part of Portland-Palo Alto interactions. The latter included changing views in preparation for a meeting as well as adjusting video or audio during an encounter. These are treated here as two separate encounter-related activities: changing rooms (switching or changing the view altogether) and altering the camera angle in the commons (adjustment). Switching views was part of beginning and ending encounters<sup>104</sup>; refocusing a camera could occur at any time during an encounter.

---

104. Or part of formal presentation

### 7.1.3.1 Switching Views

Like morning and evening routines, dealing with the equipment at the beginning of a meeting (in the commons, in the conference room or in an office) was commonly done. Meetings in the commons involved gathering and, sometimes, refocusing the view to include those present (see below). Meetings in the conference room or in individual offices required that the view, and some times the audio, be switched from the commons to the locale of the meeting and back again.

Switching the link before and after a meeting was part of making arrangements, a phase in getting ready to start or stop some current occasion. In the next example, a meeting was drawing to a close in the linked conference rooms of both sites. The agenda for the next meeting had been determined and Joel brought up the "little" procedure required to switch back to a commons-to-commons link.

VC 4.4

in Portland:  
Joel

in Palo Alto:  
Sandra

...  
Jo Sandra we've got to go through our little,  
Sa Right, do you still need to change tapes  
Jo Ah in about () 45 seconds  
Sa Why don't you do that and call me when  
when see me in the commons  
Jo OK in that case I'll just kill the audio  
right here  
Sa Yes  
J OK bye everyone  
Many Bye Joel  
[blank screen]  
...  
[commons-to-commons video switched; Sandra and



Joel visible on phones reconnecting audio]  
 Sa Are you there?  
 Jo Yea  
 Sa Ok, your turn  
 ...

Sandra and Joel coordinated their activities at the end of the meeting. Joel went off to change tapes while Sandra switched the video. They then met in the commons to reconnect the commons-to-commons audio portion of the link. This maneuver seems completely unremarkable. Making arrangements is a standard part of conversational endings. Common conversational practice was being used to manage this uncommon technological arrangement.

The link, through the images it presented displayed its state. If the screen were blank, the equipment was off; if the screen showed the other commons, it was on. This sometimes led to uncommon encounters. In the following example, the video had been appropriated for an office-to-office meeting; the audio connection was still intact and some people were sitting and talking in the Palo Alto commons. Bob, in Portland, joined the conversation by taking a turn at talk.

VC 4.13  
 in Portland:  
     Anne  
     Bob

in Palo Alto:  
     Ben  
     William  
     Mike  
     Ivan

[Anne and Ben were using the video for an office-to-office call; commons-to-commons audio was still available; Anne and Ben were visible on the video]

... [3 people talking in PA commons]

Wi The one thing we don't have now is (( ))  
 Bo Right, we don't have that yet ()

Mi I don't know, there's a mysterious voice  
 without a picture () in Portland  
 Bo Yea I was just listening sort of to the  
 conversation, It's hard without the video  
 link at the same time  
 Wi Ha  
 Mi Yea  
 Iv Who's that  
 Mi That's Bob  
 Iv Oh OK  
 ...

Unlike most face-to-face situations, the link allowed the separation of audio and video channels. As this example shows, taking a turn at talk in an audio-only environment was not a situation in which the participants seamlessly continued with the topic at hand. Instead, talk focused on the mysterious voice while Bob gave an account for his presence. That account gave William and Mike (both frequent link users) the opportunity to recognize the voice; however, Ivan specifically asked who was talking. After the identification, talk returned to the previous topic. In this case, the switched view had consequences.<sup>105</sup>

#### 7.1.3.2 Refocusing Views: Beginnings

Not all adjustments occurred in the course of beginning the day or moving to a different room. Readjustment during encounters was frequent. Several situations occasioned video refocusing or changing the frame of view within the

---

105. In the earlier example of the cartoon, the same request for identification appeared; the situation was analogous in that the video was focused on something else making Joel's identity less obvious across the link.

same location: refocusing at the beginnings of encounters and midcourse adjustments.

People began encounters by positioning themselves within camera range -- either standing or sitting on in the center of the view. Sometimes the camera had been left at an unusual angle (e.g. pointing toward someone's office or at a white board) or the number of people gathered for the encounter would not easily fit into the camera's current frame. In cases such as these, the camera would be moved to change the view. In the next example, Pat was not sitting on the sofa but on a bean bag; his unusual position vis-a-vis the camera drew a comment from the other site. Doug, who was with Pat adjusted the camera.

VC 1.2

in Portland:

Bob

in Palo Alto:

Doug

Pat.

...

Do [walking up]

Bo *Well I thought I'd stop by since I saw you sort of half ah submerged there and just say hello*

Pa *We've got little bean bag chairs in the () commons for a change and I thought, I would take /advantage of it*

Do /((He can't see))

Bo *You have little bean bag chairs?*

Pa *Yea*

Bo *Oh and you're lounged down on one*

Do [moves camera to show more of Pat]

...

In this instance, Bob's explicit noticing ("...I saw you sort of half ah submerged there...") drew an explanation ("We've got little bean bag chairs..."). This talk, displaying that Bob could not quite make sense of the visual

image, drew an explanation from Pat and action from Doug who went to adjust the camera. The technology provided a topic for conversation (why Bob could not quite see Pat) and a means for correction (moving the camera to a better show the seating). Again, direct effects of the technology were visible, but they were handled in unremarkable ways.

There were other times when the camera was not readjusted for something out of view. In the next example, a lab meeting was begun. One of the first activities was to announce agenda items which were written on the board at each site so one, joint agenda could be constructed. Joel, the chair or master of ceremonies (MC) for the week, asked for the list from Palo Alto. He was told that someone was just putting an item on the board. This situation was handled verbally; the camera was not moved.

VC 2.3

in Portland:  
Joel

in Palo Alto:  
Dick  
Bill

...  
Jo OK I'm the mc today, are there any agenda  
items down there ()  
? Ah  
(( ))  
? No  
Di Yea, eea Bill Smith looks like he's putting  
one up  
Jo And what is it called  
? Designing () tools  
[multiparty talk]  
Jo Designing what? ()  
? We're waiting ()  
Bi Design by rule  
...

Rather than moving the camera to display what was happening in Palo Alto, Joel was given a play-by-play .

description. People in Palo Alto were in a situation (similar to the previous example) that was not visible to their counterparts in Portland. They could have (and sometimes did) move the camera to focus on the agenda list or the speaking person. They could also, as they did here, use alternative ways to convey the same information.

Camera adjustment in an ongoing interaction occurred in several contexts. In the first case in this section, two Palo Altoans were talking with someone who happened by in Portland while waiting for the designated participants in a cross-site meeting to show up. As this conversation went on, one of the Palo Altoans adjusted the camera as part of the interaction (and perhaps also in anticipation of the meeting). In the next example, three people in Palo Alto were working with some equipment near the link. Their noise attracts a question from Portland and, responding to this, one of the noise makers adjusted the Palo Alto camera to a view that included the sofas.

VC 3.2

in Portland:

Anne  
Joel

in Palo Alto:

Paula  
Mike  
Sandra

...

Pa Hey, I'm makin noise over here () Hey,  
I'm makin noise over here ()

...

An You making noise over there for a reason

Pa (( ))

Jo Are you making noise at us

Mi [swings the camera back to regular view]

Pa Oh sorry

Sa [on]

...

As soon as the camera adjustment was made, one of the Palo Alto respondents, sat down in view and another stood within camera range; a brief conversation ensued. In this case, the adjustment came not from the initiator of cross-site talk but from the recipients of the first cross-site question. Like other encounters, there was reorientation to accommodate the new interactive situation; but in this case, the reorientation involved both bodies and technology.

The refocusing described thus far has been responsive to an ongoing interaction. The participants have been in place, and the camera has been refocused (or not) as part of their emerging or ongoing talk. Refocusing also occurred in anticipation of an upcoming interaction. Preparatory adjustments were a way of organizing the space for what was anticipated. Someone made a cross-site call or came out for a scheduled meeting and, just as an early arrival in a meeting room might pull chairs up to the table in anticipation of what is to come, the caller arranged the camera to take in the chairs he or she was about to occupy.

In the following example, Doug, at the time of a prearranged project meeting, called Portland. During the call he moved the camera so the sofa seats were in the center of the view.

|              |                                          |
|--------------|------------------------------------------|
| VC 1.10      |                                          |
| in Portland: | in Palo Alto:                            |
| Anne         | Doug                                     |
|              | Pat                                      |
| Do           | Hello Portland (25)                      |
|              | Hello Portland object service folks (3)  |
| An           | I don't know if they hear you (4)        |
|              | You may have to yell a little louder but |

*I'll walk down the hall ()*  
 Do [camera moving]  
 Pa /Thanks Anne  
 Do /(( ))  
 ...

In the next example, William moved the camera in a similar way after calling Abbot; the adjustment made the Palo Alto sofa the center of the view.

|                                             |  |               |
|---------------------------------------------|--|---------------|
| VC 2.5                                      |  |               |
| in Portland:                                |  | in Palo Alto: |
| Sam                                         |  | William       |
| Abbot                                       |  |               |
| W1 [xylophone] ()                           |  |               |
| Abbot around? ()                            |  |               |
| Sa William I think he just got here. Abbot, |  |               |
| W1 [camera adjustment]                      |  |               |
| Ab Yea                                      |  |               |
| Sa William wants you ()                     |  |               |
| Ab Say what                                 |  |               |
| W1 Abbot, it's me                           |  |               |
| Ab Oh, hi William                           |  |               |
| ...                                         |  |               |

In both this and the previous example the camera adjustment was done by the caller after some confirmation that the recipient of the call was around. Moving the camera, like the organization of bodies in space (either standing around the room or sitting on the sofas) is a way of organizing and orienting in terms of an ongoing interaction. These refocusingings were all part of orienting (either early in an ongoing encounter or in anticipation of a soon-to-occur encounter). Moving the camera (like moving one's body into view) became a part of orientation in this technology-rich environment.

### 7.1.3.3 Mid-course Video Adjustment

Once interactions had begun, the video could be modified by moving the camera around to change the view or by focusing from a wide angle to a close up view. These kinds of video adjustments occurred regularly in the course of interactions; they were such ordinary parts of interactions that they rarely occasioned noticing or explanation.

There were two sorts of "mid-course" video adjustment: those done during a cross-site event to focus on someone or something outside the current frame (usually a speaker), and those made during a single-site interaction to better display that interaction. Like the adjustments during beginnings, these video adjustments were tied to the ongoing interaction and were oriented to facilitating or displaying the interaction.

In the context of an ongoing interaction, a nonspeaking participant would sometimes focus the camera on a speaker, either moving the camera angle to include a speaker who has been out of the frame or displaying a close up image of the speaker. The following examples include a meeting and a call-generated encounter. The activity of moving the camera was secondary to and coordinated with the doing of the encounter. In the first example (taken from a lab meeting) there were three adjustments. First a Portland close up of Abbot doing a goodbye speech (and a readjustment at the end of the speech), second a Palo Alto pan to include Bill who



was introducing a comic piece of video tape he was preparing to show and finally the Palo Alto view changed from the gathered lab members to the video tape Bill had just introduced.

VC 2.3

in Portland:

Joel  
Abbot  
Evan

in Palo Alto:

Bill

...  
Jo Why don't we do ah the usual rule why don't we go with short items first, Abbot  
Ab Oh, OK Well some of you may know that that I'm: taking off for holiday pretty soon next week of whatever after OOPSLA and /ahh extended holiday so this is actually  
Ev / [camera focused to close up of Ab] /  
Ab my last/ ah lab meeting this summer  
...  
? thank you Abbot  
/[applause]  
Ev / [camera back ...  
Jo OK, Bill Smith/  
Ev to regular view] /  
Bi Uhm now this is a /ah this is a piece of video,  
? / [pan to Bill]  
Bi with ah about, which shows a ah ah use of of ahm knowledge-based productivity tools in design ahm it's actually a prophetic piece of video that was made in 1961 and ah ah it includes with it a critique of ah what happens when one uses such ( ) systems ( ) to ah automatically turn (( )) design (( )) into products. So here we go. ( )  
[View switched to video for segment]  
...

In the last example, the camera work was coordinated with speaker and topic change paralleling the agenda items of the meeting. When some previous speaker was finished and a new speaker was acknowledged by the chair, adjusting the camera was one resource for making the speaker visible (as with the refocusing on Abbot after he was introduced by the

moderator). Interestingly, speakers hesitated at the beginning and end of camera movements. Abbot said "and ahh" as the camera began to move and "last ah" as it finished. Likewise, Bill oriented to the beginning of a camera pan with a repeat "a ah" and to the end with a pause (see chapter 5 and also C. Goodwin 1981 for a more complete analysis of how speakers orient in similar ways to changing attention in their conversational partners).

In the last example camera adjustment went along with speaker change and agenda change (see Linde [in preparation] for a detailed analysis of agenda management). The camera work is also closely tied to the conversation in the absence of an official agenda. The next example was a call in which Ben requested Abbot play some music for a Palo Alto visitor. First the camera in Portland was moved to show Abbot starting up the music from a computer work station in Portland; then the camera in Palo Alto was moved to show Ben and his guest. Interestingly, camera work at one site was followed by camera adjustment at the other.

|              |                                                 |               |
|--------------|-------------------------------------------------|---------------|
| VC 1.9       |                                                 |               |
| in Portland: |                                                 | in Palo Alto: |
| Abbot        |                                                 | Ben           |
| Evan         |                                                 |               |
| ...          |                                                 |               |
| Ab           | ... I can (( )) make noise                      |               |
| Ev           | /Yea (( ))                                      |               |
|              | /[1:08 local Palo Alto talk 'till music starts] |               |
| Ab           | /[off to start music; camera follows him]       |               |
|              | (1.08) [music starts]                           |               |
|              | //[returns to sofa]                             |               |
|              | //[camera back to sofa]]                        |               |
|              | /[people in Palo Alto reorient]                 |               |
|              | /[camera follows them]                          |               |
|              | [music with talk]                               |               |

Be That's really much improved  
 Ab Well it's a different plant  
 Be Yea. What does that plant look like  
 Ab ((Umbrella plant)) ()  
 /I can show it to you ()  
 /[up]

...

Abbot then brought a pictorial representation of the music being played and put it in front of the camera for the other site to see.

In all these examples, there were several participants at each site. Some nontalking participant moved the camera. In the next example, there was only one person at each site. The Palo Alto participant answered a call and then, after hearing the caller needed a computer adjustment, moved the camera to display the computer and before going to work assisting the caller.

VC 4.12  
 in Portland:  
 Joel

in Palo Alto:  
 Elliot  
 Deneb<sup>106</sup>

...  
 El Joel who you looking for  
 Jo I's lookin for either Mike or Ben  
 I'm actually curious whether Deneb is,  
 what Deneb is running right now  
 El /[camera moved to show Deneb]  
 Jo /If it's running, for a change if Deneb is  
 running the image with the switchin in it,  
 I'd like it not to  
 El Oh, OK, It probably is  
 [moving into view; sits at computer]  
 Jo Ah if it's running the smalltalk image I'd  
 like it to just come down for a few  
 minutes I want to check a very kluggy  
 implementation of using the video switch  
 driver  
 El [working] (13.7)  
 No it apparently wasn't

---

106. Deneb refers to a specific computer.

**Jo** *In that case my kluggy implementation is not working*

...  
**El** [moves Palo Alto camera back]

In the last example, Eliot turned the camera to an object (a computer work station) in anticipation of putting himself in the frame and continuing to interact with Joel. The interaction is an example of just the sort of distributed work the laboratory sought to support. The computer, in Palo Alto, was running a video switching program important to both sites. One person from Palo Alto was helping with the physical setting of the computer while one from Portland was working on a program. The link (and the camera movement) were part of this process. In the next example, Eliot also turned the Palo Alto camera to an object -- this time a music synthesizer which was playing music that was focal to the interaction.

|                                                               |                |
|---------------------------------------------------------------|----------------|
| VC 1.5                                                        |                |
| in Portland:                                                  | in Palo Alto:  |
| <i>Evan</i>                                                   | <i>Elliott</i> |
| <i>Abbot</i>                                                  |                |
| [talk about playing music]                                    |                |
| [local talk at each site as Abbot prepares the program]       |                |
| ...                                                           |                |
| <b>El</b> / [moves camera to synthesizer and starts focusing] |                |
| <b>Ev</b> / <i>Ready for tree music?</i>                      |                |
| <b>Ab</b> <i>Tree music</i>                                   |                |
| [5 minutes 54 seconds of music]                               |                |
| ...                                                           |                |
| [applause and laughter]                                       |                |
| <b>Ab</b> <i>I don know ...</i>                               |                |

As the music played, Abbot turned the Portland camera to a visual representation (of a plant) after which the music

was patterned. This video display of an image was made relevant by the music and was part of a cross-site encounter. All these camera adjustments (at the beginnings of encounters as well as during them) reflect lab members understandings of when to adjust the camera (i.e. local practices) plus the contingencies of handling the equipment. There was, for example, always a slight delay between identifying a place for adjustment and the actual accomplishment of the adjustment.

There were occasions when lab members would make local camera adjustments independent of any cross-site interaction; these adjustments involved displaying an image of what was going on locally. This use of the link, showing the other site what was going on, involved a particular kind of attention to the local activity itself as well as focusing the camera on that activity. Since the link was a resource for both cross-site talk and bystanding, making local events available to the link allowed lab members at the other site to be observers. The cartoon already described is another kind of display the other site. In that case, the display led directly to cross-site talk; often these displays were also a topical resource in later conversations.

As a class, video adjustment happened with greater frequency than audio adjustments. However, audio adjustments were particular to interaction and were thus always related to the ongoing constructed nature of talk.

Video adjustment had the added possibility of displaying local events or objects of mutual relevance.

#### 7.1.4 Adjusting Sound

Just as many video adjustments fit into the context of particular interactions, so did audio adjustments; however, the particulars of the fit were unique to audio. There were two sorts of sound adjustment: adjusting the volume and turning the audio connection off. In the first case, local audio adjustments were directly responsive to what was locally heard. If the sound were too low, it was turned up; if the volume were too loud, it was turned down.

|              |                                            |               |
|--------------|--------------------------------------------|---------------|
| VC 1.6       |                                            |               |
| in Portland: |                                            | in Palo Alto: |
| Joel         |                                            | William       |
| Jo           | [looking]                                  |               |
|              | An' we're havin a hard time() hearing      |               |
|              | you because just a moment () ok talk (1.5) |               |
|              | [adjusts mike]                             |               |
| Wi           | Oh well I ...                              |               |

In this example, the volume adjustment was explicitly noted in the talk. There were also cases where the physical act of audio adjustment was done without comment. Turning the volume up or down affected what the adjuster could hear (i.e. it was same-site or self oriented) while video adjustments changed what people at the other site could see (i.e. it was projected for the other site).

The audio was turned off either to hear the other site better or to allow for local talk that could not be heard by the other site. When there was talk at both ends of the

link, the mike transmitted which ever sounds were louder. Sometimes, local talk was quite loud and link users turned their mike off so it would not transmit local background noise; thus they could continue to listen to a speaker at the other site. On some occasions, a lab member might want to make a side comment not transmitted by the link. To assure this, the speaker could switch off the mike while making the comment. (The same thing could be accomplished by speaking quietly.

Just as with audio adjustments, turning the audio off could be an announceable event. In the next example, noise in Palo Alto obliterated the Portland audio signal.<sup>107</sup> The Palo Alto participants moved closer to the mike, announced their trouble and turned off the local audio so that local talk would not be picked up and Portland talk would continue to be broadcast.

|              |                                                     |               |
|--------------|-----------------------------------------------------|---------------|
| VC 1.5       |                                                     |               |
| in Portland: |                                                     | in Palo Alto: |
| Abbot        |                                                     | Dick          |
| Bob          |                                                     |               |
| ...          | [local talk off camera in Palo Alto]                |               |
| Ab           | <i>Most of what what's missing is to (( ))</i>      |               |
|              | <i>the same level there are no emphasis on on</i>   |               |
|              | <i>on on different notes or=</i>                    |               |
| Bo           | <i>=Well you need to get some dynamic range</i>     |               |
|              | <i>put in maybe you could use the wire for that</i> |               |
| Di           | <i>(( )) we've got ah a a ah half duplexing</i>     |               |
|              | <i>situation going here ah</i>                      |               |
|              | <i>[moves to mike; switches it off]</i>             |               |
| Ab           | <i>Oh I see you can't hear us</i>                   |               |
| Bo           | <i>We were talking about introducing dynamic</i>    |               |
|              | <i>range and some ah ...</i>                        |               |

---

107. Because of the half duplex nature of the audio technology used, loud local noise would overpower a cross-site signal.

In this example, as in the earlier one, the announcement gave notice that there was an audio problem and that an adjustment was to be made. The audio adjustment was responsive to the level of local noise; the audio was also occasionally turned off before saying something. Thus, turning off the audio may be anticipatory or responsive; volume adjustment was always responsive.

#### 7.1.5 Adjusting Equipment: A Notably Separate Activity?

In the next example, two lines of activity developed. There was a spate of talk begun with a reminder (from Portland) that video taping was being done. That was taken up (lightheartedly) in Portland, while in Palo Alto the activity switched from cross-site talk to camera adjustment.

The following transcript is organized with the primary, ongoing conversation on the left (the one that is also louder in volume). The secondary (lower volume, locally oriented, limited projectable future) Palo Alto talk on camera adjustment is on the right; while it alternated with the Portland talk (i.e. did not overlap), it was so low in volume as to have been inaudible cross-site; there was no evidence of cross-site attention to it while it occurred. The Portland participants were looking at each other, not at the link; but at the end of this segment, there was a comment about how quiet one of the Palo Alto participants



has gotten. This reinitiated cross-site talk at the point that the camera adjustment was complete.

|        |                                             |                         |
|--------|---------------------------------------------|-------------------------|
| VC 1.2 | Portland                                    | Palo Alto               |
|        | Evan                                        | Pat                     |
|        | Abbot                                       | Doug                    |
|        | Bob                                         |                         |
| ...    |                                             |                         |
|        |                                             | [camera moving]         |
| E      | That means we can't pick<br>our nose        |                         |
| A      | Na!? Oh sorry                               |                         |
|        |                                             | P you were<br>over here |
| A      | dthththth                                   |                         |
| E      | Or scratch where it itches                  |                         |
|        |                                             | D how's that            |
|        |                                             | P oh that's<br>good     |
| B      | Oh-oh, Pat got real quiet                   |                         |
|        |                                             | D [back and<br>sits]    |
|        |                                             | P Oh, oh we             |
|        | we're talkin' about where to put the camera |                         |
| ?      | aha                                         |                         |

In this example, there were two locally relevant activities with two different floors. However, these activities were well coordinated. There is strikingly little overlap in the turns. While there were different topics in each locale, each site's talk was made available to the other (but not specifically attended to as Tom's last remark shows); cross-site talk began again as soon possible. While equipment adjustment may be a visibly separate line of activity, when the activity is relevant to a cross-site encounter, it is an obvious part of the encounter as with the last example.

### 7.1.6 Adjusting Equipment versus Adjusting the Body

The preceding sections have surveyed the various ways that picture and sound were manipulated by people using the link. It is important to recognize other avenues of adjustment exist. People routinely placed themselves in the center of the camera's range and precisely in front of the video screen when they entered link space. Part of organizing the scene for a cross-site interaction involved placing one's body appropriately in view of the other site. It was in cases where this could not be done (e.g. current speaker was out of view for good and obvious reasons) that the video camera was moved around. By the same token, people often moved closer to the mike if they could not hear; when this proved inadequate, the technology itself was adjusted. The preferred (and more flexible) adjustment was personal; when that was inadequate (or when the adjustment had to be made for another person) lab members turned to the technology.

### 7.2 Fixing or Modifying the Equipment

In Chapter 6 (6.4.2) an interaction that centered on diagnosing and fixing a problem with the video image was presented. This example of activity-based talk examined a cross-site effort to fix the technology. In addition to

being a cross-site activity, fixing the technology can happen at one site and draw the attention of the other. This is what happened in the next example when William in Palo Alto began changing cameras.

|              |  |               |
|--------------|--|---------------|
| VC 4.13      |  |               |
| in Portland: |  | in Palo Alto: |
| Joel         |  | Mike          |
|              |  | William       |

[view is suddenly of a funny angle, goes  
black and then green]

Mi Oh it's so pretty=  
Jo =Camcorder! ()

Mi I hear complaints from the peanut  
gallery ()

Jo It's very easy to complain when everything  
looks like its been colored with  
fluorescent green paint

Mi Louder Joel, the ah the ah perpetrators  
of this crime are are just within earshot ()

Jo Fluorescent, green, paint, all over  
everything ()

Wi How about this

? (( ))

Jo Black paint all over the lens

? (( ))

Jo That looks terrible! It looks horrible!

...

While each instance of equipment maintenance principally involved a piece (or pieces) of technology, none was a solitary activity. When something happened at one site, people from the other could and did stop by to find out what was up, e.g. why the video image had gone awry. When something happened with the technology locally, at least one other person was involved -- either people were recruited to help or someone would wander up and join in. This network of interactions was a prime method of information dissemination in the community. Participation in the event, seeing the event as a bystander, and recounting the event to

others provided a wealth of shared experiences for lab members.

### 7.3 The Technology as an Interactional Resource

The technology used in this setting was meant to facilitate interaction in a way that was as close to face-to-face interaction as possible. Yet the technology was far from transparent. Perhaps because certain features of the video (such as distortion with movement and the edge of the frame) were always apparent, they were continually relevant in each use of the link and they were used playfully during interactions.

The movement distortion inherent in the link technology was often turned to advantage. It was part of demonstrations of the link; but more importantly, it was a physical and topical resource for cross-site talk. On one occasion the lab had a Hawaiian shirt day. As people, wearing their Hawaiian shirts gathered for a meeting, the distorting feature of the video was used to display the riot of pattern on the shirts. One lab member walked up close to the Palo Alto camera and jumped up and down several times. This occasioned laughter and comment both locally and cross-site. Another flashy pattern elicited the following.

VC 4.5  
in Portland:  
    Anne  
    Joel

in Palo Alto:  
    Doug  
    Dick

...  
 An What are you wearing Doug  
 Jo I'm sure it's just losing something in the  
 compression  
 Di No it's not  
 [laughter]  
 Jo Well it's just as bad when it stabilizes,  
 I mean just as interesting when it  
 stabilizes  
 [laughter]  
 ...

The video distortion was used as a primary interactive move (i.e. lab members caused a distortion at a particular point in time). When the screen distorted for other reasons, it became available for public comment as in the next example.

|              |               |
|--------------|---------------|
| VC 2.3       |               |
| in Portland: | in Palo Alto: |
| Andy         | [Many]        |
| Joel         |               |
| Evan         |               |

...  
 ? Doesn't look like it  
 [screen in Portland freezes and goes pink]  
 [back to displaying Palo Alto]  
 An Little bit of Pink Floyd there  
 [laughter]  
 Jo OK  
 An No Pink Floyd in the lab  
 Jo Why don't we...  
 ...

Regular features of the technology, such as the video distortion, were actively used in encounters. Likewise, the changing states of the technology, such as going pink, were also used.

### 7.3.1 Using the Frame

In face-to-face situations, participants have available the environment around themselves and their interactional partners of the moment. At a minimum, peripheral vision and the occasional sidelong glance provide access to other people on the periphery and the surrounding space. With the link, this was not the case. One could see only what the camera projected; one's view was fixed by the camera's position and framed by the camera's lens. The view might change as the camera's position changed, but the lens frame always imposed a fixed boundary between what could and could not be seen. If a person were outside the frame, that person could not be seen from the other site; a person standing inside the frame could always be seen. The frame, while it limited what could be seen, became a resource as well. One could stand out of view or enter camera range; one could also use the edge of the frame to advantage during interactions. This feature of the link was used as a resource for joining (or not joining) talk. Entering the frame either dramatically or at a turn-relevant and topic-relevant point became a way to enter a conversation.

Stepping into the field of view to join ongoing talk was accomplished in several ways. In the first example, Bob jumped dramatically into view drawing an immediate emphatic response from Pat who, along with Doug, was waiting in Palo Alto for a cross-site meeting (not involving Bob) to start.

|              |                                            |               |
|--------------|--------------------------------------------|---------------|
| in Portland: |                                            | in Palo Alto: |
| Bob          |                                            | Pat           |
|              |                                            | Doug          |
| Pa           | Ow bean bags! It's been a while. (//       | /[on]         |
|              | It's certainly better than ((watching      |               |
|              | movies))                                   |               |
| Do           | (( ))                                      |               |
| Pa           | Oh                                         |               |
|              | (( ))                                      |               |
|              | [sits] ()                                  |               |
|              | ((Welp))                                   |               |
| Do           | (( ))                                      |               |
| Bo           | [jumps suddenly into view spread eagle     |               |
|              | posture; sits]                             |               |
| Pa           | Oo,, Haha. Roberto!                        |               |
| Bo           | Hello=                                     |               |
| Pa           | =ot the person I was expecting to see      |               |
|              | What's new                                 |               |
| Do           | [on, sits]                                 |               |
| Bp           | Well I thought I'd stop by since I saw you |               |
|              | sort of half ah submerged there and just   |               |
|              | say hello                                  |               |
| ...          |                                            |               |

Bob's dramatic entrance was well timed -- it coincided with a possible turn relevant place in the local Palo Alto talk neither overlapping a speaker nor interrupting an ongoing topic. Pat responded at once with appreciative vocalizations and an indication of recognition ("Oo,, Haha. Roberto!"). Bob also drew on the always visible frame making it a topical resource when he saw Pat "half submerged" (Pat was sitting on a bean bag chair rather than on the sofa and only the top half of his body was in view).

A person could also simply enter the frame during an ongoing conversation. The entrance can be followed by several turns before the person is included in talk or inclusion can coincide with entering the frame. In the next example, Dick entered the frame (at a turn relevant point),

was seen by Bob<sup>108</sup>, and was acknowledged by Bob six turns later after the local topic was drawn to a close.

VC 1.1<sup>109</sup>

in Portland:

Bob  
Sandra  
Evan

in Palo Alto:

Dick

Bo Did you read today's about ...

Di [on]

Sa I read ah the last one on late Friday

Bo [looking at d ]

...

Bo Oh h' yea Dick an Sandra an and uh umm one of the bachelor farmers, Evan Perry i' is also here

Ev [on and sits]

Bo We were just chatting up the ... news an

...

As part of the acknowledgment, Bob announces Evan's presence; Evan entered the frame just after this announcement and began discussing some pending business he had with Dick. Like the example before, both these entrances (Dick's and Evan's) were at turn relevant places and led to eventual inclusion. Entering the frame was entering a specialized area -- a space devoted to the link. Such an entrance can be dramatic; it can be turn relevant and it can be by introduction (as in the last example). As indicated by Bob's dramatic entrance in the earlier example, there were joking uses made of the video. The distortion

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108. The only Portland person who could see and be seen by Dick

109. The reference to bachelor farmers draws on a shared interest in *A Prairie Home Companion* -- a radio program that included Norwegian Bachelor Farmers as regular, fictional characters.



and the frame offered many playful possibilities and a particular kind of frame play developed in this setting.

In the next example, talk was ongoing between Bob and Evan in Portland and Pat in Palo Alto. Abbot, who was coming out to meet with Pat, stood just outside camera range and waved his arm in and out of the frame as the conversation continued. When someone from the other site acknowledged the arm, Abbot came into view and sat down.

|              |                                     |
|--------------|-------------------------------------|
| VC 1.2       |                                     |
| in Portland: | in Palo Alto:                       |
| Bob          | Pat                                 |
| Abbot        | Doug                                |
| Evan         |                                     |
| ...          |                                     |
| Bo           | You have little bean bag chairs?    |
| Pa           | Yea                                 |
| Bo           | Oh and you're lounged down/ on one  |
| Ab           | /[arm waving...]                    |
| Pa           | Doug is here; I'm on one            |
| Bo           | Is he one of the bachelor farmers   |
|              | [to Evan]                           |
| Ev           | Sure                                |
| Pa           | He he                               |
| Bo           | They're both bachelor farmers       |
| Pa           | The Norwegian bachelor farmers? (2) |
|              | //that Abbot's hand?                |
| Ab           | /[hand stops]                       |
|              | Sure                                |
|              | [on and sits]                       |
| Bo           | That's the ... bachelor farmer      |
| Pa           | He-he-he-he-ha                      |
| Ab           | Hi guys                             |
| ...          |                                     |

Here Abbot used the frame (and his undulating arm) as a way to prestage his entrance. His frame play provided a way to enter an ongoing event, and it was recognized as such by others. Those physically copresent with Abbot cooperated by not mentioning Abbot's actions and by continuing a topic not incompatible with the identity of the player. This sort of

frame play, associated with early parts of conversations, could get quite elaborate and even included cross-site turns at frame play.

#### 7.3.1.1 What is and isn't there: Orienting to Activity and its Absence

In the next segment, Dick was walking through on the way to the mail boxes; Dick not only walked through but looked directly at the link as he passed; Bob, after exchanging "hi"s with Dick, went back to the conversation at hand. Dick's visibility in link space plus his obvious noticing of the Portland conversation made him available as the recipient of a greeting. When Dick returned from the mailboxes, he stood watching the link -- making himself available for inclusion in the talk. The reciprocal noticing (on the first walk through) and making oneself available (returning to link space) is of note. Dick and Bob noticed each other (in link space and attending to the link) and exchanged greetings; Bob and Dick made themselves physically available by positioning themselves in front of the link. This is a double attention to the technology -- both what is on it and how one's own image may affect others.

VC 1.1  
in Portland:  
    Joel  
    Sandra  
    Bob  
    Evan

in Palo Alto:  
    Dick

...  
Jo Sandra, I I don't think we're getting the

audio very well  
 Sa He ha ha/ ha ha, he he//he  
 Di |[l / to /r]|  
 d-g /bbbbbb/  
 b-g sss... /ddd...  
 Bo /Uh, huh=Hi Dick (1)  
 Di Hi 'ob (3.2) [from off]  
 Bo That wasn't just for your, benefit I would  
 have said  
 b-g s.....  
 Bo Hello to him  
 anyway (6.6) So did you see, the preamber  
 b-g ..s LL.rt s....  
 Bo news that's been going by  
 Sa Yes  
 Bo Did you read today's about the bachelor  
 b-g s.....  
 Bo farmers, and Andy  
 Da [on]  
 Sa I read ah the last one on late Friday  
 b-g dd.. ..d  
 Ev He's not a bachelor  
 b-g eeeeeeeeeeeeeeeeeee  
 Bo Yea, I know  
 ? (( ))  
 Sa I did I thought that was (( ))  
 I tried to /figure /out  
 Ev /I left a/ word/ out  
 b-g /dd.. /ee... /dddd /ee..  
 Sa Oh you did?  
 Bo Oh h' yea Dick ah Sandra an and uh umm one  
 of the bachelor farmers [Ev on and sits],  
 Evan Perry i' is also here we were just  
 chatting up the amber news an  
 Di 'ogg. Yea, great message  
 ...

In this example activity (first Dick's walk through and then the ongoing Portland talk) drew cross-site attention. Lack of activity also drew people's attention. In the next example, Bob and Joel were commenting on how quiet Palo Alto had been. This general or unspecified pre-opening was directed at the link and relied on observations of the general state of link activity. Lab members use the lack of

cross-site activity as a way to probe the link for a response without actually making a call.

VC 4.9

in Portland:

in Palo Alto:

Joel

Bob

Nick

... [Joel and Bob talking off camera]

Bo So is anything happening in Palo Alto ()

Are we back on the air taping

[on]

Jo (( ))

Bo (( ))

Jo [on]

It's been pretty quiet down there today if  
you ask me<sup>110</sup>

[off]

Bo I was wondering whether the Giants won their  
game

[sits, juggles once]

Did you ah see () Did you see the sports

Did the giants win

Jo (( ))

/I

Bo /Maybe that's why there's no one down  
there they all ah=

Jo =I don't follow baseball (( ))

Bo Well Dick is a fan, in a big way ()

I bet Nick would know ()

Ni (( )) [from off]

Bo The Giants lost? Ahh

[up and off]

Just as Bob and Joel were attending to Palo Alto via the link, Nick was attending to local talk and answered when he heard his name. Dick (or any other Palo Alto Giants fan) might also have answered but, because of the limitations of the technology, there was not the same accessibility as within site. Bob and Joel knew Nick was in the office and could hear "I bet Nick would know". They could now know for sure whether Dick could hear them.

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110. Special voice

## 7.4 The Technology as an Interactional Limitation

Just as distinctive features of the technology were available as interactional resources, so were they available as limitations. Precisely the same characteristics that provided resources in some situations became troublesome in others. This trouble unfolded in one of two ways: either a technological limitation got in the way of a particular interactive move or some feature of the technology contributed to a trouble developing in an interaction. The video distortion, the framed view and the half duplex audio became troubling both on their own and at the times in interactions where there was interactive trouble anyway.<sup>111</sup> In other words, the technology became an interactional limitation when people needed to see or hear beyond its borders or when the interaction was already going badly.

### 7.4.1 Limitations of Sight

Two features of the video technology contributed to visual limitations. First was the distortion typical of all similar video sampling technologies. The video distortion associated with motion was used as an interactive resource; it could also obscure a clear sense of what was going on at

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111. See Gumperz's et al (1979) Crosstalk for more on trouble spiraling because of reliance on more and more subtle signaling mechanisms -- just the kind of situation in which a limited channel would be least useful.

the other site. When, for example, video tapes were shown over the link, they were very hard to watch because of this distortion. Second was the limited view established by the fixed camera. When people were not oriented to the link, especially if they were standing and talking near the edge of the frame, they could be very difficult to recognize. In an already presented example, Bob mistook Dick, who was barely visible at the edge of the frame, for William (see Chapter 6). In this interaction, T interrupted D's local conversation for naught and had to produce an explanation for having done so. The camera framed the field of view and did not provide the mobility and view control of eyes and head. One saw a fixed televised image rather than being able to look around at whatever was of interest in the environment. Thus, the field of view was limited and the periphery was invisible.

One could see the results of not having peripheral vision in the kinds of verbal productions people made when trying to gain access to events at the other site that were not immediately visible. In one case, Joel heard, but could not see, the playing of music. After standing in view of the link watching for a while (and not getting any acknowledgment for his physical presence), he asked who was playing (and got a response).

In order to do any task requiring shared drawing cross-site, the camera had to be focused on the drawing

surface.<sup>112</sup> This eliminated the ability to see the other person. The link did not provide either the visual detail or the shared access important to lab members trying to do a collaborative design task. This limitation was visible as a notable absence of efforts to do shared drawing tasks.

During most of the day something was audible or visible over the link (see Chapter 4). Most sounds occurred off camera, out of view and were not easily identifiable out of the context of their occurrence. For example, the Portland doorbell and the microwave oven were both audible over the link on a regular basis. These were recognizable sounds (from experience visiting the site or from conversation with those who had visited the site) but they were sounds that occurred outside the visual frame, and apart from an apparent stream of activity (e.g. the doorbell simply sounded with no follow up information on who came in). Having a limited visual field made it difficult to orient to these isolated sounds beyond noting their occurrence and perhaps recognizing their significance from other experiences.

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112. This was not ordinarily done though experiments were underway (and continued after the closing of Portland) on new means and new technologies to make this possible. For more on using multiple cameras and shared drawing technologies and design as an activity see Allen 1989, Bly 1988, Bly and Minneman 1990, Minneman and Bly 1990, Stults 1988, Tang 1989, Tang and Minneman 1990.

#### 7.4.2 Limitations of Sound

While certain sounds had no cross-site visual associations because of camera placement and view, others were limited because of characteristics of the audio technology and because of the ways in which people used the link. The most obvious outcome of these factors was that some things could be heard and understood while other things and could not. Some things were simply not audible over the link because of the ways in which people oriented to the technology and the level of microphone sensitivity. The mikes transmitted the loudest available sound so things like door bell rings would be transmitted to the other site while a quite conversation would not be transmitted. Interpreting sounds from off-camera was troublesome. One was simply not able to orient to a sound when it was off-camera and the flow of activity with which that sound was associated was unavailable. This situation was unavoidably rooted in the nature of the technology and the type of access it allowed to activity.

One crucial feature of these limitations is diminished or missing orientation and alignment to the link during production. It is not only what could or could not be heard, but also how things were produced (e.g. loudness) and position in space (e.g. in view, oriented to the link or to a copresent body). When people were oriented to the link and wanting to hold the floor, speakers often spoke louder than if they were having a similar conversation in a small



face-to-face grouping. Thus, local conversations, even when visible over the link, were not easily audible; people were not talking in the context of the technology. Loudness also varied when there was a local exchange during a cross-site encounter; the local talk was quieter and, consequently, less available over the link. People produced their utterances in contexts with listeners who provide continuing feedback on how those utterances are heard and understood. As this arrangement shaped the moment-to-moment content and production of an utterance, it contributed to such features of production as loudness and the attendant hearability of an utterance. This was as true cross-site as face-to-face.

Another visible limitation of link audio was in projecting overlapping talk. In conversation, overlap will occur at predictable places in the turn-taking system: either when two or more speakers compete for a turn or when a listener incorrectly projects the end of a turn and starts before speaker is done (Sacks, Schegloff and Jefferson 1974). When there is an overlap, one speaker will usually stop talking fairly soon while the other recycles the overlapped part (Atkinson and Drew 1979). If this does not happen there may be a "floor fight" with the person who speaks louder (along with other features such as slowing the rhythm) winning. Given the half-duplex audio, audible cross-site overlaps were precluded. Whoever talked loudest had the microphone (if not the floor). Overlapping talk could of course be heard by those who where actually

copresent, but across the link, an overlap was either unrecognized or became an interruption. This feature of the audio technology disallowed one of the resources of face-to-face talk.

Like overlap, silences occur at turn junctions where a next speaker has not started. As can be seen from looking back over some of the transcript fragments presented, silences are a feature of turn transitions in link talk and, while the silences may be longer than is typical for other contexts, the pattern of occurrence is typical for this setting.

Repair (Schegloff, Jefferson and Sacks 1977) is a general system that corrects (or prompts for a correction) for a range of dispreferred conversational moves. Repairable items can be any number of things from dispreferred responses such as refusing requests, offers or invitations, to disagreements, to not answering a question, to admitting blame (see Levinson 1983 for a summary of preference organization). Misunderstandings and mishearings, word searches and self-corrections are also repairable conversational events. Repairs may be initiated by the speaker or by another and may be actually completed by the speaker or by another. To accommodate this range of happenings, conversations continue in a way that allows several opportunities for repair across the turns following the repairable item. The preference is for repair to be

initiated and done by the speaker and for it to happen sooner rather than later.

It should be clear from this description that repair is a standard conversational maneuver. As with other conversational moves, the repairing of dispreferred answers over the link drew on standard conversational resources. However, given the narrow channel for audio and video communication, there were more instances when repair was necessary in link talk. Not answering questions (unheard in a half-duplex situation) and mishearings were more likely to occur; the already described trouble with interruption also generated repairs. As with openings, repairs proceeded in basically the same ways as have been documented for other kinds of encounters.

## 7.5 Mediated versus Non-mediated Interactions

One question is frequently asked question about the link: how does it compare to face-to-face interaction? Before answering this question, one must acknowledge what interaction would have been like if the link had not been available. Face-to-face interaction is not an alternative for people separated by 700 miles. Telephone, electronic mail, letters, and various shared computing resources (from jointly available data and program files to shared screens) would have been used in this setting; these were mostly, but

not entirely, asynchronous, and all relied on spoken or written words and images in the absence actual bodies. Given that simulated face-to-face encounters would not have occurred in the absence of the link, one might well ask, why assess the link in terms of such interaction? Indeed when the question is cast in this way, one should not. While face-to-face interaction allows understanding of what people were doing with the link, it should not be the standard for judging how effective the link was.

Technologies such as this video link are meant to add resources to situations in which face-to-face interaction is impossible. Nonetheless, face-to-face interaction retains a special status as the basis for other forms of communication. Conversation "... seems to provide the primordial, 'default' organization, with other speech exchange systems, such as debates and meetings, being defined through systematic constraints on the possibilities provided by conversation" (Goodwin and Heritage 1990:11). As with debates and meetings, link-mediated talk was systematically constrained by the technology, the context of use and the event.

Much of the data already presented is based on one type of comparison: what happened over the link and what is known about face-to-face and telephone conversation. Here I want to present a different sort of comparison: a story about a recent trip that was told face-to-face and then recounted again over the link. In the two transcript fragments that

follow, the same story was told in Portland and then immediately retold to someone over the link. Many lab members had just returned from a conference in Orlando; several stayed for an extra day or two of vacation. Here one of the vacationers, Bob, was telling about a space suit he saw at the John F. Kennedy Space Center.

VC 4.1

in Portland:

in Palo Alto:

Andy

William

Bob

Anne

Joel

And [whistle]

Good morning () you survive Disney World

Bo Not only did I survive Disney world, the Epcot Center and the John F. Kennedy Space Center

And /(( ))

Bo /I survived plane flights and everything

And You went to the space center huh

Bo Yea

And Like that

Bo Yea,

/Liked it a lot

An /(( ))

And (( ))

Jo Did you get into one of the old Mercury ah launch bunkers () They took us into one of those /(( ))

And /That that was one of the optional tours yea they have two tours /(( ))

? /(( ))

Jo There was only one tour when I was there during Apollo Sky Lab

? (( ))

An Ah huh the one thing that was, truly remarkable was the space suit they had there

Bo Ah:h I didn't tell em about that

An He

Bo They had this space suit in this museum that was sort of propped, well sorta standing in the area, a little bay in the area an I went over to it and said this is very interesting (( )), and for about a minute or two, staring at it trying to figure how they were holding up propping

it up (( sort of))  
 prodding at it and then it started moving  
 Jo There was a person  
 Bo There was a person in it  
 Jo Aw-aw aw  
 Bo Aw-aw It was a big joke I mean they said  
 on the thing that that they had this space  
 suit, wandering around but we didn't read  
 that beforehand And this person had found  
 some hapless tourists  
 Jo Some fool ((to come up and poke at it))  
 right  
 An It feels like the arm is full of something  
 Jo Lifting the arm up? Ha Ha Ha Ha Ha Ha Ha  
 An I reached over and I I touched the glove  
 and it squeezed me back  
 [laughter]  
 Bo Very strange  
 Jo I love it, I love it  
 Bo So after that, if we see if we'd done this  
 before, doing Disney World, instead of  
 after then we could have taken advantage  
 of that (( )) they were  
 real  
 Jo Naw, naw, naw, that probably wouldn't  
 work Hi William  
 ...

As described in Chapter 5, William had seen and heard the goings on in Portland and had come up to the link. Joel had seen him and said "hi" at the the first relevant point in the ongoing talk. Further, Joel provided an opportunity to engage Randy in the ongoing (and eminently reportable) conversation.

VC 4.1 -- continued

...  
 Jo Naw, naw, naw, that probably wouldn't  
 work Hi William  
 Wi Oh hello  
 Bo Hello /William  
 Jo /Have you heard the,  
 have you heard the space center tour  
 story  
 Wi No, /space center  
 Bo /oh  
 Jo Oh this is this is great  
 Wi Oh this is ah what ah Bob and Anne did

Jo /Yea  
 Bo /On Friday ya we went  
 //to the John Kennedy Space Center  
 Wi //((huh))  
 /On Saturday  
 Bo /Space Port USA they call it  
 Wi On Saturday  
 Bo On Fr urrrr, Saturday right  
 Wi Yea, OK  
 Bo And ah we took the bus tour, it was  
 really neat and got to see an awful lot  
 more about how the shuttle stuff works  
 than is really clear from hearing about  
 it It's really interesting to see the very  
 ((building)) but they have this museum  
 there an' we were wandering around the  
 museum waiting for our bus tour and they  
 have a space suit that's sort of in one of  
 the bays of the museum and I was looking  
 at it for a while while Anne was looking  
 at some other things and I, I thought it  
 was really neat It was just there for I  
 was watching it for several minutes and ah  
 and I started, ahm you know moving it  
 around a little bit trying to get a sense  
 of what it was like, and ah called Anne  
 over because it was it was about the size  
 that that ah th', it was more like Anne's  
 size than my size an she started pushing it  
 a little bit too and the arms they really  
 felt real like there was something in there  
 and then it squeezed back  
 Wi Ha ha ha ha  
 Bo And then it walked off and /we ((it has  
 this))  
 Wi /Ha ha ha  
 Bo They have that gold, face plate so you just  
 can't see in it /There was  
 Jo /It was Apollo face it  
 was a  
 Bo Yea it was, it was ah moon it was a moon=  
 An -And we tried to peek under to see if  
 there really was a person in there  
 Wi Ha ha ha  
 Jo I love it  
 Bo It was very /weird  
 An /Oh  
 it was terrible, my my face was scarlet  
 Bo She was, embarrassed I wasn't embarrassed  
 of course I almost tackled the thing as it  
 [laughter]  
 Wi Right, So so this was a big set up, were  
 they trying to fool you  
 Bo /Yea, oh yea, /I mean I was

An /Yea /It had to have been  
 Bo I walked over, I's right near it for a  
 couple of minutes an before I even looked  
 at it really the first time it stood stalk  
 still, and then when I went over to look  
 at it it stayed stalk still for several  
 minutes  
 Wi Yea  
 Bo So I was convinced you know that there  
 wasn't anybody in there  
 Wi Ha ha ha ha  
 Bo Very surprising  
 Wi Ha ha ha that's great  
 Bo So, did ah Stephen like his present  
 ...

There are many ways that versions of the same story might be compared. Here I want to briefly consider how the stories got started and mention a few contrasting features in the telling of each version. In the first instance, Bob, in describing his post-conference adventures, mentioned having toured the space center. That was received as a topic of interest by the several people talking with Bob.

And ... you survive Disney World  
 Bo Not only did I survive Disney world, the  
 Epcot Center and the John F. Kennedy Space  
 Center  
 ...  
 And You went to the space center huh  
 Bo Yea  
 And Like that  
 Bo Yea,  
 /liked it a lot  
 ...

As the talk continued, Anne and Bob collaboratively introduced the story.

...  
 An Ah huh the one thing that was, truly  
 remarkable was the space suit they had  
 there  
 Bo Ah:h I didn't tell em about that  
 An He



**Bo**    *They had this space suit...*  
 ...

In the second telling, Joel, after seeing William, asked him if he had heard "the space center tour story". After the first telling, the space suit experience had gained the status of a named story and became reportable as something "great". This came from someone who had not participated in the actual events being recounted and set the stage for a telling of the story in a much stronger way than Bob's original mentioning of having visited the space center.

...  
**Jo**            /Have you heard the,  
               *have you heard the space center tour*  
               *story*  
**Wi**    No, /space center  
**Bo**            /Oh  
**Jo**    *Oh this is this is great*  
 ...

In the first instance, the participants in the space center escapade themselves brought up the topic; in the second, Joel, a recipient of the first telling, seemed to be reopening the floor for another telling by recruiting William as another recipient of the story. Joel opened with a direct question; Anne and Bob with a jointly coordinated mentioning of the space suit.

In both cases Bob recounted most of the story; in the first instance there were several visible copresent recipients (and possible bystanders in Portland or over the link) while in the second case there was one visible recipient and any number of possible bystanders. When the

story was initially recounted in Portland, those present moved in various ways through space -- the four people involved were standing around an office door and there was considerable synchronized movement as they shifted positions. There were also gestural illustrations during the telling. When Anne was saying "*it feels like the arm is full of something*", she was miming the lifting of an arm. This was reflected in Joel's response: "*lifting the arm up? Ha ...*".

When the story was recounted over the link, both physical position and the use of gesture was much more restricted. Once William, Joel and Bob were oriented to the link, they maintained their positions. Also gesture was not used to illustrate the link-mediated version. It is tempting to say that lab members limited their movements when using the link because of the kind of video distortion caused by motion. While this is true (people certainly reported that they did so; when motion caused distortion during interactions, it was commented on), it is not an adequate explanation. People did gesture and move around while using the link though perhaps less than in other contexts.<sup>113</sup>

When Bob first told the story, he reported the situation and the figuring out there was person in the suit. Following this was some discussion of hapless tourists and a

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113. A thorough explanation would require an more complete consideration of gesture in talk and when gesture was used cross-site.

brief comment from Anne about the arm. The second telling, from beginning to the end, was more elaborated. Bob told a longer version of the story including his and Anne's activities; the story was extended to a description of the face plate and Anne's embarrassment; and, when William asked if it had been a set up, Bob provided more detail about the situation. This comparison is interesting but many of the differences are more related to the turn-by-turn development of the talk than to the link.

Considering all the examples presented thus far, the influence of the link can be seen at two levels: one very general and one very local and particular. In general, the link could do some things (e.g. display people, who were in view, to each other) and could not do others (e.g. adequately display people and drawing surfaces at the same time). This had consequences for what could and could not be done. Thus one kind of trouble with the link resulted from its limited flexibility in view and sound. In the moment-to-moment construction of talk, particular features of the link came into play as resources or limitations. While such particulars as half duplex audio, eye contact and visual distortion were clearly important, they became important only in the context of talk, i.e. they were not generic difficulties. Lab members had ways to work around them with other signaling mechanisms (e.g. verbal hitches, pauses and explicit mentionings).

## Chapter 8

### Technology, Talk and the Social World

The Portland-Palo Alto link was a novel combination of audio and video technology managed by the very people who were using it. Lab members, who both instituted and controlled the system, worked in a technology intensive world overflowing with computational and communication artifacts; their livelihoods were tied to the development, use and study of such artifacts. This is a situation in which the influence of technologies, both on these people and as a generalized social force, may be re-examined.

While much of what happened over the link had a very familiar quality, the situation itself was far from ordinary. Having a view of another office 700 miles away and the opportunity to talk frequently with coworkers in that office was unique. The link provided a conferencing line and an always available window to the other site. The link informally connected coworkers in a media space. It gave distant lab members access to local conversations and events; it supported cross-site events; and it provided resources for other communications (e.g. topics carried over

to later link conversations, telephone conversations, or electronic mail exchanges). The link was used by small groups to plan projects, discuss readings, report and coordinate activities and the like; it was used for lab-wide events such as meetings and parties; the link was also used for private matters like supervision or budget planning.

Across all kinds of uses, the video link provided two sorts of connection -- it allowed people to see what was going on and it provided a channel for mutual engagement and conversation among distant coworkers. People who monitored the link knew things about others as they happened. Thus the link had a bridging function in allowing one from Portland, for example, to know what was happening in the public space in Palo Alto just as a Palo Altoan might know it from his or her office. The usually unremarkable activities of paying attention to and engaging with what was going on in the vicinity were extended to this new medium. The link made distant people more available to each other; and people used the link to create and sustain this availability.

Availability is first of all an actual presence or physical proximity. If a person were physically removed from the area (of the link or the telephone or the office), that person would not be available to particular people in that place at that time.<sup>114</sup> Indeed this is the kind of

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114. While this ignores such technologies as call-forwarding, the point can easily be extended to include

unavailability most people assume when a call (using the link or the telephone) is not answered. Unavailability of this sort arises from a person's involvement in some other place or some other task (or the pretense of same). Thus people are available to each other if their activities and movements allow them to come together (physically or electronically) at a particular time.

Availability, however, extends beyond physical or electronic copresence. It also means participation in the relationship existing between the parties and, through that participation, contributing to the relationship. "People are made available to others through the ... determination of those who make themselves available -- and this process of bringing to life has to be repeated every day..." (Henry 1973:285) and in every interaction. While I am not dealing with the creation of humanness in the way that Henry was, it is still the case that this kind of availability is essential to working relationships, and these people, through their repeated interactions, their joint work and their technologies, were available to each other. This availability was apparent in how quickly people answered a call, how quickly their presence was visible after an audible answer, and how quickly someone picked up on a visible presence. The engagement in interaction continually contributed to and sustained these relations, and the link

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such options. If one is too far away or if one does not use the technology, one is simply not available.

was a feature in that creating and sustaining much the way spatial proximity ordinarily is. Neither the ability to see what was happening nor engaging with others was particular to technologically mediated contexts, yet both seem newly remarkable in this setting.

### 8.1 Everyday Behavior in a New Context

One of the striking features of the use of the video link was the range of conversational maneuvers brought to bear in this public, unfamiliar and impoverished medium. The link was a distorted and limited audio and visual medium when compared to face-to-face interaction; nonetheless, it offered a much wider range of possibilities than other available means of communicating over distance. The fact that the cross-site interactions seemed so familiar, that they began, proceeded and ended in unremarkable ways, that people used standard (for them) conversational resources for joking, questioning or repair all emphasize the point that this medium facilitated ordinary conversation. Features of the link did not transform conversations in radical ways; things like conversational openings, the achievement of mutual orientation and recipient design were still accomplished in familiar ways. Consider recipient design and orientation as examples.

Most conversation over the link was public -- not only because the link was located in a public area but also because it specifically had a windowing function making happenings at the other site available. One could be directly engaged in a cross-site event or one could be an unobtrusive bystander. Bystanders were certainly legitimate in this situation; in fact, part of the link's function was to transform distant coworkers into local bystanders. While direct participants were, at least electronically, present to each other, bystanders were not.<sup>115</sup> This had implications for what was discussed (i.e. topical implications), but it also contributed in other ways to the shape of conversations. When a speaker produces an utterance, it is designed in the course of its production for some recipient(s) (Schegloff 1972). In most situations the recipient is there as a participant in the production. However, given the public nature of this medium and the kind of bystanding it allowed, recipient design takes on an added twist -- utterances designed for the possibility of non-present recipients. People who were not audibly or visibly a part of the interaction could thus affect its course. Thus recipient design, like other features of conversation, was both familiar and contextually shaped.

Like any physical context, the link physically shaped interaction; like any other mediating technology, it

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115. There was a long-standing concern for what was referred to as ethical video. In this context, bystanding and eavesdropping were not the same.



facilitated some aspects of talk while making others more difficult. That people could accomplish ordinary encounters in such circumstances highlights not only the flexibility with which people operate but also the adaptability and tailorability of conversation in a range of conditions. In actual cross-site engagements, people had to get oriented to each other. The achievement of mutual orientation was a crucial part of moving from greetings to substantive talk. Other work has suggested that spatial orientation can precede verbal engagement. The video link experience makes clear that alignment, like other features of interaction, is not a fixed prerequisite. It is not the case that people must be physically oriented before saying hello. Rather the alignment of attention and mutual orientation is a plastic, locally managed feature of starting conversations. Its precise location in an interaction and its shape is contextually relevant.

While users brought the resources of face-to-face interaction to bear on the construction of cross-site interactions, it does not follow from this that any users of the link would produce the same sorts of interactions. Frame play, for instance, was possible not only because of the the technical features of the video but also because of the ways the link was integrated into the setting and became an ordinary part of daily life. Because these people saw each other regularly, because they used and controlled the link every day, because they were coworkers who treated each

other casually, they could and did play with the link. The same technology used for formal conferences among people who had few other contacts would not be used in the same ways.

### 8.1.1 People, Space, Activity and Artifacts

Most day-to-day interactions among people are shaped partially by their location in space. Dinner table conversations and medical consultations, for example, are identifiable in part from location (in a dining area or an examining room) and from the spatial and temporal organization created within these settings. Like these face-to-face interactions, cross-site encounters occurred recognizably in space.

To use the link, one had to be near one of the active locations. Like coming to the dinner table or to a doctor's office, the location of cross-site interactions was a specific, physical area at each site. While it was not a hard and fast rule that one only entered link space to talk over the link, that area was special. Link space was part of a larger area in which people engaged in certain activities (e.g. talking over the link, picking up mail, going to the coffee pot, having meetings); most of the activities had particular locations and paths. Local activities proceeded without bodily orientation to the link while cross-site activities were organized specifically around camera and monitor.

Link space sustained this organization by virtue of the arrangement of furniture and technology. There were only so many places one could stand or sit in this space; and how one could sit was shaped by the available furniture. In Portland, the sofas were organized around a large, low table -- lab members could sit on the sofas or on the table. In Palo Alto, there were two small, round tables less suited for sitting and, predictably enough, people rarely sat on them. The fact that there were sofas for sitting and that the camera and monitors were located in relation to the furniture clearly contributed to the organization of interaction.

The spatial organization around the link was a factor in the sequential organization of talk. The beginning segments of cross-site events extended until the participants were spatially oriented to the link (and thus to each other). Topical talk was only begun when people were well oriented to each other via the technology; and talk was brought to a visible close before people moved away from the link. Talk and movement through space thus were shaped in terms of each other throughout cross-site conversations. People continually shaped what they said and did according to where they and their conversational partners were in space.

Features and location of the technology contributed to what went on interactionally in much the same way that the furniture did. These factors (e.g. the relation of the camera to the sofa, the field of view) become relevant at

particular moments of talk and become available for creative use within the range of possibility they allowed. For example, the video presented a flat screen; it was not life size and it could not move around the room repositioning itself in the way a live conversational partner could. On the other hand, the video allowed frame play precisely because of its location and view.

Given the use of space, the organization of artifacts, and the flow of activity through the commons and around the link, this setting can be described in terms of specialized locales and regions of activity. People walked through the commons along particular routes allowed by the arrangement of furniture and their destination; people stopped and talked according to what they were doing and whom they met. Cross-site events occurred at the intersection of people, their lines of activity and a range of specialized, spatially fixed objects.

### 8.1.2 The Organization of Talk

Cross-site interactions had beginnings, middles and endings, and these beginnings, middles and endings echoed those seen in other settings. Beginnings based on calls replicated the structure of telephone openings with a summons-response sequence; encounters resembled those reported in face-to-face situations with visual noticing, approach and alignment being important elements. Topical

talk was also constructed in familiar ways. Topics, especially first topics, were mutually oriented, and the mechanisms used for changing topics or generating new ones were also familiar.

Like beginnings, link endings resembled those analyzed in other settings. The conversational partners always allowed for the bringing up of other business and if none was forthcoming, they closed down the interaction using a closing sequence ended by farewells. As the inverse of beginnings, endings were the final element of talk before orientation to other participants and alignment to the link were broken. In link talk, this orientation and alignment to or through the technology was a crucial element in moving into and out of topical engagement.<sup>116</sup>

Talk, more than most activities, requires the company of others. However, people may not always be face-to-face; their access to each other may be mediated by familiar technologies such as letter writing or phone calls or it may

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116. Analyses like this assume that an encounter bounded in time and space is the proper unit of analysis. While link conversations are certainly events, their boundaries are more ambiguous than considering their beginnings, middles and ending implies. These encounters were done in the course of activity created by the participants as they moved through their days. While these events were focused encounters, they were also a part of multiple, intersecting rounds of activity. Nonetheless, knowing how people actually came together to accomplish something focused in a technology-rich environment is a crucial part of understanding technology in use. In such an account, we see how people take account of each other, the setting and relevant features of the technology in the construction of their utterances.

be mediated by something less familiar such as the audio-video link described here. Whatever the interactive situation, one can see how it figures in peoples' ongoing activities -- when it presents difficulties and when not. In link talk, there were many situations in which the technology was a visible player in what went on. It showed up in routine adjustments during talk, equipment repair and modification, and as a very particular resource or limitation. Neither this nor features of the sequential organization of cross-site events specifically answers the question about how wonderful or awful such technologies might be.

## 8.2 Technology in Activity: Neither Wonderful nor Awful?

The work of PARC researchers, like that of Hollywood denizens (Powdermaker 1966) or cocktail waitresses (Spradley and Mann 1975), was carried out in particular places at particular times and much of what was done was accomplished through talk. Cross-site calls and encounters were constructed in the moment drawing on the interactional repertoires of lab members (i.e. the resources provided by lives full of experience doing talk of various sorts in various circumstances). While particular features of the technology influenced unfolding interactions, it was not such things as the placement of the video or the quality of

the sound that defined these conversations. It was the interplay of technical features, spatial organization, ways of talking, and ways of using the link by these people in this setting at this time that made link talk what it was.

From the growing work on human interaction in a variety of settings, as well as from this research, it is apparent that humans make use of available resources in constructing talk in the various situations in which they find themselves. Further, people working together have the communicative resources to deal with new and varied contexts in ways that allow for such things as the repair of trouble and the utilization of novel resources. The emergent, contingent qualities of talk along with people's ongoing engagement with each other and the technology disallow a simple version of technologically determined human action or socially determined technological use.

Determination is a real social process, but never ... a wholly controlling, wholly predicting set of causes. On the contrary, the reality of determination is the setting of limits and the exertion of pressures, within which variable social practices are profoundly affected but never necessarily controlled. We have to think of determination not as a single force, or a single abstraction of forces, but as a process in which real determining actors -- the distribution of power or of capital, social and physical inheritance, relations of scale and size between groups -- set limits and exert pressures, but neither wholly control nor wholly predict the outcome of complex activity... (Williams:130).

In technology-focused social theories, the technologies are usually autonomous and determining and, as often as not, facilitate a rationality that dominates both mind and

society as technologies increasingly mediate human contact. In link use, there was certainly evidence that the available technologies influenced what happened, but neither something like a chair nor a video camera structured the interactive events. Rather these objects were an ongoing part of the moment-to-moment conduct of talk. The technologies were sometimes relevant and sometimes not.

In society-focused approaches, some feature(s) of social organization such as ideology, systems of production, meaning or historical context is a constant limiting or facilitating factor. Such abstract formulations do not take account of how such things as ideology are locally constituted over and over again in human interaction. Nor do they display the social influences embedded in the shape of a particular object or the form of a particular practice. It is, as Giddens (1984:142) proposes, in studies of interaction, studies of human being acting in space and time and "... the connection between these and 'absent' influences ..." that such questions will be answered. If, as has been done here, we take human activity as a central focus, it becomes less a general question of technology as determining or determined and more a question of the conditions of human activity that make particular technologies wonderful or awful in particular contexts of use.

Much of the literature on technology in the social world assumes that the technology is a manipulable object out in



the world and that that manifestation is crucial in terms of affecting people. The technology described here, while it clearly had an objective reality (it took up space, required money for purchase, worked in certain ways, occasionally needed repair, etc.) also provided an environment for particular local activities. As an environment, it had a changing shape and changing relevance. There were times when the technology itself became a concern and interaction was organized, briefly or extensively around the adjustment, repair or modification of the equipment. There were other times when the technology was transparent. In these actual events we can see when the objective reality of the technology became relevant and when that reality existed as a background for other activities (or when people were oriented to the link technology and when they are oriented through it).

Theorists of technology and society also leave two general issues unresolved. First is the frequency with which simple dichotomies (e.g. wonderful:awful, savior:devil, more leisure:more detailed work) underlie definitions of technology. Second is the general focus on technology or on society. Hominids have been using tools for more than two and a half million years. As soon as we accept the variety in both the tools and their contexts of use as well as the importance of looking at actual situations of use, it becomes unlikely that one theory of technology in the social world can include all that.

As with the video link, technologies are integrated into complex settings that can only be understood by looking at the relation between an artifact or technology and its use. Each technology is always part of one or more complex systems of activity that is in the doing of the activity, locally organized and determined. The video link, like all other technologies, was neither a cause nor an effect but a thing-in-use, embedded in the social relations of the situation. There is no human activity so untouched by culture that it is not carried out in appointed places and in regularized ways. To be part of a culture is to participate in the rounds of activity that both form and reflect a way of life. The Portland-Palo Alto video link was a part of one such round of activity.

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