

The Struggle with the Language in the IT – Why is LAP not in the Mainstream?

Kalle Lyytinen

Department of Information Systems
Weatherhead School of Management
Case Western Reserve University
kjl13@cwru.edu

Abstract

Since its inception Language Action Perspective (LAP) has made significant progress in developing ontological and epistemological theories of information systems, new modeling approaches and tools, or new computer based coordination tools. In some sense LAP has come of age and can be regarded a specific computing movement, or a unique discourse and voice in the information technology revolution with rich theoretical heritage. Despite its academic success LAP has not become a significant part of understanding mainstream computing problems and/or how to address them. Very few textbooks draw upon the LAP concepts and the widespread use of the LAP has not taken place in the computing world. This talk addresses some of the reasons from economic, diffusion of innovation theory, and sociology of knowledge view points. Some specific actions to overcome this challenge are proposed.

The copyright of this paper belongs to the paper's authors. Permission to copy without fee all or part of this material is granted provided that the copies are not made or distributed for direct commercial advantage.

Proceedings of the 9th International Working Conference on the Language-Action Perspective on Communication Modelling (LAP 2004)

Rutgers University, The State University of New Jersey, New Brunswick, NJ, USA, June 2-3, 2004

(M. Aakhus, M. Lind, eds.)

www.scils.rutgers.edu/lap04/lap04.htm

1 Introduction

Principles of Language Action Perspective (LAP)¹ were formulated largely in the early 80's as a critical response to functional, naive empiricist view of the language which was dominant at that time in data base, systems design, artificial intelligence and MIS research communities. The original idea of LAP was to formulate a social, rule /norm based and interpretive alternative of how language is constituted in social life, and analyze the implications of this view on the design and investigation of information systems as linguistic phenomena (Goldkuhl and Lyytinen 1982, 1984, Auramaki et al 1988, Hirschheim et al 1995). Though not a monolithic program, the LAP sought to formulate a more nuanced and richer way how symbols and world interact, how language is used and enables social interactions, and why and how language has significant psychological and social effects. LAP was based on a set of heterogeneous theoretical foundations that ranged from non-monotonic and non traditional logics (deontic, illocutionary, possible world semantics), theories of language (hermeneutics, speech act theory, discourse theory) and social behaviors (ethnomethodology, symbolic interactionism) to overarching philosophies of social action (theory of communicative action, autopoiesis).

Since its inception LAP has made over the past two decades significant progress in developing ontological and epistemological theories of information systems, new modeling approaches and tools, or new computer based coordination tools. This is evident from the perusal of LAP proceedings and the increased number of publications in other outlets that draw upon speech act theory, discourse theories and non-traditional logics in modeling information systems and their use. In some sense LAP has come of age. It can be regarded a specific computing movement (Kling and Iacono 1994), or a unique discourse and voice in the information technology revolution with rich theoretical heritage. Yet, despite its academic success LAP has not become a significant part of mainstream computing movement and a standardized routine how to address specific organizational computing problems. Few (if any) textbooks draw upon the LAP concepts and therefore new entrants to the professional fields of IT are not knowledgeable about the topic and its ways to address organizational computing problems. The widespread use of LAP concepts has not taken place in computing applications despite the early promise of tools like Coordinator or Chaos. In this paper I will address some of the reasons and challenges to move LAP into the mainstream. These reasons range from economic, diffusion of innovation theory, to sociology

¹ The first time the concept was coined I believe is in Goldkuhl and Lyytinen (1982) where they called it "language action view" that regarded information system as a social, linguistic entity.

of knowledge arguments. I will end up by discussing some specific initiatives that can be adopted to overcome these challenges.

2 LAP as computerization movement

The adoption, acquisition, installation, and operation of computing in organizations is often much more socially charged than the adoption and operation of other equipment like telephone systems, photocopiers or elevators. Participants are often highly mobilized adopt and adapt to particular computing arrangements through collective activities which take place both outside and inside computerizing organizations. These activities are similar to other social professional, intellectual and scientific movements, where strongly committed advocates drive computerization projects. These advocates develop and encourage ideologies that interpret, what computing is good for, how it can be most effectively deployed, how it relates to its social environment, and consequently how people in their computerization projects should conceive, manage and organize access to computing (Kling and Iacono 1994).

Such specialized “computerization movements” advance computerization in ways that go beyond the effect of promotion by industries that produce or sell computer based technologies and services (Kling and Iacono 1994). In a sense they are organized around a set of key beliefs about favorable links between computerization and specific preferred social order and action, which help legitimate relatively high levels of computing investment for potential adopters. These beliefs set adopters’ expectations about what they should use computing for, and how they should go about designing and organizing access to it. Examples of such movements are artificial intelligence, office automation, computer aided manufacturing, or pervasive computing. Collectively, these specific computerization movements, along with other movements organized around computing technologies, form the grand and general computerization movement that has spread around the globe in the latter part of the 20th century. Each one of these movements supports the general idea that computerization is good, though their pursuit can be driven by mixed and sometimes antagonistic goals and alternative social values. Hence, each computerization initiative is deeply embedded in the social worlds in which it originates and grows into a specific movement that extends beyond the confines of a specific industry, organization or social setting.

Language Action Perspective can be defined as a specific localized computerization movement that originated within the academic and computer service industry in the early/mid 80’s². From its inception it conceived the use of

² The first definitive articles that could be regarded as LAP original “program” declarations are Goldkuhl and Lyytinen (1982), Flores and Ludlow (1980) and Winograd (1980). Stamper’s (1973) outstanding book included already some of the ideas.

computer primarily as a communication medium and tool for communication (Goldkuhl and Lyytinen 1982) that draws upon linguistic and social rules that govern the use of language (Goldkuhl and Lyytinen 1984). It became a true movement around mid 80's in that it grew out of multiple ideas and propositions in separate diverse fields that sought to promote the use of computers to solve specific organizational problems around coordination, information sharing and communication. From its start it was very sensitive to the specific and unique social role of language with the computer use. In consequence, it was a dynamic part of the research in CSCW and but it crossed also over to databases (conceptual modeling, workflows, transactions), organizational development (organization design, control), human computer interaction (computer use metaphors), and artificial intelligence (what does it mean to understand language).

The growth of LAP was a natural occurrence as it was a rational and critical response to the new demands of the computing environment. At that time the computing world opened new vistas for computing development and expansion when the networking became a challenge (Internet was just invented and Darpa funded projects started to expand beyond mere TCP/IP stack), e-mail a reality (in the early 80's both internet e-mail i.e. xmail and Jakobson's com were invented), and the data exchange challenges between applications grew complex and demanding due to enterprise wide applications and planning. At the same time constant failures in and increased complexities of the uses of computers in organizational settings challenged and questioned the received wisdom of viewing application development solely as "engineering applications" by using traditional computational models like finite state machines (Lehtinen and Lyytinen 1986).

LAP can be regarded as part of a broader computerization movement that had as its goal to promote the use of IT for improving human enterprise (Lyytinen and King 2004). This overall movement has several specific and distinct sub-communities center around different goals, functions or views of computing like MIS, human computer interaction, databases, or software engineering just to name few. What was unique in LAP at the time of its inception is that it could be regarded in many ways as a "counter movement": it challenged and questioned many of the widely held beliefs about data and the nature of computing in the other dominant and large computing movements like AI, or databases. These came in two main types. First, LAP was different in that its origins and goals were not so much centered on perfecting computational models and techniques, and explaining purely computational phenomena which was widely promoted at that time as the sole focus of computerization movements. In contrast, it sought to explain and understand relations between computational phenomena and social behaviors that were "embedded" in the computer system or triggered/enabled by it. In this pursuit it turned its theoretical interest into social and linguistic theories and sought to articulate those relationships by drawing upon the concepts and vocabularies offered by many of the luminaries of the 20th century philosophy,

The Struggle with the Language in the IT – Why is LAP not in the Mainstream?

linguistics and social theories. This resulted in a challenging but mixed bag of theoretical articulations of LAP which drew upon such grand names like Schutz, Wittgenstein, Winch, Heidegger, Habermas, Gadamer, Austin, Searle, von Wright or Apel just to name a few. Second, LAP was different from some other movements which analyzed such interactions (e.g. AI or databases) between technical and linguistic computing in that it challenged the dominant functional and realist view of the language (Lyytinen 1987) that was cherished in AI and database communities. In contrast, it sought to articulate a social constructivist and rule based concept of language in the context of computer applications. Such shift was expected to have significant impact on how the community was to conceive information systems and their development in organizations.

From its start LAP was not a monolithic movement as can easily be conceived just by looking at the set of thinkers who influenced the development of the movement. For example, Heidegger, Gadamer and Habermas are not normally regarded as bedfellows in their treatment of social topics. The only unifying factor in the movement seems to be its criticism and attack on the neopositivist view of language and linguistic philosophy. To wit, some of the forerunner thinkers for LAP can be regarded as strong supporters of analytic tools and thinking (e.g. von Wright, Searle, Austin), while others vehemently oppose such attempts (Heidegger, Wittgenstein).

3 Organization and evolution of LAP

Over the years the LAP movement has gained broader momentum and significance. In some sense one can say that since the mid 90's it has become a self-sustaining and active computing movement which has several institutional features like its own conference and an "ownership" over a certain set of topics. This has been quite visible since the start up of the LAP conference in 1996. At the same time the group has evolved into special subgroups with quite alternative foci:

1. General theorists and advocates (Winograd, Flores, Lyytinen, Stamper³). These researchers wrote mostly general accounts of the way in which language is embedded and consumed in computer applications and how such features of embedding influences our thinking of computer applications and their development.
2. Tool builders and organizers of new social order (Winograd, Flores, DeMichelis, Simone etc). Several scholars advocated and suggested that explicit modeling of intentions and rules how to use language in computer based communication systems (e.g. e-mail, workflows) would support and

³ I apologize if I miss here someone important. I did not have time to check all the references to chart a complete intellectual history of the field.

enhance organizational communication and enable to develop and design new coordination and control systems. Most advanced example of such systems is Coordinator tool which also received some criticisms from within (e.g. Suchman)

3. Modelers and designers (Goldkuhl, Woo, Gordon, Lyytinen, Dietz, Weigand, Dignum). This group has developed over time several modeling notations and approaches which can be used to specify, analyze and design computer applications that solve specific organizational coordination or communication problems. Many times these approaches draw upon formal methods and models – in particular upon dynamic and non-traditional logics. These modeling notations include among others SAMPO, SIM and DEMO.
4. Ethnographers and empiricists (Taylor, Clark, Wynn, Scoop). This group includes a relatively varied and multifaceted group of scholars who have mostly studied at detailed level how language is actually used in organizational and business contexts and how it obtains its meaning. Some of these scholars have clarified the importance of context, common grounds and ongoing active engagement of conversants in maintaining the shared meaning of the language use. Some work has also studied the role and significance of texts in organizations and how they organize and structure organizational action and cognition. Not surprisingly, much of this work has had quite little impact on research streams 2) and 3).

Despite continued expansion and cross fertilization the movement has remained somewhat confined and esoteric to the rest of the computing community. For example none of the text books in any field of computing which I know addresses at any depth the concepts and tools developed within the LAP community as a serious and practical way to develop information systems, or to analyze how information systems are used. At most some ideas of LAP are introduced at master level courses and in most cases they are spared to brighter PhD students. In the same way we have no examples of serious and extensive uptake of LAP based tools and methods in industry or industrial practice. The deployment of LAP based design approaches has been so far always been confined to specific context and case studies where *academic* scholars enter the situation and address it with the help of LAP based thinking, but leave very little if any intellectual traces after they leave the organization. Another example: All of the ongoing efforts in standardizing business transactions (so called web service choreography e.g. ebXML) which I know of rely on UML semantics to specify business processes coordinated by message exchange. Hence they draw upon computational notions of concurrency and sharing data and control between concurrent processes, but leave to readers' intuition what different messages mean and how and why they are organized in a specific sequence.

The Struggle with the Language in the IT – Why is LAP not in the Mainstream?

In this sense LAP is and has been a “pure” academic computerization movement, which is not widely known nor practiced outside the narrow borders of the LAP community. This is in stark contrast to other computerization movements which Kling and Iacono (1994) identify including networking movement, artificial intelligence (yes they have had influence, their problem is the huge gap between what they promise and what they can deliver), HCI or personal computing. It is also clear that pervasive computing will have significant impact in the years to come. Why is it so that a community which shares an interest in the central element of computer use- language use through and with the computers- and struggles to understand how it works has been met with so poor success?

4 The trouble with LAP

The fate of LAP so far as a computerization movement is by no means unique. The failure of logic programming and Japanese fifth generation computing in becoming the *way* of computing is the most pronounced example I can think of in much larger scale. In the IS field, similar trouble has been faced with socio-technical design as an IT design method despite its relative popularity in academic circles. DSS never took off really unless we equate it with the use of spreadsheets (which the actual DSS movement did not focus on). GSS has been likewise a big disappointment in practice though its relative “strength” in academic circles has been significant⁴. Though there is one common thing in all more or less poorly performing computerization movements- the idea that computer use can be made to follow or align with a specific theoretical standpoint like e.g. group decision making theories or theories of human cognition and decision making- the idea of why some computerization movements do not make “it” in the same way as some others is an intriguing one. Though I cannot claim to have any deep or thorough answer to this question I will try to explore below some specific issues which seem to explain the growth or decline of some computerization movements. I will raise three broad issues which influence the expansion and change within the computerization movement: economic drivers and incentives; diffusion of innovation factors and knowledge networks.

4.1 Economic drivers and incentives

All successful movements have been capable of translating their view of computing solutions and emerging social order into a proposition *at some point of time* which makes economically sense for the sponsors and adopters. This was the

⁴ My guess is that knowledge management (as a computerized solution) is the next one which will be towed to the graveyard of ideas which looked great but did not work.

case with personal computing, networks or databases. This nearly always implies that some type of well developed and fairly standardized “dominant design” of computing solutions emerges within the movement, which enables both economies of scale and scope. Ideas that do not touch silicon at some point of time at a large scale do not normally survive. For example, socio-technical design could never be translated to immediate economic benefits for the sponsors and decision-makers despite the contrary claims of the proponents of STS (see e.g. Mumford 2003). With LAP we have no demonstrated value of solutions that *significantly* changes the behaviors of designers or computer users at the level of tools and capabilities especially when we take into account the cost of overcoming the learning barriers related to the proposed solutions. As a result we have not seen any of the computerized tools or environments to move beyond prototypes and simple and small scale applications to mass adoption which would enable economies of scale and scope. Most tools have been rejected or resisted in practical situations and their use has not continued.

4.2 Diffusion of Innovation Factors

This set of factors relates to the economic factors in the sense that potential adopters of the computing solutions and associated social order must normally see immediate benefits from the adoption. In the case of LAP the community has not been able to demonstrate such immediate benefit nor translated those observed benefits into solutions which make sense to the potential adopters. For example, if people feel that they can adequately use UML and associated semantics to specify workflows and the scholars in LAP cannot demonstrate any immediate benefits of using LAP related concepts to specify message semantics and pragmatics it is very unlikely that people will adopt those methods and approaches- especially when the learning barriers are high. LAP solutions also face the additional trouble that they are many times *original* and in this sense *radical* innovations that significantly depart from the traditional thinking patterns of IT professionals and computer users.

There is also another related factor that deals with the nature of IT innovation and its diffusion in IT organizations. In a detailed case study of adoption of IS process innovations in one large IT shop over 40 years period (Mustonen-Ollila and Lyytinen 2003) we observed that most process and method innovations were developed *internally* though they highly resembled “general” innovations that were popular at that time. Typical examples are specification methods, process models, and project management tools. It looks that in order to make IT organizations to change their processes and practices they have to *internally translate* their observed problems to localized solutions. General solutions, which were adopted, hardly ever worked and failed nearly always miserably. In the case of LAP methods and approaches it is very difficult to conceive and pinpoint a set

The Struggle with the Language in the IT – Why is LAP not in the Mainstream?

of problems within the experience of a normal IS professional that would invite them to translate those problems into LAP solutions. Hence, the likelihood of moving to an “innovation space” where the types of solutions advocated by the LAP movement are likely to be queried is very low. IT organizations mostly innovate in incremental ways, which are some times punctuated with radical innovations triggered by changes in computing architecture (Lyytinen and Rose 2003).

4.3 Knowledge networks

IT innovations require active participation of local communities which translate general ideas and concerns into specific solutions within the local communities. In this respect the nature and structure of knowledge transformation networks (Klein and Lyytinen 2003) is of critical importance. Different computerization movements over time become specific social organizations that enable and constrain the way in which *knowledge about IT potential and its solutions flow* within the movement. The constant flow and expansion of this network is a necessity for any computing idea to move into the “mainstream” and therefore the capacity to move the idea into a widely accepted solution is the question of how the knowledge networks become built and transformed over time. In this sense LAP community has not been successful as it has never expanded (due to the reasons outlined above) its networks into a heterogeneous network that expands and localizes the knowledge into different social contexts and worlds. An obvious reason for this can be that the type of knowledge offered is not “relevant” and specific critical actors cannot be enrolled. Another one is that there is no clear understanding or capacity to expand the network in other ways than by lucky chance events through which we might be able to show the relevance of the LAP knowledge. The conclusion from this is, however, that without significant and critical expansion of the network in which the LAP related knowledge is consumed and appropriated it is not possible to think any expansion or growth in the LAP movement. I will take up some of the necessary steps how this could be done next

5 Conclusions

I will conclude with two related observations: 1) what needs to be done to make LAP movement more successful, and 2) what are the implications if this will not happen. As I will show failure in 1) will not imply failure in 2) in that LAP community will still have a significant role to play despite its weaker prominence as a general computerization movement.

My analysis suggests several necessary steps that need to be taken if we want to move LAP into the mainstream: 1) observe real challenges in practice where LAP

related ideas can be effectively applied so that they can show significant economic benefits, 2) build a focus on a few and prominent areas in which LAP related solutions can be developed that demonstrate user value⁵, 3) strive towards areas where ideas can be softwired into platforms that enable continued learning and codification of knowledge. A good example would be e-commerce platforms that are reflective and capable of reasoning around ongoing transactions, 4) build alliances with critical members of the knowledge transformation networks including platform providers, solution integrators and different communities of practice.

I do not know whether LAP solutions I imagine above will ever show the type of viability that they will become part and parcel of standardized solution frameworks and problem identification search patterns in years to come. It also remains unsure what these solutions would look like. All these depend on actions of the LAP community and other likeminded colleagues. If we fail we still should not despair. The value of the LAP community is not solely in the direct benefits it has been able to bring to the computerization movement at the level of practice and thereby through its power to expand the historical movement of computerization. Over the years we have also fulfilled the intellectual quest at our intellectual periphery to understand and theorize better over pervasive and critical relationships between language and computer use. To do so we have kept ongoing the critical discourse as a market place of ideas of the potential limits and possibilities of computing in organizations (Lyytinen and King 2004). In this quest we have become part of the old age human movement which seeks to understand the nature of human condition and related knowledge interests. If we have made some small progress in this respect it is enough.

References

- Auramäki E., Lyytinen K., and Lehtinen E.,(1988) "SAMPO-approach to Office Information System Analysis", *ACM Transactions on Office Information Systems*, 6, 2, pp. 126-152
- Auramäki E., Lyytinen K. (1996), "Analysis of Commitments in Speech Act Modeling", paper presented at LAP Workshop, Delft University, 1-3.7.1996
- Flores F., Ludlow J. (1980): "Doing and Speaking in the Office", in Fick G., Sprague R. (eds): *Decision Support Systems: Issues and Challenges*, Pergamon Press, London

⁵ Note that the actual use or usage pattern of the tools does not necessarily have to show any resemblance with the LAP notions- it is rather the embedded capability which enables that.

The Struggle with the Language in the IT – Why is LAP not in the Mainstream?

- Goldkuhl G. and Lyytinen K. (1982), "A Language Action View of Information Systems", in Ross C. and Ginzberg M. (eds), *Proceedings of the Third International Conference on Information Systems*, pp. 13-31, Ann Arbor, Michigan,
- Goldkuhl G. and Lyytinen K. (1984), "Information System Specification as Rule Reconstruction", in Bemelmans Th. M. (ed), *Beyond Productivity - Information Systems for Organizational Effectiveness*, North-Holland, pp. 79-95,
- Hirschheim R., Klein H., Lyytinen K. 1995, *Information Systems Development and Data Modeling, Conceptual and Philosophical Foundations*, Cambridge University Press,
- Klein H, Lyytinen K, (2003), "Knowledge Creation and Transformation in Networks: the case of Relevancy of IS Research", unpublished working
- Kling R., and Iacono S. (1994): "Computerization Movements and the Mobilization of Support for Computerization", in S. Leigh Star (ed), *Ecologies of Knowledge*, SUNY Press
- Lehtinen E. and Lyytinen K. (1986) ,"An Action Based Model of Information Systems, *Information Systems*", 11, 3, pp. 299-317
- Lyytinen K. (1987),"Two Views of Information Modeling", *Information&Management*, 12, 1, pp. 9-20
- Lyytinen K, King J. (2004): "Nothing at the center?: Academic Legitimacy in the Information Systems Field", accepted for publication, *Journal of AIS*
- Lyytinen K., Rose G. (2003), "The Disruptive Nature of Information Technology Innovations: The Case of Internet Computing in Systems Development Organizations, *MISQ* , 27,4, pp. 557-595
- Mumford E. (2003): "Redesigning Human Systems", Idea Publishing, New York
- Mustonen-Ollila E., Lyytinen K. (2003), "How Organisations adopt IS process innovations: A Longitudinal Analysis", *European Journal of Information Systems*, 12, 3, 182-194
- Stamper R. (1973): *Information*, Batsford, 1973
- Winograd T. (1980): "What does it mean to understand language:, *Cognitive Science*, 4,2, pp. 203-241

K Lyytinen