

# Research methodology in contextually-based second language research

**Larry Selinker** *University of Michigan* and **Dan Douglas** *Iowa State University*

We suggest a combined research methodology for studying SLA in real-life and important contexts, a methodology sensitive to the demands of such contexts. For studying IL learning in context, our suggested methodology combines and integrates aspects from three fields: grounded ethnography in ethnomethodology; subject-specialist informant procedures in language for specific purposes; and rhetorical/grammatical strategies in discourse analysis. We first present evidence for the importance of devising a research approach to contextually-based SLA. Then we sketch the suggested research methodology and present two extended case studies which illustrate the methodology. We view such research as complimentary to universal approaches to core IL grammar. Finally, we sketch our theoretical approach, showing a possible link between research in universal and contextually-based SLA.

## **I Background**

This paper suggests a methodology for studying second language acquisition (SLA), use and fossilization when the research concern is understanding interlanguage (IL) particularities in real-life and important contexts. Our suggested approach for this purpose is to create a combined research methodology demanded by circumstances. It is our working hypothesis that this methodology reduces problems of extrapolation by more directly relating empirical results to such contexts. The contexts we are most interested in are the academic settings in which we work and in which a lot of SLA takes place, called language for specific purposes (LSP) contexts. In our approach, one thing we are deeply concerned with is gaining insight into the use and development and possible fossilization of IL in these important real-life work contexts. For example, we are interested in understanding the ability of a nonnative speaker (NNS) to use English

Addresses for correspondence: Larry Selinker, ELI and Linguistics Program, The University of Michigan, Ann Arbor, MI 48109, USA: Dan Douglas, English Department, Iowa State University, Ames, IA 50010, USA.

in talking about a technical field. That is, we are interested in such things as the IL associated with the degree of precision with which the learner can communicate in that field with experts in technical interactions. Then, we are interested in the IL created by the same learner, but associated with a range of non-technical contexts, as well as how the IL in the various sets of contexts interrelate.

We begin with the observation that we lack detailed knowledge of IL particularities in a wide range of contexts in which second languages are actually learned. For example, can IL knowledge which has been learned in one domain, one genre, or one activity type be transferred to another domain, genre or activity type? Our question here is how we go about studying IL in such contexts. This quest goes back to the original IL perspective (Selinker, 1972), where it was argued that the study of IL in SLA should be carried through in 'meaningful performance situations'.

We find, in the recent literature, evidence that IL forms are relatable to particular knowledge or discourse or genre areas. Some examples follow. In a recent paper, Selinker and Douglas (1987a), we describe a number of studies where integrating LSP concerns with IL concerns sheds light on the contextual nature of SLA. One study described there (Briggs, 1987) explores how ILs are judged in terms of their effectiveness for particular tasks in a technical subject, where nonnative speakers apparently still strive linguistically for precision in one knowledge area, but do not in another, relying on a visual crutch for communicative effectiveness. The learners in that study appear to be developing IL in only one knowledge area, while fossilizing in another.

A second study described in Selinker and Douglas (1987a), that by St John (1987), suggests that the IL composing strategies for a particular group of NNS Spanish professionals publishing in English may involve highly fossilized formulaic IL in one section of a technical report, but developing IL composing strategies in another. We pick up this study in the conclusion (section V, below). A third study (Skelton and Pindi, 1987) describes the interesting and widespread case where TWO ILs are being learned simultaneously. Their study suggests that for this group of Zairean NNSs, where two international languages for academic purposes are being learned after two local languages have been learned, language transfer confusion with regard to the two international languages seems to occur in some knowledge areas, but not in others. A fourth study (Cornu and Delehay, 1987) finds that in the domain of work-related talk, the IL is fairly target like, well structured rhetorically and fluent, with no breakdowns. But in the domain of relating life-story information, the learner produces lots of IL-particular forms along with hesitations and groping for vocabulary.

This result is replicated after six months. We begin to see that a potentially large number of contextual variables may be involved in these results and that discussion of a research methodology aiming to get at them is in order.

Other results using the concept of discourse domains (Selinker and Douglas, 1985) have recently appeared in the literature. Zuengler (1989) has suggested that such domains and the expert knowledge they imply may be a part of a speaker's identity, importantly coequivalent with such well-established social psychological identifiers as social class, peer group, ethnicity, gender and age. Zuengler (in press a) has looked for effects on IL of domain knowledge in terms of relative expertise and finds that when NNSs consider themselves experts relative to native speaker (NS) interlocutors, they show more control than when they do not consider themselves experts. In another study, Zuengler (in press b) shows that expert knowledge in terms of discourse domain may at times override ethnolinguistic differences in producing IL form. Woken and Swales (in press) have reported similar results. Eisenstein and Starbuck (in press) find that topic area implied in the domain concept and emotional investment in the topic can affect accuracy in IL production in different contexts. Labov (1988), using Selinker and Douglas (1985), suggests that in her study, choice of topic 'ensured' that student familiarity with the discourse domain 'would promote fluency'. These studies also support our view that contextually-based IL must be carefully described and that search for innovative research methodology to do so is justified.

As further background, we draw upon Lakoff (1987) and the many studies cited there. We particularly find valuable the cognitive concept 'domain of experience' (*cf.* especially pp. 73, 93, 95, 99, 100), which seems very close to discourse domain. A useful concomitant concept is that of 'domain of expertise' (p. 123) since, as stated above, expert knowledge is implied in the discourse domains concept. Lakoff spends a lot of print trying to show that such domains are important for human reasoning, especially categorization, and thus language learning and use. In an example on native language (NL) loss in a language contact situation, he describes 'intermediate systems' where there is category change, certain cognitive structures breaking down in understandable ways over time. Additionally, we find relevant the claims of the 'Apostel principle' (Ausubel, 1968; Apostel, 1977; Bruner, 1978) where learning must be related to a knowledge domain controlled by a learner. Rutherford and Sharwood Smith (1987) and Sharwood Smith (1987) extend this principle to SLA regarding consciousness-raising strategies in grammar learning, further adding to the view that contextually-based SLA must be studied and in so doing, IL forms and human experience are not easily separable. We

have tried to show this in a language testing context (Douglas and Selinker, 1985) where we hypothesize from some IL test data that learners approach a test item as a text in an ordered way: first, trying to access a domain they may already have; secondly, trying to create a temporary testing domain; and, if these do not work, resorting to random measures.

The reader should note that it is not necessary to accept a domain view of IL to be interested in contextually-based SLA. One need only accept the apparently-uncontested fact that there will be varieties of IL with their own lexical and other linguistic characteristics which may be viewed sociolinguistically according to some contextual categories, meaning that there are contextual IL results that need to be explained. Note also that what we are saying here does NOT imply an anti-quantitative bias. Both these points are illustrated in Watanabe (1982). She looked at the English-Japanese IL of an American missionary (married to a Japanese woman) who had lived in Japan for two and a half years and had been back in the USA for a year at the time of the study. She looked at two types of talk: one about his work, Christianity, and the other involving the building of a storehouse, a most unusual endeavour for a foreigner in Japan. Watanabe notes several differences in the IL used in the two types of IL talk, the most important for our purposes being that in the talk about building, case markings are hardly used at all:

In the domain of building, the subject tends not to use case markings even after simple nouns, whereas in the domain of Christianity, he does use cases after simple nouns. (Watanabe, 1982)

Watanabe's data are suggestive, in that they show, in the talk about Christianity, that the subject provides correct case markings in all obligatory contexts after simple nouns (100%), whereas in the talk about building, he does so in only 13% of the environments. In a more complex environment than simple nouns, the subject does the following: after relative clauses in the Christianity context, he uses case markings 69% of the time, whereas in talk about building, he does so only 8%. Watanabe suspects that this person has fossilized case markings differentially by these domains of talk.

Additionally, there are still other contextual IL results in the recent literature that need to be explained. Master, Schumann and Sokolik (in press) looking at a pedagogical pidgin, follow what they call the 'life story' of a form as it enters the IL and find that some forms do get transferred to new contexts, whereas other forms do not. This is an important area of IL study which is just beginning and which we can call 'internal-IL transfer'. It is important to note that contextual-IL results are relatable to core IL concerns such as word order.

Schumann (1988) has reported replication of the European Science Foundation (ESF) results for word order (Klein, in progress), but finding that they are in fact genre specific, relating to narratives, Schumann has created parallel IL data for descriptions and finds that some IL word-order patterns replicate what was discovered in the ESF narratives, whereas others do not. Specifically, in early IL description, one gets noun phrases piled up in various ways that one does not see in IL narratives. Thus, until we do careful IL genre analysis (Preston, in press), SLA results can be easily overgeneralized. Our suggested research methodology includes such variables.

We are thus interested, in the broadest sense, in discovering a research methodology which allows us to study empirically discoverable associations of knowledge/domain/genre areas and clusters of linguistic, conversational and rhetorical IL patterns. We need a research methodology to allow us to deal systematically with such facts. The plan of this paper is that in section II, we sketch some details of our suggested research methodology and in sections III and IV, we present two case studies as illustrative of this methodology. In the conclusion section, we outline some premises behind our own approach and present an example to suggest how contextually-based SLA and core IL in universalist SLA might be linked.

## **II Composite research methodology**

Our suggested methodology for studying context in IL involves a combination and integration of three approaches. In this section we spell this out. We first make a distinction that we have found useful in our work, that between 'primary data' and secondary data'. By the former, we mean the IL talk (usually on video) or IL writing we wish to study. By the latter, we have two categories in mind: audio tapes of retrospective commentaries on the primary data by the coparticipants themselves, as well as audio tapes of various types of expert commentaries upon these data. The reader should note that we have here three separable forms of data, each contributing to our understanding of context in IL studies. In the first place, we have the primary texts, which we ourselves can analyse, but which, by themselves, often lend themselves to ambiguity. Then we also have two types of secondary texts which HELP GUIDE THE ANALYSIS of the primary text: (a) synchronized recordings of retrospective commentaries provided by the coparticipants in the primary tapes; as well as (b) synchronized recordings of expert reviewers – linguists, ethnographers, or subject specialist informants (SSIs) who bring to bear on the primary data their various perspectives and methods. Analysing these two types of secondary data can assist in uncovering not only insights into the

primary data, but additional data not necessarily accessible to the analysts from the primary text alone. These points are illustrated in the case studies below.

One goal of ours is to access the intuitions and accounts of participants in communicative events concerning the events themselves; but we wish to go beyond these ethnographic insights. A main focus of the ethnography playback sessions outlined below (II (1) ) is having coparticipants in the communicative event and expert informants provide knowledge of the communicative event which may not be discernible from the original text, i.e., to guide the analysis in disciplined ways. However, in general, ethnographic techniques appear to be good at gaining disciplined information about the conversational structure of the talk concerned, but for our purposes need to be augmented in order to gain necessary technical and rhetorical information about the content and organization of the IL talk or writing we wish to understand. Thus, since one central interest we have is gaining information about IL development in important real-life SLA work contexts, we add a modified form of the subject specialist informant (SSI) procedures in LSP study (II (2), below). For example, if we are going to study the SLA development (or lack of it) of a foreign engineering student in the USA, we may very well need to know what an engineer understands to be the meaning of pieces of a particular text in engineering that the learner must discuss and whether the professor agrees that we (or even the learner) have the technical information right. We will probably also need to know details of the rhetorical or organizational structure of the technical article and the technical talk involved, including such detail as how a particular rhetorical/grammatical correspondence in an oral or written text effects the meaning and the social significance of the text: thus, subject-specialist informant (SSI) procedures (II (2) ) and rhetorical/grammatical (R/G) strategies (II (3) ).

### *1 Grounded ethnography in ethnomethodology*

We have been influenced in our work by principles of ethnography and ethnomethodology as utilized by such researchers as Garfinkle (1967), Robillard (1977), Gumperz and Tannen (1979), Erickson (1979), Frankel and Beckman (1982), Beckman and Frankel (1984) and Frankel (in press). In their various studies, these researchers have found it important to be able to study not merely the occurrence of features of an interaction, but the relationship between the features in real time. It is our view that in SLR one needs to be sure that one's methodology and theories incorporate as a central component the notion 'real time', since, by definition, SLA takes place over time, and this is what we do. It is necessary, we feel, to record not only the

incidence of features in a communicative event, but also, perhaps primarily, the complex correlation of elements in the event as they occur through time. In particular, we have found the version of ethnography termed by Frankel 'grounded ethnography' to be especially useful in our work.<sup>1</sup>

Grounded ethnography provides a means for the researcher 'to understand an event by studying both its natural occurrence and the accounts and descriptions of it' (Frankel and Beckman, 1982) provided by its coparticipants and expert reviewers. In this method, videotape technology is employed to record a communicative event, such as a conversation between a doctor and patient. The resulting videotape in Frankel and Beckman's work is then reviewed by the coparticipants and by expert reviewers, such as nurses and various types of medical specialists. The focus is on 'video fragments' or 'episodes' and a descriptive account is provided of 'contextual influence', especially in discourse and gesture (Frankel, in press). We can thus witness 'visible ways' in which contextual constraints operate at individual levels to help shape linguistic, in our case IL, performance. In our modification of the videotape review, each primary videotape encounter is analysed in at least three ways: first, at the 'macro' level to determine the rhetorical structure of the text (II (3), below); secondly, at the conversational level in ways that are well known (see references above); and thirdly, at the 'micro' level to determine which IL features are related to the other two. This is illustrated in the case studies below.

One thing that is particularly helpful in this approach is the strong focus on 'the actual construction of texts in real interactional time' and the various real-time factors that can influence the construction of texts. This is opposed to most other ethnographic (and SLA) approaches, which look at already completed texts as their starting point. It is clear to us that in contextually-based SLR, we need to understand real-time organization of IL texts, for reasons given above.

Reviewers for secondary data are given the instruction: 'Stop the tape when you see something interesting, important or unusual.' From a quantitative point of view, in Frankel and Beckman's work there is a high correlation as to where different reviewers stop the primary tape, though usually, in a Rashomon sense, different reviewers see different things. In our SLA work (see, e.g. Selinker and Douglas, 1985), we have also found this to be true.

Frankel and Beckman (1982) provide detailed examples of the

<sup>1</sup>Douglas and Pettinari (1983), in consultation with Frankel, have used grounded ethnography to study the problems of the development of teaching materials in the institutional context of English for Medical Purposes in a psychiatric hospital in Detroit. In our current work, we build on that experience.

results of this methodology from the perspective of grounded ethnography. They study medical encounters in an out-patient setting between resident physicians and their patients, often importantly for us, in a cross-cultural and cross-dialect mode. Frankel (1984) shows an example of a repair phenomenon in the primary text and how it can be analysed in terms of the framework initially established by Sacks, Schegloff and Jefferson (1974) – an analyst-based approach to primary data:

Fair pair part	Dr: Hev y' ever had palpitations
Second pair part	Pt: Noh. M'feet ain't painin' me but they swell sometimes
Repair initiation	Dr: No I – it's when yer heart starts beating really fast an' y' feel like y' can't catch yer breath
Repair completion	Pt: No uh-uh. I never had that

This text has been analysed in a 'repair framework' without recourse to secondary texts, that is, commentaries provided by the coparticipants and other reviewers. All primary data is, however, not that clear cut. In another example, Frankel and Beckman (1982) show how secondary texts can be used to provide insights in the analysis of a primary text:

[Physician and patient have been engaged in a series of exchanges relating to psychosocial issues. During this time the patient has been lying on the examining table, clothed only in his underwear.]

Dr: had y' had pain 'r ulcers p-prior t- to the –  
 Pt: \*no – an' nothing since  
 Dr: not at all

At point \* in the primary tape, the doctor stopped the tape and commented:

\*Review by Dr: Don't usually talk to – to people while they're lying down. But uh. He seemed to be – seemed to be natural for him – it didn't really bother him very much so I just kept it up because I was – I must have been planning on doing some more examination while he was lying down.

The primary tape continues:

Dr: how 'bout since then\*

and the patient in a different secondary session commented:

\*Review by Pt: In some ways asking questions while you're doing the exam may put someone at ease. Now I understand that. But, uhm, I think it's a real fine art to do it . . . you have to be aware that you're doing it so that you can stop and deal with the person as a patient sitting at the desk in effect rather than lying on the examining table.

[adapted from Frankel and Beckman, 1982:76-77]



Frankel and Beckman note the focal problem or concern raised at this juncture in the conversation by the co-participants. They also note the differences in interpretation by the two parties, as provided in the playback session. They suggest that the diverging accounts point to different sets of underlying assumptions about the nature of the interaction – specifically, the physician believing the patient to be satisfied to be interviewed while lying nearly naked on an examination table, the patient expressing dissatisfaction with the situation. Such underlying assumptions crucial to understanding the medical interaction, are not necessarily available to researchers or observable from a direct analysis of the primary text itself.

Importantly for context-based SLA researchers, the point made by Frankel and Beckman is that the assumptions of each of the coparticipants may have real-world significance beyond the communicative event itself. They relate this significance to the training of physician residents through an understanding of the underlying assumptions made by the coparticipants in medical encounters. This is true for the two cases studies in sections III and IV, below.

In our contextually-based SLA work, we have modified grounded ethnography to deal with one of our background research questions: what is the nature and role of context in the formation of ILs in real-life contexts? We take the institutional perspective in which we work – the university – applying grounded ethnography to studying the IL talk related to the important and difficult attempts by non-native speakers to learn subject matter in an LSP setting. We use specialists in the technical field to comment on the technical correctness and appropriateness of the IL talk. Also, we use linguists of various types to comment on the many levels of language and interaction apparent to them in the text and ethnographers to comment on such interesting things as gestures apparent in the primary video tapes and how they may change by domain (see Selinker and Douglas (1985a) for an example of the latter).

## *2 Subject specialist informant procedures in LSP*

As stated in section I, one concern we have is to study the use, development and possible fossilization of IL in important real-life work contexts. We wish to understand the ability of a NNS to use the IL in talking about a technical field and in the IL associated with the degree of precision with which the learner can communicate in that field with experts, whether in N/N, N/NN or even NN/NN technical interactions. This endeavour requires that we record not only the descriptions and commentary of the participants involved in the interaction studied, but also the descriptions and commentary of expert observers

of the event; thus the subject specialist informant (SSI) procedure in language for specific purposes (LSP) contexts comes into use.

This procedure has by and large concentrated on written LSP technical texts, not on the talk that helps to produce those texts and is produced during their use. In our proposed SLA methodology we have extended the traditional approach to the study of IL technical talk (and writing) and to a comparison of such talk with IL talk in other domains, e.g. talk about one's life story. This procedure, which has been explained in detail in Selinker (1979), has drawn extensively on the linguistic informant work of Pike. In Pike (1957), for example, there is a discussion of an experiment on translation with an informant, 'from the artificial to the natural'. Becker (1988a; 1988b) has drawn on this work to discuss how to approach a distant text, one in a culture not your own, a prerequisite to IL genre analysis. Additionally, Pike (1964) discusses informant use related to 'discourse sequence and situational roles'; Pike and Gordon (1972) discuss 're-working' a text with an informant; and Pike and Pike (1972) discuss informant use in 'paragraph intelligibility'.

In our work, we take account of the suggestions and modifications proposed by Cohen *et al.* (1979) using student informants in reading instruction; by Tarone *et al.* (1981) integrating the SSI into the final product of the work; and by Huckin and Olsen (1984) integrating technical authors in their replication of Selinker (1979). Finally, we have made use of several notions proposed by Bley-Vroman and Selinker (1984), especially (a) an 'optimal research strategy' of a pragmatic paradigm consisting of three phases: the prerequisite phase, the analysis phase and the application/use phase; and (b) 'highly valued texts', highly valued either in content or methodology, as those texts which are central to a field and, especially, central to the acculturation of neophytes in that field.

We have integrated the above resources to devise a discussion of characteristics of a good SSI for LSP work, originally presented in Selinker (1979) and revised in Bley-Vroman and Selinker (1984). Beginning with the most obvious, the SSI should be trained and competent in the technical discipline. For our purposes, the SSI should teach in the discipline, ideally with NNS students, and should care about the learning problems of such students. The SSI should have a feel for technical language and be open to questions about the use of language in his/her discipline. The SSI should be able to explain clearly what she or he believes scientists in the discipline do when they do science, for this does vary and may affect learning. The best results seem to occur when the SSI sees the potential importance of SLA/LSP research to his or her own content teaching to NNS students. As a commitment to the joint enterprise, the SSI should be willing to read

one or two articles on SSI use from the LSP literature. There is no paper for a SSI to read when SLA concerns are prime; it is our hope that this paper can help to fill that need.

Additionally, the SSI should be willing to give technical answers careful thought and reflection and be willing to put up with come-back questions from the investigator. Though there is disagreement about this point (*cf.* Huckin and Olsen, 1984), it is our view that the SSI should be willing to change his or her mind if the original formulation seems incorrect. As Pike has pointed out again and again (see above references), the best SSIs are intelligent and enjoy reflecting on and articulating their technical concerns. Not only should they have a feel for the language of their discipline and how that language relates to expressing technical concepts, but they should also be aware of problems in technical communication within their discipline and between their discipline and students and others outside the discipline. It is our experience that each technical department has someone who is known as *the* person to go to with writing and communication concerns. From our point of view such individuals, to be truly helpful, must have had some experience of teaching and caring about the learning problems of NNS students. Such individuals are often the same individuals who have had some experience teaching and caring about the learning problems of NNS students.

How should one go about approaching a SSI? Experience shows that this is not a trivial problem and that neophytes can go very wrong here. One can permanently put off a much-needed informant with the wrong approach. In this type of work, we are dealing with colleagues who are busy people and, on the face of it, may not understand what we want. And, to be honest, we cannot pay them, for we could never afford their consulting fees. We need to show the potential SSI that we are important to his or her teaching and or research. The best approach we have found is through a mutually respected third person who knows what the LSP person is doing. In our case, we have found that the best way to gain access to professors of the technical students whose IL we wish to study is through the students themselves or through a technical colleague we have worked with successfully before.

Concerning the use of SSIs, Bley-Vroman and Selinker (1984) discuss a number of problem areas relating to the gaining of technical information in scientific and technical discourse. Some of these, of course, are not specific to SSI work; these too are reinterpreted here for contextually-based SLA work and should also be modified as need arises. We have found that working with busy informants necessitates careful planning and have developed a technique of pre-and post-informant sessions, which are detailed in Selinker (1979). We need to

know in advance as much as possible about what we are looking for. These sessions allow us to organize our work and actually try out the questions we are going to use in the informant sessions. For example, in contextually-based SLA studies, we are going to need to discover information about the relationship of technical content to the rhetorical or organizational strategies of IL text creation (see II(3), below) and we have found that it is very difficult to work these out well on the spot.

One concern involves the types of questions one should ask the SSI, whether open-ended questions, which are imprecise but apparently nonbiasing to the information gained for the SSI, or more precise questions which are potentially biasing. Bley-Vroman and Selinker conclude that:

It is our view that as one criterion for question types the R/G (rhetorical/grammatical) analyst needs to gain finer and finer distinctions in terms of 'delicacy' of analysis and that this appears to involve more rather than fewer precise questions. (1984: 3)

As one refines technical knowledge and its relationship to R/G strategies and IL use, the analyst needs to be assured of establishing a relationship with the SSI that allows the analyst to keep on going back, since done well, this can become an ongoing process, perhaps continuing for months, for one must be ready to 'negotiate a new reality' with the informant (Agar, 1980; Crapanzano, 1980).

One case in which the relationship with the SSI did continue for months, detailed in Selinker (1979), shows the need to develop a repertory of techniques which are in essence 'multilayered' (Erikson, 1987/1988), providing data from a variety of sources. In Selinker (1979), a LSP case study is presented concerning a technical text, on repair mechanisms in DNA, that had to be read by NNS students in genetics. In that case the goal of the SSI sessions was to develop a taxonomy of questions that had to be asked of the SSI in order to gain the necessary technical information to read the technical text. A working assumption was that these would mirror the classes of information that the experienced technical reader brings to the text. The results of that study were that several classes of questions were generalized from hundreds that LSP colleagues felt they had to ask the SSI in their attempts to understand and deal with the technical material. One class of question was obviously technical terms. Some examples in the material concerned were *pyrimidine*, *dimer*, *nucleotide*, *monomer*, *thymine* and *enzymatic photoreactivation*. Second were 'common language words used technically', words such as *recognition*, *specific*, *coupled to*, *repair*, *function*, and *insult*. An important class of question concerned how scientists in genetics conceive of science,

especially concerning 'strength of claim', in that case how much responsibility did the technical author take for a particular genetics conclusion or generality presented and how much hedging was involved. Another class of question involved what were called 'contextual paraphrases' or 'contextual synonyms'. These involve a particular word or phrase in the technical text which refers to the same scientific or technical concept as a different word or phrase which occurs earlier in the text. This is an important phenomenon, since technical English is commonly thought of as a very precise dialect or register where one might assume that a particular scientific or technical concept will always be referred to by the same word or phrase. Such is not always the case and can prove a nightmare for NNSs. One example in that text concerned the synonymy of the word 'duplicate' with the phrase 'replicate with extraordinary fidelity'. Another concerned four noun compounds: 'repair processes', 'repair mechanisms', 'repair modes', and 'repair schemes'. Working that out with the informant was indeed a problem, where he was not always sure whether complete synonymy prevailed or whether two of the four were synonymous with each other and were rhetorically and conceptually more general than the rest. Following this example through about 30 years of genetics history, the SSI concluded that the term 'repair mechanism' and an older term 'error correcting mechanism' were both found at one point in time to be contextual synonyms. At some later point it was apparently felt that 'error correcting' and 'repair' should not longer be considered contextual synonyms, since the former provided a view of a nature that was no longer acceptable. Interestingly enough, it thus looks as if contextual synonyms provide a linguistic mechanism to allow conceptual development to take place, an area unexplored in SLA, though some of the types of material delineated in this paragraph are explored in Selinker and Douglas (1985).

In the case study outlined in the preceding paragraph, there were also classes of questions concerning rhetorical/grammatical matters, some of which are discussed in the next section. One final thought on the SSI procedure in LSP work is, as Swales (1986) points out, that this procedure allows the analyst to survive in a realm where 'you don't know what you don't know'. This seems to me to be true often of SLR; hence the attempt to become explicit in terms of research methodology.

### *3 Rhetorical/grammatical (R/G) strategies*

As stated in II(2), in contextually-based SLA study, one can be sure of needing to discover information about rhetorical strategies or organizational choices that learners use to build IL texts. In the research

methodology we are proposing here, rhetorical strategies are linked to grammatical IL features in ways described here and illustrated in the case studies in sections III and IV.<sup>2</sup>

We are particularly interested in seemingly small grammatical changes that appear to have rather large conceptual consequences. An example is the case described in II (2), above, from Selinker (1979), the singular/plural distinction 'scheme/schemes' in the collocation 'repair——'. After much SSI work, it eventually became clear that the grammatically singular 'scheme' referred to one of the DNA repair processes, whereas the grammatically plural 'schemes' referred to the rhetorical classificatory linking of two other processes which the SSI stated were being united conceptually as one process as a result of the experimental work involved, united under the genetically important category of 'dark repair'. The SLA hypothesis is twofold: (a) that such distinctions will show up in relevant technical IL talk; but (b) that at least some NNSs who gain this sort of R/G link will do so only in talk about work and not necessarily in other domains of talk. Note that this result is probably what is desired and that those NNSs who produce internal-IL transfer and transfer this sort of distinction to other domains of talk will produce nontarget-like talk in those other domains. We continue below with this directionality of transferability issue when we discuss a hypothesis by Zobl.

R/G analysis typically looks at texts which serve as input to students in subject matter LSP situations. To get a flavour of what is intended, we will review some of the relevant LSP literature here,<sup>3</sup> our methodological suggestion being that we use these R/G insights to carry out IL genre analysis.

There are a number of early papers (Lackstrom *et al.*, 1970; 1973; Selinker *et al.*, 1976) which attempt to link tense and article choice to rhetorical organization in LSP texts. Evidence is offered that tense choice may be related to degree of generality and is not always relatable to time-line considerations. The hierarchical place in the process of rhetorical composing appears to determine some tense choice, with degree of generality being a crucial rhetorical variable relating to article choice, as well. Hierarchical purpose level (e.g. overall objective of the discourse *vs.* rhetorical strategies used to develop that purpose) can determine which tense is chosen to express a particular rhetorical purpose. Definition and classification have been studied extensively in the R/G literature, with grammatical form, in terms of word order, related to explicit appearances of these rhetorical

<sup>2</sup>The historical relationship between SSI procedures and the R/G tradition in applied discourse analysis is discussed in some detail in Selinker (1988).

<sup>3</sup>There is a much more detailed review of the R/G literature in Selinker (1988).

functions. Selinker *et al.* (1976; 1978) and Tyma (1981) describe this in detail.

There are a series of studies (Vlatkovic, 1972–3; Mage, 1978; 1981; Sugimoto, 1978) which look at the possibility of R/G universals (Serbo-Croatian; Spanish; Romanian and Japanese, respectively). What is found to be the same across languages are rhetorical choices such as definition, classification and ‘conceptual paragraphing’, the latter being a chunking of blocks of discourse in ongoing texts according to rhetorical functioning.<sup>4</sup> This leads to the SLA hypothesis (Selinker and Douglas, 1985) that language transfer concerns on a rhetorical level are related to restricted genre/domain considerations. The grammatical choices that would be related to rhetorical strategies would have to be language specific, so it is an interesting question to determine if in the creation of IL texts, learners produce a domain-bound universality at one level with a language specific transferability at another.

In our use of the R/G tradition in analysing IL texts, we keep in mind an inventory of rhetorical strategies such as stating purpose, definition, classification, cause and effect, comparison and contrast, linear development of ideas and concentric development; the above references provide a more complete listing. We also keep in mind whether these strategies are explicitly produced or whether there are implicit elements lacking in the IL text; Tyma (1981) provides criteria for distinguishing explicit from implicit rhetorical functioning. We also keep in mind Bley-Vroman’s (1978) strictures that an adequate theory of rhetorical functioning would have to involve several aspects: the hierarchy of rhetorical choices referred to above; an inventory of rhetorical purposes and the devices used to instantiate them; and those grammatical choices associated with the various rhetorical strategies. Finally, we look at rhetorical paragraphing or discourse chunking and the explicit linguistic signals that often occur.

We now move to two case studies intended to illustrate this combined research methodology.

### **III Case study 1: a Chinese graduate student in mathematics**

We realize that for many colleagues our suggested way of looking at SLA data will be new. Thus, it is important to present to readers exemplars of our approach. In this and the next section, two case studies are presented, there looking at Korean-English and here

<sup>4</sup>Similar discourse chunking appears also to be the case in the IL data collected in the Arizona/Alaska Writing Project headed by Sue Foster, with the rhetorical strategies controlling such chunking including description, narration, definition, classification, listing, question/answer, answer to a larger question in the input and instructions.

Chinese-English. The real-life problem which we are trying to relate to involves foreign graduate students teaching American undergraduates as teaching assistants (TAs) and not being understood by those students. More detail on this problem is presented elsewhere (e.g. Selinker and Douglas, 1987b); here we concentrate on research methodology issues.

For this case study, we studied a group of foreign TAs in various technical subjects at Wayne State University. There were enrolled in an LSP course for foreign TAs who had failed a test of spoken English proficiency required by the University; more detail is provided in Selinker and Douglas (1987b). The subject that we choose to report on here is Chinese, a PhD student in mathematics, in his mid-twenties. He clearly has pronunciation and fluency problems in spoken English, and was referred back to the course for a second semester by his department. At the time of the study, he had been in the USA for approximately two years and was teaching an introductory mathematics class.

For the subject we report on here, we have the following video and audio recorded data: (1) a 15-minute lecture on a mathematics problem; (2) a 15-minute lecture on the topic of Chinese music; (3) a group conversation with other Chinese TAs and one of the investigators on the topic of Chinese food; (4) a dialogue interview with one of the investigators on the topic of the subject's life story; (5) audio data from the subject's review of the video data. In this section, we present sample data from (1) and (4), with secondary commentary from (5).

We would like to present an episode from the lecture where the subject is discussing the following problem written on the board: 'A boy will be twice as old as his sister three years from now. Three years ago, he was four times as old as his sister. How old is each one now?', with the TA referring to stick pictures of the boy and girl he had drawn on the blackboard to illustrate the problem:

now we have . . . another information – the boy will be twice as old as his sister three years from now – so . . . three years . . . from now . . . uh here's boy . . . grown up . . . here's girl . . . she will be grown up . . . uh three years from now the girl will be three years older than . . . now – so . . . she will be three – X plus three years old – uh at that time the boy . . . will be twice as old as his sister so . . . it will be . . . she will be . . . he oh he will be two times X plus three twice as old as his sister [A] uh should be two times X plus three years old

In this primary IL data, the discourse block begins with 'now' as the TA moves to the side of the board where the pictures are drawn and begins to point. The bracketed [A] refers to the point in the review session where he stops the primary tape and provides commentary on the episode. What follows is the tape secondary data, coordinated at point [A].



- Student: is that – is it correct – it is?  
 Researcher: mm hmm – where lemme go back  
 Student: if I said it is eh will be  
 Researcher: y' mean where you were talking about the formula?  
 Student: no – I was uh talk about the boy – I said it will be and I found out the boy cannot use it . . . can I say it will be . . . sometimes  
 Researcher: yeah if y' say  
 Student: grammar is – was bad but  
 Researcher: yeah – y' c'n say it will be but if you – if you say that people will think you're talking about the formula the formula will be two times X plus three =  
 Student: oh  
 Researcher: = if y'say he will be they know you're talking about the boy so you can say either one but they mean different things

One of his concerns is represented in the secondary data above, that of CORRECT LANGUAGE USE, in this case pronoun use. We feel that he had named the domain of concern for him, one, we feel, which is shared by many if not most L2 learners: ' . . . grammar . . . is – was bad . . . ' <sup>5</sup>. In this secondary data, the researcher does not at first understand the subject's concern. In the primary data, the learner says, ' . . . it will be . . . she will be..he oh he will be two times X plus three twice as old as his sister.' In the review session, the learner says, 'Is that – is it correct – it is?' The researcher then says, 'y' mean where you were talking about the formula?', indicating (and we have verified this) that he is unclear as to what the learner is referring to in the phrase 'is it correct?'. The learner says, 'No – I was uh talk about the boy . . . ' indicating (and we have verified this as well) that he was using the phrase 'is it correct?' to mean 'is the use of the pronoun "it" correct here?'; to us, given no special stress on 'it', we conclude that this is an idiosyncratic IL use. The researcher then begins to establish a common domain framework where they are both talking about the learner-named 'grammar is bad'.

From a methodological perspective, this commentary on his perceived difficulties with English pronouns gave us the clue to look at pronoun use in a different domain of talk where a rhetorically similar strategy as the following prevails. We noticed that in the lecture (too long to reproduce here), that the learner's overall rhetorical structuring of the information is one of 'concentricity'. That is, he first states the mathematical problem, which begs for solution, then moves to the logic of the problem, using visual aids, then moves to setting up an equation. He finally moves back to the problem statement, plugging in the solution. These moves are signalled by such descriptive features as (1) his use of the right and left sides of the blackboard, and (2) his use of the word 'now', as appears in the beginning of the

<sup>5</sup>The naming of a domain of talk by a NNS is not unusual in our data and also happens below in Case study II.

transcript above. Is this concentric rhetorical strategy a necessary one in which to describe this maths problem? We have tried this out on SSIs and know from this experience that his concentric rhetorical organization of it is not a necessary one; there are other ways of handling this information.

We then looked at life-story talk in the primary data and noted that the following episode occurs with one of the researchers. The interviewer has just asked the subject about his siblings:

- Researcher: have you got brothers and sisters?  
 Student: yeah – is a sister – she lives in . . . in . . . Peking  
 – Peking – my my younger brother now is in university  
 – pretty good university in China – he studies com . . .  
 computer science – studies computer science  
 Researcher: uh huh computer science  
 Student: and my sister from – she graduated from a university in  
 Peking . . . her major . . . her major . . . was ah management  
 now she is the uh coal industry . . . coal =  
 Researcher: uh huh  
 Student: = industry (magistrate?)  
 Researcher: mm hmm oh? so she's older than you  
 Student: yeah she's older than me . . . two years [B]

#### SECONDARY DATA AT POINT B:

- Student: [laugh]  
 Researcher: now you didn't make any mistakes there  
 Student: no . . . I was thinking about it?  
 Researcher: thinking about it?  
 Student: yeah . . . I know it's a problem . . . in China we don't talk  
 about woman very much – so in English I have to think about  
 he and she

In this life story domain, the learner's rhetorical strategy of organizing information is also one of concentricity and, methodologically, in such a parallel organization of IL discourse we can look for similarities and differences in pronoun use. In the primary data (too long to reproduce), the subject begins by discussing people that are close to him (his parents), moves to a discussion of people further from him (his teachers), then moves to a process/event description of education, then to a place description of his school, then to a comparison of education systems and finally back to his own biography. This rhetorical structure is repeated several times throughout the interview and it appears to us that the subject's pronoun use differs by domain, in that in the technical domain, his use of the personal pronoun was a problem for him, while in the life story domain it was not. Here we wish to stress the methodological principle of using the secondary data to provide clues to analysing the primary data comparatively and to lead to the conclusion that, as Cornu and Delehayé (1987) discovered,

it is not always the talk about work that is more target-like in all IL features.

We now wish to suggest several methodological principles based on this case study so far. We focus on the use of secondary data to provide clues for the isolation and analysis of episodes in the primary data. (There is more detail in Selinker and Douglas (1986).) In review sessions, try to elicit from coparticipant reviewers, information on transition points, or changes in activity and information on segments which were problematic, interesting or unusual for the participant. Elicit a characterization of these segments in terms of what the goal or intention of the participant was, as well as problems in communication or the expression of information there might have been. If possible, try to discover what the participant presupposed about the situation or the audience, why the participant hesitated where he/she did, why repairs were initiated if they were, and why the participant was silent at particular points.

Additionally, secondary data becomes important for discovering further points to analyse. For example in the life story domain, the subject experienced a number of difficulties with vocabulary, whereas in the technical domain there were no problems with vocabulary. When viewing the primary video, the researchers had no clues that vocabulary was giving him trouble; it was only brought out in the secondary data. An example of this is that, in the primary data, the subject said that his school was only a hundred metres from his home. He pointed out in the review session that he was unsure of how to express the notion of 'home' since he and his family did not live in a 'house' nor yet an 'apartment' but only a 'part' of an apartment. Again, in reviewing the video of his discussion of the role of a school teacher in the primary data, the subject commented that he had had a very hard time with expressing the role. He had wanted to make the point that the relationship of the teacher to the pupils was like that of parent to child, but when he says it in English it is not satisfactory because 'the relationship between parents and children is different in the United States than it is in China . . . children don't take care of their parents here . . .'. Our point is that even in the domain of his life story, which he controls, the learner finds himself at times in situations which he does not control and secondary data can help reveal that.

Another point that we wish to make about the rhetorical structuring of information in episodes involves the concept of linearity. In the technical, mathematics domain, the subject structured the information in a linear, logical, spare manner, which was embedded in the concentric structure we have described. In a precise sense, he did not choose to provide a narrative for explaining the mathematical

information, which he could have done. Some of the information in the life story domain, however, is structured in quite a different way, using narrative style. The following example illustrates the point:

- Researcher: lemme talk to you for just a minute about something different – have you ever felt at any time in your life that your life was in danger . . . that you might be killed . . . that you might be injured or something like that . . . have you ever had that experience?
- Student: yeah
- Researcher: can you tell me about it
- Student: uh . . . in the two years for example when I as in in uh the countryside and all the . . . at that time the . . . the young boys they they they are forced to go into the countryside . . . they are unhappy so they they they did they did something awful-like like the people are unemployed on unemployment here (something) like that and so they did very bad things – for example I – I – I – I didn't play with them so they they don't . . . didn't like me – they didn't like me . . . when I read my book in my apartment – so called apartment [laugh] then the there was a big . . . big rock flying [laugh] broken the window and flying in the hou . . . in the in the in the in the room

We are here considering the rhetorical structuring of information in IL genres and domains and are focussing on the rhetorical distinction linear/concentric. The technical lecture is not presented, since it would be too long to reproduce. The interviewer/coparticipant, during the interview, at the point where the subject said (a) ' . . . they didn't like me . . . ' and (b) 'when I read my book in my apartment . . . ', assumed that the rhetorical link was between (a) and (b), and was thrown off by the fact that the subject intended to link (b) with (c), the throwing of a rock through his window. The interviewer anticipated a causative structure when there was none. No such interpretive or anticipation problems occurred within the linear structure of the mathematics lecture and, once again, secondary data straightened out the confusion.

#### **IV Case study II – a Korean graduate student in chemistry**

We undertook this study because, in the contexts we are concerned with, language learning and subject-matter learning appear to go hand in hand. We felt we needed to collect several types of information: which IL forms are associated with successful academic achievement in which contexts and which are associated with unsuccessful academic achievement. Also, we wished to explore internal-IL transfer, whether there is IL carry-over from one domain or genre or activity type or another. There are several possibilities: one is that IL knowledge is transferred internally only between activity types within a single domain, e.g. from lecturing on one's technical subject to

conversing one-on-one about one's technical subject; or perhaps the transfer, when it occurs, is only bounded by activity types, i.e., mainly involving performance variables; or perhaps there is a mixture of results. We are interested in the question of the conditions that make transfer possible or impossible, within an individual IL across various types of context as referred to in section I. This question has rarely been asked in SLA (but *cf.* Master *et al.*, in press). However, this question has been asked in the practical LSP teaching experience (e.g. Swales, 1985), where the real possibility of permanent fossilization in LSP contexts has long been recognized as a probable result of some types of domain-restricted teaching. This has been called the 'boxing-in' issue, or in Ann Johns' (pc) terms: 'When we teach students restricted language, we may lock them into boxes out of which they cannot get.' Zobl (pc) has suggested in this regard, that an important area of study becomes the directionality of the transferability between 'the results of "general" ESL courses and LSP courses. He predicts that IL elements will transfer from the former to the latter, but not vice versa. This is the sort of thing we wish to discover empirically.

In the study presented here, though we focus on methodological issues, we show some evidence that IL modal use is domain specific. Given the subject's life story, our methodology allows us to conclude, as we do below, that Zobl's suspicion may be correct. Also, in an input sense, we see that a particular rhetorical structure that has been taught to a learner is domain specific, though its variation cuts across activities. One of the activity types we consider is a one-one interview, where the interviewer has read technical material, coming to a concept not clear to him and asking detailed specific questions to gain the technical information desired. This activity approaches the real-life office hour exchange, which Carpenter (1983) has shown is important to success in an American academic context. Note also that in this study, as in the previous one, the subject names the domain of talk, here: 'Whenever I talk to someone about solid-state chemistry . . .'

The subject in this case study was a Korean graduate student at Iowa State University. He was in his first semester of doctoral studies at ISU and had been offered a TAsip in chemistry. However, he had scored below the ISU standards on two measures and was placed in a semester-long remedial course for foreign TAs. Four pieces of data were collected on this subject at two time periods (the first just after he arrived in the US; the second four months later, after he had completed the remedial course for foreign TAs): (1) lectures in his specialty; (2) a question/answer session with students after each lecture, with the questions being asked by American undergraduates; (3) an interview with one of the researchers on a topic within his major field; and (4) an interview with one of the researchers on his life story. Each of these pieces of data was videotaped and, in addition, the

subject viewed his video tapes and provided commentary on them which was audio recorded, as described above. One interesting point is that this subject, as did the student in the previous case study, focused in the secondary data on 'correctness' issues, exhibiting what we believe is a widespread L2 learner domain of talk - 'bad/correct grammar', which can be exploited for contextually-based research purposes.

The videos were also reviewed both at ISU and at the University of Michigan by various SSIs. The primary video data were analysed into two domains of talk - a 'work' domain (talking about chemistry), and 'life story' domain (talking about the subject's own life). The 'work' domain was further analysed into activity types - lecturing, answering student questions, and discussing work-related issues in a one-on-one interview. The 'life story' domain data was not analysed into activity types, since it only occurs in a one-on-one conversational situation. Our analysis of episodes to study is based on rhetorical strategies that may or may not be marked overtly in the IL text, (e.g. 'explicit' and 'implicit' definitions, classifications, descriptions, etc., as described in II (3) and the references cited there). Heuristically, the episodes we study are usually larger, more inclusive units containing more surrounding pragmatic context than would the more narrowly defined rhetorical units used traditionally in LSP studies.<sup>6</sup>

We first look at data from the subject's question-answer activities in talk about work, with 'Q' being the student questioner.

- TA: mmm-hmmm  
 Q: could you define again what bonded en- what bond energy is  
 TA: what bond energy is  
 Q: yeah  
 TA: this is -  
 Q: or give an example of it  
 TA: do - should I repeat the definition I said be- just before  
 Q: I didn't understand the definition . . . could you say it another way  
 TA: ummm - ye-e-es - uh - I can say in uh in a way . . . this molecule has two atoms in - in it . . . maybe we can designate in this this way and uh when they dissociate in elements they have no - these two - oh no - these two atoms have no relation to each other - they have no connection . . . so that would be the . . . ummm . . . in chemical view of - there should be a heat involved in this reaction - and th- one may - it is once convenient to define why - what is the value of the bond energy but the definition is when does - this bond is break to its element it should liberate heat or absorb heat . . . in the course of this dissociation process d- the - and that is the bond energy  
 Q: do you have office hours  
 TA: office hours

<sup>6</sup>This most complicated topic needs fairly large segments of text for explication. For details concerning the relationship between traditional units of rhetorically-based LSP study and rhetorical/episodic units used in contextually-based IL domain/genre analysis, see Selinker and Douglas (forthcoming).

- Q: yeah – or times that I could uh come to your office an talk to you  
TA: oh – I didn't registered yet – I cannot say about that but right now I'm anytime free or you can visit – drop in me in the buchanan hall  
Q: OK  
TA: do you want my address  
Q: naw – thats alright  
Q: you mentioned strong bond and and a weak bond – whats the difference between the two  
TA: I think its a quantum mechanical matter – so I cannot just say it simply but we can say it only in the way that umm maybe this is a good example . . . when this reaction is done and the product . . . hydrogen chloride is produced . . . then the bond between this molec- elements is different from each other . . . so we ummm and we can s- . . . think of it that there should be some differences between these bonds – then I think this is – that is the idea why the strong bond and the weak bond – but I cannot say in – I cannot speak and explain in the freshman course level – I'm sorry  
Q: thats OK

We would like to consider a number of points here. First, the subject cannot really be said to be in control of the situation: the questions seem like barriers that he has to somehow surmount; his back is to the metaphorical wall. Look at his treatment of the first and second questions: he repeats the key words of the questions as if trying to dredge meaning out of them, and follows this with a pause, which is interpreted by the questioner as a cue to elaborate or rephrase. Secondly, his interaction with the questioners, rather than consisting of comprehension markers, clarification sequences or repair requests, as in a normal interchange of this type, reflects uncertainty and floundering. Thirdly, note that in spite of his uncertainty, his actual responses to the questions, once they are constructed in fact do function as appropriate responses and, as discovered in SSI sessions, the technical information they convey is correct, although they are disjointed and hard to follow.

We now consider his performance in the same activity four months later, after he had taken the remedial course for foreign TAs.

- TA: I – I'd better stop here . . . OK  
Q: in your solution how would that change if you put more impurities in there or if you took some of em out and how would that change with respect to the water  
TA: how would that change – yeah – as I said at the beginning of the lecture the colligative property is only dependent on the amount of im- impurity so the more you put some kind of a s- a sal- salt or sugar in the water the higher the boiling point will be raised and the lower the freezing point will lower  
Q: will we be required to uh be able to recreate this graph on a quiz or a test or will it be given to us if we need it  
TA: pardon me  
Q: will we be – will we have to dr- be able to draw this on our own or will it be given to us

- TA: no – the only requirement for you is that – understand the concept not draw the graph
- Q: OK you've got a uh – for the uh water solution with whatever impurities in it you get a certain shaped curve – now if I added more salt as you're using for – to it would I get the same shaped curve just moved farther out but or does the whole curve change . . . is it a . . .
- TA: you're asking . . . I'm not clear . . .
- Q: say if I added more uh salt to this deal OK an say my freezing point then moved out an my boiling point moved out would any point in between – would I have the same
- TA: yes
- Q: shaped curve connecting those two points as I do for the one you're drawn between A and B or does it change
- TA: yes
- Q: completely
- TA: you mean the – about the shape
- Q: yeah – the shape of the curve
- TA: yes – uh
- Q: because I can predict . . .
- TA: I said if the curve – although this kind of property is only dependent of – of amount of the impurity and that means all these points on the curve will be dependent of – on the amount
- Q: so you do get the same curve so if I move to C and D
- TA: sure
- Q: that were just a little farther I could just draw and I
- TA: sure
- Q: could predict what of – the vapor pressure'd be
- TA: yes
- Q: I've got one other little question on that – does that – I assume the 760 millimeter – that's the vapor pressure of the amount of water in the air pressure right – or the proportion of it right OK what happens – is that
- TA: mm-hmmm
- Q: saturated or what happens if the air's not saturated
- TA: at this point you mean
- Q: well – what is – if I bring into this over the solution some air that's only 30 per cent humidity or something
- TA: this point you mean
- Q: yeah – what would happen then
- TA: maybe there w- I think you – your question is somewhat deviated from the main point of the subject because the saturation phenomenon is not uh not quite relevant to this boiling point depression or boiling point elevation and freezing point depression and maybe we have – can meet somewhere else . . .
- Q: is this phenomenon – does this phenomenon hold out for other liquid besides water
- TA: sure – yes – this kind of phenomena holds on any kind of liquid but the amount of this amount or change of amount will be varied according to the solution in the liquid

Notice a number of points here. First, he seems much more in control of what is going on – he begins the activity himself and calls on the first questioner. Secondly, note how he repeats the key portion of the question here also, but with a difference not evident in the



written transcript – his intonation contour does not suggest confusion, but rather that he is repeating the key phrase for the purpose of clarifying or confirming the question – he goes right into his response. Thirdly, compare the fluency of his responses here to that of the responses four months previously. Fourthly, when there is noncomprehension, as in the question about drawing the graph in a quiz, the response is now a standard repair request – ‘pardon me?’. The next question produces the beginning of a confirmation sequence, ‘you’re asking . . .’, followed by a repair request – ‘I’m not clear . . .’. Fifthly, there are a lot of comprehension markers produced by the TA during the elaborate question sequence – the ‘yes’s’ – and these become stronger – ‘sure’ – later in the sequence; in fact, he affirms, with a ‘yes’, the proposition being stated by the questioner before the statement is completed. Finally, toward the end of the episode, we see the TA initiating clarification sequences, producing a mitigated ‘put down’ of the irrelevant question and ending with a suggestion that they meet later to iron out the problem.

Methodologically, we see a number of the rhetorically and conversationally relevant variables discussed above being used in the IL analysis. Also, by presenting a fair number of differences between the two time periods, the general point, even though some may disagree with one or another of our interpretations, is clear: this TA made significant progress during the four-month interval between taping of the primary IL data, due, at least in some part, to the input of the remedial course.<sup>7</sup>

We next look at the phenomenon of transfer within and across domains. Consider an episode from another activity within the work domain, the interview in which the subject and one of the researchers talk about his work at Time Two (we will not present data from Time One in this domain here):

- Q: you’re working on a research project now right what’s  
TA: yes now  
Q: that about  
TA: solid state chemistry its hard to explain  
Q: uh-huh yeah – try  
TA: ha- sh- I – do I have to  
Q: [nods]  
TA: OK [laugh] then – first of all when I – whenever I talk to somebody about solid state chemistry I should talk about the difference from the solid state chemistry and traditional chemistry and usually I think you may – heard about – heard such a names about molecule and atom and ion – yes – but in solid state chemistry – no – in traditional chemistry for example take a cup of water and all the water molecules in the – in

<sup>7</sup>Details of the teaching input as affecting IL output by context with these apparently fossilized IL speakers appear in Selinker and Douglas (forthcoming).

the cup behave (then) differently – individually (I mean) so we can create such a system as a – accumulation of such a small molecules . . . but in solid state chemistry – all the molecules or sup- any units which are supposed to be – uh – supposed be acting as molecule – atom – in such a system are linked or bonded to each other – so we have to treat them as a – just a – a starting unit – no no – not accumulation of many such a molecules or atom- you just treat them as a unit depending on their size

Q: mmm-hmmm mm-hmmm

As pointed out above, methodologically, we wish to look for cases where the learner names the domain of talk for us, here: ‘Whenever I talk to somebody about solid state chemistry . . .’. Then we look for rhetorical organization of IL text. We notice the very organized way he goes about answering the question; he produces an explicit classification by stating that there is both solid state chemistry and traditional chemistry. He starts down one of the branches of the classification: solid-state chemistry, but says ‘no’, regroupes and goes to the other branch of the classification, stating that in traditional chemistry, one treats atoms and molecules in one way, while in solid state chemistry, we treat them in another. Below, we shall see this subject use a similarly formal response to another question about work, but we found no evidence of this spontaneous contrastive and didactic rhetorical strategy in the ‘life story’ domain, the rhetorical strategy in the latter being simply to relate the pertinent information without contrasting it with another member of the relevant paradigm. In other words, this ‘talk about work’ in the interview activity can be said to have more in common, in a rhetorical sense, with the lecture and question-answer activities than it does with an interview activity in another domain. There is an important methodological/theoretical point here: on the one hand, there is a high degree of similarity between the interviews in the two domains in terms of such features as turn-taking, attention-confirming interjections, hesitation noises, overlapping talk, joking and so on. On the other hand, we have found a number of differences between the two interviews in terms of rhetorical and discourse strategies and grammatical categories. Thus, what the results of our methodology lead us to suggest is that the two activities within the ‘work’ domain are comparable at one level, but not at another.

Note that in the following episode from the same interview, rhetorically we observe the quite formal structure of the response, relating his own problem in relating theory to application to that shared by all scientists, but also his use of a very lecture-like exemplification: ‘For example . . . this kind of material . . .’ while gesturing to the door knob. Once again, we do not see this rhetorical approach, which we feel he learned in the teaching input, in one-on-one discourse in the life-story domain.

- Q: What will be the practical outcome-if you're successful –  
TA: ummm  
Q: what do you want to do  
TA: yes – I always face such a problem – and maybe almost all the natural scientists should have such a prob- problem and there isn't – I sh- I can say there is no immediate practical outcome but eventually it should be applied or studied extensively by uh the engineering department and it could be applied in a – our lives – for example [gestures to door knob] this kind of st- uh material even – even though this was invented from a metallurgist the main principle lies on chemistry and if I make some very good material which has very strong – or strong mechanical property or electric property eventually that'll be used someday

Here, we come to a methodological conclusion; due to real life constraints, we conducted the work domain and life-story domain interviews during the same session. Having no effective break in time, location, or participants, if we find differences that cannot be accounted for by performance variables, we are able to relate our study directly to our contention that the subject did switch domains as he moved from one 'area of talk' to another. Our methodology thus allows us to relate directly to our hypothesis.

We next set up our analysis to look at IL modal use in different contexts. In particular, we want to look at his use of the modals 'can' and 'could'. In the work domain in the data at the beginning of this case study above, the TA uses these modals pretty much in a standard fashion, to indicate factual or hypothetical possibility. For example, look at the IL paragraph above beginning: 'I think it's a quantum mechanical matter . . .'. A paraphrase of his first sentence in that paragraph would be something like: 'I think it's a quantum mechanical matter, so it's not possible for me to state it simply, but it is possible for us to say . . .'. Another instance in talking about work is where he states above, in the paragraph beginning 'I always face such a problem . . .', that his theoretical result should be studied by engineers and 'could be applied in our lives . . .', indicating a hypothetical possibility. Consider now, however, what he does in the life-story interview below:

- TA: I – I don't have anything that I can say I do – I am best in this field or I – I am really excited in that – but – I tried many things but so far all those are failures [laugh] . . . uh – one thing – I can remember is – I taught some unlearned work – workers – three years  
Q: oh really – what did you teach them  
TA: mathematics – especially – ahh – what is it – geometry  
Q: was this in a government program – or what  
TA: no just a – um – the school belonged to a church – and there were – hundred students – if it was crow- crowded – and – the population was fall down – as small as – as few as ten – so it's tiny – it – it [laugh] – varies [laugh] – drastically – (spending) time . . .  
Q: so how long did you teach there  
TA: two and half years

Q: why were they learning mathematics

TA: um – first of all they couldn't have opportunity to advance for higher school and almost all of them are working – were working in the factory and (skill) they couldn't have a way for their desire for advanced study – and whenever they are qualified in an exam which is . . . umm . . . which is given by the government they could advance of higher school – so sometimes they can skip certain level of school and so they can advance from the elementary school to the university or higher school directly . . . and that's the . . . very reason for them to study that – and that's why I had to d- I had to teach them.

Q: yeah yeah – did you get paid for it

TA: no . . . I had to pay . . . for the maintenance of the school [laugh]

Q: oh I see – wow

Here note the following: 'First of all, they couldn't have an opportunity . . .'; '. . . they couldn't have a way . . .' and 'whenever they are qualified . . . they could advance . . .'. If we had studied this subject's use of modals only in the 'life-story' domain, we would probably have concluded that he did not understand them – we doubt if NSs would use the modal 'could' in the way the TA does here. Moving on in that same paragraph, we see that he suddenly shifts from 'could' to 'can' – 'sometimes they can skip a certain level . . . and so they can advance . . .'. This seems typical of what he does in talking about his life story. We hypothesize that an IL-particular rule is in use here, i.e., what is going on here is a switch from talking in concrete, specific terms, signalled in the IL by the use of the past-tense 'could', to talking in more abstract, general terms, signalled by the present-tense 'can'. The conclusion we come to is that he is using modals differentially in the two domains of talk. Methodologically, if we had tested the learner in either of the two contexts, we would have come up with the wrong result, either that he does or does not know modals. His IL is more complicated than that. Next, methodologically, we would wish to look at other modals, to continue this view of IL particularities and, eyeballing the complete primary data, it looks as if this IL-particular rule applies only to can/could, i.e., to a modal-specific case. We have scanned the remainder of our data for this speaker, and though he uses other modals, there is no evidence of this IL semantic distinction in any other modals in any IL context, i.e., no evidence in this case of internal-IL transfer, which backs up Zobl's hypothesis above.

## V Conclusion

In this paper we have tried to show that a potentially large number of variables may be involved in studying IL in contextually-based SLA

and that detailed discussion of a research methodology aiming to get at these variables is in order. We have tried to provide a way of studying the development, use and fossilization of IL form in context. We have done this because we have a contextually-based SLA perspective we wish to study. We hypothesize that some large set of IL forms are created with reference to particular knowledge/genre/domain contexts that are important and/or necessary for learners to talk about and/or write about. Kellerman (pc) has used the term 'cherished' to describe such contexts. We also hypothesize that the problem of SLA is in large part the ability to transfer forms learned in one context to another, i.e., success in internal-IL transfer. Furthermore we hypothesize that there will be 'harder' and 'softer' contextual boundaries, over which the learner will have a harder or easier time respectively transferring IL forms. Our current conclusion is that knowledge/genre/domain contexts provide harder internal IL boundaries than do various activity types. Finally, we hypothesize that many important SLA processes – language transfer, fossilization and backsliding, strategies of communication and learning – are relatable to and bounded by contextual areas. If we wish to study these general hypotheses and other contextually-based SLA hypotheses, we need to look at IL learning in meaningful performance situations and need to have a research methodology to do so. This latter is what we have tried to sketch and illustrate in this paper.

All too often in personal communications, SLA colleagues take the view that if one is arguing the case FOR contextually-based SLA, then one is at the same time arguing the case AGAINST universalist core IL grammar. We think it is important to repeat that this is NOT our position. We do not wish to leave the reader with the conclusion that we believe that all SLA is contextually-based and that the search for core IL universals is a chimera. We have stated above that we believe that the two approaches are complementary and feel that it is incumbent upon us to provide a methodological hint as to how the two approaches might relate. We take one example from section I, above (St John, 1987). St John's study suggests that there are contextual IL constraints where the creation of written IL, including language transfer and fossilization effects, might vary by sections of the professional paper being composed in this Spanish-English IL, some sections being more formulaic than others. This is a case where concerns of universal grammar and contextually-based IL intersect. Here we have Spanish professionals needing to write in technical IL English. Lakshmanan (1987) supposes that in certain Spanish LSP contexts, pronoun subjects are usually retained, meaning that pro-drop would be the marked category for these contexts:

... if the Spanish L2 learners of English have used the L1 in those LSP domains where the pronominal subjects are typically retained, and need to use English also in the same LSP domains, they may be less likely to transfer the property of pro drop. (Lakshmanan, 1987:10)<sup>8</sup>

If this proves to be true, then certain parametric properties, as marked or unmarked in a language, may be less monolithic than has been previously conceived, when IL contextual constraints are taken into account. This sort of information should be important to both approaches, each needing the other's approaches and methodologies to study SLA seriously. Researchers in each camp then must begin to pay attention to each other's work, including the details of how that work is conducted. At this stage of the game, more theoretical methodology papers are surely called for.

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<sup>8</sup>Lakshmanan, a native speaker of Tamil, also reports (p.c.) that in Tamil, which is a pro-drop language, the occurrence of null subjects appears to be dependent on contextual factors as well. Tamil speakers, for example, tend to retain more subject pronouns in formal speech and formal writing than in informal speech and writing, where null subjects predominate. In this diaglossic situation, both cases are pro-drop, but the formal variety resembles old Tamil in having more subject forms appear. It would be interesting to examine technical Tamil and the technical English of Tamil speakers to see if there are similarities to the Spanish case.

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