Variation in rhetorical moves in grant proposals of US humanists and scientists*

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Abstract

Grant proposals are a significant part of professional writing. Described as 'the most basic form of scientific writing' (Myers 1990: 41), they are the key to obtaining research funding and support for professional activity. Recently, grant proposals have been included among promotional genre studies by applied linguists, and 'moves' have been suggested for the rhetorical structures in the texts of EU grant proposals (Connor and Mauranen, 1999). The present study uses these moves to analyze rhetorical variation in 14 research grant proposals written by five humanities and science researchers for US government and private funders. The major purpose of the study was to determine the accuracy with which the moves were identified with the writers; the use of the moves among the five different disciplines and by male and female writers was also studied. Text-based interviews were conducted with the writers following the text analysis of grant proposals. The results showed that the system of moves was clear and meaningful to the researcher-writers, but that US grant proposals required an additional 'institutional commitment' claim, a hypothesis statement in addition to goals, and more metatextual transitional statements than the proposals in the earlier EU study.

Keywords: *persuasion; grant proposals; interview studies; genre analysis.*

Introduction

Grant proposals are a significant genre of persuasive writing. Their primary purpose is to persuade proposal reviewers and grant agency officials to fund the research proposed. Grant proposal writing has been described by Myers (1990: 41) as 'the most basic form of scientific

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writing: '[t]he researchers must get money in the first place if they are to publish articles and popularizations, participate in controversies, and be of interest to journalists'. Thus, grant proposals are a significant part of the professional writing of most academics.

Genre analysis (Swales 1981, 1990) has a great deal to offer for the study of grant proposal writing. In research which examines proposals for European Union research funds, (Connor et al. 1995; Connor and Mauranen 1999), a linguistic/rhetorical system of genre-specific 'moves' to describe and evaluate grant proposals has been developed. The definitions of the moves in that system are shown in Appendix 1.

The moves are based on the theory of genre analysis, as proposed by Swales (1981, 1990). 'Genre', according to Swales (1990: 58), 'comprises a class of communicative events, the members of which share some set of communicative purposes'. Important in Swales's definition is the centrality of a discourse community whose members agree upon the acceptable features of specific genres. According to Swales, research articles, presentations, and grant proposals all represent different genres because their communicative purposes are different. In traditional genre analysis, prototypical 'moves' or functional components can be identified for each genre, and can be taught to a novice writer of a particular genre (Bhatia 1993, 1995; Dudley-Evans 1995).

Recent research shows that genres do not exist in isolation but are part of a structured system of interacting genres each performing complementary social actions. This view has been advanced by scholars such as Bazerman (1994, 1999), Atkinson (1999), and Smart (1993). As novice writers become more informed about these literate actions, they learn how texts interact and how they shape meanings in relation to complex social systems. For example, grant givers provide grant guidelines, which are read and interpreted by grant writers. Grant writers know that they need to communicate not only with proposals, but also with cover letters and other inquiries—written and spoken—related to their proposal writing. Thus, the actions surrounding a grant proposal involve the communication of various kinds of texts by various kinds of people.

An excellent analysis of grant proposal writing as a social, literate action within this kind of genre system is presented in Van Nostrand (1994, 1997). Van Nostrand describes a structured system for producing knowledge within the US government's sponsorship of military research and development. His analyses show that many recursive cycles of negotiated knowledge take place between the vendors (i.e., university laboratories) and the US Department of Defense. In other words, vendors and the government negotiate about the need and the solution

over a period of time in the process of proposal writing. Van Nostrand writes:

> Rhetorically, the R&D project culminates a history of negotiation that has proceeded in stages by means of a discourse exchange system. The documents exchanged by customer and vendor define the objectives, budget and duration of the project by iterating the activities that will comprise it. These iterations progressively shape the project and define the deliverable knowledge products that the project is intended to generate. (1994: 135)

In this article, I explore the range of variation in the use of moves in grant proposals by examining US writers who work in different disciplines and apply to different granting sources; I also explore some differences between men and women as writers of grant proposals. The present study is based both on a Swalesian moves approach as well as on an approach that considers genres as interactive systems. The present study is unique in that it considers texts in their entirety rather than selected sections such as article introductions. It also combines a genre analytic approach to text analysis with interviews with the writers of a considerable number of proposals (14) drafted by five different individuals.

The present research is closely linked to work done by a research group in Finland which studied research proposals submitted for European Union (EU) research funds (Connor et al. 1995). In that research, a system of rhetorical 'moves' was produced which were found to predict success in the competition for EU grants. As shown in Appendix 1, our research identified the following ten moves:

i. territory
ii. reporting previous research
iii. gap
iv. goals
v. means
vi. achievements
vii. benefits
viii. competence claim
ix. compliance claim
x. importance claim

This research was based on the analysis of 34 research proposals from universities and research institutes in Finland, written between 1992 and 1994 for four different EU programs. The programs were part of European research consortia consisting of researchers in several different EU countries. The ten moves listed here accounted for virtually all content in the 34 grant proposals in the EU study considered. In order to learn

about variation in the system, we have also recommended (Connor and Mauranen 1999) that research be conducted on proposals written in different cultures and countries, as well as studies of proposals across disciplines, including humanities disciplines. Furthermore, being aware of the limitation that in our research only *linguists* defined and identified the moves in the proposals (without access to scientist informants), we have suggested that future research on the validity of a moves analysis of grant proposals should seek verification from the writers themselves.

The purpose of the present research, therefore, was to study the variation in the moves in research grant proposals written for US government and private agencies in five different disciplines in the sciences and humanities by two women and three men. The goal was to find out (*a*) to what degree the writers found the moves system to agree with their own perceptions, and (*b*) whether there were moves that needed to be added to the list in order to account for all the content of the proposals. A third purpose of the study was to learn about grant proposal writers' experiences in learning to write in their separate disciplines. Finally, although the data are somewhat limited in this regard, a related interest was to compare grant proposal writing styles of men and women.

Study

Data

Five researchers and their proposals were studied: two professors from a school of humanities (a female assistant professor of English and a male full professor of history), and three professors from a science faculty (a female full professor of chemistry, a male full professor of biology, and a male assistant professor of geology) participated. All participants were native speakers of English. The researchers were selected for the following reasons. First, I wanted to study experienced as well as relatively novice writers who had an interest in pursuing grants. Second, I wanted to include both male and female researchers in both humanities and sciences. I had the full cooperation of the schools and professors. The university supported my study, in spirit as well as through a research grant. A brief sketch of the professional background and experiences of each researcher studied is given in Appendix 2.

Fourteen proposals by these five researchers were analyzed: four from biology, two from chemistry, two from English, four from geology, and two from history. Because the researchers were from different disciplines and were applying to different agencies they used different guidelines and procedures. In the case of the school of science researchers, the proposals were submitted to either the National Science Foundation or the National

Institute of Health. In the case of the humanities researchers, a proposal submitted to the National Endowment for the Humanities and one for a local endowment written by the history professor were analyzed. Finally, two proposals written by the English professor—one for a small internal university grant and the other for a small national professional organization fund—were analyzed. The 14 proposals analyzed ranged in length from two pages in the case of the English professor to more than a hundred pages in the case of the biology professor.

Method of analysis

The analytic methods employed were text analysis—namely the moves analysis—and text-based interviews with the researchers. The definitions of moves developed for the EU project guided the identification of the moves in the present study. In the analysis of the moves, the proposals were coded by two trained coders familiar with the moves definitions. Each of us first provided an independent identification of the moves, after which we discussed disagreements and questions. Since the purpose of the study was to determine the accuracy of the move identification as reviewed by the writers themselves, we considered it important to mark any doubts we had about labeling a sentence as part of one move versus another. A summary sheet of the moves for each proposal including question marks was typed up. The interviews followed the moves analysis of the research. The same two researchers who identified the moves also conducted the interviews; all but one interview was taped and notes were taken during the interviews. The most important aspect of the interviews for the present article dealt with the text-based questions related to the moves identification in the analyzed proposals. However, for the second purpose of the study, which was to learn about proposal writing in different disciplines, the interviews were in parts open-ended. We encouraged the researchers to speak freely about how they had learned to write proposals and what experiences they had had writing grant proposals while employed at the university. The interview protocol included a review of the moves definitions, a review of each researcher's grant proposals marked up with moves labels, discussion of the researcher's background as a proposal writer, and discussion of the researcher's views of successful strategies for writing to funding sources. Appendix 3 includes the interview protocol with actual questions asked.

Definitions and samples of moves

For the definitions of the rhetorical moves in the EU proposals, Swales's (1981, 1990) notion of move was adapted with minor modifications.

Essentially, a move in a text is a functional unit, used for some identifiable rhetorical purpose. Moves can vary in size, but contain at least one proposition. Connor and Mauranen (1999: 51) state that the identification of moves in grant proposals depends on two things. First, it is important to start with the rhetorical objectives of the text and base any analytical decision on these. Second, the text must be divisible into meaningful units or (moves), based on linguistic clues (e.g., the use of 'however' to introduce a gap) or typographical indicators (e.g., a section headed 'Methodology'). In moves analysis, then, both function and boundary indicators are needed.

The moves identified in the study of EU grant proposals are defined in the following. Examples of each move are presented from the US proposals being treated in the present study; in each case, example (a) is taken from the science proposals, and example (b) is taken from the humanities proposals.

Territory

The territory establishes the context in which the research places itself. This move is similar to the initial move in Swales's (1990) article introductions. It is possible to distinguish two types of territory, of which at least one, but sometimes both were used: (*a*) a 'real world' territory, i.e., how the proposed project is to be situated in the world beyond the research field, and (*b*) a research territory, that is, the field of research within which the proposal situates itself in the discipline or disciplines identified with the project.

(1) a. There is strong epidemiological evidence associating diet and cancer. Diets high in cold water fish are particularly rich in fatty acids, and have been linked to lower incidence of cancer.
b. The basic issues confronting modern America are its increasing fragmentation, its loss of a sense of community. Nowhere is this loss of connectedness more apparent than in the nation's cities where the vast majority of Americans live.

Gap

This move indicates that there is a gap in the knowledge or a problem within the territory. The move serves as a motivation for the study, since the implication is that the gap needs to be filled or the problem solved. Later moves (usually 'goal' and 'means', see below) then indicate how the study intends to fulfill these needs. The gap move is again very similar to the second Swalesian introduction move.

(2) a. Despite the promise the Omega-3 PUFAs hold for cancer therapy, little is known about their molecular mode of action and at present they are not categorically considered a cure for cancer.
b. As inner cities have crumbled and their populations dispersed, religious institutions have frequently provided the only stable anchors holding urban communities together.

Goal

This move is a statement of the aim, or general objective, of the study. It explains at a general level what the project intends to do, or what its chief contribution will be. It is typically linked to the gap move in a kind of 'slot-and-filler' relationship.

(3) a. We are interested in the potential anti-cancer role of a unique class of dietary polyunsaturated fatty acids (PUFA) known as omega-3s. Our research is based on determining the structural role of omega-3 fatty acids in membranes with the major long range objective being to determine how these fatty acids can be successfully incorporated into anti-cancer regimen.
b. The Project on Religion and Urban Community (RUC) seeks to examine the role of religion in helping to create—and re-create—community in one American city, Indianapolis.

Means

This move specifies how the goal will be achieved. Thus, it describes the methods, procedures, plans of action, and tasks that are to lead to the goal. The relationship to the goal is not always made explicit in much detail, but there is an obvious logical connection between the gap, the goal, and the means. The level of specificity varies—sometimes the main lines of the methods are further developed in relatively technical detail, in other cases fairly specific procedures are listed without much generalization—but the function remains the same.

(4) a. The experiments outlined below are designed to test the membrane structure and immunological properties of tumor cells in each of the IHA concentration ranges. By defining the effect of low, medium and high concentration of 22:6, we may be able to propose regimens of fish oil supplementation which may have significant health benefits.
b. The inquiry model will devolve from broad-based partnerships formed to examine the ways people of faith have acted to define, sustain, or transform community in the twentieth-century city.

Previous research
This move consists of reporting or referring to earlier research in the field, performed either by the proposers themselves or by others.

(5) a. Nutritional studies often focus on dietary fat's effect on immune cell function [21–28], rather than the tumor targeted by the immune system [21–29]. Usually fish oil-fed animals display less tumor growth than with other dietary regimens [2, 30, 31], although the literature is not unanimous in this regard [29]. One strategy is to circumvent cells treated in vitro with long chain unsaturated fatty acids becoming more cytotix [32, 33]. Esterification is important, however, because free fatty acids inhibit events in cellular activation [34–37]. We have shown that tumor cells modified with 18″0 22:6 PC in vitro are more sensitive to cytotoxic T-lymphocyte killing, have increased permeability, and may alter surface exposure of tumor antigens.

b. Of course, there are general histories of Indianapolis, but all are deficient as reference works in one way or another. Berry Sulgrove's century-old *History of Indianapolis and Marion County* (1884), while containing much useful materials on the city's early years, is dated in both style and interpretation. Jacob Piatt Dunn's *Greater Indianapolis* (2 vols., 1910) is still the most widely cited general history of the city, and it contains a wealth of information on the capital city up to 1910.

Achievements
With this move, the proposals present their anticipated results, findings, or outcomes of the study. These are prospective results of the project.

(6) a. The results we are expecting is a gate-like action, and oscillations might be observed in such a situation. If so, this could constitute a simple model of a passive transport ion channel in a biological membrane.

b. The Encyclopedia of Indianapolis will thus fill a notable void by creating a modern, comprehensive, and readable historical reference work on the city, especially its recent past.

Benefits
This move comprises intended or projected outcomes of the study, presented in terms of their usefulness and value to people in general, the study itself, or the domain of research in itself.

(7) a. Results from this proposed work will (1) confirm whether the general relationship between phosphorus accumulation and climate mode found in two sites of the equatorial Pacific is wide-spread in the ocean, and (2) with the coupling of carbon into phosphorus analyses, help to elucidate the connection between phosphorus sedimentation, organic carbon burial, and surface ocean productivity.

b. Leaders of younger children's groups might use the Indianapolis experience, or biographies of important Indianapolis religious figures, to provide real-life object lessons.

Competence claim
This move introduces the research group or its responsible members. It makes a statement to the effect that the research group is well qualified, experienced, and generally capable of carrying out the tasks it sets itself.

(8) a. I have performed these calculations routinely, and have investigated the various errors and assumptions of accumulation rate calculation (e.g., Fig. 6, Filippelli et al., 1994; Fig. 6, Filippelli and Delaney, 1995).

b. A multidisciplinary institute at IUPUI, POLIS has pioneered the concept of community-based partnerships as a way of exploring urban history and culture, using Indianapolis as a case study. ... In fulfillment of its overall mission, POLIS has developed successful community partnerships and methods for promoting high quality research that meet the needs of both the community partner and the academy.

Compliance claim
This move in the EU proposals made explicit the relevance of the proposal to the EU objectives, usually with a highly specific reference to the directives and/or the set of goals of the program in question. No such explicit statement of compliance was required in the US proposals. Compliance claim moves were absent from the US proposals, with the exception of the following two examples, which were deemed negligible in overall line counts.

(9) a. This proposed research targets ocean geochemical dynamics during an interval of extreme climate at the LGM. The Marine Aspects of Earth System History (MESH) Steering Committee and the scientific community ranked this topic as its highest research priority. Furthermore, this research project will assess the following processes highlighted as targets of the MESH program: nutrients, weathering fluxes to the ocean, and productivity.

Given the topic and scope of this proposed research, it fits well within the high priority research goals of MESH.

b. NEH guidelines for funding explicitly include encyclopedia projects. Left open, of course, is another issue, namely, is an encyclopedia a suitable vehicle for the need expressed in the application? This application addresses that issue directly on pp. 8–15. A careful analysis completed by a well-qualified task force and several subsequent reviews confirm that an encyclopedia is an appropriate first step, perhaps a necessary one, for further study of the city. Encyclopedias represent an old and honorable tradition of attempting to organize knowledge for the purpose of transmitting what is known and, by omission, calling attention to what has yet to be discovered.

Importance claim

This is a move which makes the proposal, its objectives, anticipated outcomes, or the territory out to be particularly important or topical, much needed or urgent with respect to either the 'real world' or to the research field.

(10) a. UNIQUENESS OF THE PROPOSED RESEARCH: The proposed project is unique in employing a wide variety of state-of-the-art bio-physical, biochemical and immunological techniques to thoroughly probe the effect of omega-3 fatty acids on membrane structure. This project will not focus on any specific health problem (e.g., cancer, heart disease) or biological function (e.g., vision) but will instead attempt to deduce a more global role for omega-3 fatty acids. While there have been many studies concerning the effect of omega-3 fatty acids on specific biological systems (e.g., tumor growth, HDL and LDL function, inflammation, etc.), very few of these have investigated the underlying role omega 3s play in altering membrane structure at the molecular level. Most studies have either been epidemiological or dietary.

b. But the significance of the *Encyclopedia* extended beyond its importance in stimulating additional research on and new understandings about Indianapolis, as intrinsically valuable as these accomplishments are. Indeed, the *Encyclopedia* will greatly expand our knowledge of an important mid-sized city, a type of city that for decades has housed the vast majority of America's urban population but that remains woefully understudied in comparison to the nation's megalopolises. This new information,

unavailable because of the dearth of scholarly attention, promises to enhance understanding of the urban experience in at least two ways: ...

In the process of the present study, we further refined the moves analysis to include a move not present in the EU proposals, namely a hypothesis or a research question, as the following example shows:

(11) Our research will focus on determining some answers to the following questions:
(1) How does altering the electrical properties of the membrane influence the oscillations?
(2) How do transport phenomena in both the bulk and the membrane affect the oscillations?

Results

The results of the moves analysis will be the major focus of this section. They will be discussed in two parts. First, the proposals were analyzed for occurrences of the moves. Second, interview notes and transcripts were analyzed to determine the degree of correspondence between the moves system and the proposal writers' ideas of what they were doing. Following the analysis of the texts and interviews, information related to processes and styles of writing will be briefly discussed, with special interest in the different styles employed by men and women in the sample.

Results of the textual analysis

As in the EU proposals, not all the moves occurred in each proposal. Table 1 shows the percentages of moves occurring in the 14 sample proposals.

Several interesting trends appear in the frequency of occurrences of the moves, which may suggest areas for investigation in larger samplings of proposals. First, it is important to point out that there was a wide range of variation in the length of some moves across the sample set. The territory move, for example, was found to occupy from as little as two percent of the proposal text to as much as forty percent. The shortest proposals contained proportionately the most territory. Furthermore, a lower experience level of the proposal writer appeared to coincide with a greater amount of space given over to establishing territory. However, other more subtle relationships may have been factors affecting the amount of territory deemed appropriate by the proposal writers. For example, among the four biology proposals (where the writer's experience level

Table 1. *Percentages of moves occurring in the sample 14 proposals*[a]

Proposal number	Field	Proposal length[b]	Territory	Gap	Goal	Research question	Means	Import-ance	Refer to previous research	Benefits	Competence	Achieve-ment	Total
1	Biology	617	6.65	1.78	1.30	4.05	63.05	0.00	22.37	0.00	0.00	0.81	100
2	Biology	564	3.01	1.24	1.06	1.77	52.13	2.13	34.04	0.00	4.26	0.035	100
3	Biology	142	16.20	1.41	4.23	11.97	43.66	11.97	0.00	2.11	7.04	1.41	100
4	Biology	824	7.77	0.73	3.28	0.61	35.44	0.24	50.49	0.49	0.97	0.00	100
5	Chemistry	396	4.55	1.26	3.28	3.54	24.75	8.84	43.43	0.00	2.53	7.83	100
6	Chemistry	57	3.51	3.51	12.28	0.00	8.77	0.00	21.05	0.00	50.88	0.00	100
7	English	109	22.02	4.59	2.75	0.00	47.71	0.00	0.00	13.76	9.17	0.00	100
8	English	75	40.00	5.33	0.00	0.00	32.00	8.00	14.67	0.00	0.00	0.00	100
9	Geology	438	6.85	8.68	2.28	2.97	43.61	2.05	17.58	2.97	8.22	4.79	100
10	Geology	450	7.33	8.89	3.33	3.78	39.56	0.02	21.78	0.67	6.67	6.00	100
11	Geology	125	8.00	8.80	5.60	0.00	36.00	0.00	34.40	2.40	4.80	0.00	100
12	Geology	409	11.49	11.74	2.69	2.20	41.08	2.20	13.20	3.18	6.36	5.87	100
13	History	1,326	1.96	2.87	3.17	0.00	20.21	20.74	1.13	18.33	25.19	6.41	100
14	History	522	5.36	0.57	6.13	0.00	41.95	10.15	0.00	7.85	22.99	4.98	100
Average percentages			10.34	4.39	3.67	2.21	37.85	4.74	19.58	3.70	10.65	2.73	100
Median percentages			7.09	3.19	3.23	1.19	40.32	2.09	38.63	0.58	6.52	1.11	

Notes: [a]Results are reported in terms of percentages that each move occupied.
[b]The length is shown in terms of the number of lines of text. These were counted individually. Partial lines were counted as one line if equal to half or more the width of a full line.

was high), the territory move ranged from as little as 3.01 percent to as much as 16.2 percent. In this particular case, the greater parallel amount of territory occurred in a proposal for a training center, while the lesser amount of territory occurred in the three research proposals.

In spite of such obvious variation among the individual proposals, some overall trends can be observed in the frequencies of the moves across this sample set. The 'means' move, for example, occupied more space in the proposals than any other single move, accounting for 37.85 percent of the space in the proposals overall. The second most frequently occurring move was the 'reference to previous research' (RPR), occupying 19.58 percent overall. Together, these two moves constituted between 20 and 85 percent of the individual text.

In contrast to the amount of space allotted to 'means' and 'reference to previous research' in the proposals, six of the moves analyzed in the study each occupied less than five percent of the space: 'gap', 'goal', 'research question', 'importance', 'benefits', and 'achievement'. In these less frequently occurring moves, interesting trends were also evident. The 'gap' move, for example, was consistent; it was present in each of the sample proposals, though the amount of space it occupied ranged from less than one percent to over eleven percent. It was one of only three moves found recurrently across all samples in the set: 'gap', 'territory', and 'means' occurred in every sample in the study. The 'goal' move was also found in all proposals except one. Thus, four moves may be considered to appear consistently across the sample set: 'territory', 'gap', 'goal', and 'means'.

Four remaining moves each occupied less than five percent of the overall proposal space: 'research question', 'importance', 'benefits', and 'achievement'. The 'research question' move, for example, not surprisingly occurred in each of the science research proposals but was lacking in the humanities and non-research science proposals. The 'importance', 'benefits', and 'achievement' moves were not found to occur consistently across the sample set. Half of the proposals contained all three of these latter moves, however, and all but one of the proposals contained either an 'importance', 'benefits', or 'achievement' move. Only a science symposium proposal was found to lack all three. Additionally, it is important to note that although these moves occurred relatively infrequently overall, they occupied more space in some of the individual proposals. 'Benefits' and 'importance' together, for example, took up 39.07 percent of one of the humanities proposals (proposal number 13).

Finally, the 'competence' move was found to occupy an average of 10.65 percent of the overall text space. The 'competence' move also varied across the individual proposals, however. It was completely lacking from

two of the proposals (one from science and one from the humanities) and occupied more than 50 percent of another.

In summary, the results of the textual analysis show that four moves ('territory', 'gap', 'goal', and 'means') occurred consistently across science and humanities proposals in the sample set; five moves (the previous four plus 'research question') occurred consistently in the science proposals. Half of the sample proposals contained all three of the 'importance', 'benefits', and 'competence' moves.

Results of the interview analysis

The responses to the list of the moves were overwhelmingly positive. When shown the list and the definitions, the chemistry professor, an accomplished researcher with interest and experience in the rhetoric of the other disciplines, responded, 'I think you've got it. This is sort of what I had to learn the hard way. This is the idea. Very interesting'. She also talked about a collaborator of hers, a researcher at another university whom she had taught to write research proposals: 'He did the first draft. He didn't know how to do it. He didn't have any of this stuff.' She, like all the other interviewees except the biology professor, began using the move terms as the interview progressed to explain her proposals and strategies.

For the most part, the moves—the terms and the definitions—were clear and meaningful to the researchers. Yet, the discussions of our questions about move designations noted on the proposals yielded valuable information about variation in the use of moves by discipline and according to types of agency to which the proposal was submitted. Some refinements were due to vagueness in the EU moves, and other refinements or additional moves were due to differences between the US proposals and the EU proposals. Following are some examples of the proposal writers' comments about specific moves in their own proposal. Appendix 4 includes an excerpt from an interview with the female chemistry professor to give more context to the way in which the writers spoke about the moves in connection with the actual proposal texts.

Writers' comments about moves

The analysis of the move 'territory' was checked first in each of the interviews with the proposal writers. The writers themselves generally found that the terminology and analysis accurately describe the strategies they used as proposal writers. The sample discussions reproduced here highlight the use of the moves by the writers in the present study.

Territory move

(12) Interviewer: [Referring to the proposal text:] In the introduction, setting up your idea, territory, general field, does this start to express a goal here?
Proposal writer: Yes.
Interviewer: And then a little bit more about establishing territory?
Proposal writer: Yes, there are two territories. ...

(13) Interviewer: [Refers to the territory move.]
Proposal writer: That's also a really common move in academic writing. Here's an issue, here's what x has said. ...

Gap move

(14) Interviewer: [Discussing the process of proposal writing:] So even for a seasoned grant proposal writer, each new agency, each new idea is like almost starting over except you know the basics.
Proposal writer: [You're deciding] what constitutes a gap in the knowledge; what's a *valid* gap in the knowledge. ...

Research question

The research question move, found in the science proposals, was emphasized by one of the science writers:

(15) Interviewer: What is happening here?
Proposal writer: ... you've used the word hypothesis; I never use that word. This is the *question.*
Interviewer: Your research question.

'Means' move

The move 'means' occupied more space in the sample set of proposals than any other single move, as was shown earlier. The proposal writers discussed some refinements of this rhetorical move, in one case concerning the relationship of means to competence, and in another case concerning the use of means in a metatextual summary. The following examples are from both humanities and science writers:

(16) Interviewer: This is an area where you're talking about how you're going to be getting the project done,

what we would consider means, talking about methods and material, if you will. But down here it seems like even though you're still talking about means, you're giving them a little bit more. I considered maybe this was competence. [reads passage aloud]

Proposal writer: I can see how you would interpret that, and I suspect there probably is that underlying, but I consider it a means statement.

(17) Interviewer: This is your means?

Proposal writer: ... maybe like a summary of what the rest of the proposal says ... tell them what you're going to tell them. ...

Competence claim

The discussion of the move 'competence claim' touched on rhetorical strategies far beyond a listing of the staff qualifications. In two cases, the proposal writers discussed the ways in which accomplishments were used to make a competence claim. Again, examples are drawn from among both the science and the humanities writers.

(18) Interviewer: [Here this looked like you were] showing the competence of the staff that's involved.

Proposal writer: That's required. But you're correct; that's a competence claim, nonetheless.

(19) Interviewer: [Referring to the proposal text:] Are you just merely stating what's been done before?

Proposal writer: Hmmm, no, no—this is, this is the, what did you call it? the competence claim. We've done the work on this and we know how, and not just done it in the way of evidence. It also starts to be part of the persuasiveness of the argument, that what we're proposing will work because it worked before. ...

(20) Interviewer: I also noticed that there's a great deal of text committed to work that you've already completed and I imagine that that's because it is such a large project. But how did you view pulling that in?

Proposal writer: There were two things at issue. One was to build confidence that this fledgling organization had already done a lot of its homework and had already committed to the project and that this institution itself had committed to the project. ... [Gives specific reasons why this was important for the funder.] So what I wanted to do was to demonstrate that much of this work was already done. ...

Interviewer: What about the [section of proposal containing sample of completed work]?

Proposal writer: ... Not so much required; it was a way to establish that we had already developed a scheme for handling material. It was a competence claim, again.

Thus, in addition to including the individual researcher's persona or competence, the competence claim developed for the US project included the description of the competence of the research group and the facilities of the institution. The need to distinguish the two became obvious in the interviews, as shown in the examples (18) to (20). 'Institutional commitment' may, in some proposals, be expressed as a separate move in the proposal text; but it can also be expressed in other ways, such as an indication in the budget that the institution is prepared to provide matching funds or as a letter of support from the institution accompanying a proposal.

Importance claim

The move term 'importance' was used by the proposal writers in connection with significance.

(1) Interviewer: ... and then this part would you say is establishing, not so much talking about other people's research, but establishing the significance or particular importance of this kind of research?

Proposal writer: Yes, setting up significance both in terms of ... [being theoretical *and* practical].

(2) Interviewer: [Discussing the use of metatext:]

Proposal writer: One thing I learned early on was the importance of order. If the significance of the research is not

> placed very close to the beginning, then you lose the reader and you don't get a chance to tell them why this is such an important piece of work, because people start skipping after about two pages. ... Either that or you put a big bold significance section at the end so they'll go read that part. ... It's kind of similar to what you were calling the importance point. ...

Based on the interviews, one totally new move emerged in the study and was labeled 'research question' or 'hypothesis'. This move was not much used in the EU proposals. Instead, goals were the more common term. In the proposals written by the school of science faculty, however, the 'hypothesis' move is used extensively by both the biologist and the geologist. The female chemistry professor said she preferred using the term 'research question' rather than 'hypothesis'. The biologist explained that the 'very first reaction is important, you have to have [a] hypothesis to be tested and results what it means. ... Hypothesis in the box right at the beginning. Bold. 25 words or less. ... '

The geology professor also addressed the importance of including the term 'hypothesis' at the very beginning of one's proposal. In describing the characteristics of a good proposal he related the following:

> Well, in a sense, when I first got here I got a couple of proposals to review and one of them I really liked. I sort of used that but I think when I write the first version. ... I mentioned to you that the significance should come out right away. And another aspect that I learned from that is one that I hadn't been very strong in before which is just that right up front on the first page or the second page you should state a hypothesis and then say what the implications of that are.

So, two main points emerge from faculty discussions of hypothesis: the significance of the proposed project should come first, and significance should be stated in the form of a hypothesis.

The contrast between the US and the EU proposals in terms of the use of the phrase 'research question' is strong. The EU proposals did not include a 'hypothesis' move at all; the US scientific proposals seemed to demand them. I do not have evidence at this point as to whether the difference is due to the fact that the US proposals in the sample were all submitted to either the National Science Foundation or the National Institute of Health, which are both considered scientifically rigorous

agencies. Perhaps Van Nostrand's (1997) notion about different peaks of knowledge construction would be illuminating here.[1] Could it be that there are different expectations about the conduct of scientific research in the EU and the US? One could speculate wildly that US researchers need to pretend in the proposals that their research is farther along than it actually is by asserting hypotheses and research questions. This would be an interesting issue to investigate in further research.

Finally, transitional statements—metatext—were found in some of the proposals. For example, the chemistry professor used many transitions and summaries. Unlike most of the proposals in the EU project, her proposals included frequent metatext to make the text more reader-friendly, or as she said, 'I'll tell the reader what I'm gonna tell them, then I tell it, and then I'm gonna tell them what I told them.'

As mentioned, Appendix 4 includes an excerpt from a proposal, accompanied by a transcript of the interview that describes further—in context—a writer's perspective of the degree to which the analysis agrees with the writer's own perspective.

Differences between male and female writers

Concerning differences between male and female writers, it was the discussion about competence claims during the interviews that brought up a most interesting difference in the study. Both female researchers spoke about their difficulties in writing competence claims; the words they used were uncannily identical. None of the male researchers spoke of discomfort in asserting their competence as scholars in proposals they wrote, as the following discussion shows. In explaining her experience in learning to write proposals, the professor of chemistry, a female, full professor said:

> I could not ever precisely point to when I learned these things [moves], but I remember how I started. I wrote things. I sent them out. They were trashed; the reviews were brutal, and obviously I got rejected. So the reviews, reading is a process of trying to figure out what I should have done. Then I got a little smarter and started to give my drafts to friends to read and they started telling me about these things [moves]. Particularly competence I found that very difficult, to sort of toot my own horn and be blatant about it, and I learned to be more subtle to claim competence by explaining the background in real technical language so that no one could doubt it. A competent reviewer would recognize that this person is well-trained and they know what they are talking about.

Using similar expressions, the female, assistant English professor commented on the competence claim move, 'That's what I don't have

enough of'. When answering why she had included neither many significance claims nor competence claims in her proposals, she answered:

Generally speaking, I am not very good at blowing my own horn. It's probably too many years of Catholic schooling. I am very good in giving lists of my experiences in a given area. I am just not very good at saying that's how what I've done is wonderful, that is why I'm much more competent than my colleagues, that sounds arrogant. That seems arrogant, yet I think that a certain amount of arrogance is needed to become a successful academic. That comes very slowly and painfully to me.

It is curious that she sees the problem as one of showing she is better than others rather than showing that she is the right person for this particular project. She continued:

In this proposal I didn't talk about my experience in writing programs which at this point of my career is not much, you know. Still, I have had eight years of experience in some facets of writing program administration. I suppose I could have put that in. ... I can give you ten reasons why I am a good writing program administrator but to turn that into an argument that you're better than other people, that's where I have a problem. In grant proposals you seem to have to say that you're better than lots of other people in your job.

Both women spoke about the difficulty of blowing their own horns, but the chemistry professor described how she got around that by sounding technical, similar perhaps to sounding cautiously but competently scientific (cf. Myers' [1990] two biologists). It should be pointed out, however, that the English professor was not yet experienced in writing proposals, which may have added to the self-deprecation.

None of the male professors spoke of discomfort in writing about their own competence. The biology professor reflected on the 'competence claim' move with the following matter-of-fact statement: 'Competence claim connects with achievements and previous research.' The history professor responded as follows to our question about the amount of emphasis in his proposal on competence: 'Large organizations, they wouldn't know me; they don't know me personally.' To a question about the amount of emphasis on his own previous project, identified by us as a competence claim, he answered, 'There is a tendency to treat cities like Indianapolis with disregard. That's why I want to build confidence in the institutional investment'.

The male, junior geology professor's comments provided an interesting contrast with the junior English professor's comments. He spoke confidently of his standing in the field. He demonstrated an understanding about how to build an academic career and was not shy about speaking

of the volume of his work:

So, obviously part of it [selecting a topic] is focused on what I can do and what the community now recognizes as my expertise, so you can get kind of pigeon-holed in different fields. But what I've tried to do with some of research ideas that although I have certain expertise I've tried to address different topics with it and also tried to expand my expertise ... [i.e., the way the community recognizes his expertise]. Papers, they've seen my papers published and seen editorials about papers. Stuff like that. ... [On reviewers' criticism of his 'shingling' of papers:] I don't know if that's a jealousy thing or not but I've had a lot of publications. I've had 10 peer-reviewed papers, and I'm just a year-and-a-half past my Ph.D.

Yet his feelings were still somewhat ambivalent about the right level of persuasiveness:

I don't really know, I haven't been around in this game long enough, I still don't know how important it is to try to be so persuasive or to make so many claims of importance as you know you mentioned. I still don't have a good feeling for how much to promote myself and my research versus how much that might piss someone off if they thought I thought so highly of myself. So, I'm still having a little hard time understanding that aspect.

Determined to get grants since he knew that they were required of him to get tenure, he worked hard at grant proposals and had several in the works. He shared with us three different submissions for one research proposal for funds from the National Science Foundation and explained why he added two whole new sections—one about the significance of the research, the other about the relationship of the research to the researcher's long term goals:

Well, in a sense, when I first got here I got a couple of proposals to review and one of them I really liked. I sort of used that but I think when I wrote the first version. ... I remember what happened. From the time I did this one till the time I revised it, I had received a couple of more proposals to review. They included right up front a significance section. ... And I realized that was one aspect that was really lacking. That although I had hoped the significance would come through on various aspects, I liked the fact that another person had just explicitly said why it's significant. And that way you can also cram in a bunch of background that might be hard to fit in other things but still soundbites that I consider are really important and why someone should give me money as opposed to someone else.

Adding a section on significance not included in program guidelines is a bold step; at the time of the interview the junior researcher did not know whether the revised proposal had been funded or not. Adding a section, an afterword, to argue why the proposal should be funded on its third submission to the National Science Foundation, did work for the history professor, confirming Myers' (1990: 49) finding that 'the meek shall not inherit the grants'.[2]

Conclusion

The purpose of the present study was to show variation in the use of moves in proposals written in the US in both the humanities and science. Altogether 14 proposals were analyzed, and the authors, five scholars from a Midwestern university, two from the humanities and three from the sciences, were interviewed concerning their proposals.

The results showed that, overall, the system on which the study was based can provide a reasonable set of moves typical of grant proposals in the US system. Yet, some refinements were found to be in order. The definition of the move 'competence claim', could be divided into two parts: 'competence claim', referring to the researcher's own competence, and 'institutional commitment', describing the willingness and the capability of the institution to support the research. In the analysis, it also proved necessary to account for specific hypothesis statements in addition to 'goals' moves. Finally, differences were found in the way males and females in the study reported feeling about the 'competence claim' move, the males were comfortable in asserting their accomplishments while the females were not.

This study is unique in that it has employed a move analytic approach that considered complete texts rather than selected sections of the texts, as most move analyses to date have done. In addition, the text analysis was supplemented with information from the grant proposal writers themselves; the meaning of the moves analysis system was discussed and evaluated by insider informants. In addition to suggesting how to introduce more accuracy to a system of moves developed by linguists and rhetoricians, the present study confirms findings of recent research on the nature of genres. First, the study shows that the genre of grant proposals—like most genres—does not have a certain fixed form (Atkinson 1999; Dudley-Evans 1995). Instead there was a great deal of variation among the proposals in the occurrence of moves. Not all moves, for example, were used in every proposal; one can thus say that not all moves are obligatory. Furthermore, moves often occur in cycles with an appropriate sequence (Dudley-Evans 1995). In the present study, for example, the 'gap', 'goal', and 'means' moves occurred together in most proposals. The analyses also showed that a move may often be intended for more than one purpose. The move of 'referring to previous research', for example, could be interpreted as a 'competence claim' in some instances.

Finally, consistent with recent research (Atkinson 1999; Bazerman 1999; Paré and Smart 1994; Van Nostrand 1997; Smart 1993), the present study shows that the genre of a grant proposal does not exist in isolation

but is part of a system of interacting genres; the writers read and responded to written guidelines of granting agencies when they composed. They also benefited from comments of peers and others and submitted revised versions of proposals. Future research needs to continue studying how the various genres in this proposal genre system interact, using both text analysis and interviews as methods of research.

Appendix 1: Definitions of the moves in the EU project

Territory establishes the situation in which the research is placed or physically located. There are two types of territory: (1) that of the "real world", the world outside of the research field, and (2) that of the field of research in which the proposal itself takes place.

Reporting previous research consists of reporting or referring to earlier research in the field, either by the proposers themselves or by others.

Gap indicates that there is a gap in knowledge or a problem in the territory, whether in the "real world" (for example environmental, commercial, financial) or in the research field (for example, pointing out that something is not known or certain). This move serves to explain the motivation of the study.

Goal is the statement of aim, or general objective of the study. In other words, it explains what it is the researcher wants to get done.

Means include the methods, procedures, plans of action, and the tasks that the proposal specified as leading to the goal.

Achievements describe the anticipated results, findings, or outcomes of the study.

Benefits explain the intended or projected outcomes of the study which could be considered useful to the "real world" outside the study itself, or even outside of the research field.

Competence claim contains statements to the effect that the research group proposing the work is well qualified, experienced, and generally capable of carrying out the tasks set out.

Compliance claim (specific to the EU) makes explicit the relevance of the proposal to EU objectives, usually with highly specific reference to directives and/or the set goals of the program in question.

Importance claim presents the proposal, its objectives, anticipated outcomes, or the territory as particularly important or topical, much needed or urgent with respect to either the "real world" or to the research itself.

Appendix 2: Brief backgrounds of the five researchers

The English professor was in her third year at the university as a tenure-track assistant professor. In addition to teaching and research, her duties include directing the placement testing for writing classes at the university. She had only a couple of publications, but she has given presentations at national conferences. She had written two grant proposals; both requested less than $2,000 and were less than five pages long.

The biology professor was a full professor and had been at the university for 18 years. His major fields were membrane biochemistry and biophysics, Omega-3 Fatty acids, and origin of life. He had written more than 100 journal articles and had received more than 20 external grants, including a recent four-year grant from the National Institute of Health amounting to more than $800,000.

The chemistry professor, a full professor, had been at the university for 15 years. Her fields were oscillations and nonlinear dynamics. She had published more than 50 research articles and held more than 20 research grants.

The geology professor was in his second year at the university as assistant professor. His field was chemical oceanography. He listed seven published research articles, three fairly small grants, and several grant proposals.

The history professor had been affiliated with the university since 1989 as full professor and director of a center on urban history. He had written three books, edited three books, and published several journal articles. He listed 40 grants and contracts since 1989 totaling $5.5 million.

Appendix 3: Interview protocol of the present study

Part I Review of the moves definition.

Part II Review of the proposal text, analyzed and marked for moves. Questions to verify the analysis with the writer. (Approximately six to ten such spot checks were done for each document.)
—What were you doing here?

—We thought this was a [name of move]. Does that seem like a fair assessment to you?
—Here we thought this was [name of move], but it also seemed like you were [describe other function or move]. What was going on here?

Part III Questions related to the interviewee's background as a grant proposal writer.
—How did you learn to write grant proposals?
—Was grant proposal writing part of your graduate study?
—Does a mentor in your department help new faculty members through the grant writing process?
—Do you think proposal writing is an important part of your research career?
—How much time do you spend writing grant proposals?
—How many proposals do you write in a year?

Part IV Questions about the writer's strategies with different agencies and types of proposals.
—How important are the funding agency's guidelines in shaping the proposal?
—What role do the reviewer's comments play in the revision of a proposal?
—Do you use models (such as previous proposals) when writing grant proposals?

Appendix 4: Proposal excerpt with moves and interviewer–writer transcription

Proposal excerpt

Oscillations and Enhancement by Nonuniformity in Membranes

I. Introduction

Living systems are characterized by rhythmic activity at all levels, from monthly and daily cycles at the organismic level to the cell division cycle. It has been suggested that these rhythms are related to, or even the result of, biochemical oscillations.[1] It is well-known that enzyme-catalyzed reactions, such as the glycolysis reaction in yeast,[2] can proceed in an oscillatory manner, observed as oscillations in substrate concentrations, etc. Oscillations in concentration of even simpler biochemical substance such as Ca^{2+} have been observed occurring in synchrony with membrane potential oscillations in excitable cells.[3] The rhythmic activity of excitable cells such as neurons, secretory cells, cardiac pacemaker cell and even egg cells is characterized by oscillations in the membrane potential./It is this latter phenomenon that is one focus of the proposed research./ territory

goal

A closely related problem of biological importance concerns the role of spatially nonuniform electric fields in developing systems, such as embryos, rooting plants, regenerating limbs, etc.[4]. These nonuniform fields seem to play a crucial role in the development process. In non-living, territory

chemical systems spatial nonuniformities often arise in the guise of chemical waves[5] and (as recently discovered) Turing patterns. These spatial patterns arise from the same type of chemical reactions that produce oscillations. The patterns exist because the uniform (homogeneous) system is unstable./ We are concerned with a particular question regarding the existence of nonuniform fields in developing biological systems: does a spatially nonuniform field lead to some type of alteration in the growth and development processes? In particular, does transport through a membrane with a spatially nonuniform membrane potential proceed at a faster rate than it would through a uniform membrane?/ We have experimental evidence that indicates it does in one case[7] and a theoretical explanation[8,9] for this observation suggesting it should be a more widespread phenomenon, i.e. applicable to nonuniformity in concentration profiles as well as in electrical potential./Further studies of this phenomenon are proposed here.

hypothesis

RPR

II. Proposed Research

The proposed research can be divided into two groups of investigations: (A) experimental and theoretical studies of a variety of membrane oscillators; (B) a continuing investigation into the influence of spatial nonuniformities on membrane transport. About two-thirds of our effort will be expended on the first group of studies which are primarily experimental in nature. About one-third of our effort concerns the influence of nonuniformity on transport; this research involves theoretical studies only, although one project is part of a theory–experiment collaboration with a group at another university.

means

Interview transcript

Interviewer: We want to verify that what we think somebody's trying to do with particular language [is the same].

Proposal writer: [Refers to copy of proposal:] In the introduction, setting up your idea, territory, general field [lines 1–9], does this start to express a goal here? [line 9]? [Yes.] And then a little bit more about establishing territory [lines 10–16]? [Yes, there are two territories. ...]

Interviewer: What is happening here?

Proposal writer: You've used the word hypothesis, I never use that word [lines 16–20]. This is the *question*.

Interviewer: Your research question. So when do you do something like that [use the royal plural; line 20]? Are you just merely stating what's been done before?

Proposal writer: Hmmmm, no, no—this is, this is the, what did you call it, the competence claim. We've done work on this and we know how, and not just done it in the way of evidence. It also starts to be part of the persuasiveness of the argument, that what we're proposing will work because it worked before. ...

Interviewer: This is your means [lines 24–30]?

Proposal writer: Maybe like a summary of what the rest of the proposal says ... the old tell them what you're going to tell them. ...

Notes

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1. Van Nostrand (1997) underscores the difference between the vendor researcher's current knowledge and his future capability of producing knowledge; a 'capability statement' provides evidence of the knowledge of how to produce knowledge, and is thus presumed capability. The definition of the vendor researcher's capability as presumed capability is consistent with Van Nostrand's assertion about the difference between academic and R&D proposals, in that in academic proposals the knowledge production basically begins with the ratified contract, while in R&D proposal writing, the knowledge production peaks in the negotiation with the buyer before the contract is granted. I disagree with Van Nostrand's assertion, as I understand it. I believe that a great deal of 'negotiation', if not always explicit, takes place concerning the positioning of the topic before academic contracts are granted. The negotiation can take many forms: all the researchers interviewed in the present study spoke of the importance of knowing a program officer, for example, who can help position one's research; also, most proposals I studied had been revised to create the optimal positioning of the proposal.
2. Although both junior researchers are at the same stage in their career at the university—nontenured assistant professors—their career paths are taking very different directions. The geology professor is urged to publish and write grant proposals. As is the practice in his school, he received a large stipend to set up his research upon joining the university. The English professor, on the other hand, received no research funds—as is usual in her school—but was asked to set up and run the university placement testing for writing classes, for which service she receives a course release per semester. Thus, the differences in the behaviors of the two junior professors may be more a reflection of their disciplinary cultures than gender differences.

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The idiom principle and the open choice principle

BRITT ERMAN and BEATRICE WARREN

Abstract

The assumptions forming the basis of this study are that the language user has available a number of more-or-less preconstructed phrases and that the production of texts involves alternation between word-for-word combinations—which we refer to as adherence to the open choice principle (after Sinclair 1991)—and preconstructed multi-word combinations, which we refer to as making use of the idiom principle (again after Sinclair).

The main aim of the study is to gain an impression of the impact that this alternation has on the structure of texts. Therefore a mode of analysis has been worked out revealing how multi-word combinations combine with each other and with words combined according to the open choice principle. This is the main contribution of the study. Another important contribution is the revelation that there is a large amount of prefabricated language in both spoken and written texts (on average around half of the texts), which makes it impossible to consider idioms and other multi-word combinations as marginal phenomena.

Keywords: prefabs; idiomaticity; compositionality vs. non-compositionality; word-for-word production vs. storage; structure of texts.

1. Introduction

1.1. *Theoretical background*

The traditional view that production of utterances involves the organization of stored primitives in terms of a relatively large number of rules was attacked at least as early as 1974 by Bolinger in a lecture.[1] 'Speakers do at least as much remembering as they do putting together' (1976: 2), he claimed, and suggested that, in view of the fact that the human brain is capable of extensive memory storage, it would be more natural to work

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