A Genre System View of the Funding of Academic Research

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For many researchers, grant proposals are a high-stakes genre crucial to their work; this pivotal genre does not exist in isolation but as part of a complex reticulation of genres that interact to form a genre system. This article explores the genre system of academic research funding in terms of the following questions: (a) What is the nature of the genre system of grant funding? (b) What are the roles and functions of that system? and (c) What does exploration of the system reveal about genre knowledge and how writers develop such knowledge? Findings suggest that grant writing is fundamentally a social activity, that the intertextual networks of the genre system serve to navigate writers through that system and to build the writers' knowledge of the system, and that knowledge of a genre system may differ in important ways from knowledge of an isolated genre.

Keywords: intertextuality; genre systems; genre knowledge; grant writing

For many academic researchers, and particularly those in the sciences, grant proposals are a high-stakes genre that is crucial to their work. Indeed, the success or failure of securing funding affects not only individual researchers and their careers but also, at the very least, their laboratories, their departments, and their universities. For the grant writer, these proposals pose a difficult rhetorical situation in which “both writers and readers know that every textual feature of a proposal must be intended to persuade the granting agency” (Myers, 1990) without appearing to do so. Myers’s study of the composing processes of two biologists in the production of grant proposals provides valuable insights into the rhetorical constraints of grant writing. Myers looks specifically at the contradictions posed by proposals, where writers must position their work as original, but closely related...
to current research concerns, and assert themselves as researchers within a format, syntax, and persona that work against such self-assertion.

Research by Connor and Mauranen (1999) adopts a Swalesean move analysis approach in identifying rhetorical moves in a corpus of grant proposals written by Finnish scientists for the European Union (EU). The researchers identify 10 moves in the corpus, some sharing similarities with promotional genres such as sales letters and job applications (Bhatia, 1993) and others sharing similarities with research article introductions (Swales, 1990). Like Myers (1990), Connor and Mauranen find that the primary purpose of grant proposals is to persuade, and the various moves found in the proposals work toward the writer’s aim of convincing the funding agency to provide financial support to the proposed problem. In a closer investigation of grant proposals through interviews with writers, Connor (2000) identifies variations in rhetorical moves among five different disciplines and between male and female writers. In this study, Connor concludes that although grant proposals seem to share a repertoire of moves, there is great variation in the sequence of moves and the extent to which certain moves are required or optional. Furthermore, Connor, like Myers, found that some writers struggle with the self-assertion that is required in grant proposals; in Connor’s study, female writers reported feeling less comfortable than male writers in this area.

Although several researchers (Connor, 1996; Hyland, 2000; Johns, 1997) have called for more investigation into the genre of grant proposals, insight at this time remains limited to only a few studies that have focused primarily on the grant proposal as a textual artifact. Little is known about the social dimension of the grant proposal or the genre knowledge that grant writers employ as they engage in the interactive process of grant writing. Connor’s (2000) study hints at this interactive nature of grant-funding genres, as she claims that “the genre of a grant proposal does not exist in isolation but is part of a system of interacting genres” (pp. 22-23). Connor’s statement suggests that grant writers require knowledge of multiple genres spanning a variety of rhetorical contexts and discourse communities. Yet, despite the crucial role of grant genres in the production of knowledge and the complexity of the grant-writing genre system, these interacting genres have yet to be studied. Exploration of this genre system is the focus of this article.
This article describes the overarching genre system of the funding of academic research and explores the following questions: What genres and communities interact to form the genre system of grant funding? What are the roles and functions of this genre system? What type of knowledge does participation in the text genres and genre system require of grant writers and how do these writers develop such knowledge? I have attempted to address these questions through oral interviews with two academic researchers as well as through the collection and analysis of documents that function within the genre system. The article will begin by outlining the theoretical foundations and design of the study and will move on to discuss the main findings in detail.

THEORETICAL FRAMEWORK

This study makes the following theoretical assumptions about genre: that genre is a social action that is shaped by, and in turn shapes, a social community that utilizes the genre as a means of communication; that genres coexist and interact with other genres, together forming an intertextual and interdiscursive genre system; and that a certain kind of knowledge is necessary to effectively employ, extend, and exploit genres and to participate in the genre system. Each of these theoretical assumptions is described below.

The Social Dimensions of Genre

Miller (1984) defines genres as social action, acquiring meaning from situational and social contexts. Genres serve as a way of creating order as they recognize and construct actions in recurrent or typified situations (Bazerman, 1988). Although formal conventions are typically the most salient features of a genre, these features are merely the realizations of social goals and interactions. Thus, to view grant proposals as social action, we must understand the social interactions and communicative goals embedded in the genre.

The notion of discourse community or community of practice offers one theoretical construct for studying social interactions and communicative goals. Swales (1990) defines discourse communities as sociorhetorical networks that form for the purpose of working toward common goals. Established members of a discourse commu-
nity share familiarity with genres that are used to further these common goals. According to this view, “genres belong to discourse communities, not individuals, other kinds of grouping or to wider speech communities” (p. 9). Berkenkotter and Huckin (1995) then see generic conventions as instantiations of the values, ideologies, and epistemologies of a discourse community. Beaufort (1997) draws on this concept of discourse community in her case study of a nonprofit organization responsible for writing such high-stakes texts as grant proposals, program reports, and letters of intent. Beaufort describes grant proposals as dynamic genres in both purpose and form when situated within different institutional sites (in this case, the Department of Education and a local city government). Beaufort finds that the physical nearness or distance of the granting agency . . . influenced both the interplay of oral and written communication in the grant application process, which in turn influenced the relative importance of the text to the overall community goal and the norms for the text, such as how comprehensive the grant proposal, how rigid and technical the form, etc. (p. 520)

Beaufort’s conclusion is that a seemingly stable genre, such as that of the grant proposal, becomes fluid and unstable when considered as embedded within a discourse community. This conclusion is important for a study of genre knowledge in grant writing as it suggests that grant writers must develop awareness of the multiple discourse communities that coexist and overlap. Discourse community thus provides one construct for understanding grant proposals as social actions situated within multiple social groupings.

The Intertextual and Interdiscursive Nature of Genre

As Beaufort’s study suggests, the image of a genre as lying within a single, stable discourse community may ultimately be short-sighted. Not only do genres operate within multiple communities, but they often coexist with other genres that operate within different communities. Several researchers have described these interactions of genres as genre sets or systems (Bazerman, 1994; Devitt, 1991; Paré, 2000). Bazerman (1994) defines systems of genre as “interrelated genres that interact with each other in specific settings” (p. 97) and examines genre sets that operate within the patent and legal systems. As Bazerman explains, any one patent requires a thick file of documents
associated with the patent—correspondence, forms, appeals, and documents generated by court judgments. Thus, one move made in a recognizable genre necessitates a response that must be made within a certain range of appropriate genres. Specifically, Devitt (2000) claims that it is not possible to understand a single genre without understanding the genre set in which it operates, including both the genres that are used explicitly and those that are only referred to implicitly. A major source of this view is Bakhtin (1986) who argues that

> each utterance is filled with echoes and reverberations of other utterances to which it is related by the communality of the sphere of communication. Every utterance must be regarded primarily as a response to preceding utterances of the given sphere. . . . Each utterance refutes, affirms, supplements, and relies on the others, presupposes them to be known, and somehow takes them into account. (p. 91)

Bakhtin goes on to emphasize that

> the utterance is filled with dialogic overtones, and they must be taken into account to understand fully the style of the utterance. After all, our thought itself—philosophical, scientific, and artistic—ís born and shaped in the process of interaction and struggle with others' thought, and this cannot but be reflected in the forms that verbally express our thought as well. (p. 92)

In a case study of social work interns, Paré (2000) describes the interaction between genre sets and discourse communities within a hospital setting. Paré notes that a genre set “shapes a unity of approach and conceptualization within the community of practice; it shapes in large part the development of the individual’s thinking with others about the client through the mediating structures of the genre set” (p. 156). Genre sets then constitute a genre system that serves to mediate the overlapping communities of practice, or discourse communities. Like Bazerman’s patents and Paré’s social work documents, grant proposals function within a larger system of documents with which writers interact as they navigate through the grant-writing process. Documents such as letters of intent and grant-writing guidelines, as well as face-to-face interactions with program officers, are all interconnected genres within the grant-writing process.
The Development of Genre Knowledge

Paré (2000) further connects the notion of genre sets to activity theory, illustrating how writers acquire knowledge of genre sets through collaboration with other members of the community. In this way, novices coparticipate with experts within an activity system that “produces, reproduces, and applies the community’s knowledge” (Paré, 2000, p. 157). According to Paré, activity systems operate to draw novices into socially shared or distributed cognition (see Winsor, 2001, for a description of novice engineers’ initiation into workplace activity systems through distributed cognition). Russell (1997) offers a definition of activity that is particularly applicable to the process of securing grant funding:

Activity systems and their social languages (in the Bakhtinian sense of the term) do not operate independently but interact—just as institutions interact in the lives of their participants—by leading and motivating participants to move, individually and collectively, in different directions. Thus, there may be dialectical contradictions that arise in an activity system, as other activity systems pull participants in different directions. (p. 512)

Activity theory can be thought of as an umbrella concept that encompasses the theory of situated learning, which posits that learning and knowing occur through participation in activities. In other words, “situations might be said to co-produce knowledge through activity” (Brown, Collins, & Duguid, 1989). Lave and Wenger’s (1991) notion of legitimate peripheral participation (LPP) provides one model for understanding how novices develop specialized knowledge within a culture. Through guided engagement in authentic tasks, novices are able to observe how others within the culture (at different levels) behave, allowing them to see how expertise is played out within the culture or community of practice.

The concepts of activity systems and situated learning provide a framework for understanding how novice grant writers may observe and collaborate with experts through the multiple nodes of the grant writing system as they gradually build genre knowledge and develop expertise.

These theoretical assumptions about genre in professional communication provide a foundation for the investigation of the genre
system of grant-proposal writing and the development of genre knowledge of that system.

DATA COLLECTION AND ANALYSIS

The goal of this study was to gain insight into the social dimensions of the genre system to which grant proposals belong. Specifically, the primary questions explored included the following:

1. What genres and communities of practice interact to make up the genre system of grant funding?
2. What are the roles and functions of that system (i.e., what does the system do?)
3. What type of knowledge does participation in the text genres and genre system require of grant writers and how do these writers develop such knowledge?

Key data in addressing these questions come from oral interviews and e-mail exchanges conducted with two grant writers over a 1-month period. Dr. Thompson, a professor of chemistry, works at a large research university in the Midwest. His area of research is physical chemistry. He has been involved in grant writing for more than 30 years and has obtained numerous grants from various funding sources, including private foundations as well as government-operated foundations such as the National Science Foundation (NSF), the National Institute of Health (NIH), the Department of Energy (DOE), and the Office of Naval Reserves (ONR). The second participant, Dr. Reilly, is an assistant professor of mathematics at a medium-sized east coast university. Reilly’s research area is applied mathematics. He wrote his first grant in 1994 and has obtained three grants—two from NSF and one from the Air Force—over the past 7 years.

Additional sources of data include seven grant proposals, submitted to and funded by NSF; the NSF Web site; grant-writing support documents distributed by sponsored program services at a Midwest university; and an observation of a grant-writing workshop (see Table 1).

Although the focus of the study is on the social dimensions of grant funding, these text documents provide insight into the genre system and the textual artifacts that constitute such a system. Such textual artifacts can “offer a window on the practices and beliefs of the communities for whom they have meaning” (Hyland, 2000, p. 5).
Below I describe my analysis and interpretations of the data collected. First, I provide a narrative of the genre system of grant funding of academic research, constructed through my discussions with Thompson and Reilly and examination of the textual artifacts. This narrative focuses on the interactions among genres and communities of practice within the overarching genre system of grant writing from the perspective of the principle investigator. Next, I explore the functions of this genre system, investigating the question of what the genre system itself does. Finally, I turn to the issue of genre knowledge as it relates to the specific genre of the grant proposal as well as to the genre system as a whole.

### GRANT FUNDING AS A GENRE SYSTEM

The notion of genre sets and systems offers a framework for understanding the relationship between the grant proposal texts and the interacting communities of practice or discourse communities, as

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<table>
<thead>
<tr>
<th>Data Source</th>
<th>Focus of Analysis</th>
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<tbody>
<tr>
<td>Expert-informant interviews (two)</td>
<td>Grant-writing process</td>
</tr>
<tr>
<td>Participant observation of</td>
<td>Interactions with discourse communities</td>
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<td>the grant process (two grants)</td>
<td>Development of genre knowledge</td>
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<td>CAREER grant proposals</td>
<td>Grant-proposal writing process</td>
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<td>for NSF (seven)</td>
<td>Development of genre knowledge</td>
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<tr>
<td>NSF Web site</td>
<td>Use of citations</td>
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<td></td>
<td>Use of graphics/figures</td>
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<tr>
<td>Grant-writing support documents</td>
<td>Mission statements</td>
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<td>from Office of Sponsored Research</td>
<td>Funding programs</td>
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<td>Grant-writing workshop observation</td>
<td>FastLane (online submission and funding database)</td>
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<td>Guidelines and FAQs</td>
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<td>Documentation involved in genre sets</td>
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<td>Discourse communities involved in grant-writing process</td>
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<td></td>
<td>Discourse communities involved in grant-writing process</td>
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**NOTE:** CAREER = Faculty Early Career Development. NSF = National Science Foundation. FAQs = frequently asked questions.
well as the knowledge of these texts and communities that is necessary for grant-writing success. Bazerman (1994) distinguishes between genre sets and genre systems in his following description of genres in the U.S. patent system:

The genre set represents . . . only the work of one side of a multiple person interaction. . . . The system of genres would be the full set of genres that instantiate the participation of all the parties—that is the full file of letters from and to the client, from and to the government, from and to the accountant. This would be full interaction, the full events, the set of social relations as it has been enacted. It embodies the full history of speech events as intertextual occurrences, but attending to the way that all the intertext is instantiated in generic form establishing the current act in relation to prior acts. (pp. 98-99)

Like a patent, a grant proposal is only one small part of a larger intertextual system involving multiple parties. This system may originate long before the principle investigator (PI) even begins to consider requesting funding from an agency; yet, even limiting a discussion of genre systems to the immediate grant-writing process illustrates the multiple layers of genre sets operating within the larger system. As Thompson points out, the grant document is only one artifact of a larger social system:

It's not that when you go for a proposal, you lay the cards on the table and get the money. That's not it. There are lots of other influences, and interactions with people are very important.

Which genres constitute these sets and within which communities of practice do they interact? What are the discourse communities in which the researcher must participate, and who constitutes the membership of these discourse communities? As such communities are fluid (Beaufort, 1997), how do these interactions exist in space and time, and how might they change with time? Thompson emphasizes that, for him, the process of grant writing is extended and takes place over the course of a researcher’s career:

You can’t look at preparing a proposal as an isolated experience. It integrates all of your previous knowledge and goes a step beyond that. Successful research is not just an incremental step, but leads to a new paradigm of thinking. . . . In this process, you’re not just accumulating
Thompson describes the process of obtaining grant money as moving gradually from a more passive participant in research to eventually taking on an active role. As undergraduates, learners build their general background by accumulating knowledge through courses, books, and seminars. Thompson sees a scientist at this early stage as a "sponge for knowledge," then he sees that "gradually you contribute more and more to where the next generation is going to be pulling from that knowledge." Interactions within various discourse communities thus play a key role, not only in the distribution of scientific knowledge but in the production of that knowledge. Early on in a researcher’s career, conference participation provides opportunities for novices to meet and interact with experts, beginning to nurture relationships with people who may later on play peripheral or even central roles in funding decisions:

When a neophyte thinks about going to meetings, they tend to think strictly of the papers. That’s important, but it’s not the only thing. . . . It is uncanny how you talk to someone at a meeting and then five years later, that person evolves in your life in some way. If you’re aware of that, there is a tendency early to nurture these things. (Thompson)

The search for funding from a specific agency begins by understanding the agency’s mission. This information for large agencies such as NSF is now easily accessed through a Web site where potential PIs can search a database of programs and mission statements for each. The following excerpt from NSF’s Nanoscale Modeling and Simulation Small Group Initiative Grant illustrates the type of mission that a granting program may have:

Currently, modeling at the nanoscale is generally constrained at the level of single phenomenon and small systems. However, it is critical to consider the interplay of coupled and time-dependent phenomena in larger atomistic and molecular systems. The purpose of this initiative is to develop a knowledge base of the interplay of multiphenomena at multiscales by encouraging synergistic interaction among research groups with different areas of interest in nanoscale modeling and simulation. The goal is to support three to five groups, each focusing on a set of coupled phenomena over a few length scales and a set of methodologies. The intent of the overall initiative is to support an assemblage of
groups that cover a broad range of phenomena and processes in key areas. NSF expects that a synergistic relationship among the funded groups will develop over time. Funded groups will be selected to span a complementary range of disciplines and methodologies.

This mission statement provides PIs with a foundation for articulating their research problem and deciding for which granting agency (or discourse community) it might be appropriate; thus, the mission statement genre plays an integral role in developing genre knowledge of grant writing. Thompson also makes use of other documentation supplied by the funding agency such as the annual reports and abstracts of the projects currently supported by the agency. He feels that these documents are important because “you can see where they’re going. You don’t want to replicate the study, but you can look for a new approach.”

At this stage, it is the job of the proposal writer, or PI, to match his or her research with an agency’s mission. Depending on the field, the difficulty of this task varies. According to Reilly,

Unfortunately, solving abstract mathematical problems is not as urgent a need as measuring the concentrations of ozone-depleting chemicals in the stratosphere. Thus, it benefits a proposal to refer to the needs of the country or the granting agency when introducing the problem.

Thus, one essential aspect of genre knowledge is understanding the needs and mission of the funding agency, gaining a sense of kairos, or rhetorical timing (Berkenkotter & Huckin, 1995; Miller, 1994). In some cases, PIs may need to couch a proposal to fall within the stated mission of the funding agency. In Thompson’s words,

I sometimes say that we are high-paid prostitutes, compromising what we do to get money, selling our goods.

But PIs are unlikely to simply write up a proposal after determining an agency’s mission; instead, when academic researchers are ready to apply for grant money, they enter new discourse communities, situated within their local academic institutions as well as in the external domains of federally supported and privately supported agencies. A key person in these larger domains is the program officer (PO) of the funding agency. Reilly distinguishes between two types of POs: those who are faculty members who work as a PO temporarily...
for only a few years, and permanent POs, who tend to wield more power within the granting agency. Generally, POs are scientists who have moved into funding administration. It is their job to work with the agency’s administration to state a mission based on current or future needs. A PO in the Office of Naval Research, for example, will work with his or her administration to state the agency’s research needs, such as research related to corrosion. As Thompson puts it, “the program officer gets sold on the science, and they sell the science to the people upstairs.” The PO will then design a research strategy with the administration, drawing up a budget that will go to the legislature. Finally, the funding agency will be allocated a monetary amount for the stated missions.

After the PI has accumulated knowledge of the agency’s mission, he or she may talk directly to the PO, preferably face to face. Such interaction may begin with a phone call or may involve a special trip to Washington, D.C. Annual meetings and conventions also provide opportunities for meeting POs.

Talking is important because POs don’t want to say things in writing. What they say can come back to haunt them. You can get a franker statement by talking one to one. (Thompson)

Everyone says talk to a program officer before even thinking about writing a proposal. It’s tough to call them up out of the blue, but it’s good to do it. . . . In two of the three [grants] that were not funded, I failed in [this step]. I should have spoken to a program officer, and did not. (Reilly)

Thompson describes the goal of such meetings as explaining the problem you plan to investigate, the solution you propose in investigating the problem, and the time frame you will require for the investigation. It is then necessary to find out if the funding agency has the money for that type of project. Both Thompson and Reilly stress the importance of this step. As Thompson states, “proposals are a big project to write, so you have to make sure that it will be evaluated” before beginning the process.

Written documentation is less common in the next stage in which PIs contact the PO to determine whether the proposed project is likely to receive funding. Both Reilly and Thompson emphasize the importance of spoken over written communication. After a conversation, POs may ask the researcher to send some informal ideas about the
proposed project. Reilly explains that such practices are common for funding agencies such as the Armed Forces that are not heavily peer reviewed like NSF:

If a PO at the Navy wants to fund you, it doesn’t matter much what your peers say about your work. Sometimes they fund you before you even write a proposal. A friend of mine is like that—but they own him, they tell him what to put into his proposal.

Although the PI interacts directly with the PO, the PO’s interactions in other discourse communities are also crucial to the decision-making process. Once the proposal is received, the PO selects the referees for the proposal. According to Thompson, the PO works with his or her previous knowledge (or, in some cases, a computer database) of people who have refereed proposals and what those referees have and have not accepted in the past. With this knowledge, a PO ultimately has a large degree of control (which he or she may or may not employ) in determining which proposals will eventually receive funding. Despite these potential difficulties, Thompson feels that the referee system is better than any other. He recalls “the old boys club” that operated in the 1950s and 1960s, during which time the system worked through a self-perpetuating cycle to keep women out of central participation. Currently, Thompson says, the granting agencies have tried to limit direct conflicts of interest in project administration. Thompson’s comments illustrate not only the changing nature of discourse communities over time but also the extent to which a discourse community may be exclusionary, maintaining certain self-serving practices.

Not all grant-review systems are the same, however, and the system for mathematical science proposals at NSF operates in a slightly different way to the traditional peer-review system described by Thompson. In this panel-review system, proposals are sent to a panel of around 10 people in the field, broadly defined. All panel members read the abstracts then divide the proposals and the panel into subgroups for a closer reading of the proposals. Finally, the panel will reconfigure and make a final decision. According to Reilly, this system has both advantages and disadvantages:

The good thing is that it is more peer-reviewed; the program officer doesn’t have as much authority. But people are trying to understand things that aren’t in their area. This puts more work on the proposal
writer. The idea that proposals are technical is not so true anymore—they are technical at a level for people not in the specific area.

Once the writer finds an appropriate funding agency, he or she moves ahead to write the proposal. At this stage, the PI may work with various genre sets including the grant application itself, which in fact consists of several interrelated genres. A grant proposal for NSF, for example, includes the following (* denotes documents that must be completed on an NSF form):

- cover sheet*
- project summary
- table of contents*
- project description
- references
- biographical sketches
- budget*
- current and pending support*
- facilities, equipment, and other resources*
- appendix

In this composing phase, a sense of audience and discourse community again becomes a crucial issue for writers. Paré (2000) describes genre sets as “shaped by levels of power and status within the larger genre system” (p. 160). There are clearly various levels of power and status at play in these multiple genre sets, and a challenge for grant writers is to understand those levels of power and to negotiate them appropriately. Reilly reflects on the importance of this negotiation in the writing process:

You don’t know who the reviewers are going to be, so you don’t want to say an unkind word about anyone, even if their work is terrible. . . . Cite a lot of people at the beginning up front. When you say what you’re going to do . . . grounding it in what other people have done is a very safe thing.

When asked if he would cite himself in a grant proposal, Reilly explains,

You have to. You have to cite yourself because I think that they’re less likely to fund someone who doesn’t have the skills to work in that area, and one of the ways of establishing this is to show what you’ve done.
But you don’t want to do it overly or they think that you’re a pompous ass… Usually, when you cite yourself, you just try to show that you’ve been working on the project already. I’m in the fortunate position where it’s not like I’ve dominated the field yet, so I don’t have to worry about being disproportionate.

In fact, in the seven successful sample grant proposals for the NSF Faculty Early Career Development (CAREER) grant examined for this study, citations played an important role. Like Reilly in his first grant writing experiences, all these authors were relatively new to the field (the CAREER grant is targeted for new faculty members); likewise, all made use of self-citations in their proposals yet with great variation among individual authors (see Table 2). Citations appear to offer writers one way to persuade their readers and at the same time negotiate the power dimensions that operate within the larger genre system.

Knowledge of this broader audience has implications for other aspects of the genre text as well. Reilly explains that he tries to emphasize the mathematical highlights instead of the details. He is more likely to use visuals (“If you have a graph showing something, that’s worth a thousand words.”) and uses fewer equations than he would in a published article. In fact, the sample proposals examined in this study likewise make extensive use of visuals in presenting data, as is apparent in Table 3.

Although much of the interaction described so far is between the PI and the funding agency, grant writers also work within more local discourse communities in their academic departments and their academic institution. While composing a grant, PIs may also make use of

Table 2
Use of Citations and Self-Citations in Grant Proposals

<table>
<thead>
<tr>
<th>Field of Research</th>
<th># of Citations</th>
<th># of Self-Citations</th>
<th>% of Self-Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>13</td>
<td>5</td>
<td>38</td>
</tr>
<tr>
<td>Chemical engineering</td>
<td>129</td>
<td>20</td>
<td>16</td>
</tr>
<tr>
<td>Electrical and computer engineering</td>
<td>74</td>
<td>10</td>
<td>14</td>
</tr>
<tr>
<td>Mechanical engineering</td>
<td>61</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Molecular biochemistry</td>
<td>80</td>
<td>9</td>
<td>11</td>
</tr>
<tr>
<td>Chemistry</td>
<td>121</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>Aeronautics and astronautics</td>
<td>43</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
other supporting services (e.g., guidelines and grant-writing tips) provided by the granting agency itself, their university’s Office of Sponsored Research (OSR), grant-writing workshops, or other grant-writing references such as books or pamphlets. Grant writers who repeatedly work on large-scale funding projects may make use of technical-writing assistants and/or editors. These services are often instantiated in the form of numerous other genres, such as books, handouts, or pamphlets. A variety of internal forms may also have to be completed by the PI as part of the larger application. Prior to submitting a proposal, for example, PIs may need to obtain approval from human subjects committees, committees approving the use of hazardous drugs or chemicals, or budget committees. If a PI applies for matched money or cost-sharing (in which the university matches funds from the granting agency), he or she must work with the office of the Vice President for Research. Thompson explains that before an application is complete, a routing form needs to be signed by the department chair, the school dean, the vice president of research, the budget office, and a university administrator. It is only at this point that the proposal can be submitted.

When the application package is ready for submission, the grant writer faces yet another genre in the now common online submission procedure. In the mid-1990s, NSF began developing an online submission service (fully implemented in 2000) called FastLane. All NSF applications are now submitted via FastLane, which also offers PIs the option to regularly check on the status of their applications. Yet this tool, still in transition from paper- to computer-based applications, may not be fully understood by grant writers, as Reilly points out:

<table>
<thead>
<tr>
<th>Field</th>
<th># of Visuals in Proposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics</td>
<td>3</td>
</tr>
<tr>
<td>Chemical engineering</td>
<td>4</td>
</tr>
<tr>
<td>Electrical and computer engineering</td>
<td>6</td>
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<tr>
<td>Mechanical engineering</td>
<td>9</td>
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<tr>
<td>Molecular biochemistry</td>
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<td>Chemistry</td>
<td>8</td>
</tr>
<tr>
<td>Aeronautics and astronautics</td>
<td>5</td>
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</table>

NOTE: CAREER = Faculty Early Career Development. NSF = National Science Foundation.
They do not review proposals electronically yet. I found this out by accident when a program officer from chemistry came to visit [my university]. Even though submission is electronic, they print out multiple copies at NSF and review by hand still. This will change soon. But the upshot is that those nice color figures appear in black and white... Most people don’t [know that] and suffer for it if they use color figures. After finding out, I FedEx’ed 10 sets of color plates to my program officer, but I was lucky.

Even after submission is complete, PIs continue to interact with various genres of the grant-funding system. Whether or not the grant is successful, the PI will receive notification from the funding agency. In addition, he or she will receive the referee’s reviews, which may provide useful insight for PIs as they write future proposals. In high-stakes genre writing for PIs who receive little assistance or feedback, the responses from the funding agencies can play a key role in development of expertise. Thompson emphasizes that PIs should ask for the verbatim or condensed responses from referees whether the proposal is accepted or rejected. He feels that this input is valuable for future writing.

As evident in Reilly’s and Thompson’s discussions, various genres interact throughout the process of grant writing. Some genres represent the work of the PI (e.g., the grant application), others represent the work of the funding agency (e.g., the mission statement and annual report), whereas still others represent the work of the PI’s academic institution (e.g., grant-writing support documents and routing forms). Together, these sets form a system of genres or an intertextual system that both creates and is created by the social interactions of the system. To be successful, grant writers must hold knowledge of these intertextual links, including the social interactions involved in the genre system, as well as the textual artifacts interconnected with the grant proposal genre itself.

Thus, although a PI works through the grant-writing process, he or she interacts with several individuals at local and national levels. According to Thompson and Reilly, interactions constitute a key element of grant-proposal genre knowledge. In their interviews, they displayed knowledge of several layers of social interactions, including student-professor, colleague-colleague, PI-funding agency, and professor-university staff and administration. The interactions within the grant-writing processes described by Thompson and Reilly thus corroborate Beaufort’s (1997) notion of coexisting and
overlapping discourse communities; Figure 1 illustrates the interactions of these communities (albeit in a simplified manner) from the perspectives of the PI. These discourse communities may also be viewed as existing within an activity system in which “text and context are mutually constitutive and always open to change” (Winsor, 1999, p. 222).

Although Figure 1 illustrates to some extent the multiple communities in which a PI interacts, it is at the same time misleading. Such a figure implies borders where none exist, stability in a truly dynamic process, and a monolithic experience for all PIs. Prior’s (1998) view of literate activity as laminated offers a useful alternative metaphor. Prior suggests viewing literate activity as laminated, arguing that multiple activities co-exist . . . in any situation. Whereas one or more of these activity footings . . . may be relatively foregrounded at any one time, the backgrounded activities . . . do not disappear. Moreover, activity is perspectival as well as laminated, with co-participants holding differently configured activity footings. (p. 24)

One could imagine then how the same researcher may experience a genre system very differently each time he or she participates in it. Figure 2 attempts to illustrate this sociohistoric view of literate activity, suggesting that a PI may foreground the activities of proposal writing and background the activity of interacting with the PO when working on Grant A but foreground interactions with the PO and
background the actual proposal writing process when working on Grant B. Such decisions will be dependent on a variety of sociohistorical factors and will result in constantly shifting participation in the genre system.

In sum, the process of producing a grant proposal, as described by the two researchers in this study, is both interdiscursive and intertextual, involving various social interactions that take place within multiple discourse communities. The grant-proposal text may serve as a sort of core of the system (at least from the perspective of the PIs), anchoring the system and its genres; yet, a multitude of oral and written texts within the system interact as they respond to, incorporate, and necessitate one another. In other words, grant writers do not and cannot just write a grant. The grant system that has evolved over time provides a network of generic communication. It is to the role and functions of this genre network that I now turn.

**THE ROLES AND FUNCTIONS OF THE GENRE SYSTEM**

Berkenkotter (2001) describes genre as “a powerful tool or mediational means for instantiating disciplinary practices over time and across professions” (p. 257) and genre systems as playing “an intermediate role between institutional structural properties and individual communicative action” (p. 329). In this reticulation of overlapping and unstable discourse communities, viewing genres as systems offers one way to conceptualize the relationships between the genre texts and the discourse communities. According to Paré
“the various genre sets form a genre system that operates to keep the work of the various overlapping communities in concert” (p. 158). Berkenkotter (2001) similarly argues that “genres and their systems can be said to instantiate—through actors’ microlevel, situated practices—structure of social and institutional relations” (p. 329). She provides evidence of paperwork genres that coordinate and synchronize activity within the larger system. In the world of funding for academic research, the genre system seems to provide a structure or a scaffold that serves to guide the PI through these work activities and social interrelations. Therefore, one role that the system seems to play is a facilitating function.

This facilitating or coordinating function is a result of the intertextual nature of the texts that make up the system. As Bakhtin (1986) notes,

Any concrete utterance is a link in the chain of speech communication of a particular sphere. The very boundaries of the utterance are determined by a change of speech subjects. Utterances are not indifferent to one another, and are not self-sufficient; they are aware of and mutually reflect one another . . . the utterance occupies a particular definite position in a given sphere of communication. It is impossible to determine its position without correlating it with other positions. (p. 91)

When texts index one another, participants are provided a kind of scaffold to guide them through the social and textual terrain of the genre system. For the PI of a grant proposal, an initial investigation of a funding agency’s mission may be followed by a discussion with a PO, who may then ask the PI to submit some written documentation regarding the project. Next, the PI may write the proposal, which actually consists of multiple genre texts, each instantiating intertextual generic activity (such as interactions with the human subjects office, the university’s sponsored programs office, and the university administration). The grant application obliges writers to interact with a PO, the agency’s Web site and funding guidelines, the university’s OSR, and university administration. In other words, the grant application constitutes a kind of core genre, in many ways reflecting and necessitating the larger network. The network, as it has evolved over time, guides participants through its various social and textual nodes.

It is not the case, however, that participants lack individual agency within the genre system. Reilly’s experience in failing to contact a PO
illustrates that the system is not solely deterministic; participants are
given choices, and their choices influence their activity (and success).
Thompson explains that his style of interactions within the system
has had a great impact on his funding success. He comments that if he
were more aggressive in meeting people and making the necessary
connections, he would have likely been a more successful grant
writer. In other words, participants in the grant system do make indi-
vidual choices that influence their participation in the system. Yet, at
the same time, the system provides some means for coordinating and
navigating the intertextual and interdiscursive practices that are a
part of obtaining funding for the production of academic knowledge.

Through this navigation of the genre system, writers interact with
multiple texts and contexts that frequently play a key role in building
knowledge of how to write the grant proposal itself. A second func-
tion of the genre system then is to build genre knowledge of a genre
(or genres) within the system. Much of the genre knowledge that
Thompson and Reilly displayed in their discussions suggests that this
knowledge is built through social interactions within the genre sys-
tem. As they explained the choices they made in proposal writing,
they described drawing on their experiences with texts and people
within the system itself. These experiences were primarily social
interactions, such as discussions with colleagues, meetings with POs,
and conversations with university administrators. In addition, cer-
tain texts within the system serve to build genre knowledge. PIs, for
example, make extensive use of grant-application guidelines, previ-
ous successful grant proposals, boilerplates, and feedback from prior
peer reviews each time they prepare a new grant. Because these texts
and interactions together make up the system, it appears that partici-
pation within the system itself may serve to build writers’ knowledge
of the grant proposal genre. Likewise, lack of participation in the sys-
tem would prevent writers from forging these interactions and
encountering these texts that help build the genre knowledge neces-
sary for success.

GENRE KNOWLEDGE IN THE FUNDING
OF ACADEMIC RESEARCH

The concept of genre knowledge—both its nature and develop-
ment—seems somewhat elusive. Such knowledge is likely local to a
large extent, varying in different contexts. Berkenkotter and Huckin
describe a sociocognitive view of genre knowledge, calling genre knowledge a form of situated cognition “derived from and embedded in our participation in the communicative activities of daily professional life” (p. 482). Genre knowledge, in their view, consists of both formal generic conventions as well as generic content, which may include complex understandings of epistemology, background knowledge, surprise value, and kairos (rhetorical timing) as they relate to the disciplinary community in which the genre is situated. As we have already seen, participating in the genre system of grant writing requires very complex knowledge of a variety of genres and social interactions situated within overlapping discourse communities. In this section, I turn to the question of what specific aspects of genre knowledge grant writers draw on as they write individual text genres and navigate through the genre system, and how these writers build such knowledge. Because the nature of knowledge of the genre texts and the genre system appear to differ somewhat, I will discuss each separately below.

Genre Knowledge of the Grant Proposal

Based on the material collected in this study, genre knowledge of individual grant proposals seems to fall largely within the categories defined by Berkenkotter and Huckin (1993, 1995). That is, as they compose grant proposals, Thompson and Reilly describe drawing on genre knowledge of both form and content. Knowledge of generic form includes, for example, an appropriate use of citations in the proposal, a persuasive use of language appropriate to the expertise level of the given review audience, and an effective use of visuals to supplement a complex text.

Content knowledge consists of so-called good science and an interesting problem that addresses the funding agency’s mission. A writer must also be aware of the changes in an agency’s mission over time. For example, according to Thompson, NSF now tends to favor very applied research:

It used to be that they would look for “just good science” with good people doing good research. Now, it is problem-focused. Basic research compensation has gone way down.

Holding an understanding of what type of knowledge is valued in a specific time and space thus plays a crucial role in successful grant
writing—if the content is not problem focused and does not match the agency’s mission, the proposal is not likely to be successful. Understanding this important dimension of the genre sometimes leads people to couch their proposals to fall within the agency’s mission, according to Thompson.

How do academic grant writers develop this genre knowledge of form and content? Thompson describes his grant-writing experiences as a lot of “trial and error” over a 30-year period. He says that sometimes a colleague would show him a proposal, but he “never really saw successful proposals.” He contrasts this with more current practices in which newcomers are given support through senior researchers in the department as well as university seminars and workshops, allowing them “to see the psychology of writing a proposal.” In Thompson’s view, the current quality of proposals by assistant professors is much higher than the time at which he was a newcomer.

Unlike Thompson, Reilly does not describe his learning process as trial and error; instead, he received formal training as a graduate student when he enrolled in a writing class taught by a rhetorician at his university. The course was designed for advanced graduate students and junior faculty members, and it focused on writing grant proposals and journal articles. Reilly says that they spent a lot of time studying proposals from various disciplines; in fact, he still uses ideas from the course when he writes grants today.

In addition to drawing on more formal instruction, Reilly gives credit to the supervisor with whom he wrote his first proposal for a postdoctoral grant:

I worked very heavily with my supervisor on this. He had a much better grasp of the problem than I did, so he really helped a lot with that, fleshing things out. Without him, I would not be able to write as strong a proposal as I did.

This role of cognitive apprenticeship in the development of genre knowledge illustrates Lave and Wenger’s legitimate peripheral participation and the collaboration of expert and novice in building specialized knowledge, both scientific and generic. Guided support from a mentor allowed Reilly to participate actively in the process, thus giving him the opportunity to develop “awareness of domain epistemologies and content knowledge, possible and relevant intertextual links, specific situations of text-making practice, and
abiding reception practices” (Kamberelis, 1995, p. 145) necessary for understanding generic forms and functions.

Indeed, both intertextual links and their concomitant social interactions seem to have played an important role in the development of genre knowledge for both Thompson and Reilly. These writers draw on related texts, such as mission statements, abstracts, conversations with POs, previous grants, the agency’s guidelines, and peer-review feedback from previous grants. As Myers notes in his study of grant writers’ composing processes, “Scientists learn the rhetoric of their discipline in their training as graduate students and postdoctoral students, but they relearn it every time they get the referees’ reports on an article or the pink sheets on a proposal” (p. 61).

Even when working individually on proposals, Thompson and Reilly describe the importance of social interactions during the composing process, discussing ideas and written drafts with colleagues or even nonspecialists who proofread their proposals. Reilly describes some other possible strategies that a grant writer can adopt when approaching the task:

Like any writing project, one should expect substantial revisions before submission. It’s foolish not to read, reread, and re-reread your ideas. Science is not just about finding the truth, but it’s also about communicating the truth. The reviewers must be convinced that your problem is important and that you can solve it. There are lots of little things you can do like cite everyone on the planet in the hopes that you will flatter a few of your reviewers. You can pass around drafts to colleagues and see if your intro grabs them. You can give a seminar on your work and see what kind of response it gets.

This emphasis on interactions reflects Thompson’s earlier comment that “interactions with people are very important.” According to Kamberelis (1995), these multiple settings of interactions can also be seen as part of the disciplinary enculturation process, “situated in multiple streams of interpenetrating activity within many nested activity settings” (p. 153). It is through this enculturation process that novices can build knowledge of the grant-proposal genre.

Genre Knowledge of the Grant Funding Genre System

Although a discussion of the nature and development of genre knowledge of an individual genre text is valuable, it gives only a
partial view of the type of knowledge that an individual must employ when writing a proposal. As we have seen, grant proposals exist only as part of the web of the larger genre system within which grant writers must participate. But how does genre knowledge of this system reflect or differ from genre knowledge of an individual text genre within the system?

Just as writers must develop genre knowledge of written genres, grant writers must develop genre knowledge of the genre system. That is, they must develop knowledge of who to talk to, when, and how. Berkenkotter (2001) argues that “knowledge of these relations is tacit, imbricated in our symbolic systems and communicative genres—matter of practical knowledge and mutually held by members of a particular profession or discipline” (p. 329). Knowledge of formal (i.e., textual) conventions, although important to individual genre texts, seems less applicable to the intertextual, interdiscursive genre system. What seems to be crucial, for these grant writers, is a procedural knowledge—that is, a knowledge of how the system operates and how best to navigate its interdiscursive activities. Reilly illustrates this need for procedural knowledge most clearly when he describes his failure to contact a PO in two of his three unsuccessful grants. Not knowing the rules or the most effective procedure can prohibit a participant from successful navigation of the system and, ultimately, from success on the funding proposal.

In addition to this procedural knowledge, the political and social aspects of genre knowledge appear to play an important role in the genre system. Successful writers need to know who to talk to in a funding agency and what to say, who to cite in a proposal, which meetings to attend, and who to network with at conferences. Thompson sees his own shortcomings in this area as he recollects that, “[My advisor] once told me that he wished he had told me how important it is to go to people and meet people. I just wasn’t aggressive.” According to Thompson, this social and political knowledge is crucial in today’s world of academic funding:

It used to be that you spent time preparing the proposal and lots of time in the lab; now, successful writers spend more time promoting relations and writing the proposal, supervising research rather than doing it.

How do writers build the procedural and social/political knowledge that appear to be fundamental to success in the genre system? With little formal guidance, grant writers seem to develop at least
some of this knowledge through experience and interactions with others in the system. Over time, grant writers participate in multiple discourse communities of the genre system, playing constantly shifting roles as diverse as student, colleague, junior professor, senior professor, conference presenter, and PI. This interaction may serve to develop socially shared knowledge and crucial engagement in tasks, leading to increased expertise.

**Development of Expertise in the Case of Grant Funding**

Bhatia (1999) offers a model of expertise that focuses particularly on the development of knowledge of individual genres in professional writing. According to Bhatia’s model, writers must first acquire general writing skills, then move on to learn general generic skills. As writers practice genres, they move to the third stage in which they begin to “mix, embed, and create novel generic forms to respond to familiar and predictable, and not so familiar, rhetorical contexts” (p. 33). Finally, writers develop genre ownership, or the ability to exploit genres and re-create new forms within a social framework. However, neither of the writers interviewed in this study seemed to feel that they had, or even could, reach a stage of genre ownership. Grant writing remains somewhat unpredictable for these writers; as Reilly says, “I think you have to treat it like an athletic event. If you score, you get down on your knees and thank God. If you don’t, you weep.” Indeed, as Kamberelis (1995) states, “neither old nor new community members ever learn genres once and for all; rather, they must continually learn the generic ways of making meaning with texts that evolve within the ongoing socio-rhetorical activity of the communities” (p. 150). In a complex genre system such as grant writing that changes over time and includes multiple layers of discourse communities and interacting social forces, it is unclear whether writers would ever be able to develop ownership of the grant-proposal genre.

**SUMMARY**

This article has examined the genre of the grant proposal and its place in the larger genre system of academic research funding through the lens of two grant-writing academic researchers and collected documentation. Analysis of these sources suggests that grant writing is fundamentally a social practice that is inextricably linked to
a network of other genres; that the intertextual networks of the genre
system serve to navigate writers through that system and to build the
writers’ knowledge of the system; and that knowledge of a genre sys-
tem may differ in important ways from knowledge of an isolated
genre.

The social aspect of grant writing is clearly seen through the exten-
sive and obligatory social interactions that grant writers engage in
over time, in multiple, overlapping discourse communities, and in
various roles and discursive activities, such as school, professional
conferences, discussions with POs, and meetings with various univ-
versity staff and administrators. These interactions give rise to (and
arise out of) other genres related to grant proposals, thus constituting
genre sets within a larger genre system.

The genre knowledge that researchers need for successful winning
of grant funding includes not only knowledge of the form and content
of grant proposals but also genre knowledge of diverse genre sets,
including (but not limited to) funding agencies’ Web sites containing
annual reports, mission statements, and current project abstracts; oral
and written communication with POs; the grant application and the
multiple documents it consists of; support services such as writing
guidelines, grant writing tips, or other services from the OSR; supple-
mentary documentation required by funding agencies and universi-
ties, such as budget forms and routing forms; and online submission
databases such as NSF’s FastLane. Through these interactions and
genre sets, researchers move into different roles, requiring a con-
stantly shifting awareness of power, politics, and epistemologies in
the various domains over time. Genre knowledge of the system then
extends far beyond genre knowledge of the grant proposal itself, and
requires a certain procedural and sociopolitical knowledge that gains
primary importance.

The process of developing such complex knowledge is less clear
and is worthy of more extensive study. Genre knowledge of an indi-
vidual text genre, such as the grant proposal, may be developed
through trial and error over time, through formal coursework in grant
writing, through collaboration with a more experienced (and sup-
portive) member of the disciplinary community, or through interac-
tions with other genres in the system. For both Thompson and Reilly,
social interactions within the system appear to play a key role in the
development of genre knowledge. Interactions with colleagues,
funding agencies, and various university groups serve to enculturate
novices into the disciplinary communities integrally involved in the
grant-writing process, perhaps building knowledge of both genre
texts and their overarching system. As the values and missions of the
universities, funding agencies, and governments evolve over time,
genre knowledge of grant writing must likewise be dynamic, making
it difficult for researchers to attain a feeling of genre ownership or
mastery of the genre of grant proposals. In other words, genre knowl-
edge of both the text genres and the genre system appears to be
learned and relearned through continued participation in the funding
system.

FUTURE RESEARCH DIRECTIONS

The study described here includes only one glimpse into the com-
plex web of genres and social interactions that constitute the activity
of grant writing for academic researchers. This study highlights the
extent to which human interactions play a role in the development of
genre knowledge for two grant-writing researchers at different stages
of their careers.

To gain a deeper understanding of these complex interactions,
future work could investigate more closely writers’ composing and
interaction processes throughout the grant-writing process. Longitu-
dinal work with grant writers could investigate the ways in which the
writers’ strategies change over time, and closer analysis of grant writ-
ers and their textual artifacts may provide deeper insight into the pro-
cess by which individual writers develop (or fail to develop) genre
knowledge of both individual texts and the genre system. Such
research could specifically target novice writers at the advanced grad-
uate student or junior faculty level to understand more about the
ways that these newcomers participate in situated learning, formal
instruction, or trial and error in building their knowledge of the grant-
writing process in general and grant proposals in particular. This
work could focus not only on those writing in their native language
but also non-native English speaking researchers, who constitute a
significant portion of researchers at academic institutions. Such work
could provide further insight into differences and similarities in the
development of genre knowledge in a first or second language. Tex-
tual analysis could attempt to identify changes in individuals’ pro-
posals over time and in relation to various situational exigencies.

The present study has explored the grant-funding system primar-
ily through the perspective of the PIs, but this system is likely to
appear somewhat different when viewed through the eyes of the PO, the funding agency, the peer reviewer, or the university administrator. Research could investigate how such a change in perspective might alter the description of the system and the genres (both peripheral and core) that constitute that system. All of these research directions can build a more complex view of the genres involved in the funding of academic research. Although such research will not make the grant-writing process predictable, perhaps it can serve to demystify the process and lead to an increased understanding of the genre system that drives the development and production of scientific knowledge.

REFERENCES


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