AN EXAMINATION OF THE LITERATE PRACTICES OF RESIDENT PHYSICIANS AND ATTENDING PHYSICIAN PRECEPTORS IN A RESIDENT-RUN INTERNAL MEDICINE CLINIC

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by

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CHAPTER 1

The Social Nature of Resident Physicians’ Literate Practices

In government-subsidized teaching hospitals, resident physicians learn to treat and follow-up with patients in resident-run outpatient clinics. In internal medicine, these resident-run clinics enable resident physicians to hone the skills they will need to treat patients in their practices as board-licensed physicians after residency. One component of the support system embedded in resident-run outpatient clinics in many teaching hospitals involves faculty physician preceptors and resident physicians\(^1\) meeting in a common area while residents see patients during clinic appointments. After residents complete the interview and physical exam with their patients, they leave the patients’ room to consult with preceptors in a conference area.

These meetings allow residents and preceptors to review the history and physical, discuss patients’ current medical problems, examine lab reports and scans, and consider the next phases of treatment. After meeting with their preceptors, residents return to their patients’ rooms with final plans for treatment. These interactions between preceptors and residents enable residents to present their ideas, ask questions, and receive approval about their plans for managing the patient case before they make final decisions. Significantly, preceptors never physically examine or interview clinic patients unless a resident explicitly requests hands-on assistance in the patient case.

\(^1\) Preceptors are faculty physicians (also called “attending physicians”) who work within a residency program in an educational capacity; they mentor, work alongside, and evaluate residents in both inpatient and outpatient contexts. Resident physicians are newly graduated, non-board-certified physicians who work at teaching hospitals in a trainee capacity. In internal medicine, residency programs require three full years of training before residents can take board examinations to practice medicine independently.
exam room. Thus, although resident physicians are being enculturated into the field of medicine during this process, they are also being trusted to provide patient care.

Throughout the process of conducting patient appointments and conferring with preceptors, resident physicians discuss, read, and produce texts. Specifically, during the resident-preceptor conversation in the bullpen, residents read aloud their first draft of the note they composed in their patients’ medical records. The core purposes of the resident-preceptor conversation include discussing the patient case composed in the medical record, deliberating about the plans for the patient case, and analyzing relevant medical texts. These texts include patient charts, handwritten and typed-written notes, electronic and hardcopy publications, scans, blood work, X-rays, and procedure reports. Consulting and producing these different texts comprises resident physicians’ literate practices in an outpatient internal medicine clinic. Thus, the interactions between residents and preceptors in this setting occur primarily through oral discourse, individual and shared reading, and individual writing. In this context, oral and written discourse serves constitutive purposes because, as Roberts and Sarangi (2005) explain, “Language does not just reflect or express intentions or decisions (the representational role of language); it makes them (the constitutive role of language). In institutional encounters, talk is work” (p. 632). In short, in medical settings, medical discourse constitutes medical work.

Many studies of professional literate practice examine texts or writers’ individual composing processes, limiting their focus to written products rather than studying the social

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2 The “bullpen” of this internal medicine clinic is a conference room at the center of the clinic, which is equipped with computers, textbooks, journals, patient education pamphlets, a medication sample refrigerator, and a space for personal items; the patient exam rooms surround the bullpen.

3 For this dissertation, I define “literate practices” as the shared interactions and activities that occur in the midst of any reading or writing that occurs in a particular setting. As explained later in this chapter, recent scholarship defines professional literate practice as involving collective participation in mutual activities, distributed thinking and learning, social meaning-making, and dynamic literate identities.
interactions that envelop, saturate, and influence professionals’ reading and writing. In a study of medical communication, for example, Hobbs (2004) examines physicians’ written chart notes to make arguments about their professional socialization into the field of medicine, focusing on their abbreviations, arrangement, and context-dependent tone. Similarly, in an attempt to understand the persuasiveness of written medical discourse, Segal (1993) explores physicians’ literate practices by analyzing a sample of medical articles for discourse structures, including qualifying language, passive voice, and nominalizations. Although these studies provide some insight into how physicians characterize patients and medical practice, they do not offer insight into the dynamic processes by which novice physicians become literate members of their field. Instead, they examine static written products to understand how medical professionals communicate with each other. In addition, many studies of medical language do not take an explicitly rhetorical stance, a stance that facilitates a detailed understanding of the effectiveness and persuasiveness of a discourse aimed at enculturating novices into a professional field.

In contrast to scholarship that purports to understand literacy via textual analyses, Shirley Brice Heath (1983) contends, in her groundbreaking *Ways with Words*, that literate practices depend on the conversations that occur before, during, and after reading and writing. According to Heath (1983), in situations where “a piece of writing is integral to the nature of the participants’ interactions and their interpretations of meaning, talk is a necessary component” (p. 196). She argues that the oral interactions that surround literate practices reveal the inherently social nature of reading and writing and demonstrate that literate practices depend on collaboration with others. In teaching hospitals where residents and preceptors interact, oral discourse imbues the writing and reading in which novice physicians participate. Therefore, studying a context such as a resident-run outpatient clinic requires considering the “literate orientations” (Brandt, 1989, p. 32) that emerge in writers’ oral discourse, which “are passed
through talk about texts and in all sorts of ancillary cultural arrangements that reinforce literate consciousness” (p. 32). In a resident-run internal medicine clinic, literate orientations include the resident-preceptor conversations that allow novices to learn field-specific literate practices.

To consider the various literate orientations in the professional socialization of novice physicians, this dissertation focuses on the ways in which residents and preceptors construct knowledge and make arguments in their discussions of resident-authored notes in an outpatient internal medicine clinic. Specifically, I am interested in examining these research questions:

- What interactional and rhetorical strategies do residents and preceptors use in conversations about resident-authored chart notes to allow novice physicians to participate in the oral and written discourses of medicine?
- What rhetorical strategies do resident physicians consider while they are independently composing final written notes in patient charts?
- What interactional and rhetorical strategies in resident-preceptor conversations and independent note-writing in patient charts change from residents’ first year to their final year of residency training?

In responding to these questions, I explore the verbal interactions and reflections that surround these novice physicians’ literate practices; in so doing, I analyze how resident-preceptor conversations provide spaces for teaching and learning the oral and written discourses of medicine and how these interactions play a role in residents’ knowledge construction and meaning-making while they independently compose final notes in their patients’ medical records.

In short, this dissertation explores the interactional and rhetorical strategies resident and faculty physicians use in their collaborations in medical workplace setting to enculturate novices into the oral and written discourses of the field. As such, scholarship in the subfields of literate practice
and professional enculturation, distributed cognition, classical rhetoric, medical communication, and medical education situates this study.

In this opening section, I have introduced the general area of study that serves as the context for this dissertation study: a resident-run outpatient internal medicine clinic. I have also described how this study can be defined as a situated examination of the literate practices of novice physicians. To provide context for the rest of this chapter, in the next section I present some background information about the research site; a more in-depth discussion of the research site, the participants, and the data collection and analysis can be found in Chapter 2. After describing the research site, I review some representative studies in the aforementioned subfields to which this dissertation contribute.

Background of the Research Site

This dissertation study occurred in a private teaching hospital called Midwest City Hospital⁴ in the internal medicine clinic where resident physicians and their faculty physician preceptors collaborate during clinic appointments. On a typical day in the clinic, residents begin in the bullpen, which is positioned in the center of the clinic (see Fig. 1.1). The bullpen looks like a typical conference room with large tables in the center of the room, computer terminals at the periphery of the room, bookshelves with hardcopy texts, a small area for personal belongings, and an area with medication samples for patients. Following the patient’s check-in with the receptionist, a nurse or medical assistant moves the patient to an exam room. In the exam room, the medical assistant or nurse takes the patient’s vital signs (e.g., blood pressure, heart rate, and temperature), weight, and other routine medical markers.

⁴ The name of this hospital and the names of all physicians and patients have been changed for confidentiality.
After the nurse or medical assistant has gathered initial statistics about the patient, the resident joins the patient in the patient room to conduct a verbal interview. The interview involves the resident asking about the patient’s medical and social history, the current medical issue that has brought the patient to the clinic, and any routine medical issues that the patient should be managing (e.g., routine colonoscopies after age 50). Post-interview, the resident completes a physical exam on the patient. Based on this initial interview and physical exam, the resident makes notes and converses with the patient about probable treatments for the current issue. Then, the resident typically excuses himself or herself from the patient’s room to join other residents and preceptors in the bullpen. There, the resident discusses the patient case with a preceptor, consults necessary electronic or hardcopy texts, and makes decisions about how to manage the patient’s medical issues. The resident returns to the patient room, informs the patient of the recommended treatment, discusses treatment details, offers the patient educational materials or a copy of the note from the chart, and finishes the appointment.
According to the handbook for the resident-run outpatient clinic used at the site for the current study, over the course of a three-year residency, residents develop a practice of approximately 200 patients in the clinic. First-year resident physicians see patients in the clinic for one half-day per week and must confer about each patient with a preceptor before the patient has left the patient room. Second-year residents see patients in the clinic one half-day per week, and third-year residents see patients in the clinic two half-days per week. Residents’ chart notes must be read and approved by the preceptor involved in conferring about the case. According to the handbook, residents’ notes must be reviewed once each year by a team of physicians on the teaching staff to ensure that they understand and utilize the conventions of medical writing.

Now that I have provided context about the literate practices in this clinic along with an overview of the documented expectations for physicians in this residency program, I next examine the areas of scholarship to which this dissertation contributes to situate this study in the broader fields of literate practice and professional enculturation, distributed cognition, classical rhetoric, medical communication, and medical education. I begin with a discussion of workplace literacy with a specific focus on the area of professional literate practice and enculturation as well as distributed cognition; closely connected with the type of research in this dissertation, these areas of workplace literacy analyze the social interactions surrounding professionals’ reading and writing. Because this study also employs classical rhetorical analysis, I then discuss representative studies in classical rhetoric to survey the concepts significant to this study, including Aristotelian notions of enthymemes, topoi, and rhetorical appeals. Next, I consider some influential studies in medical communication and discourse and provide an overview of the typical work in this area; this discussion responds to the implicitly rhetorical scholarship that calls for research analyzing the same objects of study used in this dissertation. Finally, in the area of medical education, I review some pertinent work that examines the sources of information novice
physicians utilize in their communication and writing. This context supports my argument that understanding novices’ process of enculturation into the medical field requires a systematic analysis of the interactional and rhetorical strategies they use in the talk that envelops their professional literate activities.

*Professional Literate Practice and Distributed Cognition*

Over the past three decades, scholarship on workplace writing has shifted from emphasizing how professionals perceive their reading and writing practices to examining the social nature of literate practice. Beaufort (2008) points out that early studies of workplace writing used surveys and interviews to assess professional composing practices; today, however, scholars more often triangulate situated methodologies, such as discourse-based interviews, observations, and textual analyses. According to Beaufort (2008), this recent work analyzes the prevalence of workplace writing, the practices that sustain professional composing, the effect of technologies on writing activities, and the impact of writing on employees, organizations, and social structures. Reviewing similar lines of research, Schultz (2006) points out scholars’ tendency to consider “the social nature of writing” (p. 358) and study “the interrelationships between oral and written language” (p. 361). Much of this scholarship advances the idea that “a single composition cannot be understood apart from the particularities of its creation or its surround” (Schultz, 2006, p. 368). This emphasis on the social interactions involved in professionals’ reading and writing calls attention to scholarship in the area of literate practice and professional enculturation. In this dissertation, examining novice physicians’ professional enculturation through the oral interactions enveloping their reading and writing reveals the interactional and rhetorical strategies embedded in their literate practices. The remainder of this
section surveys influential works in professional literate practice and distributed cognition to situate this dissertation as a study of collaborative workplace literacy.

Advocating sociocultural methodologies in the study of professional writing, Prior (2006) draws from activity theory to suggest that scholars conceive of writing in a more dynamic way. He promotes writing research that integrates oral and written communication:

Activity is situated in concrete interactions that are simultaneously improvised locally and mediated by prefabricated, historically provided tools and practices, which range from machines, made objects, semiotic means (e.g., languages, genres, iconographies), and institutions . . . . Mediated activity involves externalization (speech, writing, the manipulation and construction of objects and devices) and co-action (with other people, artifacts, and elements of the social–material environment) as well as internalization (perception, learning). (p. 55).

Prior (2006) conceptualizes the role of writing in workplace settings as contributing to novices’ professional socialization as well as to their individuation; furthermore, he debunks the notion that writing can be equated with a static product and should only be studied through textual analyses. Rather than understanding texts as uncomplicated artifacts that scholars analyze to understand literate practices, Prior (2006) conceptualizes them as “artifacts-in-activity,” (p. 58), which involve “streams of mediated, distributed, and multimodal activity . . . . that extend beyond the moment of transcription and that cross modes and media (reading, writing, talk, visual representation, material objectification)” (p. 58). Although this dissertation does not draw from activity theory itself, the premise of this study aligns with Prior’s theory that academic and professional writing is inherently social and situated.

Prior and other scholars who value this dynamic perception of professional literate activity reject views of literacy that delineate specific skills and acontextual practices that
workers are expected to perform (e.g., Jackson, 2004; Belfiore & Folinsbee, 2004). These scholars argue that such conceptualizations of professional literate practice limit our awareness of how individuals actually assign meaning and function to reading, writing, and oral interactions in the workplace. Thus, Jackson (2004) advocates studying “meanings-in-use” (p. 2) and “literacies-in-use” (p. 2) rather than decontextualized fragments of literate practice in particular workplaces. Examining contexts beyond the moment when residents compose in medical records regards professional writing and reading as dynamic social activities as Jackson (2004) envisions. Considering the conversations that occur before and after residents write provides a sociocultural view of the literate practices of these inexperienced professionals.

In a representative example of how oral and written discourse can be studied to characterize professional enculturation, Prior (1998) employs this more situated methodology to examine how a graduate student in sociology acquires disciplinary expertise. In so doing, he considers how this student works through drafts of his dissertation prospectus via oral interactions with his advisor, discussions in a graduate seminar course, and independent writing activities. Contending that this student’s authorship and dissertation are mediated by tools, practices, and people, Prior examines the institutional and intertextual influences that come to bear on the student’s research plan and project. He also posits that voices and heterogeneous social interactions during the graduate seminar significantly alter the student’s research by contradicting and complicating his ideas and sense of authorial identity. Prior (1998) concludes with a call for “research that traces the dialogic intermingling of voices in these networks of production, that integrates the sociogenesis of all of the elements in functional systems” (p. 214). In a similar way, this dissertation examines the verbal discourse interspersed in between episodes of reading and writing to study literate practices and professional enculturation in situ. Rather than studying an isolated activity associated with residents’ literate practices, I examine multiple networks of
practices in this clinic – situated conversations and reflections during independent writing – to understand how residents become literate members of their profession.

Through this systematic examination of literate practices, this dissertation offers insight into how immersion in the oral and written discourses of the field contributes to novice physicians’ professional socialization. Medical workplaces represent a prime context for language scholars to study how novices communicate with skilled physicians to gain experience. Some scholars have examined physicians’ literate practices, but they tend to rely on textual analyses rather than studying “networks of production” (Prior, 1998, p. 214) scholars promote. For example, in her linguistic analysis of physicians’ chart notes, Hobbs (2004) contends that residents learn to compose for the patient chart primarily through imitating senior physicians and reviewing notes composed in the chart by others. She also argues that physicians rely on various sources of reference to compose notes and that their notions of what must appear in the note shape the patient interview and physical exam. Though her theories about residents’ engagement in literate activities seem plausible, Hobbs’ textual analyses provide limited understanding of how residents and preceptors participate in the literate practices of the field. This dissertation attempts to locate this dynamic participation in the oral interactions Heath has proven so significant.

Scholars in the field of engineering have attempted to understand the ways in which novices become professionally enculturated through their written and oral communication; comparable to Hobbs’ textual analysis, though, such work employs methodologies removed from the situated context, providing an incomplete model of the actual practices these professionals employ. Analyzing survey data from engineering students and professionals, Pinelli et al. (1995) use Bruffee’s (1993) framework of the social construction of knowledge to examine how
engineers perceive their reacculturation from one knowledge community (academia) to another (professional). Pinelli et al. (1995) explain that Bruffee values the function of both written and spoken language in helping engineers become fully participating members of their field. This process, Pinelli et al. (1995) argue, requires relinquishing, revising, and navigating the ways of speaking, writing, and knowing used in one knowledge community to become articulate in another. Drawing from Kuhn (1970), Bruffee (1993) posits that this process involves constructing knowledge in the context of the new community’s communicating.

As Pinelli et al. (1995) discuss their results, they point out the questions Bruffee identifies as a framework for enabling experienced professionals to assist novices in learning the discourses of a specific field. Bruffee asks how professionals produce contexts where novices can transition into a new domain, what opportunities and obstacles exist for learning the language of a new community, and how professionals can facilitate this process in supportive ways. These guidelines prepare scholars, including Pinelli et al., to examine how reading, writing, and conversing practices in a professional community assist new members when they begin working. Based on their survey results, Pinelli et al. (1995) conclude that, although engineering students and professionals agree on theories of the field and view written and oral communication as critical to their jobs, they perceive their college and on-the-job preparation for professional communication to be inadequate. Notably, these findings allow Pinelli et al. (1995) to draw conclusions only about how these engineers perceive their process of transitioning into a

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5 When referring to residents’ process of participating in the discourses of medicine, I use the term enculturation, which denotes an individual’s process of being brought into her or his own culture. The term acculturation, which Bruffee (1993) and Pinelli et al. (1995) employ, refers to the process of being brought into another culture. Although I discuss these scholars’ work in this chapter to consider their notion about the role of writing in novices’ training, I would dispute the implication that, when graduates of a particular professional program begin working in the field, they must be brought into a culture that is fundamentally different from their degree coursework.
professional community; a situated study observing actual conversations, reading, and writing can answer Bruffee’s questions in more detail and with more certitude.

As Pinelli et al. (1995) and Bruffee (1993) point out, novices’ educational backgrounds influence their ability to engage in oral and written discourse with professionals in their fields; thus, the current study also participates in discussions of writing across the curriculum (WAC) or writing in the disciplines (WID). This scholarship advances the notion that writing and learning should be interwoven into courses across the academic disciplines. In his discussion of WAC and WID theories, Russell (2002) argues that students not only learn to write but also write to learn within their fields of study. Because this dissertation studies how novices learn the practices of internal medicine by writing and talking about their writing with faculty physicians, I demonstrate some of the ways in which writing, talking, and learning are intertwined in this field. This dissertation, thus, examines what Prior (1998) refers to as the overlapping “scenes of writing” (p. 137) associated with their learning.

Other scholars who shift away from “autonomous” (Street, 1984) models of literacy contend that conceptualizing literacy as a series of decontextualized and transferrable skills is an impoverished way of understanding writing and reading; they examine professionals’ dynamic engagement in practices (Prior, 1998; Wenger, 1999; Jackson, 2004), the ongoing distribution of cognitive resources among various actors and tools (Hutchins, 1995; Salomon, 1993), and the role of identity (Farrell, 2000; Karlsson, 2009). These conceptualizations have transformed how scholars theorize and empirically study workplace literacy. Instead of defining professional literacy as a prescribed set of skills that workers either possess or lack, these scholars encourage a definition of professional literate practice that promotes social participation in shared activities, dispersed thinking and learning, social construction of professional knowledge, and situated literate identities. Modeling this shift in professional literacy research, this dissertation examines
the situated ways residents and preceptors create knowledge, prompt each other to consider
concepts, attempt to persuade, and engage in clinical argumentation while talking and writing.

Adhering to the theory that professional literacy studies ought to examine how novices
participate in new communities of practice (Wenger, 1999), this dissertation formulates a “social
type of learning” (p. 5) by examining novices physicians’ participation in the community’s oral
and written practices. Thus, the focus on novices at various levels of training considers Wenger’s
(1999) notion of “legitimate peripheral participation” (p. 11), which refers to a novice’s
increasing involvement, participation, and role in the community’s legitimised activities. As
residents advance through residency, they are expected to require less explicit instruction from
preceptors in terms of treating patients, writing about medical issues, and using medical texts.6
Examining novices of different experience levels compares residents’ interactional and rhetorical
strategies along a continuum of legitimate peripheral participation.

Analyzing the collaborative work of novice and experienced physicians and the
individual writing of residents considers hypotheses about the distributed nature of cognition in
professional fields. The conceptualization of distributed cognition contends that thought does not
reside in the minds of individuals but rather is “stretched over” (Lave, 1988, p. 1) various
individuals, artifacts, and internal and external representations. This vein of research accounts for
the collaborative thinking that occurs during social participation. Hutchins’ (1995) influential
study of Navy ship navigators’ distributed cognition pushes back against conventional
psychological theories of cognition that situate cognitive processes within the minds of individual
people. He examines how artifacts, internal and external structures and representations, language,
and other mediating factors affect how these workers learn to navigate the ship proficiently. In

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6 See the discussion on page 7 of the characterization of resident physicians’ progression through
the training program and their expected need for instruction by faculty physician preceptors in the
final year of residency.
short, from a distributed cognition perspective, external factors should not be relegated to the periphery of studies of cognition; rather, stimuli in the environment should be regarded as contributing actively to the thinking and learning that occurs in various professional and workplace settings.

Examining resident-preceptor collaboration as well as residents’ independent note-writing process grounds this dissertation in theories that maintain that the language of professional conversations fundamentally influences how novices come to consider and reason through their independent professional tasks. Perkins’ (1993) concept of “person-plus” posits that studies of distributed cognition should examine the artifacts and people in the surrounding context of professional activities rather than focus only on the “person-solo,” which situates cognitive processes in the heads of specific actors. Cole and Engeström (1993) corroborate this argument, contending that learning and thinking are always stretched across various actors, instruments, and other external representations. Likewise, Clark and Chalmers (1998) promote the idea of “active externalism,” and assert that the factors in people’s environments dynamically influence their thinking. Thus, this dissertation does not consider social interaction and other external factors as merely prompting thought but instead as actively shaping thought. Therefore, I triangulate conversation and rhetorical analyses of these situated conversations with a rhetorical analysis of think-aloud protocols to examine how collaboration and thinking are intertwined.

Because this dissertation examines physicians’ collaborative and independent literate practices, this study also contributes to scholarly debates about the role of the individual in theories of distributed cognition. Salomon (1993) identifies the two leading arguments about distributed cognition: a strong argument that contends that cognition is primarily distributed across people and tools, and a weak argument that asserts that cognition can either be distributed or internal and considers the two to be interdependent and interactive. Salomon (1993) posits that
not all cognition gets distributed in all situations regardless of purpose and participants. Some
cognitive work, he argues, occurs mainly within the individual’s mind; he thus advances an
integrative field of distributed cognition that accounts for the individual as well as the social
dispersion of cognitive work. Approaching this study of physicians’ literate practices from the
perspective of the collaborative (resident-preceptor conversations) and the individual (residents’
reflections while independently composing) examines the individual within the social to unpack
the relationship between collaborative and individual thinking in a medical setting. Studying the
language of these conversations and residents’ considerations during independent writing assesses
where cognition lies in this context and examines how collaborative thinking and language come
to bear on individual considerations during writing.

Although situated research provides a more authentic understanding of workplace literate
practice in a particular setting, case study research cannot be generalized beyond the research
site. Despite this limitation, case study research produces “thick descriptions” (Geertz, 1973) of
actual practices, which generates more multifaceted results than survey or interview studies.
Thus, even though the findings from this dissertation cannot be generalized beyond this research
site, approaching the research questions from various angles and triangulating methodologies
provide a multi-layered understanding of how these novice and experienced physicians create
knowledge in their situated practices. In this study, I use the data to develop analytical constructs
that might be useful for studying other contexts of professional literate practice. I advocate that
others undertake similar work so that, through an aggregation of case studies, the field can work
toward generalizable insights about professionals’ situated practices.

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7 MacNealy (1999) defines case study research as “a qualitative tool; as such, it aims to provide a
rich description of an event or of a small group of people or objects (usually not more than 12)”
(p. 195).
In this section, I have advocated examining verbal data from collaborative and individual literate activities to provide insight into the professional enculturation of novices. I have situated this study in the broad field of workplace writing and the specific fields of literate practice, disciplinary enculturation, and distributed cognition; as a result, the conclusions drawn from this dissertation’s use of situated methodologies provide more authentic insights into resident physicians’ developing literacy and learning in the medical field. The discussion in the next section explicates the rhetorical constructs in this dissertation to analyze and consider the verbal data; I argue that a rhetorical framework can serve as a productive tool for considering literate practice in a setting where professionals attempt to persuade, teach, and learn with each other.

Rhetorical Theory

To consider professional communication in this medical context, this dissertation explicitly utilizes a rhetorical framework in the analysis of these novice and experienced physicians’ language. Characterizing how rhetoricians engage in this type of research, Fahnestock (2011) points to the study of disciplinary registers, which includes “‘languages’ appropriate for different circumstances . . . . [including] special lexicon and special ways of talking and writing in a field of learning” (p. 83). According to Fahnestock, registers become stable by occurring routinely as people in the same positions discuss the same types of issues for the same purposes. Thus, studying a corpus of conversations between residents and preceptors from a rhetorical stance offers insight into how novices receive guidance on and practice using medical registers. In this section, I draw from influential studies in classical rhetoric to posit that the classical rhetorical concepts of enthymemes, topoi, and appeals provide a constructive lens through which to examine how medical novices learn literate conventions of medical registers.
To examine the medical registers in this clinic, I study the argumentative structure of resident-preceptor conversations and residents’ think-aloud sessions. Analyzing the common lines of reasoning these physicians employ as they attempt to facilitate novices’ professional enculturation requires identifying and unpacking the enthymemes present in the verbal data. I begin by tracing these physicians’ commonly used topoi (topics) to understand how novices learn clinical logos and ethos through conversations about their chart notes. I then characterize what these lines of reasoning and appeals suggest about the common phases or stages in residents’ development as they evolve from inexperienced, dependent first-year residents to experienced and relatively independent professionals in their third and final year.

In any analysis of argumentative structure, the enthymeme, or rhetorical syllogism, serves as a productive foundation for conceptualizing how speakers persuade audiences. A dialectical syllogism asserts all of its premises, and, because each premise is logically valid, presents a logical conclusion. The standard example, “All men are mortal; Socrates is a man; therefore, Socrates is mortal,” assumes that the reader has no existential understanding of men and mortality; this example is logically valid, and, indeed, Socrates died. In contrast, a rhetorical syllogism is “an enthymeme [that] need not express all its premises” (Aristotle, 2007, p. 34) and relies on probabilities. Moreover, the premises need not be logically valid but are based in endoxa, or commonly accepted wisdom. For example, the enthymeme “Smith will win the election because he is an honest man” does not state the premise that people who are honest get elected. Also, this enthymeme stems from common wisdom that honest people get elected;

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8 An enthymeme, an informal syllogism (a deductive argument composed of two premises and a conclusion) assumes, rather than states, one of the two premises leading to the conclusion.
9 According to Aristotle, orators use three rhetorical appeals to persuade their audience: ethos (an appeal to character), logos (an appeal to logic), and pathos (an appeal to emotion). I discuss these in more depth later in the dissertation.
although morally valid to many, this wisdom is not necessarily the logical and practiced situation because certainly dishonest people sometimes win elections.

Although the enthymeme is a critical notion in classical rhetoric, philosophers have debated the nature of this concept for centuries. In his landmark discussion of the enthymeme, Bitzer (1959) distinguishes between three types of syllogisms: demonstrative, dialectical, and rhetorical. In demonstrative syllogisms, the speaker outlines the premises to prove scientific inferences; in dialectical syllogisms, the orator sketches the premises to obtain criticism; and in rhetorical syllogisms, or enthymemes, the speaker offers premises to persuade the audience. In response to a rhetorical enthymeme, an audience must assume missing premises to complete the claim; thus, “the successful building of arguments depends on cooperative interaction between the practitioner and his hearers” (Bitzer, 1959, p. 407). Although many consider the enthymeme to be missing a premise, Conley (1984) points out that most scholars do not define the enthymeme as a truncated syllogism. They believe that enthymemes exclude premises for practical reasons, include probable rather than certain premises, and in the process, expose the speaker’s “values and attitudes” (p. 169). Addressing the essentially enthymematic nature of topoi, or topics of argumentation, Conley (1984) contends that topoi do not execute syllogistic arguments but serve as “general strategies to be employed in particular situations” (p. 171). In short, studying enthymemes considers how people seek truth and persuasion through discourse.

In addressing the common topics for enthymemes, Kennedy (2007) defines the topos as a place, as its original Greek meaning indicates, where a speaker can identify potential methods for persuading an audience. These topics ought to be considered “lines of argument” (McBurney, 1936, p. 61) rather than “material propositions” (p. 61). McBurney (1936) claims that the topics are the sources of probability from which effective premises might be obtained. Although some scholars claim that topoi function like a Toulminian warrant, according to Miller (2000), the
topoi should not be viewed as propositions but as foundations from which speakers may find propositions. Furthermore, though Aristotle characterizes the topos as a place where rhetors can go to discover arguments, Miller (2000) contends that topoi can be generative and facilitate invention. Primarily, the discovery process relies on rhetors seeking resources for enthymemes in endoxa of the community that they aim to persuade.

Analyzing topoi enables rhetoricians to identify Aristotle’s rhetorical appeals, or ethos, logos, and pathos in particular corpus of verbal data, as I do in this dissertation by examining the topoi in resident-preceptor conversations and residents’ think-aloud protocol sessions. Kennedy (2007) explains Aristotle’s emphasis on these three rhetorical appeals:

Aristotle identified three artistic modes of persuasion, derived from presenting the character (ethos) of the speaker in a favorable light, awakening emotion (pathos) in the audience so as to induce them to make the judgment desired, and showing the probability of what is said by logical argument (logos). (p. 111)

Logos, which utilizes logical reasoning, draws on examples, enthymemes, and syllogisms to persuade listeners (McBurney, 1936). To convey ethos during deliberative rhetoric, speakers use the “objectives and values of human life” (Kennedy, 2007, p. 56) to appeal to the audience in an ethical manner. For Aristotle, emotion (pathos), also a subject in ethical matters, involves the rhetor in inciting strong feelings among audience members and, in the process, facilitates persuasion. This dissertation analyzes oral and written language for these rhetorical appeals in a context where novices participate in the discourses of a field; the findings reveal how novices acquire a sense of appropriate ways of knowing, persuading, and communicating in the discipline.

Understanding how speakers learn literate conventions through argumentation requires analyzing who speaks to whom, what roles or power structures influence the conversations, and how speakers designate their relationships through language (Fahnestock, 2011). Focusing on
appeals to *ethos* in his influential piece on this concept, Fortenbaugh (1992) discusses Aristotle’s notion that speakers persuade through character by linking the orator, the audience, and the substance or material in the speech. Aristotle argues that persuasion through character occurs when the audience views the speaker as being worthy, trustworthy, good, and authoritative. Specifically, Aristotle (2007) explains that a speaker ought to “construct a view of himself as a certain kind of person” (p. 112) the audience respects and wants to believe. Often conveyed in the opening of an oration, Fortenbaugh (1992) points out, *ethos* serves as a critical component to acquiring the audience’s faith: “the introductory part of an oration should be used for three things: setting out the subject of the speech, getting the attention of the audience and securing its goodwill (29 1436a33-9)” (p. 215). Aristotle argues that the speaker and audience can be identified in the language itself; thus, the rhetorician’s “presented and reputed self, or *ethos*, is a potential persuasive resource, as is the audience’s identity, selected and shaped by the rhetor’s language” (Fahnestock, 2011, p. 278).

In addition to *ethos* and *logos*, an examination of professional rhetoric in a medical teaching context such as this clinic involves an analysis of the various voices integrated into physicians’ conversations and writing. In a setting where physicians report what patients and other clinicians have said and written as well as what they plan to say or write in the future, the incorporation of other voices occurs often and carries substantial importance. As Fahnestock (2011) states, the idea of an “‘embedded voice,’ of another’s words carried into a new context, has always been important in rhetorical theory, given its forensic interest in representing witness testimony or documentary evidence and its stylistic interest in imitating other speakers in a speech” (p. 306). Fahnestock (2011) defines “direct speech” (p. 307) as articulating the exact words someone else used in a specific oral or written context, whereas “indirect speech” (p. 311) allows the speaker to use “interpretive intervention” (p. 311). Regardless of whether rhetors use
direct or indirect speech, when individuals report speech acts, they must translate the speaker’s intent and characterize that intent, which creates problems of interpretation (Fahnestock, 2011). Though others’ words are critical sources of evidence, both forms of representation are fictions, since even direct quotation selects from its source and fails to convey the original delivery.

The discussion in this section has defined and contextualized the pertinent rhetorical concepts in analysis of data in this dissertation; the notions of enthymemes, *topoi*, and rhetorical appeals serve as constructive means of analyzing how novice physicians participate in and practice the oral and written discourses of medicine through argumentative and persuasive techniques. In the next section, I discuss representative exemplars of work in the field of medical communication and discourse, and I argue that this dissertation responds to calls within the subfield of medical communication to examine physician-physician communication in greater detail. I posit that my explicit use of rhetorical analysis provides a valuable perspective on the ways novice physicians acquire disciplinary expertise in the field of internal medicine.

*Medical Communication and Discourse*

As I have argued in the previous section, rhetorical frameworks can be productive tools for examining the role of argumentation in professional writing and communication. However, most work in the subfield of medical communication and discourse only implicitly draws on rhetorical notions, offering insufficient attention to the ways persuasion and argumentation contribute to workplace literate practice and professional enculturation. Furthermore, most research in the area of medical language examines communication between doctors and patients, neglecting or offering scant attention to the interactions between physicians. Several scholars have issued calls for more research on the specific ways physicians communicate with one another, arguing that this form of discourse represents a critical space where professionals
accomplish medical work. The discussion in this section offers representative examples of research on medical language to argue that my explicit use of rhetorical frameworks and focus on the rarely studied area of physician-physician discourse offer a constructive perspective on a form of discourse that reflects how novices acquire disciplinary expertise.

Existing scholarship in the field of medical communication has focused on physicians’ internal rationalization processes, physician-patient interactions, and novice physicians’ learning of medical “talk” in inpatient settings. In his influential piece on physicians’ cognition, Hamm (1988) posits that novice physicians model expert medical thinking in various ways, such as tracing the scientific logic of case histories during lectures, analyzing evidence during teaching rounds, and tacitly demonstrating logic by treating patients. Formulating a theory of medical thinking that integrates the clinicians’ cognition and formal medical tools, Berg (1997) argues for a rhetorical understanding of medical work that examines decision-support techniques and points out that medical criteria should not be viewed as a set of inflexible rules. Extending the theory of physicians’ cognition to account for patients’ thinking, Nordin (2000) argues that physicians must balance their expert medical knowledge, “tacit knowledge” (Nordin, 2000, p. 297) of diagnosing and healing, and their patients’ experiential knowledge. Implicitly referring to the arguments embedded in physicians’ thinking, patients’ experiences, and clinical tools, these scholars consider physicians’ cognition to be a multifaceted network of knowledge. Still, these scholars do not systematically analyze the clinical arguments that come to bear on physicians’ thinking, allowing the black box of medical learning and communication to remain relatively enigmatic.

Similar to scholars’ focus on physicians’ individual thinking processes, patient-physician conversations have received considerable attention from language scholars, who treat these interactions as the principle form of medical communication. For instance, in their recent edited collection of sociolinguistic analyses of patient-physician conversations, Heritage and Maynard
(2006) utilize an interactional stance to examine patients’ contribution to the doctor-patient interview. They posit that previous studies of doctor-patient communication focus on physicians’ language rather than patients’ involvement in discussions about their health and well-being.

Challenging studies of medical communication that generalize findings beyond a limited data set, Segal (2002) contends that the physician-patient interview has been perceived too generically and cautions against “genrelization,” or the justification of a theory of typical discourse in a certain context. Instead, she advocates that scholars study the variable traits or trends in specific doctor-patient conversations. Promoting a more contextually sensitive approach, Segal (2002) identifies the important question language scholars should examine in medical settings: “Who is speaking to whom about what? – rather than generic ones” (p. 179). By focusing on persuasion, audience, and context, Heritage and Maynard (2006) and Segal (2002) implicitly support rhetorical analyses of doctor-patient communication; however, they exclude from their own studies and from their calls for future research a consideration of how physicians learn the forms of communication and persuasion that emerge in the doctor-patient interaction.

The existing work on novice physicians’ talk typically examines conversations between inexperienced physicians and experienced faculty physicians in inpatient contexts where doctors jointly examine the patient and later discuss the examination in private (e.g., Anspach, 1988; Atkinson, 1995; Schryer et al., 2002). In these settings, conversations tend to focus on the shared experience of examining and interviewing the patient. In contrast, this dissertation explores conversations that center on the resident-authored note in the medical record, which has been composed by residents after they have independently interviewed, examined, read, and written about the patient without the faculty physician present.

Atkinson’s (1995) influential sociological text on the medical discourse between novice and faculty physicians maintains that, because most research on medical talk focuses on
conversations between physicians and patients, scholars tend to use the clinical consultation as a synecdoche for the entirety of medical work. Atkinson contends that a vast unexamined area of medical communication and rhetoric involves conversations between physicians, which represents the greater part of physicians’ communication practices. Through his study of conversations between experienced and novice hematologists, Atkinson reveals medical sociology’s limited coverage of medical contexts, actors, and descriptions of disease. His analysis demonstrates how physicians confer, collaborate, and convey their expertise to fellow doctors in pedagogical discussions. Although he explores an unexamined area of medical language, he does not conduct sustained and fine-grained discourse and rhetorical analyses of communication in this neglected area of medical communication.

While research on patient-doctor communication has been more prevalent than work on physician-physician interaction, some research has been conducted on the form and purpose of the oral case presentation; this scholarship typically focuses on how physicians represent patients and medical conditions, only implicitly referencing how argumentation and persuasion play a role in novice physicians’ learning. Anspach’s (1988) significant research on the discourse of case presentations reports that resident physicians often avoid individualizing their patients, exclude human agency, regard medical tools as agents, and stress the “subjectivity of patients’ accounts” (p. 357). She focuses predominantly on how resident physicians characterize their patients and their decisions during case presentations rather than how they use these conversations to engage in clinical argumentation, meaning-making, and learning.

In describing the purpose of the oral case presentation, Atkinson (1995) posits that these presentations show, explain, rationalize, and persuade resident physicians’ audiences to accept their construction of patient cases. He contends that a persuasive case presentation presents sufficient but not excessive detail, effective reasoning, and appropriate action. In the same vein,
Schryer et al. (2002) argue that case presentations formalize complicated patient data and allow novice physicians to demonstrate clinical skills. They claim that students and junior physicians speak successively less in each quartile of the conversation with senior physicians. To ensure the patient receives adequate care and that novices learn, faculty physicians intervene toward the end of case presentations to model language, quiz, highlight deficiencies, or engage in digressions:

Students do, in fact, begin with control over the case presentation . . . but they appear to lose actual ‘air’ time (as defined by number of words spoken) to doctors when the more difficult diagnostic and case management work tends to occur. (Schryer et al., 2002, p 76)

Although these discussions of case presentations discuss the overall goals and objectives of this common medical genre, they lack a sustained focus on how novices skillfully use rhetorical strategies while learning spoken and written medical discourses. In this dissertation, I rigorously examine the ways novice and experienced physicians actually employ rhetorical strategies during teaching conversations and independent writing to discuss, change, and supplement written material in the patient chart.

In addition to discourse-based studies of medical communication and language, many scholars evoke rhetorical constructs in an implicit or limited way, alluding to rhetoric without featuring this theoretical stance as a primary methodological tool (Hunter, 1991; Atkinson, 1995; Frankel, 1995; Aronowitz, 1998; Elwyn & Gwyn, 1998; Erickson, 1999; Montgomery, 2004; Groopman, 2008; Berkenkotter, 2008). In his influential book Making Sense of Illness: Science, Society, and Disease, Aronowitz (1998) addresses how researchers, clinicians, and patients identify new medical conditions, assign them labels, classify them with other conditions, and ascribe them personal and social meanings. Tracing the historical and contextual processes of disease etiology and classification, Aronowitz (1998) argues that patients and physicians negotiate common and personal notions of “individual sickness” (p. 8) and promote the social
construction of disease in the process. Implying that the way we characterize illness through persuasive appeals to biomedicine and personal experience, Aronowitz indicates the relevance of rhetoric without actually drawing from rhetorical theories or analytic frameworks.

Suggesting the importance of rhetorical competence in physician-patient conversations, several scholars point to the relevance of persuasion in clinical contexts without actually referencing rhetorical notions. For instance, Groopman (2008) discusses the common practice in medical school and residency of teaching novices to rely on preset algorithms and practice guidelines for evidence-based decision-making. He contends that algorithms encourage physicians to practice passively rather than conscientiously considering individual cases. Even with modern technology, he argues, “Language is still the bedrock of clinical practice. . . This dialogue is our first clue to how our doctor thinks” (Groopman, 2008, p. 8). Similarly, in a discourse-based study of patient-doctor interaction, Frankel (1995) focuses on the clinical encounter as a source of understanding how patients acquire knowledge about their health. He examines the clinical interview as a specific discourse genre, employing Schegloff’s theory that greetings establish identity and align interlocutors’ states of knowledge to the context. Without explicitly engaging in rhetorical analyses of medical dialogue and cognition, both Groopman (2008) and Frankel (1995) insinuate that specific ways of interacting and thinking persuade doctors and patients to make certain clinical decisions.

Referring to similar work, Elwyn and Gwyn (1998) contend that scholars must examine clinician-patient discourse more carefully than previous research if they want to comprehend the decision-making that occurs during the “black box” (p. 166) of the consultation. They argue that a fine-grained analysis of medical stories can help describe the nature of clinical practice and understand the channels and obstacles to successful communication. Without explicitly pointing to rhetorical analysis as a means of achieving these goals, Elwyn and Gwyn (1998) emphasize
that scholars must consider how doctors and patients assign meaning to clinical anecdotes. Their claim that illnesses are socially constructed experiences that doctors and patients replicate through narratives indirectly endorses rhetorical theory as a means of exploring how healthcare professionals and patients collaboratively negotiate clinical situations.

The scholarship in the field of medical communication that refers to rhetoric more explicitly only uses such concepts on a limited basis, offering little insight into how persuasion and argumentation come into play in clinical settings. For example, Atkinson’s (1995) consideration of how hematologists describe the existence of disease and convey their expertise to fellow doctors questions the rhetorical techniques used in medical education. In his study, he claims to focus on how these physicians’ discourse generates, distributes, persuades, constructs, and teaches others about medical knowledge and practices. Because of his disciplinary stance in sociology, though, he analyzes his results in the context of work by scholars like Mishler and Freidson rather than through notions that overtly address argumentation and persuasion.

Similarly, in his discourse analytic study of conversations between faculty physicians and fellow physicians, Erickson (1999) examines the rhetorical structure of the case presentation and argues for its status as a specific genre within medical apprenticeships. He labels the discourse between interns and preceptors as an “intermediate kind of speech situation” (p. 110) – neither entirely pedagogical nor wholly collegial. He also contends that the case presentation serves as a benchmark for assessing residents’ increasing initiation into the medical community. Although he only implicitly uses rhetorical concepts, Erickson argues that the case presentation serves as a channel through which residents persuade preceptors of their competence. Mentioning

10 Fellow physicians have graduated from residency training and have continued their postgraduate training to subspecialize in a specific area of their residency specialty. For example, physicians who have completed an internal medicine residency may apply for fellowships in cardiology or rheumatology, which require additional years of training.
persuasion as a critical component of the interactions between novice and faculty physicians but neglecting to probe this claim reveals Erickson’s role as a discourse analyst. Still, the point he and other scholar make begs the question: how does persuasion actually unfold in a clinical setting?

Discussing medical discourse in the context of the humanities, Hunter (1991) and Montgomery (2005) explore clinical narrative and judgment, drawing from Aristotle at certain points in the discussion to contextualize how physicians accomplish medical work. Montgomery (2005) contends that medical education, as a moral and logical endeavor, depends on context and Aristotle’s concept of phronesis. Medical phronesis relies on clinical anecdotes or case narratives because this data provide physicians with time- and context-dependent data. Clinicians begin with the preliminary story and develop a hypothesis, against which they test the rest of the details of the patient’s narrative. Highlighting medicine’s narrative method of obtaining and transmitting vital medical information, Hunter (1991) contends an adequate theory of medicine must consider physicians’ everyday work of diagnosing and treating illness and recognize that “medicine is an interpretive activity, a learned inquiry” (p. xx). Although the discussions in Hunter (1991) and Montgomery (2005) reference classical rhetorical concepts, the analysis does not revolve around a critical consideration and application of rhetorical concepts to clinical data.

Unlike scholarship that implicitly or limitedly draws on rhetorical concepts in analyses of medical discourse, some scholars have explicitly examined the role of rhetoric during novices’ learning processes. In her book on the rhetoric of health and medicine, Segal (2005) advocates the “heuristic value” (p. 4) of rhetorical theories in analyzing and changing medical practice. Discussing how rhetorical research might be useful in medical contexts, Segal argues, “Rhetorical criticism, then, is an intentionally underspecified procedure, with certain characteristic interests,

11 According to Montgomery (2005), phronesis is “practical reasoning . . . [which involves] flexible, interpretive capacity that enables moral reasoners . . . the best action to take when knowledge depends on circumstance” (p. 4-5).
for the study of persuasive elements, in a wide range of texts, especially in the realm of social
action or public discourse” (p. 10). She applies this notion to situations in health and medicine,
drawing on specific Aristotelian notions, such as *kairos* and audience. In a study of patients’
online constructions of their disabilities, Ghiaciuc (2011) also employs an explicit rhetorical
stance, arguing that appeals to *ethos* tend to be excluded from studies of medical and health-
oriented topics. Exploring how chronically ill patients confront commonly accepted *ethos* in the
media, Ghiaciuc (2011) uses this rhetorical appeal to conclude that “online medical communities
allow patient-advocate *ethe* to fill in some of the apparent gaps between conception and lived
facts, with the possibility of publicly accepted, co-constructed knowledge arising from patients.”

Research on novice physicians’ use of oral critiques from their preceptors also explicitly
demonstrates the role of rhetorical feedback in interactions between apprentices and faculty
physicians (Pomerantz et al., 1995; Lingard & Haber, 2002). Pomerantz et al. (1995) argue that
preceptors offer interns spaces to revise their presentations by posing inquiries with embedded
hints, regarding answers as possible but re-asking questions, and handling clinical evaluations as
viable but in need of more consideration. Instead of quickly correcting interns’ mistakes,
Pomerantz et al. (1995) contend, preceptors give trainees opportunities to change their
evaluations by pausing and providing brief positive feedback, which enables novices to modify
their mistakes and take credit for the correct answers.

Similar to Pomerantz et al.’s (1995) treatment of novice physicians as students in need of
instruction from faculty physicians, Lingard and Haber (2002) regard medical students as
rhetorically unskilled. They maintain that medical students learn how to choose and structure
medical data and the collective values and objectives of medicine through their case
presentations. Arguing that medical novices engage with experts in their clerkships through a
cycle of “*trial-error-feedback-interpretation-application/retrial*” (p. 159), Lingard and Haber
Lingard and Haber (2002) contend that novices often fail to identify the rhetorical strategies faculty physician embed into their feedback and oversimplify the feedback using an unsystematic method of trial and error. Like Pomerantz et al. (1995), Lingard and Haber (2002) interpret novice physicians’ rhetorical skills to be inferior and in need of improvement rather than as valuable indications of their progression through developmental stages of their education.

Addressing the purpose of case presentations, Lingard and Haber (2002) claim that these oral interactions involve senior physicians “gradually [introducing] novice members to medical pressures, procedures, and decisions” (p. 157). Because they only analyze two case studies, Lingard and Haber (2002) suggest an important trend but struggle to identify the specific rhetorical phases in the development of novices’ case presentations. Identifying another purpose of the case presentation, Erickson (1999) labels the discourse between interns and preceptors as an “intermediate kind of speech situation” (p. 110), contending that the case presentation helps preceptors assess residents’ increasing initiation into the medical discourse community. Still, neither Erickson (1999) nor Lingard and Haber’s (2002) work fully supports claims about the goals and purposes of case presentations with fine-grained analyses of various resident-preceptor conversations; therefore, this dissertation’s careful examination of how these conversations use scaffolding and guidance to enculturate novices into the field of medicine provides greater insight into the process by which physicians become self-sufficient professionals.

The discussion in this section has examined exemplars in the field of medical discourse and communication to demonstrate the type of scholarship that has characterized this subfield. Notably, this research tends to focus on communication between doctors and patients rather than the discourse between physicians. Moreover, a rhetorical lens tends to be implicitly treated in many discussions of medical language, and the scholars who explicitly discuss rhetoric often do so in a limited capacity. Responding to calls within the field by Segal (2005) and others, this
dissertation explicitly utilizes a rhetorical lens to analyze a largely unexamined area of medical communication – conversations between novice and experienced physicians. As I have argued, this perspective offers productive insights about how novices acquire disciplinary expertise.

*Medical Education*

The discussion in the previous sections has suggested how this study can be considered a rhetorical study of workplace literate practice and professional enculturation. As a result of the nature of the communication at this research site, this dissertation has the potential to provide insight into medical teaching. My multi-layered account of various preceptors’ and residents’ communication styles can offer faculty physicians greater awareness of the range of possible teaching and learning styles. The discussion in this section argues that this dissertation may be useful for faculty physicians who engage in pedagogical conversations because the analysis and conclusions extend beyond the typical emphasis in medical education on quantitative data.

Studies in the field of medicine have examined physicians’ use and composition of medical texts primarily through survey and interview research. Such work has considered how physicians utilize and neglect specific sources of reference in their work practices; this research suggests that physicians rely on verbal interactions with other medical personnel more often than chart notes or other textual references (Stone et al., 1999; Brown et al., 2004; Echlin et al., 2004). For instance, Brown et al. (2004) surveyed intensive care unit physicians about what sources of information they use and found that physicians use verbal interactions with other medical personnel more frequently than chart notes or other textual references. Likewise, Echlin et al. (2004) tested one strategy to increase physicians’ use of clinical practice guidelines (CPGs) in response to repeated findings that physicians value but fail to implement these guidelines in their practice. Stone et al. (1999) offers two explanations for physicians’ failure to use CPGs:
physicians cannot easily access these guidelines during daily work, and physicians sometimes perceive these guidelines as mere “cookbook” (p. 172) treatment of patients rather than individualized care. These studies point to trends in physicians’ use of oral and written resources, but because these researchers rely on survey and interview data, their conclusions simply identify trends rather than provide an in-depth understanding of those patterns.

Other studies in medical education study physicians’ literacy through case study analyses of pedagogical practices and methods used in residency programs; they indicate that resident physicians need personalized, ongoing guidance to hone their learning and writing skills (Kern et al., 1990; White & Anderson, 1995; Clandinin & Cave, 2008). For example, Kern et al. (1990) evaluated the benefits of a feedback system for residents’ chart-writing. They found that “an ongoing chart audit and feedback system can be associated with improvements both in the performance of individual residents and in the long-term performance of a residency program” (Kern et al., 1990, p. 218). Kern et al. (1990) found that offering residents personalized comments about their notes positively correlated with residents’ progress and learning. Similarly, White and Anderson (1995) conclude that attending physicians should serve as facilitators of learning by guiding resident physicians through the learning process rather than directing the learning process as experts or supervisors. Clandinin and Cave (2008) also suggest that using reflective writing with resident physicians can help physicians-in-training contemplate their progress and skills. The common thread among these scholars’ findings is that resident physicians need personalized, ongoing feedback and guidance to hone their learning and their writing skills; still, these studies do not examine the language of this feedback and guidance systematically, leaving questions about the nature of resident-preceptor conversations unanswered.

As a scholar who promotes critical analysis of research design in studies of medical discourse, Barton (2001) discusses the significance of carefully designing discourse-based studies
of medical work to account for the interdisciplinary nature of these studies. Addressing the potential usefulness of language research in medical settings, Barton (2001) analyzes her experience with conducting a discourse study of physicians’ referral practices (Barton, 2000) and the feedback she received on this research from a medical audience. Because this audience found her research interesting but relatively unusable for their practices, Barton (2001) stresses the importance of reconceptualizing interdisciplinary research that spans the fields of medicine and language studies. She outlines a productive heuristic for designing discourse studies in medicine, including meaningful contributions to both fields, a restructuring of knowledge conception and creation, immersion in the theories and practices of medicine, and attention to clinical outcomes.

In designing this study, I considered the relevance of my work to faculty physicians involved in residency education and the importance of milestones in training (e.g., effective treatment of clinic patients, performance on in-service and board exams, etc.). Although I cannot evaluate clinical outcomes, my multi-layered account of preceptors’ and residents’ communication styles provides physicians with insight into the range of possible teaching and learning styles as well as common stages in their pedagogical conversations with residents.

The studies in medical education about physicians’ literate practices point to plausible trends through conclusions about physicians’ perceptions of their uses of information sources in workplace writing activities. By examining how novices actually engage in the oral and written discourses of medicine, this dissertation provides a situated, fine-grained, and potentially more accurate understanding of how resident-preceptor conversations about resident-authored chart notes serve pedagogical purposes in teaching hospitals. Analyzing the interactional and rhetorical strategies preceptors and residents use demonstrates how these physicians create and respond to opportunities for teaching and learning and how certain conversational turns allow these physicians to achieve critical institutional goals. Furthermore, the rhetorical analysis reveals how
Faculty physicians facilitate residents’ progression from relying on forensic rhetoric to utilizing deliberative rhetoric as they become more experienced.

**Conclusion**

This dissertation contributes to scholarship in the subfields of professional literate practice and disciplinary enculturation, classical rhetoric, medical discourse, and medical education. By analyzing the collaborative conversations and independent note-writing of resident physicians by means of classical rhetorical concepts, this dissertation examines an unexplored area of medical communication and traces the rhetorical evolution of novices’ professional enculturation into the field of medicine. Furthermore, this study’s *in situ* methodological approach to studying medical rhetoric and writing responds to calls in the scholarship for more situated, dynamic examinations of professional literacy. Finally, the methodology in this dissertation enables a closer consideration of some of the trends previous studies of medical education have identified; this dissertation thus offers insight into the affordances and constraints of certain styles of engaging in pedagogical conversations about writing in resident-run clinics.

This chapter has outlined the broader contexts into which this dissertation can be situated. In Chapter 2, I describe the details of the methodological framework for this study in more depth by characterizing the research site, participants, methods of data collection, theories informing the methodology, and process of data analysis. Then, in Chapter 3, I examine the resident-preceptor conversations selected for this dissertation using Heritage’s (2004) institutional conversation analysis. I identify six major conversational categories that describe the activities performed within conversational turns, the interactional asymmetry in different phases of the conversations, trends in turn-taking organization, and overall structural organization of the conversations in the data set; these results describe the major institutional objectives that residents and preceptors
work toward in each stage of the conversation. Based on the conclusions from this analysis, in Chapter 4, I use three of the major conversational categories from Chapter 3 to engage in a fine-grained rhetorical analysis of the conversations. Examining these physicians’ use of common topoi in Chapter 4, I demonstrate how preceptors and residents create opportunities for teaching and learning clinical logos and ethos, thereby enabling residents to shift from relying on past-fact oriented forensic rhetoric in the first year of residency to using forward-looking deliberative rhetoric in the final year of residency. Then, in Chapter 5, I use the rhetorical framework outlined in Chapter 4 to analyze the think-aloud protocol transcripts; I examine how residents at different levels use different rhetorical topoi and rely on previous resident-preceptor conversations as they compose their final chart notes independently. Finally, in Chapter 6, I explicitly triangulate the conclusions from these analytical chapters to draw conclusions about the differences in resident-preceptor conversations and independent note-writing from the first to the final year of residency.
CHAPTER 2

Methodology: Using Quantitative Conversation Analysis Methodology to Provide Access into Qualitative Rhetorical Analysis

In this dissertation, I use a composite methodology to triangulate sources of verbal data and acquire insight into the ways novice physicians engage in professional literate practices. In this chapter, I first review my research questions and the sources of data that respond to those questions. Next, I describe my process of recruiting research participants and involving them in data collection. Then, I describe my data collection in terms of both methods and the methodological theories underpinning the process. Finally, I explain and illustrate the analytical frameworks used to examine the data, outlining how this dissertation study consists of primarily two complementary analyses – a conversation analysis and a rhetorical analysis. I outline the conversation analysis that was used in Chapter 3 to pinpoint specific areas on which to conduct my rhetorical analysis of the conversations in Chapter 4 and the think-aloud protocol data in Chapter 5. Specifically, I explain how the first analysis examines conversational turn design and organization, and the second analysis considers the argumentative structure of the conversations and think-aloud protocol sessions by considering rhetorical *topoi* and appeals. As indicated in Chapter 1, these research questions have motivated this dissertation:

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12 For this dissertation, I define “literate practices” as the shared interactions and activities that surround and influence any reading or writing that occurs in a particular setting. Recent scholarship defines professional literate practice as involving collective participation in mutual activities (Prior, 1998; Wenger, 1999; Jackson, 2004), distributed thinking and learning (Hutchins, 1995), social meaning-making (Latour & Woolgar, 1986), and dynamic literate identities (Farrell, 2000; Karlsson, 2009).
• What interactional and rhetorical strategies do residents and preceptors use in conversations about resident-authored chart notes to allow novice physicians to participate in the oral and written discourses of medicine?

• What rhetorical strategies do resident physicians consider while they are independently composing final written notes in patient charts?

• What interactional and rhetorical strategies in resident-preceptor conversations and independent note-writing in patient charts change from residents’ first year to their final year of residency training?

To respond to the first research question about the interactional and rhetorical strategies used in resident-preceptor conversations, I collected field notes based on my observations in the clinic and recorded resident-preceptor conversations. In response to the first part of the question about the interactional techniques in these conversations, I employed Heritage’s (2004) method of institutional conversation analysis in Chapter 3. The findings from the conversation analysis facilitated the focused rhetorical analysis in Chapter 4 where I examined the Aristotelian lines of reasoning and appeals in these resident-preceptor discussions. To respond to the second research question about the rhetorical strategies residents use during independent note-writing, I collected recorded think-aloud protocol sessions conducted by residents while composing final notes in their patients’ medical records along with recorded retrospective interviews with residents conducted after the think-aloud protocol sessions. To analyze the think-aloud protocol sessions in Chapter 5, I drew on the same rhetorical concepts from Chapter 4 in an attempt to understand the extent to which the argumentative and persuasive techniques from the conversations emerge in residents’ thinking processes. Throughout Chapters 3, 4, and 5, I respond to the third research

13 Although I collected field notes and retrospective interviews, these data sources served as supplements to my primary data source, recorded conversations, and my secondary data source, recorded think-aloud protocol sessions.
question, which asks about the extent to which interactional and rhetorical strategies change from the first to the third year of residency training. I bring together the three separate analyses in Chapter 6, where I offer a final response to the third research question.

Because of patient confidentiality laws, I did not have access to resident physicians’ written notes in the patient chart. However, the opening segment of the resident’s oral case presentation involves the resident reading aloud the first draft of the chart note to the preceptor. Also, during their think-aloud protocol sessions, resident physicians read aloud some text already written in their chart note as well as written material they added as they completed the note. Because my data collection involved recording and transcribing these situated conversations and think-aloud protocol sessions, I ultimately acquired a fragmented transcript of the resident’s oral recitation of the written chart note; this transcript provides some access to the written artifact at the heart of these physicians’ collaborations and independent composing processes.

The Research Site: Participants, Data Collection, and Data Selection

Initially, I intended to acquire comparative data by recruiting first-year post-graduate-year residents (PGY-1),\(^{14}\) to whom I refer in this dissertation as “early novices,” and third-year PGY-3 residents, to whom I refer as “late novices.” I theorized that data from these two groups of participants would help identify the differences in discourse patterns between residents who have only been in residency for six to eight months and residents who have been in residency for nearly three years and would be graduating from the residency program in a few months. I first

\(^{14}\) Post-graduate year, or the acronym PGY, indicates the number of years since the physician’s graduation from medical school. In the context of internal medicine, PGY-1 residents are the least-experienced first-year residents, PGY-2 residents are second-year residents, and PGY-3 residents are the most-experienced residents.
sent a recruiting email to the chief resident, who disseminated the request for participation in this study to first-year and third-year residents; this email offered residents a cash incentive to participate. After sending the email, I attended the residents’ monthly business meeting and presented the project to recruit participants. At the meeting, the chair of the department offered to incentivize residents by also offering gift cards to a local restaurant. After expanding the recruiting practices at this meeting, I decided not to limit this study to PGY-1 and PGY-3 residents and also accepted second-year PGY-2 residents.

Although twelve resident physicians signed up to participate in this study at the business meeting, I could only schedule observation dates for nine residents. This dissertation included three PGY-1 residents (Seth Nair, Dennis Riley, and Corey Taylor), two PGY-2 residents (Jessica Davis and Mounir Saad), and four PGY-3 residents (Jared Chopra, Maria Collins, Molly Keller, and Neal Jackson), six males and three females. Although more preceptors participated

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15 In internal medicine, each year faculty physicians ask one outstanding third-year resident to complete one additional year of residency and serve as chief resident. This resident practices in the department and fulfills clinical responsibilities of a full-time attending physician as well as administrative duties for the residency program, such as generating schedules, managing resident meetings and conferences, and resolving residents’ professional issues.

16 Because of the limited number of participants in this study, individual differences among residents and preceptors may have affected the trends outlined in Chapters 3, 4, and 5. Accordingly, in Chapter 6 I suggest that observing a larger number of participants would improve the likelihood that the detected trends are not idiosyncratic to the specific participants. Furthermore, I argue that conducting longitudinal studies following the same resident physicians across time may facilitate a better understanding of individual differences and a clearer conception of residents’ literate progress as they advance through training.

17 All physician and patient names have been changed to maintain confidentiality. Patients’ ages, important dates, and demographic information have also been altered to protect their identities.

18 As a result of the imbalance in the number of residents at each level of residency, frequency counts are an inaccurate way of determining differences between residents at different levels. As a result, many of my statistics in subsequent chapters compare percentages within each residency level as a means of examining differences between groups of residents.

19 As mentioned, the term “early novice” refers to first-year PGY-1 residents, and the term “late novice” still refers to third-year PGY-3 residents. In subsequent chapters, I also refer to PGY-1 residents as the “least-experienced,” PGY-2 residents as the “more-experienced,” and PGY-3 residents as the “most-experienced” residents.
in this study, the preceptors included in the conversations selected for analysis include Ted Baker, Louise Hu, Ray Johnson, Jackie Rogers, Ryan White, and Sandra Tao, all full-time faculty physicians in the Department of Medicine during the study. Before observing any interactions between a resident and preceptor about a patient, I acquired informed consent from each patient. If a patient refused consent, I left the bullpen area before the resident being observed returned to the bullpen to discuss the non-consented patient.

To understand the interactional and rhetorical strategies residents and preceptors use in this setting, the first two interrelated methods of data collection occurred during observations of resident-preceptor conversations in the conference area of the clinic. During each observation, I freehanded field notes and audio-recorded the conversations between one resident physician and the preceptors with whom the resident chose to confer; ultimately, the recorded conversations served as my primary data source, which I analyze using conversation analysis in Chapters 3 and rhetorical analysis in Chapter 4; the field notes simply supplemented my analyses in these chapters. To log field notes, I attempted to employ Emerson et al.’s (1995) open jotting, which records “the unfolding context of the ongoing interaction” (p. 23). During the first day of observation, I strove to record the gist of conversations along with the unspoken activities: the handling of texts, silent reading and writing, and the apparent functions of interactions. However, because most resident-preceptor conversations did not take a significant amount of time and because the recorder captured all of the oral dialogue, rather than record detailed field notes I decided to jot questions to ask during the interviews, which typically occurred soon after the shift.

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20 As I explain later in this chapter, to narrow down my corpus for this analysis, I selected one patient case for each resident physician participant; thus, any preceptor(s) who discussed selected patient cases with residents became included in my analysis. Other preceptors who participated in my study became excluded from this dissertation.
Anticipating that residents would write their final chart notes soon after their clinic shifts, I prepared them at the beginning of their shifts to collect my secondary data source, the think-aloud protocol sessions, which I analyze using rhetorical analysis in Chapter 5. I gave residents instructions for conducting the think-aloud protocol while they wrote their final notes (see Appendix). I used the following script to describe the think-aloud process:

*You should think out loud while writing each chart note, saying everything that comes to mind as you are making decisions about what to write and how to write it. Remember not to say what you’re doing but what you’re thinking. If you find yourself falling silent for longer than a few seconds, you’re probably thinking things that you’re not saying aloud, and you should try to keep talking. Let’s do the practice task with tape recorder, which involves practicing writing an “Assessment and Plan” while thinking out loud. We’ll record the practice task. When you’re done, we will have a brief retrospective interview either here in the clinic or over the phone.*

After the practice task, residents received a portable recording device to use, and I told them to conduct the think-aloud session anywhere that felt natural. Some residents chose to complete their notes and think-aloud session in a quiet examination room in the clinic after their shift ended, and some took the recorder home where they completed their notes and think-aloud activity.

After the think-aloud sessions, I conducted interviews with the resident physician participants to supplement the conversation and think-aloud data. During the interviews, I posed open-ended and closed questions that I generated while observing their conversations with preceptors; these questions provided insight into residents’ perceptions of their discussions with preceptors in the clinic and their independent writing process. To develop questions for the interviews, I identified specific interactions and remarks that I struggled to understand or that revealed professional literate practices. These questions probed residents to explain, describe, and
interpret the interactions. These questions resembled Spradley’s (1979) “specific grand tour questions . . . [which take] the most recent day, the most recent series of events, or the locale best known to the informant” (p. 87) and ask the informant to clarify the meanings they assign to the events. During the interviews, I also asked residents to reflect on their writing process:

What types of issues seemed most critical while you were writing your notes? What were you trying to communicate in each of your chart notes? What types of problems, if any, did you encounter as you were writing your notes? How did you solve these problems? What helped you to solve these problems? Were there particular readers you were thinking about as you wrote each note? If so, who? What did you bear in mind as you considered each possible reader? What is your objective when you’re writing notes? How do you make sure you reach this objective?

Posing more open-ended questions encouraged the residents to discuss the sources and factors that played a role in their note-writing process.

After collecting the data, I reviewed the field notes and audiotapes several times, completed rough transcriptions,\(^{21}\) and wrote initial memos about all of the conversations in the corpus. Reflecting on the field notes considered Emerson et al.’s (1995) suggestion that a fieldworker ought to flesh out the initial ideas in the notes as soon after observations as possible. After completing the rough transcriptions, I immersed myself in the transcripts to determine which patient case from each resident participant best responded to my research questions about residents’ participation in oral and written discourses of medicine. I selected one patient case from each participant to narrow down an extensive corpus of data.

\(^{21}\) My rough transcriptions recorded most of the words interlocutors spoke but ignored issues like overlaps, pausing, and other nuanced aspects of conversation transcription. My final transcriptions accounted for these dimensions of the conversations.
My method of selecting one patient case from each resident relied on an emergent framework for narrowing down the corpus for this dissertation. First, I selected one patient case per resident participant in consideration of the context and the resident’s response to the case. Most importantly, I chose patient cases that involved a complex clinical situation, such as a new patient, a patient with multiple medical problems, a patient whom the resident deemed difficult to manage, or a patient whose diagnostic and treatment decisions prompted debate between the physicians. To examine these residents’ literate practices, I also selected patient cases that required reading or discussing texts on the patient case, including previous notes written by other healthcare professionals, lab results, or imaging reports. Because a key responsibility of primary care is to treat patients’ psychosocial issues (Kleinman, 1988), I chose cases that assessed the patient’s social issues, including the patient’s report of her or his medical condition, compliance or understanding of medical issues, diagnosis, or treatment. Finally, I selected cases that engaged the resident in detailed note-writing and think-aloud processes; these think-aloud sessions tended to be lengthier than other patient cases discussed by the same resident and showed critical thinking about the case. Such characteristics served as the basis for selecting patient cases because they spoke to my interest in literate practices and in the dynamic, situated ways that novices and experienced physicians negotiate workplace dilemmas.

I selected a complex patient case for each resident participant because these cases typically required residents to rehearse discourses of medicine in more depth and deliberate about issues with the preceptor. Also, these cases usually elicited a more engaging and rich retrospective interview conversation than the simpler patient cases. Further, complex patient cases typically resulted in more painstaking and thorough think-aloud sessions, providing greater insight into the issues resident physicians ponder while writing their final notes in patients’ charts. After choosing one patient case per resident physician, I transcribed all conversations,
think-aloud discussions, and interview segments associated with that patient, using Tannen’s (1989) conventions for transcribing intonation, pauses, overlaps, latching, and dialogue. After transcribing, I used frameworks of institutional conversation analysis and classical rhetoric to analyze the conversation and think-aloud transcripts, which I describe later in this chapter.

The discussion in this section has outlined the process of recruiting and involving participants in my data collection as well as the process of data selection. I have outlined my methods of collecting primary and secondary data sources, recorded conversations and think-aloud protocol sessions, and supplemental data sources, field notes and interviews. In the next section, I discuss the theories supporting these methodologies of data collection.

Theories Informing Data Collection

My decision to use resident-preceptor discussions of resident-authored chart notes as the primary data source and think-aloud sessions as my secondary source stems from my assumption that these conversations play a role in residents’ clinical reading, writing, and learning. As discussed in Chapter 1, many studies of professional literacy examine texts or writers’ individual composing processes, limiting their focus to written *products* rather than studying the social

\[22\] I used Tannen’s transcription methodology in this study. Specifically, I used these symbols:

- . indicates sentence final falling intonation
- , indicates clause-final intonation ("more to come")
- ?! indicates exclamatory intonation
- . . three dots in transcripts indicate a pause of ½ second or more [with brackets indicating the number of seconds]
- . . two dots indicate perceptible pause of less than ½ second
- CAPS indicate emphatic stress
- [ ] Brackets (with or without top flap) show overlap.
- Simultaneously.
- Brackets with top flap reversed show latching
- No perceptible inter-turn pause.
- “ ” quotation marks highlight dialogue
- /words/ in slashes show uncertain transcription
interactions that envelop professionals’ reading and writing. As Heath (1983) contends, the oral interactions that envelop literate practices reveal the fundamentally social nature of reading and writing. When residents and preceptors interact, oral discourse imbues the writing and reading in which novice physicians participate. Examining novices’ professional enculturation in a resident-run outpatient clinic involves examining the “literate orientations” (Brandt, 1989, p. 32) that emerge in writers’ oral discourse. In a professional setting like a resident-run internal medicine clinic, literate orientations include novices’ interactions with experienced physicians as well as their independent reading and writing activities. Below, I discuss the theoretical foundation of my choice to use a specific primary data source (conversations), secondary data source (think-aloud protocols), and supplemental data sources (field notes and interviews).

This dissertation attempts to study residents’ literate practices from two angles – the collaborative work in the bullpen and the independent work completed while the resident composes final chart notes. Collecting recorded conversations and field notes allowed for conversation analysis in Chapter 3 and rhetorical analysis in Chapter 4, two frameworks that explored the “particularities” (Bloome & Bailey, 1992, p. 183) of specific professional “literacy events” (Heath, 1983). The particularities in the analyses of the resident-preceptor discussions include types of responses, turn-taking and structural organization, lines of argument, and rhetorical appeals. To understand the role of the social in novice physicians’ independent writing processes, I collected a secondary data source, think-aloud protocol transcripts to gain insight into the considerations residents make while participating in a problem-solving activity like writing. The particularities in the analysis of these think-aloud transcripts include argumentative structure and persuasive appeals. Residents’ think-aloud protocols revealed what issues, problems, and remnants of their interactions with preceptors emerge during a solitary literate activity.
Advocates of protocol methodology, Ericsson and Simon (1984) argue that a verbal protocol reveals a person’s mental “search through a problem space” (Ericsson & Simon, 1984, p. 163) and provides insight into the considerations writers make during problem-solving activities. Because think-aloud protocols compel writers to verbalize the knowledge they employ reflexively in natural conditions, protocols can be “a rich source for information about some of what the writer is thinking as she is writing” (Berkenkotter, 1981, p. 389). Although protocols can be useful when coupled with textual analyses, combining these analyses is not essential. Justifying her decision to analyze writers’ protocol transcripts but not their texts, Kirsch (1991) explains:

I was primarily interested in exploring how writers’ representations of readers evolve and change during the process of composing. Obviously, the letters produced by writers in this study display many of the audience concerns voiced in the protocols. They do not, however, represent the verbal record - the chronicle of writers’ emerging sense of audience and authority - that accompanied the production of each letter. (p. 37)

Focusing on the writers’ talk rather than the written products associated with the concurrent protocol, Kirsch (1991) makes a compelling case for examining verbal protocols as valuable data sources in their own right.

Although language scholars have used think-aloud protocols to examine literate practice for decades, the use of this methodology has been debated. In a well-known critique of Flower and Hayes’ think-aloud methodology, Cooper and Holzman (1983) question whether think-aloud protocols characterize the phases of the recursive writing process better than a linear textual analysis of drafts. They contend that Flower and Hayes’ methodology depends on a “casual reliance on unarticulated theories and an unsound methodology . . . [and] deprives them of any real support” (p. 284). Positing that think-aloud methodology mirrors Wundt’s theory of introspection, they argue that Flower and Hayes overlook the abstractness of their model of
cognition and falsely represent protocols as “direct evidence of cognitive processes” (Cooper & Holzman, 1983, p. 285).

Although they acknowledge Flower and Hayes’ recognition that think-aloud protocols offer a partial representation of writers’ processes, Cooper and Holzman (1983) maintain, “Protocols, far from being ‘extraordinarily rich in data,’ are exceedingly impoverished sources of information on what writers are thinking about” (p. 286). They critique Flower and Hayes’ limited data, participant training, leading instructions, and the unnatural conditions under which their protocols are collected. Claiming that they do not consider Flower and Hayes’ methodology valid, these authors argue that think-aloud protocols can help form a theory about what certain writers say about the writing process but cannot be considered “data about the writing process, nor even, given its limitations, particularly useful data about the cognitive processes of writers in this particular situation” (Cooper & Holzman, 1985, p. 99). They conclude that, until scholars resolve problems of definition and theory, protocols cannot produce valid results.

Responding to this critique of their use of think-aloud protocols, Flower and Hayes (1985) disagree with Cooper and Holzman’s (1985) equating think-aloud protocols with introspection and dispute their interpretation of think-aloud scholarship. Arguing that Cooper and Holzman confound protocol methodology with Wundt’s introspection, Flower and Hayes (1985) point out that Wundt instructed his participants to use specific elements in their reports of their thinking, whereas protocol methods do not mandate certain ways of thinking or reporting their processes. Flower and Hayes (1985) also contend that protocol analysis differs from introspection in theory and practice and departs from Emig’s “rather impressionistic use of thinking aloud” (p. 96). Moreover, they cite Ericsson and Simon’s (1984) extensive defense of protocol methodology, calling attention to questions about whether the activity of reporting thoughts influences the primary process (e.g., writing); they conclude that the answer rests on the type of
thought process and the report. If participants report verbal or non-verbal thoughts they typically recognize while enacting a task, the protocol process does not affect the process.

Although Flower and Hayes (1985) close by acknowledging the limitations of think-aloud protocol methodology, they ask whether a better methodology can accomplish its goal:

Protocols show us only traces of the rich and complex phenomena of thought. There is much they miss. However, this is true of every observational method. If incompleteness were grounds for rejecting methods, we would have no methods at all. The important fact to notice about protocols is that they do provide some data about some processes. (Flower & Hayes, 1985, p. 97)

They invite Cooper and Holzman to suggest other methodologies that answer their research questions, suggesting that their colleagues formulate different methodologies for examining the composing process in more dynamic ways than textual analysis. Similar to the defense by Flower and Hayes’ (1985), Berkenkotter and Murray (1983) concede that scholars using think-aloud protocol must recognize that all writers have personal idiosyncrasies. As a result, they sacrifice “generalizability for the richness of the data and the qualitative insights to be gained from it” (p. 167). They also suggest that literacy scholars repeat research on various types of writers to enable the field to generate more generalizable conclusions about the composing process.

Also supporting verbal data as a means of studying composing processes, Smagorinsky (1995) defends concurrent think-aloud protocols and retrospective interviews a way to examine literate practices. Maintaining that writing is a problem-solving activity because writers make various decisions while writing, Smagorinsky (1995) contends that verbal data about writing offer valuable insight into composing processes and disputes claims that the process of thinking aloud interferes with the writing process; he argues that the cognitive level of processing required for writing allows writers to think aloud and compose simultaneously. Discouraging depictions of
this methodology as a “mechanical means of investigation” (Smagorinsky, 1995, p. xiii), he proposes a more accurate representation of protocols:

A fundamentally human methodology, eliciting a sample of the thoughts that go through writers’ minds, through a medium that can affect their behavior and which may be indeterminably complex due to interactions between the writer and researcher; and subjecting the data to the interpretations of people with biases, agendas, assumptions, and weaknesses. (p. 16)

For Smagorinsky and others, then, concurrent think-aloud protocol data are hardly uncomplicated windows into writers’ minds but material that provides access into the strategies and thoughts writers consider as they compose.

Scholars often triangulate the results of concurrent think-aloud protocols with retrospective accounts of writers’ composing activities. Assessing retrospective interview methodology, Berkenkotter and Murray (1983) argue, “There is considerable cognitive activity that writers cannot report because they are unable to compose and monitor their processes simultaneously. Researchers have responded to this problem by taking retrospective accounts from writers immediately after they have composed” (p. 157). Retrospective accounts bring weaknesses, though, including writers’ tendencies to impose narratives on their composing processes. Regardless, asking writers to conduct the think-aloud protocol in a naturalistic setting and interviewing them immediately after they have composed increases the possibility that their reports of their writing processes are more accurate (Berkenkotter & Murray, 1983). In this dissertation, then, concurrent protocols provide insight into what is involved with residents’ process of writing (see Witte & Cherry, 1995), and retrospective interviews offer insight into residents’ why they make specific writing choices (see Greene & Higgins, 1995).
My decision to supplement the conversational and think-aloud data with interview data also stems from theoretical models that stress the importance of seeking participants’ interpretations of their practices. Corbin and Strauss (2008) advocate that researchers involve informants in evaluating interpretations and explanations of field data and seek out their informants’ labels and interpretive frameworks to produce more member-sensitive findings and conclusions (Corbin & Strauss, 2008). Considering Blakeslee et al.’s (1996) support of including participant voices in one’s research, I interviewed the participants so they could “co-construct text and knowledge . . . through negotiations and interactions, rationally and intellectually contributing to the research” (Blakeslee et al., 1996, p. 136). Despite the aforementioned weaknesses of retrospective interviews, gathering this supplemental data produces more multi-layered literacy research.

As mentioned, combining concurrent think-aloud protocol sessions and retrospective interviews examines more than one representation of residents’ individual writing process. Although these methodologies offer some insight into professional writers’ considerations while composing, no scholars have examined novice physicians’ independent writing process in this way to understand how literate activities contribute to professional enculturation. Rather than examining the textual products physicians generate, in this dissertation I attempt to determine what issues, problems, texts, and conversations residents believe they consider while composing medical chart notes. Though writers’ written products do not appear in this dissertation, my conclusions about what novice physicians believe they think while writing offers a sense of the rhetorical strategies writers use while they generate written products.

The analysis in this section has justified my decisions to collect conversational and think-aloud data as my primary and secondary data sources and to supplement these sources with field notes and interviews. Although some of these methodologies have been critiqued, each captures a
specific component of these novices’ literate practices and thus contributes to data triangulation. In the next section, I discuss how I examined these primary and secondary data sources to engage in two main analyses: a conversation analysis of the recorded conversations and a rhetorical analysis of the recorded conversations and think-aloud sessions. I also demonstrate how the conversation analysis honed in on the arguments and persuasive attempts in the conversations.

Data Analysis

The discussion in this section outlines the two major analyses in this dissertation: institutional conversation analysis of recorded conversations and rhetorical analysis of recorded conversations and think-aloud protocol sessions. The institutional conversation analysis (Heritage, 2004) occurs in Chapter 3 and outlines the turn design, turn-taking organization, interactional asymmetry, and structural organization in these conversations, pointing to the major institutional goals of these pedagogical discussions. Below, I trace the specific course of this analysis, the modifications I made to Heritage’s (2004) framework, the resultant coding scheme, and the way the results provided access into the rhetorical analysis. The rhetorical analysis (Aristotle, 2007) begins in Chapter 4 with an examination of the topoi, logos, and ethos in the conversations between residents and preceptors; the rhetorical analysis continues in Chapter 5 with a rhetorical analysis of the think-aloud data. These analyses trace novices’ shift from forensic to deliberative rhetoric over the course of their training. The section below that follows my discussion of the conversation analysis sketches the major rhetorical terms, my reappropriation of certain concepts, and examples of the notions that appear in Chapters 4 and 5.

Conversation Analysis

Many resident physicians in internal medicine remain in this clinical specialty after postgraduate training and spend much of their professional lives interviewing, examining, testing,
diagnosing, and treating patients in outpatient settings. Accordingly, resident-preceptor conversations in a resident-run outpatient clinic serve as fertile grounds for residents to experiment with, observe, hone, and seek guidance about clinical reasoning. As described in Chapter 1, Atkinson (1995) and others indicate that few scholars have examined physician-physician conversations centered on resident-authored chart notes and other documents. As a result, we understand relatively little about the interactional strategies faculty physicians and residents use to share clinical reasoning, offer and seek clinical recommendations, and model clinical skills while discussing resident-authored notes. Understanding the nuances of this form of communication and the arguments embedded in these conversations can enable language scholars to better understand the discussions that surround and imbue oral and written discourses of medicine. Systematically studying these conversations also uncovers the teaching and learning strategies woven into a critical pedagogical space. The discussion in this section traces how I examined the turn design, turn-taking organization, interactional asymmetry, and structural organization of these conversations in Chapter 3 to develop insight into these interactions.

The methodological foundation for Chapter 3, which examines the conversation transcripts, utilizes Drew and Heritage’s (1992) work in the area of institutional conversation analysis. According to Drew and Heritage (1992), analysts can study how institutional interactions enact field-specific activities and goals using various established conversation analysis constructs. Specifically, they contend that institutional talk differs from talk in other settings because in institutions, interlocutors attempt to reach goals related to their roles within the organization, converse against a backdrop of institutional limitations, and base their goal-oriented talk around embedded structures and systems. For example, although residents exercise

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23 For this study, I define an interlocutor as an individual who participates in a conversation with someone else.
some autonomy over the patient case because they hold the role of primary care physician, their
preceptors must underwrite their decisions; thus, residents’ professional actions are limited to
those decisions endorsed by the preceptor. These roles determine and, at times, limit these
interlocutors’ discourse, influencing their interactional and rhetorical strategies.

According to Heritage (2004), the “institutionality of interaction” (p. 225) can be gleaned
from six major areas of conversation analysis, which form the basis of the analysis in Chapter 3.
First, at a fine-grained level, Heritage (2004) suggests examining turn design, which characterizes
speakers’ discrete turns to according to the activities they accomplish and the lexical means
employed to perform these activities. Second, in terms of lexical decisions, institutional
conversations can be scrutinized for field-specific descriptors, vocabulary, constructs, language,
and grammar. Third, turn-taking organization reveals how professionals in certain workplaces
arrange their turns within conversational exchanges, which expand or constrain interlocutors’
perceptions and behaviors. Fourth, sequence organization examines the broader ways
interlocutors organize their professional practices into chains of conversational exchanges, which
interlocutors initiate, acknowledge, and terminate according to specific work-related aims. Fifth,
overall structural organization presents a more general understanding of the configuration of
institutional conversations, providing a “map” (p. 227) of the conversation’s characteristic stages
and specific objectives. Sixth, interactional asymmetry can be explored to ascertain why
interlocutors in certain roles speak more or less in certain segments of the conversation, signaling
asymmetry in participation, knowhow, knowledge, or rights of access to knowledge. Immersing
myself in the data revealed that the most useful of these six tools of institutional conversation
analysis would be turn design, turn-taking organization, structural organization, and interactional

24 A conversational turn consists of everything one speaker says before an interlocutor speaks.
25 In this study, I define exchanges as a series of conversational turns that depend on each other
for meaning.
asymmetry. I suspended examination of the lexical choices until Chapter 4 where I focus closely on the language during a rhetorical examination.

Turn Design. First, I assessed the trends in turn design within these conversations to understand the activities occurring in each conversational turn. Heritage (2004) defines turn design as “(1) the action that the talk is designed to perform and (2) the means that are selected to perform the action (Drew and Heritage, 1992)” (as cited in Heritage, 2004, p. 231). In this section, I describe the modifications I made to Heritage’s (2004) concept of turn design, my process of inductively developing categories to represent the actions in these turns, the resultant coding scheme, and my integration of interrater reliability into my procedure.

Although conversation analysts typically use the conversational turn as the unit of analysis, I chose to break down the conversational turns in this corpus into clauses because most turns in these types of discussions achieve more than one activity; specifically, lengthy conversational turns often occur in the beginning of these conversations when residents offer extended descriptions of the patient encounter26 and toward the end of the conversation when preceptors give lengthy explanations of clinical concepts and treatment plans. Furthermore, using individual clauses as the unit of analysis maintained a close, fine-grained focus on the actions enacted by the participants’ language. Because examining conversational turns at the clause level analyzes a finer level of activity, I divided the conversation turns in the corpus into individual clauses (dependent; independent; or a combination of both); after identifying the individual clauses, I coded each clause according to the activity being accomplished therein. Although I broke down these conversational turns into clauses, I later broadened my level of analysis, which

26 The patient encounter includes the physician’s interview and physical examination with the patient.
ensured that the analysis maintained a focus on the conversational turn as a whole entity within these conversations. Thus, even though I examined the conversational turns at the clause level during the first analysis, my subsequent stages of analysis – interactional asymmetry, turn-taking organization, and structural organization – used larger units of analysis, which accounted for the essence of conversation analysis.

In deciding where to separate the individual clauses in the conversational turns, I used context clues from surrounding clauses, field notes, and interview transcripts to identify where one activity ended and another began. In some cases, a dependent or independent clause suggested a single activity, so I coded the clause as accomplishing an independent activity. For example, Dr. Chopra states in an independent clause, “He. . was in a MCDONALD’S eating with his family” (JCRW1\(^{27}\) line 5); this one clause accomplishes an independent activity, so I coded it separately from surrounding clauses. In other cases, one or more dependent clauses required an associated independent clause to suggest a specific activity, so I coded the clauses as collectively accomplishing one activity. For example, Dr. Taylor’s independent clause depends on surrounding clauses to report the patient’s experienced: “She had said she hasn’t drank anything since she left the hospital” (CTJR1 line 21), so I assigned a single code to the entire group of clauses. When speakers terminate thoughts before performing an activity or offer one-word responses to interlocutors, I coded these clause fragments (e.g., “Um. .”).

\(^{27}\) Each transcript cited has been identified according to two sets of initials and a numeral: the resident physician’s first and last initials, the preceptor’s first and last initials, and the conversation number. The conversation number corresponds to when the conversation occurred in the context of the specific patient case. For example, if the resident and preceptor held three separate conversations about a patient, the second conversation would be identified with the numeral two. I considered conversations “separate” if time passed between them; for example, if the resident left the conference area for some reason and returned to discuss the patient again, I considered it to be a new conversation.
Coding specific clauses according to the performed activities generated detailed minor categories that represent the activity being performed and the linguistic means of achieving the activity (e.g., tentative, imperative, explicit). After establishing these minor categories, I categorized them into six major categories, each representing the general purpose of the clause (in descending order of frequency in the data set): phatic responses; proposals; reported speech; assessments; statements about medical concerns, testing, and treatments; and questions. After coding each transcript three separate times to ensure consistency, I generated tables with these columns: major category label, minor category label, minor category definition, and minor category examples (see Table 2.1 below).

I also generated clause frequencies and percentages for each major and minor category. I recorded these statistics (see Chapter 3, Table 3.1): total sums of resident clauses and preceptor clauses at each residency level (and percentages of resident and preceptor clauses in relation to each other) and total sums of clauses at each residency level (and its percentage of the overall total number of clauses). These statistics ascertained the proportions of certain clause types between residents and preceptors, the proportions of certain clause types at different levels of residency, and the overall proportions of clause categories to the overall total sum of clauses in the corpus. Moreover, these statistics explained the trends in the types of actions performed by residents and preceptors during these conversations, the differences in verbal trends depending on residents’ level of training (PGY-1, PGY-2, or PGY-3 level), and the means through which arguments are articulated in these conversations; this final pattern in my findings created access into the rhetorical analysis for Chapter 4. In Table 2.1 below, the major and minor categories, definitions, and examples of these categories appear; also, the table includes the total frequency of each clause type at PGY-1, PGY-2, and PGY-3 levels and the percent of each clause type to the total number of clauses at PGY-1, PGY-2, and PGY-3 levels.
<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Definition</th>
<th>Examples</th>
<th>Total Frequency</th>
<th>Total Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>PGY-1</td>
<td>PGY2</td>
</tr>
</tbody>
</table>
| Phatic responses | Brief acceptance | Offering support or acknowledgement of an interlocutor’s claim with a succinct, sometimes vague, thought or by conveying backchannel to show one has heard the interlocutor’s ideas or claims | • Yeah, okay.  
• Okay. .  
• I think, yeah.  
• Mm hm.  
• I know,  
• Yes!  
• Sure. | 1: 297 | 2: 106 | 3: 274 | 1: 19.7% | 2: 16.7% | 3: 22.7% |
| Incomplete thought | Terminating a claim before conveying a comprehensible or interpretable idea, either because of an interruption or because the speaker begins articulating a new idea | • Is treat –  
• So it’s kind of .  
• She –  
• It sounds like, maybe, mm. .  
• But he doesn’t – | 1: 174 | 2: 86 | 3: 132 | 1: 11.5% | 2: 13.5% | 3: 11.0% |
| Explicit claim of uncertainty | Conveying a sense of doubt or indecision about a specific clinical decision or situation | • I don’t know. .  
• I don’t know why. | 1: 17 | 2: 8 | 3: 15 | 1: 1.1% | 2: 1.3% | 3: 1.2% |
| Proposals | Tentative proposal about a clinical decision | Suggesting how the interlocutor might examine, test, or treat a conceptual clinical issue in a somewhat open-ended or modalized manner; posing one’s opinion about decision-making with a speculative tone | • I’m even debating if we should just send him straight to a cardiologist.  
• And certainly we can aggressively treat the blood pressure, too. | 1: 94 | 2: 41 | 3: 66 | 1: 6.2% | 2: 6.5% | 3: 5.5% |
| Imperative proposal about a procedural task | Instructing or declaratively asserting what to do to enact or perform a procedural task or whether to perform a task; specifically referring to the steps of performing a procedural task rather than addressing conceptual issues associated with the clinical decision; these tasks include completing electronic medical record commands, ordering medications or tests, making referrals to specialists, etc. | • Fax it over.  
• Set it for two hours.  
• Do the rectal exam, have them CONTRACT during the exam,  
• I just selected that dose of Symbicort.  
• And you just send them off. | 1: 73 | 2: 20 | 3: 25 | 1: 4.8% | 2: 3.2% | 3: 2.1% |
<p>| Imperative proposal | Instructing or declaratively asserting that one should make | • Okay, uh, so give her her second | 1: 52 | 2: 24 | 1: 3.4% | 2: 3.8% |</p>
<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposal about a clinical decision</td>
<td>A specific clinical choice, including ordering tests, administering treatments, or prescribing medications or tests; posing one’s opinion about decision-making with an imperative or declarative tone</td>
<td>So, I’ve got to start him on a statin.</td>
</tr>
<tr>
<td>Proposal about a disease course</td>
<td>Offering a possible progression or development of the patient’s disease, illness, condition, or current symptom</td>
<td>Yeah, because she would DIE if she. . . got something like that.</td>
</tr>
<tr>
<td>Proposal about physical examination</td>
<td>Indicating some finding determined from physically examining the patient’s body in the exam room</td>
<td>I mean, her abdomen is still distended.</td>
</tr>
<tr>
<td>Proposal about etiology</td>
<td>Asserting a specific cause or source of an established clinical condition, disease, illness, or symptom</td>
<td>So, if she didn’t smoke, it probably wouldn’t happen.</td>
</tr>
<tr>
<td>Proposal about explanation/interpretation of test results</td>
<td>Analyzing or rationalizing why one thinks a clinical test has yielded or will yield specific results, outcomes, or findings; interpreting test results as normal, abnormal, safe, or alarming</td>
<td>Because her pressures wasn’t tolerating it.</td>
</tr>
<tr>
<td>Tentative proposal about a procedural task</td>
<td>Suggesting what to do to enact or perform a procedural task or whether to perform a task with open-ended or modalized tone; specifically referring to the steps of performing a procedural task rather than addressing conceptual issues associated with the clinical decision; these tasks include completing electronic medical record commands, ordering medications or tests, making referrals to specialists, etc.</td>
<td>I can call him BACK.</td>
</tr>
<tr>
<td>Reported speech</td>
<td>Stating a subjective aspect of the patient’s actions or bodily experience as an unequivocal declarative statement</td>
<td>She was drinking. . . uh. . . like a twenty-</td>
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<p>| 1:38 | 1:36 | 3:38 |
| 3:3.2% | 2:4.7% | 3:2.6% |
| 1:39 | 2:6 | 3:34 |
| 1:2.6% | 2:0.9% | 3:2.8% |
| 1:22 | 2:20 | 3:36 |
| 1:1.5% | 2:3.2% | 3:3.0% |
| 1:34 | 2:2 | 3:27 |
| 1:2.3% | 2:0.3% | 3:2.2% |
| 1:29 | 2:10 | 3:16 |
| 1:1.9% | 2:1.6% | 3:1.3% |
| 1:94 | 2:38 | 3:72 |
| 1:6.2% | 2:6.0% | 3:6.0% |</p>
<table>
<thead>
<tr>
<th>patient’s behavior or experience</th>
<th>Indirect report of speech or text</th>
<th>Hypothetic al use of speech or text</th>
<th>Direct report of speech or text</th>
<th>Assessments</th>
</tr>
</thead>
<tbody>
<tr>
<td>fact, even though it has been acquired through conversing with or reading texts about the patient; asserting information that can only be obtained through talking with or reading about the patient as fact</td>
<td>Paraphrasing what someone has said or written about the patient’s case or a medical aspect of the case; the speaker uses a reporting clause (e.g., “he said”) with these indirect reports</td>
<td>Quoting or paraphrasing what one typically says or writes about patients in similar clinical situations, or quoting or paraphrasing what one should or plans to say or write about the current patient</td>
<td>Quoting what someone has said or written about the patient’s case or some medical aspect of the case; the speaker uses a reporting clause (e.g., “he said”) with these direct reports</td>
<td>Evaluating holistic aspects of the patient case, including its ease or difficulty, the management of the case, the overall state of the clinical situation, or the patient’s behavior or personality</td>
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</table>
| four ounce beer like a tall beer, daily. | • He said he’s been getting episodes of chest pain.  
• SHE describes is as a Clot that went to her bowel. | • And if this guy says, “My diet’s changed a lot, or. . .”  
• If you had to say, “Well. . .” [1 sec.] “What is your definition?” | • “No stricture blockage.”  
• And I asked him, “Never at rest?”  
• His exact words are “dark, tarry stools.” | • I, I have it. . . fairly under control now.  
• Yeah, I’m a little worried about this guy. . .  
• She, she’s very compliant. |
| Ever since then, he’s had his – some residual left-sided HAND numbness. | | | | Evaluating a specific option for testing, treating, or examining the patient |
| | | | | Evaluating one’s own, one’s interlocutor, or someone else’s ability to enact or complete a procedural task for the patient, specifically reviewing the steps of performing a task |
| | | | | • It looks like, on the water pill, she’s doing fairly well.  
• So a stress test isn’t really going to be helpful. . . |
| | | | | • It’s not hard to call these people up. . .  
• I think it’s easier to read. . . at least.  
• I tried to put | | | |
<table>
<thead>
<tr>
<th>Statements about medical concerns, testing, and treatments</th>
<th>Report of medical tests or procedures</th>
<th>Report of test results</th>
<th>Search for information in records</th>
<th>Statement of the history of medical attention</th>
<th>Factual statement about the patient</th>
<th>Announcement of the reason for patient visit</th>
<th>Report of the patient’s medical history</th>
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<tr>
<td>rather than addressing conceptual issues associated with the clinical decision (e.g., ordering a test, prescribing a medication, etc.)</td>
<td>Expiating the dates, places, and clinical motivations for the patient’s prior or future medical procedures, surgeries, and diagnostic tests</td>
<td>• So he’s been doing therapy, • She had, um, just blood work done. • And she just had a colonoscopy.</td>
<td>Explicating the dates, places, and clinical motivations for the patient’s prior or future medical procedures, surgeries, and diagnostic tests</td>
<td>• She was actually in, I think, at the end of January, beginning of February. • Patient came in, in September. um. . to [local hospital]. .</td>
<td>• And he lives out in [nearby city]. • This, this is a fifty-one-year-old White male.</td>
<td>Stating the reason(s) the patient has come into the clinic for medical attention</td>
<td>Explicitly announcing some well-established aspect of the patient’s medical history, including chronic conditions,</td>
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<td>down wheelchair-bound, but they didn’t have it.</td>
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<td>• He’s three-hundred-twenty-seven pounds. • He’s afebrile. • Um. . and her, her CD-4 count’s, like, sixty-three.</td>
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<td>• Let me pull him up here. . . [12 sec.] • I’m interested to see what you plugged in. • Let’s see what this says.</td>
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### Interrater Reliability in Turn Design Coding

In inductive qualitative research, ensuring reliability in one’s analysis involves explicating the analytic procedures and integrating interrater reliability into the process. To allow readers to replicate the process of analyzing the data, scholars must detail “all steps, presumably so that they can be ‘checked’ by another researcher” (Armstrong et al., 1997, p. 598). More importantly, incorporating interrater reliability into the analytic process in formative – rather than summative – ways improves the coding scheme. Discouraging post-hoc tests of reliability, Morse et al. (2002) maintain that “Contrary to current practices, rigor does not rely on special procedures external to the research process itself” (p. 6).
Instead, Morse et al. (2002) support using interrater reliability during the analysis process so researchers can collaborate with outsider raters and incorporate “self-correcting during the conduct of inquiry” (p. 1) to productively “shape and direct the research during its development” (p. 9). This practice of fine-tuning the coding scheme and analytic procedures during the research process allows qualitative researchers to produce more valid, defensible conclusions.

In coding the data for this dissertation, the context in which the clauses occur matters critically to reliability; therefore, rather than selecting a random sampling of clauses out of context, I selected extended passages for two independent raters to code. First, I employed Geisler’s (2003) recommendation and determined how many clauses comprised 10% of the data. Then, I randomly selected four transcripts, ensuring that each level of residency training was represented in the sample; specifically, I selected passages from each transcript at each quartile until I acquired a 10% sample of the entire data set. Next, I asked an independent rater to code the entire sample, met with her to discuss the discrepancies in the data, and refined my category definitions to clarify any misunderstandings. Finally, I asked a second independent rater to code the 10% sample using the refined category definitions.

To determine the reliability of the coding scheme, I calculated the percentage of simple agreement as well as Cohen’s kappa correlation for both independent raters and averaged their scores. Hayes and Hatch (1999) point out that in studies of literate practice, scholars often determine the degree of reliability using simple agreement, or the percentage of the sample coded into the same categories by the researcher and an independent coder; instead of relying on simple agreement, they advocate using measures of correlation, which account for the possibility that some of the coding agreements could occur by chance. Thus, Hayes and Hatch (1999) suggest that literacy researchers use correlation measures to achieve greater accuracy in their claims of reliability. After comparing the independent raters’ coding of major categories to my own coding
of major categories, the average simple agreement is 83.1%, and the average Cohen’s kappa is .79, which Fleiss (2003) considers an excellent correlation.

Although for the major categories I achieved an excellent correlation by collaborating with independent coders, I chose not to seek reliability on the minor categories, in part because the analysis in Chapter 5 focuses on the major categories; thus, discrepancies in the minor categories do not affect my arguments substantively. On a theoretical level, the challenge of acquiring strong reliability on thirty minor categories with a unit of analysis such as the uttered clause proves insurmountable. Armstrong et al. (1997) cite Morse, who contends that “expecting another researcher to have the same ‘insights’ from a limited data base is unrealistic” (p. 598-599). Exemplifying this claim in a study where they aim to reach reliability among six experienced researchers, Armstrong et al. (1997) explore the degree to which researchers align in their qualitative descriptions of themes in the same corpus of verbal data. Although all six researchers discerned comparable major themes, they produced different codes because of their diverse interpretive frameworks. This study demonstrates that qualitative coding can produce agreement, even if “the ‘packaging’ of these themes [shows] a number of different configurations” (Armstrong et al., 1997, p. 604).

Like Morse et al. (2002), Geisler (2003) advocates recursively revising coding schemes using interrater reliability by considering what created disparities between coders, identifying probable reasons for disagreement, and modifying the analytic procedures to reduce discrepancies. Accordingly, after discussing disagreements with the independent coders, I realized that some of the disparities stemmed from their inability to understand the context of the passages. In some cases, more lines from the transcripts may have enabled the raters to identify the code I associated with a given clause. In other cases, without the medical background required to understand the meaning of the clauses, the independent raters would be ill-equipped to
correctly categorize them. Thus, the reading I did to enable myself to understand the medical jargon and concepts in the data allowed me to classify the clauses into categories with more expertise than the independent raters. According to Geisler (2003), recognizing the limits of interpretation requires researchers’ recognition that their interpretations depend on contextual knowledge; an independent coder could never reproduce the coding exactly. Although Hayes and Hatch (1999) advocate using interrater reliability in qualitative research, they also argue, “Most literacy studies do not require the greater power afforded by generalizability measures, and given the statistical sophistication and additional data collection required to employ these measures, we do not view their widespread use as either necessary or practical” (p. 365).

*Interactional Asymmetry.* The second step in my institutional conversation analysis broadened the fine-grained examination of the clauses within conversational turns to conversational exchanges to examine interactional asymmetry in these discussions (Drew & Heritage, 1992). As Heritage (2004) explains, “interactional asymmetries are a place at which to begin examining the specific institutionality of interactions . . . (1) participation; (2) ‘knowhow’ about the interaction and the institution in which it is embedded; (3) knowledge; and (4) rights to knowledge” (p. 236). These four types of asymmetries reveal who participates more dominantly in certain phases of the conversation, who possesses greater awareness of the institution or understanding of field-specific concepts, and who can access privileged information. Understanding interactional asymmetry in these conversations provides insight into how residents and preceptors manage teaching and learning through their interactions. In this section, I explain how I extended the unit of analysis to the conversational exchange, categorized the exchanges, and drew conclusions about the distribution of exchanges in the corpus.
I began by separating the conversations into exchanges, considering that “type of exchange” (Fairclough, 2003, p. 17) can be one way of understanding institutional conversations. According to Fairclough (2003), “An ‘exchange’ is a sequence of two or more conversational ‘turns’ or ‘moves’ with alternating speakers, where the occurrence of move 1 leads to the expectation of move 2, and so forth – with the proviso that what is ‘expected’ does not always occur” (p. 106). To divide the transcripts I previously coded for turn design into individual exchanges, I determined where an exchange began based on the initiation of a new issue, different point about an issue, or novel piece of patient data. Speakers often signaled the end of an exchange by tersely accepting their interlocutor’s claim or by offering an incomplete thought. I considered a new exchange to start when a conversational turn did not seem to “expect” or point to the conversational turn that followed. For example, the following conversational exchange between resident Maria Collins and preceptor Ted Baker discusses a medication the patient has currently been taking for urinary incontinence:

Ted Baker28: Has Detrol made it worse?
Maria Collins: No. . it just isn’t helping.
Ted Baker: Doesn’t help AT ALL.
Maria Collins: Yeah. (MCTB1 lines 94-97)

I coded conversational exchanges to understand broader units of interaction, including how speakers introduced new topics and how interlocutors responded; therefore, I included in each exchange all conversational turns related to a single clinical topic or issue. In these types of conversations, one speaker sometimes addressed several clinical topics in one conversational turn without acknowledgment or interruption by the interlocutor; typically, this occurred in the beginning of the conversation when the resident presented the case in a series of extended conversational turns, and the preceptor allowed the resident to talk with very few interruptions. In

28 The names of all preceptors in this dissertation appear in italics to differentiate them from resident physicians.
these cases, I considered the end of an exchange to be when the interlocutor responded to the speaker’s extended turn with a brief acceptance or other response. For instance, the following conversational exchange between resident Corey Taylor and preceptor Jackie Rogers occurs in the beginning of the conversation when residents often take lengthy conversational turns:

Corey Taylor: It SOUNDS like I, I have it. . fairly under control now. But she’s in for post-hospital, um – She was actually in, I think, at the end of January, beginning of February, and had to be tapped twice. Didn’t have SBP [spontaneous bacterial peritonitis], anything like that. Was all consistent with, um – Due to elevated portal, you know, her SAAG [serum to ascites albumin gradient] and everything was consistent with portal hypertension

Jackie Rogers: From what?

Corey Taylor: From alcohol abuse.

Jackie Rogers: Oh, was it?

Corey Taylor: Yeah. (CTJR1 lines 7-19)

Notably, a conversational exchange requires two or more turns; however, occasionally a speaker suggested a new conversational topic that the interlocutor did not take up. I identified these exchanges as conversational exchanges despite there being only one interlocutor’s conversational turn or turns. For example, in a conversation between resident Seth Nair and preceptor Ray Johnson, the preceptor analyzes the case and the resident ignores the content of this turn and instead initiates a new exchange on a new topic:

Ray Johnson: Yeah, if – if you think she’s, like, really distressed by all this, and wants to order these tests sooner, You can bring her back sooner with the level of the distress that she’s having. I don’t think this is life-threatening or something /unclear/ . . . [9 sec.]

Seth Nair: And then, the only other thing about her. (SNRJ2 lines 1-6)

To analyze the trends in the types of exchanges and who initiates the exchanges, I then coded the conversation exchanges as either activity or knowledge exchanges (Fairclough, 2003).

As Fairclough (2003) explains, there are “two main categories of exchange . . . . Activity
exchange (often oriented to non-textual action). . . . [and] Knowledge exchange” (p. 106).

Fairclough (2003) also identifies the two types of activity exchange: those “initiated by the person who is (or may be) the primary actor in the action which is at issue [actor-initiated exchange], or by the person who is not the primary actor [other-initiated activity exchange]” (p. 107). Similarly, Fairclough (2003) distinguishes “between two types of knowledge exchange – one initiated by the person who has the knowledge (the ‘knower’), the other by the person who wants the knowledge [other-initiated knowledge exchange]” (p. 107 - 108). For example, in a conversation between resident Mounir Saad and preceptor Louise Hu, the resident introduces his plan to send the patient for physical therapy in an actor-initiated activity exchange:

Mounir Saad: I want him to go to rehab and –
Louise Hu: Physical therapy.
Mounir Saad: Physical therapy, I apologize, AND I would like him I –
if, if he is deemed that he needs pain management,
I’m going to refer him to [outpatient pain clinic].
Louise Hu: Agreed. (MSLH1 lines 256-262)

For this dissertation, I modified Fairclough’s definitions of these types of exchanges to understand when these physicians focus on activities and when they emphasize knowledge. I identified any exchanges that focus on clinical action as activity exchanges; I define clinical actions as concrete activities oriented toward diagnosing, treating, or communicating with the patient or healthcare professionals involved with the patient as activity exchanges. I consider the resident to be the actor in these exchanges since the resident holds responsibility for accomplishing all tasks associated with treating the patient. I identified any exchanges that focus on conceptual issues as knowledge exchanges; I define conceptual issues in this context as theoretical or intangible clinical discussions focusing on understanding or analyzing aspects of the case, including possibilities for a disease progression, potential reasons for particular symptoms, and analysis of test results. Because residents have read documented data on the
patient and have interviewed and examined the patient, I considered the resident to be the knower in all of these cases. Certainly, the preceptor “knows” and understands certain clinical concepts better than residents; however, I defined “knowing” in this context as possessing privileged knowledge about the patient case. For instance, this exchange between resident Molly Keller and preceptor Sandra Tao analyzes the effects of the patient’s recent medication in an other-initiated knowledge exchange:

Sandra Tao: Um. . he just got two shots of cortisone? That’s going to last him a few more MONTHS. We’re, we’re not going to have any WOUND-HEALING here, so –
Molly Keller: Mm hm. (MKST1 lines 154-157)

**Turn-Taking Organization.** To examine how these physicians organize their turns within these exchanges, my third step in this analytic process involved examining turn-taking organization, another construct deemed by Drew and Heritage (1992) to be relevant to institutional conversations. According to Heritage (2004), understanding the unique turn-taking organization of institutions points to “the parties’ opportunities for action and . . . the interpretation of almost every aspect of the activities that they structure” (p. 225-226). Next, I describe my analysis of turn-taking organization and the ensuing conclusions.

I began analyzing turn-taking organization by breaking down the structure of the turns within the conversational exchanges to determine common turn-taking patterns. I focused on the major categories rather than examining the minor categories within turns. To assess the turn-taking organization, I determined at each level of residency training and in each quartile which clause types tend to elicit one’s interlocutor to provide another clause type. I started by collecting all exchanges within the first quartile and among PGY-1 residents that started with one of the six major clause categories (Phatic Response, Proposal, Reported Speech, Assessment, Statement,
Question) and determining common clause types associated with exchanges that start with a specific clause type. I sketched the major clause categories in each conversational exchange in the transcripts, organized these exchanges according to the type of clause that began each exchange (e.g., conversational exchanges that began with a proposal are “proposal exchanges”).

To examine the variations in turn-taking organization among different levels of residency and in different conversation quartiles, I ascertained which types of clauses tend to elicit the interlocutor to provide other clause types. At each level of residency and in each quartile, I identified the most commonly associated clause categories for exchanges that begin with each major category. After identifying common trends, I assessed noticeable trends in the ways these common clause types are organized within exchanges. At each level of residency and in each quartile, I then identified the most common turn-taking organization for exchanges that begin with each major category. I used the results of this analysis to discuss which types of turns stimulate discussion among novice physicians about medical concepts and tasks and which types of turns encourage residents to remain passive in these conversations.

**Structural Organization.** As a fourth and final phase in my conversation analysis, I broadened the scope of my examination even more broadly to account for structural organization within these conversations. This analysis provided insight about the overall stages of the conversation, which Heritage argues can “build an overall ‘map’ of the interaction in terms of its typical ‘phases’ or ‘sections’ . . . [and] look at the task orientation which is normally central in the kinds of interaction we are looking at” (p. 227). As Heritage (2004) posits, “Each of these elements is a part of the next higher level” (p. 241); thus, understanding the broad phases of these conversations facilitated my process of cohering the previous three phases of analysis. Ultimately this phase of analysis helped me formulate arguments about the major and minor institutional
goals associated with these pedagogical discussions. The discussion in this section describes how I partitioned the transcripts, examined turn design within the different sections, and drew conclusions about the broadest phases of the conversations.

First, I divided the transcripts, which had been previously coded for turn design and conversational exchanges, into quartiles. Using quartiles to break down the major phases in these conversation models Schryer et al.’s (2002) convention; they contend that adhering to the prescribed organization of case presentations and speaking successively less in each quartile of the conversation with the physician helps medical students appear more skilled. I started by dividing the number of lines in a transcript by four and following the natural divisions of exchanges to split up the conversation into approximate fourths. Using the quartile to identify the phases of the conversation enabled me to divide the conversations in a standardized way and determine whether certain patterns in turn design, turn-taking organization, and interactional asymmetry occur in regular phases of the conversation.

After dividing these conversations into quartiles, I assessed the overall patterns in turn design and conversational exchanges in different stages of the conversation. First, to identify the distribution of each major clause type among residents of different levels and in different quartiles of the conversation, I calculated frequencies of resident and preceptor clause contributions as well as percentages in relation to each other at each residency level and in each quartile of the conversations. To determine the distribution certain institutional actions, I then examined the data in two ways: differences in clause category contributions across conversations of one residency level (e.g., from the PGY-1 first quartile through the PGY-1 fourth quartile) and the trends in clause category contribution across residency levels in each quartile (e.g., between PGY-1 first quartile, PGY-2 first quartile, and PGY-3 first quartile). These separate analyses offer perspective of how conversations between preceptors and residents at each level differ as they
progress from the beginning of the conversation to the end, and they provide insight into how conversations between preceptors and residents differ according to residents’ experience and expertise. Then, to determine the distribution of activity and knowledge exchanges in the different quartiles of these conversations, I generated frequencies and percentages on the distributions of exchange-initiation in each quartile and at each level of residency training (PGY-1, PGY-2, and PGY-3 levels). These statistics assess interactional asymmetry at different levels of residency and within different quartiles or phases of the conversation.

**Conclusions about conversation analysis.** Primarily, I used this quantitative methodology of institutional conversation analysis as a systematic way to determine the patterns and structure of these conversations. Institutional conversation analysis also provided an understanding of where residents and preceptors assert arguments, persuade each other, direct the conversation, and provide one another with opportunities for analysis, teaching, and learning. After examining the turn design, turn-taking organization, institutional asymmetry, and structural organization of these conversations, I immersed myself in the coded transcripts to assess where argumentation and persuasion occur most prominently. I determined that these three major categories provided the most discernible entry point into the rhetorical analysis for Chapter 4: proposals, questions, and reported speech. Also based on my conversation analysis, I knew that *logos* (an appeal to reasoning or logic) and *ethos* (an appeal to character or identity) were salient concepts.\(^{29}\) Thus, I began the rhetorical analysis by immersing myself in the transcripts again and examining the rhetorical *topoi* and appeals within these three major categories, which I discuss below.

**Rhetorical Analysis**

\(^{29}\) Although *ethos* and *logos* appeared to be salient in this analysis, appeals to emotion, or *pathos*, did not emerge as a critical rhetorical tool in medical education in this corpus of data.
After examining the argumentative structures in the three relevant conversational categories (proposals, questions, and reported speech), I commenced with the second major phase of analysis in this dissertation – the rhetorical analysis. This analysis showed that these physicians present their arguments using some of Aristotle’s common topics or topoi. Accordingly, I began examining all of the clauses within these three major categories in the conversation data to determine how they utilize topoi. Then, I immersed myself in the transcripts to determine how using these topoi enable these physicians to model and rehearse clinical ethos and logos. In Chapter 5, I examined these topoi and rhetorical appeals in the think-aloud data to understand rhetorical strategies residents use while they compose final notes in medical records. Ultimately, I determined that residents shift from a reliance on forensic rhetoric in their first year of residency to a greater use of deliberative rhetoric in their final year of residency. The rest of this section provides context for these rhetorical concepts, evaluate rhetorical analysis as a methodology, and define and illustrate my use of topoi in Chapter 4 and Chapter 5 of this dissertation.

Relevant rhetorical concepts. As described in Chapter 1, Aristotle’s topoi underpin the common lines of reasoning on which persuasion rests. Topoi are based in endoxa, or commonly accepted knowledge in a particular context; in this case, this knowledge consists of what medical professionals should know as fully participating physicians in the medical community. For the analysis in Chapter 4, I identified the topoi in the three pertinent conversational categories and determine which occur most often within these categories. Based on my immersion in the various sources of data, the most-used topoi in these categories: two from Aristotle’s idia, past-fact-and-future-fact and possible-and-impossible, and three from Aristotle’s 28 common topoi, antecedent-and-consequence, testimonial, and authority. In the proposals and questions, where speakers focus on logos, the most commonly employed topoi are antecedent-and-consequence, possible-
and-impossible, authority, and past-fact-and-future-fact. In the reported speech, where speakers appeal to ethos, the most-used topoi are antecedent-and-consequence and authority.

Because my research questions inquire into the strategies physicians use to enable residents to participate in oral and written discourses, I then analyzed which major categories and associated topoi elicited more active responses than passive responses. I define active responses as major conversational categories that meaningfully engage with one’s interlocutor. This engagement involves discussing the patient case by offering a recommendation or evaluation about the patient case (proposals and assessments); presenting or outlining subjective and objective data about the case (reported speech and statements); or inquiring about specific aspects of the clinical situation (questions). I define passive responses as any phatic response, which is the only major conversational category –also the most frequently employed category (33.1% of all clauses in these transcripts) – that submissively receives or supportively accepts the interlocutor’s claims without responding critically. When speakers use phatic responses, they allow their interlocutors to take more conversational turns and explain their view without interruption or engagement. Sometimes speakers contribute phatic responses to provide their interlocutor with time to share details about the patient case or analyze an aspect of the case. Still, I argue that the most effective teaching and learning in these conversations occur when both novice and experienced physician interact in a more active back-and-forth discussion.

Also in Chapter 4, I demonstrate which conversational responses are elicited by each of the three major conversational categories and their associated topoi. During this phase of the analysis, I identified each instance of the most common topoi in the transcripts and used contextual clues to determine whether the interlocutor responded passively or actively. I calculated frequencies of the major categories that speakers’ interlocutors employ. Organizing
this data into tables outlines residents’ total use of specific *topoi* and their preceptors’ responses (major conversational categories) and preceptors’ total use of *topoi* and their residents’ responses.

To analyze the think-aloud protocol transcripts for Chapter 5, I also used rhetorical analysis. I analyzed the independent clauses in the think-aloud transcripts according to Aristotle’s common *topoi* to assess residents’ independent rhetorical strategies. Through this analysis, I attempted to understand the *endoxa* of internal medicine, or the cultural assumptions and accepted knowledge of medical practice, based on residents’ language and modeling of their preceptors’ “best practices” in internal medicine. In the think-aloud transcripts, the most commonly used *topoi* are antecedent-and-consequence, authority, and testimonial. Below, I describe the issue of reliability in rhetorical analysis.

*Rhetorical analysis as a methodology.* Unlike my inductively developed codes in the conversation analysis, which I specifically define as demarcated, mutually exclusive categories, my rhetorical analysis draws from Aristotle’s *topoi*, which he does not define as mutually exclusive or clearly differentiated. Instead, as Warnick (2000) points out, “the common topics lack the precision and validity of scientific demonstration and formal logic” (p. 120); she argues, though, that the *topoi* work within the context of particular speakers and audiences to accommodate the argumentation and goals that align with the culture and thinking of a specific group. Similarly, Gaines (2000) recommends that scholars recognize “that, like any other text, the *Rhetoric* is subject to a multitude of legitimate interpretations. The reader then encounters the work, conceiving it as a reply to questions of relevance to the reader’s time, place, and experiences” (p. 20). Thus, relying on my observations of approximately fifty resident-preceptor conversations as well as my immersion in the fifteen conversations selected for this dissertation, I interpret *topoi* in the data set using my sense of these physicians’ *endoxa* and thinking; as
indicated, this sense was acquired by my immersion in this professional discourse community. Because Aristotle’s *topoi* cannot be considered clearly delimited categories, the interpretations in Chapters 4 and 5 are defensible but not exclusive analyses.

Accordingly, I align the rhetorical analysis in this dissertation with the approach Gross et al. (2002) employ in *Communicating Science: The Scientific Article from the 17th Century to the Present*. In their discussion of the rhetorical elements they identify in their corpus, they argue, “It would be ill-advised to claim that universally accepted definitions of these textual features exist; we contend only that our definitions do not violate the spirit of the mainstream” (Gross et al., 2002, p. 9). Explaining the challenges associated with achieving reliability in rhetorical analysis, they advocate striving to produce frameworks with “difficult-to-quantify features, even though this introduces unavoidable unreliability in our interpretations” (Gross et al., 2002, p. 12). They conclude in an evaluation of their methodology that they did not aim to achieve the “unobtainable goal of exact measurements . . . . In the parlance of science, we sought not so much quantitative results as ‘trends’” (Gross et al., 2002, pp. 243-244). Outlining the trends in Chapters 4 and 5 below, I define and provide examples of the salient *topoi* that emerged in my rhetorical analysis of the conversations and think-aloud protocol transcripts. These *topoi* become exemplars of the informal reasoning in this disciplinary community.

**Definitions and examples of salient topoi.** The most common argumentative topics, or *topoi*, in these three conversational categories include antecedent-and-consequence, possible-and-impossible, authority, past-fact-and-future-fact, and testimonial. In accordance with Gross (1996), I attempt to be transparent in my rhetorical analysis by ensuring that my use of the *topoi* “has been operationalized; moreover, each operationalization has been linked to a hypothesis” (p. xxix). In this section, I explain how these *topoi* look in the three different conversational
categories and provide examples of these *topoi* to give a context for my theories and analyses in Chapters 4 and 5.

Although Corbett and Conners (1999) and others share commonly accepted interpretations of Aristotle’s *topoi*, other scholars point out the somewhat open-ended nature of these argumentative strategies. In his discussion of Aristotle’s topics, Grimaldi (1998) explains, “We can say that the topics are sources, or *loci*, both particular and general, to which one must have recourse in constructing probable argumentation” (p. 123). Grimaldi (1998) contends that the methodology of the *topoi* has not been well-understood, highlighting “the rather truncated form in which the topics have come to us” (p. 124) and implying some fluidity in their interpretation. Accordingly, I began analyzing these *topoi* with Aristotle’s (2007) definitions in *On Rhetoric* and the translated descriptions offered by Corbett and Conners (1999), and as I immersed myself in the *endoxa* of medicine, I reappropriated the *topoi* slightly to accommodate the argumentative structures these physicians use.

*Antecedent-and-consequence.* When speakers use the antecedent-and-consequence *topos*, they correlate particular signs, symptoms, complaints, diagnostic testing, diagnoses, and treatments. When they use this argumentative structure, they do not draw causal connections but simply relate or associate clinical data as *potentially* connected. As Corbett and Conners (1999) explain, the antecedent-and-consequence *topos* “may be regarded as merely a looser form of the cause-and-effect arguments practiced in logic” (p.104).

For example, PGY-1 resident Corey Taylor uses the antecedent-and-consequence *topos* in his proposal to suggest that he order a urinalysis on a patient who complains of discomfort during urination: “Um. . the only other thing I was thinking about checking a UA [urinalysis] because she IS complaining of some, like, difficulty peeing” (CTJR1 lines 305-306). After he
proposes that he order a urinalysis, Dr. Taylor correlates the patient's urinary complaint (antecedent) and his decision to order a urinalysis (consequence). He implies his sense that the patient could be suffering from an infection, a condition that results in painful urination, and associates the patient’s complaint with the diagnoses a urinalysis can prove.

Similarly, antecedent-and-consequence questions suggest that the interlocutor correlate specific clinical signs or symptoms with certain decisions. While discussing a patient’s chest pain, Dr. Johnson asks the resident, Dr. Nair, whether the patient displays symptoms that can indicate a serious cardiac event: “She’s not giving you any of these types of symptoms?” (SNRJ1 line 116). After describing various symptoms that indicate the patient has high risk of cardiac conditions or events (antecedent), Dr. Johnson asks whether the patient has reported any of those symptoms, suggesting that if the patient does have those symptoms then the chances that her chest pain indicates a serious cardiac condition (consequence) could be high.

In antecedent-and-consequence reported speech, physicians correlate clinical data using someone else’s explanation of the clinical situation (e.g., patient or colleague). For example, PGY-2 Mounir Saad uses antecedent-and-consequence reported speech when he explains to his preceptor, “If you talk to him, he says, ‘You know, when I eat regular FOOD, I notice that my stool is very dark, but right now I’ve been on this liquid diet and vegetables, and now I feel a little bit better’” (MSLH1 lines 100-105). Indirectly correlating the consumption of “regular food” (antecedent) with irregularly dark stool (consequence), Dr. Saad shares the patient’s insinuation that solid foods contribute to his abnormal bowel habits, whereas liquid foods and vegetables (antecedent) improve his symptoms (consequence).

Possible-and-impossible. Speakers’ possible-and-impossible proposals and questions present one or a range of potential options for diagnosing, identifying symptoms, testing, or monitoring the patient. Corbett and Conners (1999) characterize this topos as persuading by
offering “examples of. . . a similar or identical thing” (p. 108), and by comparing or contrasting a current circumstance with those examples.

For instance, Dr. Rogers responds to her resident’s question about when to start screening a transgendered patient for breast cancer after using hormone patches with a possible-and-impossible proposal: “Probably not NOW if it’s only been a couple of years” (JDJR1 lines 272-274). In response to Dr. Davis's question about whether the patient's hormone usage will lead to breast cancer, Dr. Rogers speculates that the likelihood is low (impossible) because the patient has only been taking hormones for a short time.

Similarly, employing the possible-and-impossible topos in a question, Dr. Baker inquires about the potential diagnostic explanation the resident gives to the patient’s symptoms: “So, you’re thinking neurogenic possibly?” (MCTB1 line 38). Prior to this question, Dr. Collins mentions her hunch that the patient’s complaints point to diabetic neuropathy. The preceptor's question here paraphrases the resident’s hypothesis, suggesting that the source of the patient's symptoms could be neurogenic (possible) and using the word "possibly" to remind the resident that other diagnoses could also be causing the symptoms.

Authority. I consider proposals and questions authoritative (authority) when they rely on an “informed opinion” (Corbett & Conners, 1999, p. 113) to persuade others. In this context, resident physicians function as capable consultants who have firsthand experience with the patient and, therefore, intuition about treating the patient; on the other hand, faculty physician preceptors function as experienced educators who have a knowledge base about clinical topics. Speakers assert these types of proposals and questions by stating their arguments as given or assumed without explaining their rationale; they depend on their role as the expert on the patient’s experiences (residents) or the expert on medical reasoning (preceptors).
In an authoritative proposal, Dr. Collins shares with her preceptor what she plans to do about her patient’s bowel incontinence: “I’m just going to monitor her” (MCTB1 line 294). After she agrees with her preceptor's point that the patient lacks serious signs and symptoms, Maria Collins suggests her plan to pay attention to this issue but not treating the incontinence will be her plan. She does not explain why she will monitor rather than treat the patient more aggressively and instead uses her authority and intuition as the patient’s primary care physician to make her argument. As she indicates her sense about the patient’s issues and history, Dr. Collins signals that she should simply keep a close watch on this symptom.

Once Drs. Collins and Baker decide that the patient should try the technique of scheduled toileting to avoid episodes of incontinence, the preceptor asks the resident how she plans to talk with the patient about this practice in an authoritative question: “How, how are you going to TELL her to do that?” (MCTB1 line 172). Here, Dr. Baker appeals to her authority as a skilled interviewer and clinician who possesses knowledge of how to address treatment practices with her patient. In so doing, Dr. Baker also prepares her for his instructions about how she ought to talk with her patient about this practice.

**Past-fact-and-future-fact.** More common in questions than proposals, past-fact-and-future-fact questions persuade others by seeking previous evidence or data to infer the likelihood of future circumstances. As Corbett and Conners (1999) describe, past fact plays a role in forensic oratory and future fact plays a role in deliberative oratory, which examine past and future circumstances, respectively. In a medical setting, the persuasive force of using these *topoi* in questions derives from the continuity between past events and future experiences. For instance, considering Dennis Riley’s patient’s chest pain, Dr. Rogers inquires about the timeframe of his most recent experience with the discomfort. She asks, “When was his last... episode of chest
pain?" (DRJR1 line 84). Because recurrent chest pain can indicate an acute cardiac event, Dr. Rogers asks the resident when the patient last suffered discomfort (past fact), implying that if the patient has not had the pain lately then a cardiac event may not be imminent (future fact).

**Testimonial.** Testimonial reported speech provides an account of the patient’s explanation of her or his experiences, symptoms, or behavior. Notably, Corbett and Conners (1999) contend that “the testimonial does not have to come from an impartial, expert source to be persuasive” (p. 114) but also that “the testimonial is remarkably vulnerable to refutation” (p. 114). In these conversations, testimonials show how patients represent themselves as certain types of patients (e.g., compliant) and how residents depict themselves as professionals. In some sense, these residents use reported speech as a way to give their preceptors a hypothetical impression of how they portrayed themselves as doctors or how patients presented themselves as patients.

For example, as he describes the patient’s liver failure, Dr. Taylor relates, “She said she’s . . COMPLETELY been abstinent since she left the hospital” (CTJR1 line 82). Explaining the patient's claim about her drinking habits since she had been discharged from the hospital, Dr. Taylor reports that the patient claims that she has refrained from all drinking. He implies that the patient represents herself as having recognized her problem and begun the process of changing her habit. The patient portrays herself as reasonable and self-sufficient in improving her health.

**Conclusions about rhetorical analysis.** The discussion in this section has outlined the frequently used *topoi* in the rhetorical analysis of the resident-preceptor conversations in Chapter 4 and in the rhetorical analysis of the residents’ think-aloud protocol data in Chapter 5. I have provided Aristotelian definitions, my modifications of these definitions, examples, and explanations of these examples to provide a context for understanding the analyses in those
chapters. The following section explains the advantages of using institutional conversation analysis and rhetorical analysis as the major analytic frameworks in this dissertation.

Conclusion

In this chapter, I have presented the methodologies triangulated in this dissertation to produce a thick description of how resident-preceptor conversations enable novices to participate in the oral and written conventions of internal medicine. Using institutional conversation analysis as a means to conduct a more focused rhetorical analysis of residents’ conversations and think-aloud protocols, I have attempted to produce valid, methodologically rigorous interpretations of the physicians’ literate practices. In particular, the conversation analysis has generated insight into how residents and preceptors discuss resident-authored chart notes in situ, revealing how novice and faculty physicians structure their conversations and provide spaces for each other to learn and teach. The rhetorical analysis complements this conversation analysis by demonstrating how residents and preceptors attempt to persuade one another and rehearse and model clinical logos and ethos using rhetorical topoi. Providing insight into residents’ independent rhetorical strategies, my rhetorical analysis of the think-aloud data offers insight into residents’ individual decision-making process. Collectively, these data propose a model of how resident physicians use interactional and rhetorical strategies to become enculturated into the field of medicine.

Triangulating data in this dissertation attempts to produce an understanding of novices’ process of engaging in the literate practices of their field. This composite methodology enables a study of how resident physicians use verbal interactions and the writing process to prepare for composing professional texts and accomplishing field-specific tasks. Although other scholars

30 The handbook for this internal medicine clinic cites the following responsibilities of preceptors and residents: “The primary goal of the preceptor is to provide guidance and supervision to
have used conversation analysis (e.g., Barton 2000, 2001, 2004) and rhetorical analysis (e.g., Segal, 1994, 2002, 2005) to examine medical communication, the methodological blend in this dissertation uniquely uses quantitative analysis to create an entryway into qualitative analysis. Combining quantitative and qualitative methodology has produced results useful to literacy and rhetoric scholars who study the professionalization of novices. This research also has the potential to inform medical practitioners’ practices by facilitating their awareness of the effect of conversational and rhetorical strategies on residents’ learning.

In Chapter 3, I examine the resident-preceptor conversations in my data corpus using Heritage’s (2004) methodology of institutional conversation analysis to outline institutional goals and to provide an entry point for the rhetorical analyses in Chapters 4 and 5.
CHAPTER 3

The Role of Interaction in Honing Clinical Reasoning Skills:
An Institutional Conversation Analysis of Conversations in an Internal Medicine Clinic

In Chapter 2, I explained how institutional conversation analysis in this dissertation identifies field-specific goals and creates access into the rhetorical analysis in Chapters 4 and 5. Accordingly, in the current chapter, I utilize Heritage’s (2004) strategies to outline the structure of the selected resident-preceptor conversations to answer the first part of the primary research question: What interactional and rhetorical strategies do residents and preceptors use in conversations about resident-authored chart notes to allow novice physicians to participate in the oral and written discourses of medicine? To respond to this question, I examine turn design, interactional asymmetry, turn-taking organization, and structural organization to pinpoint the institutional goals residents and preceptors employ in their conversations to professionalize novices. I argue that the beginnings of these conversations involve residents in sharing objective clinical data, the middle phases engage novices and preceptors in back-and-forth analysis of this data, and the end of these discussions feature preceptors’ recommendations for proceeding with the case. Analyzing the shift in interactional strategies from the first to the third year of residency suggest that first-year residents rely on preceptors’ conceptions and evaluations of the case more than more-experienced residents, who participate in analysis more actively and independently.

According to Sarangi and Roberts (1999), “workplaces are held together by communicative practices” (p.1). They reason that understanding professional settings requires a fine-grained analysis of talk, text, and interaction, positing that the workplace is “a social institution where resources are produced and regulated, problems are solved, identities are played...
out and professional knowledge is constituted” (Sarangi & Roberts, 1999, p. 1). In medical settings, talk and interaction have intrigued conversation analysts for decades, in part because communicating with physicians, nurses, aids, and other healthcare professionals is a near-universal experience in Western culture. Consequently, much conversation analysis research has investigated conversations between physicians and patients, analyzing interlocutors’ roles and the effect of these conversations on the quality of medical care.

For example, Heritage and Maynard’s (2006) edited collection, Communication in Medical Care: Interaction between Primary Care Physicians and Patients, considers physician-patient conversations using a fine-grained method. Heritage and Maynard’s method explores how context, personal experiences, emotions, knowledge, and goals influence the clinical encounter. They argue that conversation analysis allows scholars to reconcile quantitative and qualitative methodologies by systematically studying various aspects of institutional conversations: interaction order, gestures, conversational turns, sequencing, adjacency pairs, modes of address, social context, and other constructs. Elsewhere, Heritage and Maynard (2006) posit that conversation analysis enables study of the broad organization of clinical encounters, the sequential structures that accomplish goals, and the design of specific conversational turns.

Scholars in Heritage and Maynard’s (2006) collection examine various aspects of the doctor-patient encounter in primary care settings. Their analyses of doctor-patient communication examine these and other aspects of clinical talk: doctors’ questions about patients’ concerns (Robinson, 2006) and medical history (Boyd & Heritage, 2006); patients’ descriptions of their medical problems (Heritage & Robinson, 2006) and symptom discovery (Halkowski, 2006); patients’ suggestions and physicians’ reactions (Gill & Maynard, 2006); physicians’ diagnostic statements (Perakyla, 2006); doctors’ news delivery (Maynard & Frankel, 2006); doctor-patient negotiation about treatment (Stivers, 2006); and concluding the clinical encounter (West, 2006).
These conversation analyses identify the various stages in these clinical encounters and consider the range of methods for navigating common clinical dilemmas. In these studies, scholars aim to understand how doctors create opportunities for patients to discuss their medical issues and how these conversations shape patients’ perceptions and behaviors. These authors’ stated contributions to the field of medicine include refining clinical training and research, clarifying patients’ contributions to clinical conversations, empowering patients to exercise agency over their bodies and health, and improving continuity of care.

Although most conversation analyses of clinical communication focus on doctor-patient communication (Heath, 1992; Maynard, 1992; Frankel, 1995; Barton, 2000; Heritage & Maynard, 2006), some scholars have examined how faculty physicians converse with novices to prepare them for participation in the field (Atkinson, 1995; Pomerantz et al., 1995; Atkinson, 1999; Erickson, 1999; Lingard & Haber, 2002; Schryer et al., 2002; Barton, 2004). However, these studies typically analyze data collected in inpatient settings where novices orally present the patient case before novice and experienced physicians jointly examine and interview the patient. In other words, studies in inpatient contexts typically consider doctors’ discussions in the hallway outside the patient’s room before they evaluate the patient together. In contrast, in the outpatient setting where this study occurred, residents examine, interview, and read and write about patient cases without direct assistance from faculty physicians; this more autonomous participation in clinical assessment and communication advances residents toward the goal of independently practicing medicine more explicitly. Moreover, rarely have scholars examined how conversations in outpatient settings revolve around the first draft of the resident-authored chart note. The conversation analysis in this chapter, then, uniquely focuses on the pedagogical strategies residents and preceptors use in discussions about patient cases and written chart notes to support novices’ ability to independently achieve specific institutional objectives in an outpatient setting.
As outlined in Chapter 2, the results section in this chapter has been divided into four major sections, each focusing on one of Heritage’s (2004) major areas of institutional conversation analysis that contribute productively to this analysis. Beginning with a fine-grained analysis of the turn design in this corpus, I examine the individual clauses within conversational turns to determine, first, the overall activity being performed (e.g., questions or proposals) and, second, the specific purpose and linguistic structure of the activity (e.g., factual question versus interpretive question or tentative versus imperative proposals). I also discuss the trends in who performs specific types of actions more or less often (e.g., residents versus preceptors; early versus late novices). After identifying patterns in residents’ and preceptors’ conversational turn design, I then broaden the analysis to interactional asymmetry by separating the transcripts into conversational exchanges; I also code the exchanges according to Fairclough’s (2003) terms, ascertain the proportions of exchanges initiated by specific speakers (i.e., residents versus preceptors) in different quartiles of the conversation, and infer how these trends indicate certain interactional asymmetries. Resuming a more fine-grained analysis, I next explore patterns in turn-taking organization within these transcripts’ conversational exchanges by tracing common turn-taking organization across the quartiles of each residency level and comparing the quartile patterns between residency levels. Returning to a broader level of inquiry, I conclude by surveying the structural organization of these conversations, assessing the distribution of clause types in certain quartiles and among different groups of residents of different training levels. Moving back and forth between fine-grained and general analyses points to conclusions about the major goals of these conversations and the ways physicians achieve these goals through dialogue.

This institutional conversation analysis points to the following structural aspects of these conversations: what activities residents and preceptors accomplish with their talk, when they perform certain activities, whether specific activities create or inhibit interlocutors’ opportunities
for response, and what major conversation phases unfold. Combining these analyses to determine why they concentrate on particular activities, I identify the major institutional objectives toward which these physicians work. These institutional goals include aligning the physicians’ understandings of the clinical case, analyzing clinical data to discuss medical principles, critically considering clinical data to make decisions for patients and ensuring appropriate and effective patient care. In this chapter, I demonstrate that, as residents advance through training, they become increasingly independent in achieving these institutional objectives, designing their turns more similarly to their preceptors and directing the conversations more actively. This institutional conversation analysis also identifies specific verbal activities and spaces where residents and preceptors assert arguments and attempt persuasion, providing an entry point into my rhetorical analysis in Chapter 4. Below, I describe the results of the conversation analysis in four sections: turn design, interactional asymmetry, turn-taking organization, and structural organization.

**Results**

**Turn Design.** In this section, I examine the activities performed in the clauses within conversational turns to describe what these physicians accomplish in their discussions. (See Table 3.1 in the Appendix for full statistics.) As demonstrated in Fig. 3.1, overall, residents and preceptors contribute roughly equal numbers of conversational turns to their discussions (49.6% and 50.4%, respectively); similarly, residents and preceptors use nearly equal numbers of clauses (49.8% and 50.2%, respectively). However, when compared at different levels of residency, the overall clause contribution tells a different story. The least experienced PGY-1 residents convey a notably smaller proportion of the clauses in their conversations with their preceptors (40.7% and 59.3%, respectively). Somewhat more active in conversation with preceptors, PGY-2 residents express a slightly greater proportion of clauses than faculty physicians (52.3% and 47.7%,
respectively). Markedly more active in their conversations with preceptors, PGY-3 residents contribute a considerably greater proportion of clauses than their preceptors (59.8% and 40.2%, respectively). As they progress through training, residents employ increasing proportions of clauses in comparison to their preceptors. The discussion below examines each major conversational category in descending order according to frequency.
Phatic Response Clauses (Subset Table 3.1). The most frequently occurring major clause category, *phatic responses*, account for 33.1% of all clauses in the data set (1109 total clauses).

Overall, residents contribute slightly greater proportions of phatic responses than preceptors.
(55.4% and 44.6%). As residents progress through training, they use increasing proportions of phatic responses at PGY-1, PGY-2, and PGY-3 levels (43.0%, 58%, and 68.8%, respectively).

Subset Table 3.1 Phatic Response Frequencies and Percentages

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Total Clauses &amp; Percent of All Clauses in the Corpus</th>
<th>Combined Resident &amp; Preceptor Proportions: Total Clause Frequency &amp; Percent Contributions</th>
<th>PGY-1 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-2 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-3 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phatic responses</td>
<td>Brief acceptance</td>
<td>677</td>
<td>20.2%</td>
<td>R: 371</td>
<td>54.8% P: 306</td>
<td>45.2%</td>
</tr>
<tr>
<td></td>
<td>Incomplete thought</td>
<td>392</td>
<td>11.7%</td>
<td>R: 218</td>
<td>55.6% P: 174</td>
<td>44.4%</td>
</tr>
<tr>
<td></td>
<td>Explicit claim of uncertainty</td>
<td>40</td>
<td>1.2%</td>
<td>R: 26</td>
<td>65.0% P: 14</td>
<td>35.0%</td>
</tr>
<tr>
<td></td>
<td>Total Phatic Response</td>
<td>1109</td>
<td>33.1%</td>
<td>R: 615</td>
<td>55.5% P: 494</td>
<td>44.5%</td>
</tr>
</tbody>
</table>

The most common phatic response of the three types is the brief acceptance (677 total), which acknowledges an interlocutor’s claim by offering a succinct, sometimes vague thought or by offering backchannel to indicate one has heard the interlocutor’s ideas or claims. Residents contribute slightly greater proportions of brief acceptances (54.8%) in their conversations, and each progressively more advanced group of residents provides more brief acceptances when compared to their preceptors (PGY-1 residents convey 42.4% of brief acceptances in their conversations; PGY-2 residents employ 56.6%; and PGY-3 residents express 67.5%).

The second most common phatic response is the incomplete thought (392 total), which occurs when a speaker terminates a claim before conveying a clear idea, either because of an interruption or because the speaker begins articulating a new idea. Overall, residents contribute more incomplete thoughts than preceptors (55.6% and 44.4%, respectively), and residents employ
increasingly more incomplete thoughts as they advance through residency training (PGY-1 convey 41.4%, PGY-2 express 60.5%, and PGY-3 contribute 71.2%).

The least common phatic response is the *explicit claim of uncertainty* (40 total), which suggests a sense of doubt or indecision about a clinical decision or situation. Residents contribute more of these phatic responses than preceptors (65% and 35%, respectively). More-experienced residents articulate uncertainty slightly less than the least-experienced residents (PGY-1 express 70.6%; PGY-2 convey 50.0%; and PGY-3 employ 66.7% in their respective conversations).

*Proposal Clauses* (Subset Table 3.2). The second most common major clause category type, *proposals*, accounts for 24% of all clauses in the data set (805 total clauses). In general, preceptors contribute more proposals to these conversations than residents (65.6% and 34.4%, respectively). As residents advance through training, they interject progressively more proposals (PGY-1 residents convey 27.4% of all proposals in their conversations; PGY-2 residents employ 35.7%; and PGY-3 residents express 43.6%).

Of the eight that appeared in these conversations, the most common proposal type is the *tentative proposal about a clinical decision* (201 total), which utilizes open-ended tone to suggest how the interlocutor might examine, test, or treat the patient clinically. Overall, preceptors pose 74.6% of these proposals compared with residents’ 25.4%. As residents gain experience, they offer increasingly more proposals about clinical choices (PGY-1 residents employ 20.2% of these proposals; PGY-2 residents convey 24.4%; and PGY-3 residents contribute 33.3% in their conversations).
Subset Table 3.2 Proposal Frequencies and Percentages

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Total Clauses &amp; Percent of All Clauses in the Corpus</th>
<th>Combined Resident &amp; Preceptor Proportions: Total Clause Frequency &amp; Percent Contributions</th>
<th>PGY-1 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-2 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-3 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proposals</td>
<td>Tentative proposal about a clinical decision</td>
<td>201</td>
<td>6.0% R: 51</td>
<td>25/4% P: 150</td>
<td>74.6%</td>
<td>R: 19</td>
</tr>
<tr>
<td></td>
<td>Imperative proposal about a procedural task</td>
<td>118</td>
<td>3.5% R: 19</td>
<td>16.1% P: 99</td>
<td>83.9%</td>
<td>R: 8</td>
</tr>
<tr>
<td></td>
<td>Imperative proposal about a clinical decision</td>
<td>114</td>
<td>3.4% R: 36</td>
<td>31.6% P: 78</td>
<td>68.4%</td>
<td>R: 6</td>
</tr>
<tr>
<td></td>
<td>Proposal about a disease course</td>
<td>97</td>
<td>2.9% R: 25</td>
<td>25.8% P: 72</td>
<td>74.2%</td>
<td>R: 7</td>
</tr>
<tr>
<td></td>
<td>Proposal about physical examination</td>
<td>79</td>
<td>2.4% R: 68</td>
<td>86.1% P: 11</td>
<td>13.9%</td>
<td>R: 36</td>
</tr>
<tr>
<td></td>
<td>Proposal about etiology</td>
<td>78</td>
<td>2.3% R: 32</td>
<td>41.0% P: 46</td>
<td>59.0%</td>
<td>R: 10</td>
</tr>
<tr>
<td></td>
<td>Proposal about explanation/interpretation of test results</td>
<td>63</td>
<td>1.9% R: 35</td>
<td>55.6% P: 28</td>
<td>44.4%</td>
<td>R: 15</td>
</tr>
<tr>
<td></td>
<td>Tentative proposal about a procedural task</td>
<td>55</td>
<td>1.6% R: 11</td>
<td>20.0% P: 44</td>
<td>80.0%</td>
<td>R: 3</td>
</tr>
<tr>
<td></td>
<td>Total Proposals</td>
<td>805</td>
<td>24.0% R: 277</td>
<td>34.4% P: 528</td>
<td>65.6%</td>
<td>R: 104</td>
</tr>
</tbody>
</table>
The second most common proposal type is the *imperative proposal about a procedural task* (118 total), which instructs or declaratively asserts how one’s interlocutor should enact a procedural task, such as performing EMR commands (e.g., changing diagnoses in the computer), or prescribing medications or tests. In general, preceptors contribute a greater proportion of this proposal type with an overall average of 83.9% of the clauses in their conversations with residents of all levels; PGY-2 and PGY-3 residents convey more of these types of proposals in their conversations (25% and 24%, respectively) than PGY-1 residents (11%).

The third most common proposal type is the *imperative proposal about a clinical decision* (114 total), which instructs or declaratively asserts that the interlocutor should make a specific clinical choice for the patient, including ordering tests, administering treatments, or prescribing medications. Generally, residents contribute a smaller proportion of these proposals than preceptors (31.6% and 68.4%, respectively). Given that PGY-1 residents employ 11.5%, and PGY-3 residents express 39.5% in their conversations, the most-experienced residents convey a greater proportion of these proposals in their conversations than less-experienced residents.

The fourth most common proposal is the *proposal about a disease course* (97 total), which offers a potential progression or development of the patient’s disease, illness, condition, or current symptom, facilitating discussions about the likelihood of the patient’s situation changing in certain ways. Preceptors contribute more of these proposals than all residents (74.2% and 25.8%, respectively). PGY-1 residents use proportionally less (19.4%) of these proposals than PGY-2 (30%) and PGY-3 (29%) in their conversations with preceptors.

The fifth most common proposal type is the *proposal about the physical examination* (79 total), which indicates some finding determined from physically examining the patient’s body in the exam room. These proposals tend to be conveyed decisively, announcing a physical finding to the interlocutor to construct another angle of the clinical picture that cannot be acquired through
interviewing or testing the patient. Because residents conduct the physical examination on patients and preceptors rarely examine patients in this clinic, residents contribute most of these proposals, an average of 86%, and preceptors express an average of 13.9% of proposals about the physical exam. PGY-1 residents employ a greater proportion of these concrete proposals about the physical exam (92.3%) than PGY-2 (66.7%) and PGY-3 (82.4%) residents.

The sixth most-used proposal is the proposal about etiology (78 total), which asserts a specific cause or source of an established clinical condition, disease, illness, or symptom. Preceptors contribute more of these proposals than residents (59% to 41%), but among PGY-1 and PGY-3 residents, contributions by residents (45.5% and 50.0%, respectively) are roughly equal to their preceptors (54.6% and 50%, respectively).

The seventh most-used proposal type is the proposal about explanation or interpretation of test results (63 total), which analyzes why a clinical test has yielded or will yield specific results, outcomes, or findings. A more abstract or generalized claim, overall residents use more proposals in this category (55.6%) than their preceptors (44.4%). Preceptors contribute more of these in conversations with PGY-1 residents (55.9% and 44.1%, respectively). At more-experienced levels of residency, PGY-2 and PGY-3 residents convey more of these proposals in their conversations (100% and 66.7%, respectively) than their preceptors.

The least common proposal type is the tentative proposal about a procedural task (55 total), which recommends how the interlocutor could accomplish a procedural task; similar to imperative proposals about procedural tasks, these tentative proposals address routine practices, such as accomplishing objectives in the EMR system. Overall, preceptors contribute more to this category than residents (80% and 20%, respectively) because of their experience enacting tasks for patients. Although the proportions of resident-preceptor contributions to this minor category
vary, slightly more of these proposals occur in PGY-1 conversations (1.9% total PGY-1 clauses) than PGY-2 (1.6% total PGY-2 clauses) and PGY-3 conversations (1.3% total PGY-3 clauses).

Reporting Clauses (Subset Table 3.3). The third most common major clause category, *reported speech*, accounts for 15.2% of all clauses in the data set (508 total clauses). Residents contribute the majority of the declarative, indirect, and direct reported speech, and preceptors employ the majority of hypothetical reported speech.

Of the four types used, the most common reported speech is the *declarative statement about the patient’s behavior or experience* (204 total), which announces some subjective aspect of the patient’s actions or physical experience as unequivocal or indisputable, even though the
information has been acquired through conversations or texts; aspects of the patient case that qualify as this type of report include lifestyle behaviors, medication usage, personal feelings, and bodily sensations. Overall, preceptors convey less of these statements than residents (11.3% and 88.7%, respectively) because they have interacted with patients. Residents at all levels contribute roughly the same percentage of these comments in their conversations (PGY-1 residents convey 87.2%; PGY-2 residents employ 100%; and PGY-3 residents use 84.7%).

The second most frequent type of reported speech is the *indirect reported speech* (136 total), which uses a “reporting clause” (Fairclough, 2003, p. 49) (e.g., “he said) to paraphrase what someone else or oneself has said or written about the patient case or a medical aspect of the case. Residents contribute 94.9% of the indirect reported speech in the data set, probably because they have interviewed the patient or family, read subjective data about the patient case, and in some cases, talked about the patient case with other healthcare consultants.

The third most-used report, the *hypothetical use of speech or text* (109 total), quotes or paraphrases what oneself or someone else typically says or writes about patients in similar clinical situations; these report types also quote or paraphrase what one *should* say or write or what one *plans* to say or write in the future about the current patient. Preceptors contribute 85.3% of hypothetical reported speech compared with residents’ 14.7%.

The least common report, the *direct reported speech* (59 total), uses a reporting clause to quote what someone else or oneself has said or written in the past about the patient’s case or some medical aspect of the case. Residents convey an average of 93.2% of this direct reported speech, and preceptors only employ 6.8%. Residents’ contributions to this minor category progressively increase through residency (PGY-1 residents contribute 81.3%; PGY-2 residents express 90.9% of these reports; and PGY-3 residents convey 100%).
**Assessment Clauses** (Subset Table 3.4). The fourth most common major clause category, the *assessment* (325 total clauses), accounts for 9.7% of all clauses in the data set. Overall, preceptors contribute a greater proportion of assessments than residents (68.6% and 31.4%, respectively). As residents gain experience, they express a greater proportion of assessments in their conversations (PGY-1 convey 24%, PGY-2 employ 28.9%, and PGY-3 contribute 43.7%).

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Total Clauses &amp; Percent of All Clauses in the Corpus</th>
<th>Combined Resident &amp; Preceptor Proportions: Total Clause Frequency &amp; Percent Contributions</th>
<th>PGY-1 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-2 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-3 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessments</td>
<td>Assessment of the case</td>
<td>118</td>
<td>3.5%</td>
<td>R: 50</td>
<td>42.4% P: 68</td>
<td>57.6%</td>
</tr>
<tr>
<td>Assessment of a clinical decision</td>
<td>115</td>
<td>3.4%</td>
<td>R: 21</td>
<td>18.3% P: 94</td>
<td>81.7%</td>
<td>R: 5</td>
</tr>
<tr>
<td>Assessment of a procedural task</td>
<td>92</td>
<td>2.7%</td>
<td>R: 31</td>
<td>33.7% P: 61</td>
<td>66.3%</td>
<td>R: 16</td>
</tr>
<tr>
<td>Total Assessments</td>
<td>325</td>
<td>9.7%</td>
<td>R: 102</td>
<td>31.4% P: 223</td>
<td>68.6%</td>
<td>R: 35</td>
</tr>
</tbody>
</table>

The most common of the three assessment types, the *assessment of the case* (118 total), evaluates universal or holistic aspects of the patient case, such as its ease or difficulty, success or failure, or the patient’s status. Residents employ a lower proportion of these assessments than preceptors (42.4% and 57.6%). Less-experienced residents use proportionally fewer of these assessments than the most-experienced residents; PGY-1 and PGY-2 residents convey about one-third (31.1% and 33.3%, respectively) of these assessments in their conversations, whereas PGY-3 residents contribute 58.7% of these assessments in *their* conversations.
The second most common assessment type, the *assessment of a clinical decision* (115 total), involves evaluating possible testing, treating, or examination options. Preceptors express a significantly greater proportion of these evaluations than their residents (81.7% and 18.3%, respectively). The least-experienced residents, PGY-1 residents, convey the smallest percentage in their conversations (10.2%), whereas the PGY-3 and PGY-3 residents contribute a greater proportion of these assessments in their conversations (24.4% and 24%, respectively).

Finally, the least common assessment type, the *assessment of a procedural task* (92 total), allows the speaker to appraise oneself, one’s interlocutor, or someone else in their ability to complete a procedural task for the patient (e.g., ordering a test, prescribing a medication, etc.). Similar to other assessments, preceptors employ more of these assessments than residents (66.3% and 33.7%, respectively). All residents contribute about one-third of these assessments (PGY-1 convey 30.77%; PGY-2 use 37.50%; and PGY-3 express 37.50% of these assessments).

*Statement Clauses* (Subset Table 3.5). Slightly less than assessments, the fourth most-used major clause category, the *statement*, accounts for 9.1% of all clauses (305 total clauses). Residents overwhelmingly contribute more statements (78.4%) than preceptors (21.6%). Conveying approximately three-fourths of the statements in their conversations, PGY-1 residents use 72.1% of the statements in their conversations, PGY-2 residents employ 92% in their conversations, and PGY-3 residents express 79.4% of the statements in their conversations.

Of the seven types that occur, the most common statement about the patient case, *reports of medical tests or procedures* (87 total), recounts dates, places, and documented clinical motivations for the patient’s medical tests, procedures, or surgeries. Residents at all levels convey the majority of these claims in their conversations with preceptors, averaging 81.6% of these types of clauses compared to their preceptors, who only contribute 18.4%.
### Subset Table 3.5 Statement Frequencies and Percentages

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Total Clauses &amp; Percent of All Clauses in the Corpus</th>
<th>Combined Resident &amp; Preceptor Proportions: Total Clause Frequency &amp; Percent Contributions</th>
<th>PGY-1 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-2 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-3 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statements about medical concerns, testing, and treatments</td>
<td>Reported speech medical tests or procedures</td>
<td>87</td>
<td>2.6%</td>
<td>R: 71</td>
<td>81.6% P: 16</td>
<td>18.4%</td>
</tr>
<tr>
<td></td>
<td>Reported speech test results</td>
<td>58</td>
<td>1.7%</td>
<td>R: 49</td>
<td>84.4% P: 9</td>
<td>15.5%</td>
</tr>
<tr>
<td></td>
<td>Search for information in records</td>
<td>57</td>
<td>1.7%</td>
<td>R: 29</td>
<td>50.9% P: 28</td>
<td>49.1%</td>
</tr>
<tr>
<td></td>
<td>Statement of the history of medical attention</td>
<td>32</td>
<td>1.0%</td>
<td>R: 30</td>
<td>93.8% P: 2</td>
<td>6.2%</td>
</tr>
<tr>
<td></td>
<td>Factual statement about the patient</td>
<td>25</td>
<td>0.7%</td>
<td>R: 20</td>
<td>80.0% P: 5</td>
<td>20.0%</td>
</tr>
<tr>
<td></td>
<td>Announcement of the reason for patient visit</td>
<td>24</td>
<td>0.7%</td>
<td>R: 23</td>
<td>95.8% P: 1</td>
<td>4.2%</td>
</tr>
<tr>
<td></td>
<td>Reports of the patient’s medical history</td>
<td>22</td>
<td>0.7%</td>
<td>R: 17</td>
<td>77.3% P: 5</td>
<td>22.7%</td>
</tr>
<tr>
<td></td>
<td>Total Statements</td>
<td>305</td>
<td>9.1%</td>
<td>R: 239</td>
<td>78.4% P: 66</td>
<td>21.6%</td>
</tr>
</tbody>
</table>

The second most common statement type, *reports of test results* (58 total), shares the results or outcomes of the patient’s clinical testing; these tests include those conducted in the clinic (e.g., blood pressure, weight, etc.) as well as tests forwarded to external pathology or radiology labs for analysis (e.g., blood test, x-ray, etc.). Overall, residents employ 84.5% of these
types of claims whereas preceptors convey 15.5%. PGY-1 residents contribute 75% of these claims compared to their preceptors’ 25%. PGY-2 residents employ 100%, and PGY-3 residents express 92.59% of these claims in their respective conversations.

The third most common statement type, the search for information in records (57 total), involves verbalizing one’s quest for patient information in the medical record. Speakers articulate their pursuit of patient information or diagnostic data by searching through the medical record or by seeking data, contact information, or consultants provided by the patient. Generally, both residents and preceptors contribute this statement type nearly half the time (50.9% and 49.3%, respectively). At the PGY-1 level, preceptors use slightly more of these clauses (54.8%) than residents (45.2%). PGY-2 residents convey 80%, and PGY-3 residents employ slightly more of these statements than preceptors (52.4% and 47.6%, respectively).

The fourth most common statement type, the statement of the history of medical attention (32 total), explains the patient’s past experiences with or future plans for clinic appointments, hospitalizations, and so on. Residents contribute most of these statement types, contributing 75% of these clauses in PGY-1 and 100% of these statements in PGY-2 and PGY-3 conversations.

Although only occurring on 25 total occasions, factual statements about patients occur periodically, asserting indisputable details or pieces of data that cannot be derived from a clinical test (e.g., name, age, etc.). Residents typically convey an average of 80% of these concrete statements compared with preceptors’ 20%.

Even less common than other statement types, announcements of the reason for the patient visit (24 total) state the reason for the patient’s visit to the clinic. Overall, residents contribute substantially more (95.8%) of these announcements than preceptors (4.2%) with only one instance of a preceptor announcing the patient’s visit in the data set. These statements appear in each individual transcript only once or twice (.716% of the total clauses in all conversations).
Finally, the least common statement type, the *report of the patient’s medical history* (22 total), occurs when the speaker explicitly announces a well-established aspect of the patient’s medical history, such as chronic conditions, diseases, symptoms, or family history. Overall, residents express 77.3% of these statements, and preceptors convey 22.7%. PGY-1 residents use 85.7% in their conversations, and PGY-2 residents employ 100% of these statements in their conversations. PGY-3 residents contribute only a bit over half in their conversations (55.6%).

*Question Clauses* (Subset Table 3.6). The least common major clause category, the *question* (299 clauses), accounts for 8.9% of all clauses in the data set. Compared with residents, preceptors ask proportionally more questions (78.6%) than residents (21.4%), in part because residents have reviewed the case by reading patient data, interviewing the patient, and examining the patient. As residents advance through residency, they ask an increasing percentage of questions in comparison to their preceptors, asking 16% as PGY-1 residents, 23.2% as PGY-2 residents, and 29% as PGY-3 residents; this gradual increase reflects residents’ progressively more active role in eliciting information and clinical advice from their preceptor.

The most common of the five question types, the *clarifying question* (123 total), draws from an interlocutor’s claim and probes the interlocutor to provide additional information on an issue. The preceptors ask a total of 81.3% of these questions, compared to residents’ 18.7%. PGY-1 residents ask the smallest percentage of clarifying questions compared to their preceptors (12.50% and 87.50%, respectively), whereas PGY-2 residents ask slightly more (15.2%), and PGY-3 residents ask the greatest percentage of these questions (32.4%) in their conversations.

The second most common question type, the *procedural or clinical question* (68 total), asks the interlocutor to explain whether or how to acquire or conduct particular clinical tests, procedures, or treatments. Overall, residents ask 47.1% and preceptors ask 52.9% of all procedural or clinical questions in the data set. The least-experienced residents contribute a
smaller proportion of these questions than their second- and third-year counterparts (PGY-1 residents convey 37.5%; PGY-2 residents employ 63.6%; and PGY-3 residents use 58.8%).

Subset Table 3.6 Question Frequencies and Percentages

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Total Clauses &amp; Percent of All Clauses in the Corpus</th>
<th>Combined Resident &amp; Preceptor Proportions: Total Clause Frequency &amp; Percent Contributions</th>
<th>PGY-1 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-2 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-3 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Questions</td>
<td>Clarifying question</td>
<td>123[3.7%] R: 23[18.7%] P: 100[81.3%]</td>
<td>R: 7[12.5%] P: 49[87.5%]</td>
<td>R: 5[15.2%] P: 28[84.8%]</td>
<td>R: 11[32.4%] P: 23[67.6%]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Procedural or clinical question</td>
<td>68[2.0%] R: 32[47.1%] P: 36[52.9%]</td>
<td>R: 15[37.5%] P: 25[62.5%]</td>
<td>R: 7[63.6%] P: 4[36.4%]</td>
<td>R: 10[58.8%] P: 7[41.2%]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interpretive question</td>
<td>63[1.9%] R: 7[11.1%] P: 56[88.9%]</td>
<td>R: 13[1.1%] P: 31[96.9%]</td>
<td>R: 11[11.1%] P: 8[88.9%]</td>
<td>R: 5[22.7%] P: 17[77.3%]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Factual question</td>
<td>34[1.0%] R: 1[2.9%] P: 33[97.1%]</td>
<td>R: 1[5.9%] P: 16[94.1%]</td>
<td>R: 0[0.0%] P: 3[100%]</td>
<td>R: 0[0%] P: 14[100%]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Causal question</td>
<td>11[0.3%] R: 1[9.1%] P: 10[90.9%]</td>
<td>R: 0[0%] P: 5[100%]</td>
<td>R: 0[0%] P: 0[0%]</td>
<td>R: 1[16.7%] P: 5[83.3%]</td>
<td></td>
</tr>
<tr>
<td>Total Questions</td>
<td></td>
<td>299[8.9%] R: 64[21.4%] P: 235[78.6%]</td>
<td>R: 24[16.0%] P: 126[84.0%]</td>
<td>R: 13[23.2%] P: 43[76.8%]</td>
<td>R: 27[29.0%] P: 66[71.0%]</td>
<td></td>
</tr>
</tbody>
</table>

The third most commonly asked question type, the *interpretive question* (63 total), asks the interlocutor to subjectively explain or gauge the patient’s state, therapy, or diagnosis.

Although overall preceptors employ interpretive questions (88.9%) more often than residents (11.1%), as residents progress from PGY-1 to PGY-2 to PGY-3 rank, they ask proportionally more interpretive questions (3.1%, 11.1%, and 22.7%, respectively).

The fourth most common question type, the *factual question* (34 total), requests that the interlocutor offer a verifiable component of the patient case, such as the patient’s date of birth, confirmed diagnosis, active treatment, recent test result, and so on. PGY-1 residents ask substantially fewer factual questions than their preceptors (5.9% and 94.1%, respectively), in part
because they have reviewed the patient’s case via reading the medical record as well as interviewing and examining the patient. PGY-2 and PGY-3 residents do not ask any factual questions. Overall, preceptors ask 97.059% of the factual questions in the data set.

The least common question type, the *causal question* (11 total), inquires about the source of an established clinical issue or problem. Preceptors dominate this question type, asking 90.9% of causal questions compared to residents’ 9.1% of causal questions.

*Conclusion.* My turn analysis in this section supports a fine-grained examination of the specific actions performed within conversational turns and the overall incidence and proportions of clause types between residents and their preceptors. I have demonstrated that residents and preceptors accomplish specific activities through their conversational turns (in descending order): phatic responses, proposals, reported speech, assessments, statements, and questions. Generally, as residents gain experience, they contribute more phatic responses, proposals, assessments, and questions. When compared to their preceptors, residents of all levels convey more reports and statements than their preceptors but fewer proposals, assessments, and questions. To understand the distribution of these activities in the resident-preceptor conversations, below I consider a larger unit of analysis, the conversational turn, to examine interactional asymmetry.

*Interactional Asymmetry*

Although the detailed turn-design analysis in the previous section offers some perspective on *what* these physicians say and *who* performs specific actions through their talk, in this section, I broaden the analysis to the level of the conversational exchange to support an analysis of *who* initiates specific types of exchanges, whether residents at different levels of training differ in their exchange-initiation patterns, and *when* in these conversations specific exchange types occur more or less often (see Table 3.3 for full statistics). Understanding patterns in conversational exchange
initiation provides a sense of who introduces arguments into these resident-preceptors conversations and when attempts at persuasion occur in these discussions (see Chapter 4). In the following three sections below, I examine the interactional asymmetry in different quartiles at the PGY-1, PGY-2, and PGY-3 residency levels.

Interactional asymmetry in PGY-1 conversations (Subset Table 3.7). Although overall residents and preceptors initiate roughly the same proportion of exchanges in the first quartile of the conversation, PGY-1 resident physicians contribute 58.3% of the clauses, and preceptors only convey 41.7%. In the second quartile, PGY-1 residents and their preceptors each introduce roughly half of the exchanges (49.1% and 50.9%, respectively), and they both employ roughly half of the clauses (50.6% and 49.5%, respectively). In the third quartile, PGY-1 residents only begin 29.6% of the exchanges, and their preceptors initiate 70.5% of the exchanges; the proportions of resident-to-preceptor clauses (39.4% and 60.6%, respectively) also show that preceptors participate more at that time. In the fourth quartile, PGY-1 residents start a much smaller proportion of exchanges (27.8%) in comparison to their preceptors (72.2%). In terms of clauses, residents only express 29.6% of clauses whereas preceptors contribute 70.4%.

Subset Table 3.7 Exchange and Clause Contribution among PGY-1 Residents

<table>
<thead>
<tr>
<th></th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
<th>Quartile 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Exchanges</td>
<td>51</td>
<td>57</td>
<td>44</td>
<td>54</td>
</tr>
<tr>
<td>Initiated Exchanges: Frequency and Percent Contributions</td>
<td>R: 25</td>
<td>49.0%</td>
<td>R: 28</td>
<td>49.1%</td>
</tr>
<tr>
<td></td>
<td>P: 26</td>
<td>50.9%</td>
<td>P: 29</td>
<td>50.9%</td>
</tr>
<tr>
<td>Total Clauses</td>
<td>276</td>
<td>273</td>
<td>279</td>
<td>294</td>
</tr>
<tr>
<td>Clause Frequency and Percent Contributions</td>
<td>R: 161</td>
<td>58.3%</td>
<td>R: 138</td>
<td>50.5%</td>
</tr>
<tr>
<td></td>
<td>P: 115</td>
<td>41.7%</td>
<td>P: 135</td>
<td>49.5%</td>
</tr>
<tr>
<td>Average Clauses Per Exchange</td>
<td>5.4</td>
<td>4.8</td>
<td>6.3</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Interactional asymmetry in PGY-2 conversations (Subset Table 3.8). In the first quartile of PGY-2 residents’ conversations, residents demonstrate interactional asymmetry in
participation, initiating 54.2% of the exchanges compared with preceptors’ 45.8%; PGY-2 residents also contribute the majority of the clauses in these exchanges (63%) compared to their preceptors (37%). By the second quartile, PGY-2 residents only initiate 31% of the exchanges compared with preceptors’ 69%. Within these exchanges, PGY-2 residents convey 44% of clauses, compared with preceptors’ 56%. During the third quartile, PGY-2 residents introduce 62.5% of the exchanges compared with preceptors’ 37.5%; residents employ 59.9% of the clauses compared with preceptors’ 40.1%. In the fourth quartile, PGY-2 residents initiate 36.7% compared with preceptors’ 63.3% of exchanges; residents convey 41.5% compared with preceptors’ 58.5% of clauses.

Subset Table 3.8 Exchange and Clause Contribution among PGY-2 Residents

<table>
<thead>
<tr>
<th></th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
<th>Quartile 4</th>
</tr>
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<tr>
<td>Total Exchanges</td>
<td>24</td>
<td>29</td>
<td>32</td>
<td>24</td>
</tr>
<tr>
<td>Initiated Exchanges</td>
<td>R: 13</td>
<td>54.2%</td>
<td>R: 9</td>
<td>31.0%</td>
</tr>
<tr>
<td></td>
<td>P: 11</td>
<td>45.8%</td>
<td>P: 20</td>
<td>69.0%</td>
</tr>
<tr>
<td>Total Clauses</td>
<td>162</td>
<td>159</td>
<td>162</td>
<td>162</td>
</tr>
<tr>
<td>Clause Frequency and Percent Contributions</td>
<td>R: 102</td>
<td>63.0%</td>
<td>P: 60</td>
<td>37.0%</td>
</tr>
<tr>
<td>Average Clauses Per Exchange</td>
<td>6.8</td>
<td>5.5</td>
<td>5.1</td>
<td>6.8</td>
</tr>
</tbody>
</table>

*Interactional asymmetry in PGY-3 conversations* (Subset Table 3.9). In their first conversation quartile, PGY-3 residents participate proportionally more than their preceptors, initiating 72.7% of exchanges compared to preceptors’ 27.3% and contributing 80% of clauses compared to preceptors’ 20%. Although PGY-3 residents only initiate 25% of the exchanges in second quartile compared with preceptors’ 75%, they convey 58.5% of the clauses compared with preceptors’ 41.5%. In the third conversation quartile, more interactional symmetry between PGY-3 residents and preceptors emerges, as residents introduce a smaller proportion of exchanges (43.1%) than preceptors (56.9%), and residents and preceptors employ roughly half of the clauses
(51.1% and 48.9%, respectively). Although preceptors start more of the exchanges in the fourth quartile (67.7%) than PGY-3 residents (32.3%), the clause contribution is roughly equal between residents (51.9%) and preceptors (48.1%).

**Subset Table 3.9 Exchange and Clause Contribution among PGY-3 Residents**

<table>
<thead>
<tr>
<th></th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
<th>Quartile 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Exchanges</td>
<td>33</td>
<td>68</td>
<td>65</td>
<td>65</td>
</tr>
<tr>
<td>Initiated Exchanges: Frequency and Percent Contributions</td>
<td>R: 24</td>
<td>72.7%</td>
<td>R: 17</td>
<td>25.0%</td>
</tr>
<tr>
<td></td>
<td>P: 9</td>
<td>27.3%</td>
<td>P: 51</td>
<td>75.0%</td>
</tr>
<tr>
<td>Total Clauses</td>
<td>280</td>
<td>306</td>
<td>313</td>
<td>293</td>
</tr>
<tr>
<td>Clause Frequency and Percent Contributions</td>
<td>R: 224</td>
<td>80.0%</td>
<td>R: 179</td>
<td>58.5%</td>
</tr>
<tr>
<td></td>
<td>P: 56</td>
<td>20.0%</td>
<td>P: 127</td>
<td>41.5%</td>
</tr>
<tr>
<td>Average Clauses Per Exchange</td>
<td>8.5</td>
<td>4.5</td>
<td>4.9</td>
<td>4.5</td>
</tr>
</tbody>
</table>

*Interactional asymmetry across quartiles* (Subset Table 3.10). The previous three sections reported the results of a fine-grained analysis of the interactional asymmetries within the different quartiles of PGY-1, PGY-2, and PGY-3 conversations. The current section compares these individual trends to examine the shifts in interactional asymmetry from the first to the final year of residency.

**Subset Table 3.10 Exchange and Clause Contribution across Residency Level**

<table>
<thead>
<tr>
<th></th>
<th>Quartile 1</th>
<th>Quartile 2</th>
<th>Quartile 3</th>
<th>Quartile 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initiated Exchanges: Frequency and Percent Contributions</td>
<td>R: 25</td>
<td>49.0%</td>
<td>R: 13</td>
<td>54.2%</td>
</tr>
<tr>
<td></td>
<td>P: 26</td>
<td>50.9%</td>
<td>P: 11</td>
<td>45.8%</td>
</tr>
<tr>
<td>Clause Frequency and Percent Contributions</td>
<td>R: 161</td>
<td>58.3%</td>
<td>R: 102</td>
<td>63.0%</td>
</tr>
<tr>
<td></td>
<td>P: 115</td>
<td>41.7%</td>
<td>P: 60</td>
<td>37.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Quartile 3</td>
<td>Quartile 4</td>
<td>Quartile 1</td>
<td>Quartile 2</td>
</tr>
<tr>
<td>Initiated Exchanges: Frequency and Percent Contributions</td>
<td>R: 13</td>
<td>29.5%</td>
<td>R: 20</td>
<td>62.5%</td>
</tr>
<tr>
<td></td>
<td>P: 31</td>
<td>70.5%</td>
<td>P: 12</td>
<td>37.5%</td>
</tr>
<tr>
<td>Clause Frequency and Percent Contributions</td>
<td>R: 110</td>
<td>39.4%</td>
<td>R: 97</td>
<td>59.9%</td>
</tr>
<tr>
<td></td>
<td>P: 169</td>
<td>60.6%</td>
<td>P: 65</td>
<td>40.1%</td>
</tr>
</tbody>
</table>
In the first conversation quartile, more-experienced residents progressively initiate greater proportions of exchanges from PGY-1 to PGY-2 to PGY-3 level (49%, 54.2%, and 72.7%, respectively). All residents convey a greater proportion of clauses than their preceptors (PGY-1 residents employ 58.3%, PGY-2 residents contribute 63%, and PGY-3 residents express 80%) because they have examined the patient. Although the exchange-initiation rate in the second quartile suggests that preceptors direct the conversation more actively with more-experienced residents than with the least-experienced residents, the proportions of clauses in the second quartile tell a different story. At the PGY-1 level, residents and preceptors initiate roughly the same proportion of exchanges (49.1% and 50.9%, respectively) and the same proportion of clauses (50.6% and 49.5%, respectively). More-experienced residents introduce fewer exchanges than their preceptors (PGY-2 residents introduce 31%, and PGY-3 residents begin 25% of exchanges). PGY-2 residents convey slightly smaller proportions of clauses (44%); however, despite their lower rate of exchange-initiation, PGY-3 residents contribute a substantially greater proportion of clauses than their preceptors (58.5% and 41.5%, respectively).

In the third conversation quartile, PGY-1 residents initiate 29.6% of exchanges, PGY-2 residents initiate 62.5% of exchanges, and PGY-3 residents initiate 43.1% of exchanges in their respective conversations. More-experienced residents convey more clauses in this third quartile (PGY-1 residents express only 39.4%, PGY-2 residents contribute 59.9%, and PGY-3 residents employ 51.1%). In the fourth conversation quartile, all residents initiate approximately 30% of the exchanges (PGY-1 residents introduce 27.8%, PGY-2 residents start 36.7%, and PGY-3 residents initiate 32.3% of the exchanges). In terms of overall clause contribution, PGY-1 residents convey 29.6%, PGY-2 residents employ 41.5%, and PGY-3 residents contribute 51.9%.
Conclusion. The discussion in this section has demonstrated that more-experienced residents participate in these conversations to a greater extent than less-experienced residents, increasing their proportional contribution in all conversational clause categories. Because preceptors ask more questions and offer more proposals and assessments with the least-experienced residents, they direct the conversation more dominantly in discussions with early novices. Because more-experienced residents offer more proposals and assessments, their turns more closely mirror preceptors’ turns; they more actively participate in introducing concepts, suggesting how to proceed with the case, and evaluating clinical decisions. Examining interactional asymmetry in this section has suggested who introduces particular types of conversational exchanges in certain quartiles. To consider the specific institutional structure of turn-taking within discrete conversational exchanges, in the next section I discuss the arrangement of conversational turns and the ways certain clauses prompt interlocutors to respond.

Turn-Taking Organization

The analysis of interactional asymmetry in the preceding section uncovers the distribution of conversational exchanges in these discussions. In this section, I examine these conversational exchanges in more detail by looking at turn-taking patterns. This analysis provides insight into the institutionally specific ways these interlocutors organize their conversational turns in their exchanges. The sections below review the turn-taking organization in PGY-1, PGY-2, and PGY-3 conversations; the conclusion section compares these PGY-specific trends to characterize the major quartile trends in turn-taking organization.

Turn-taking in PGY-1 conversations. In the first quartile of PGY-1 conversations, preceptors often initiate the two most common of the six exchange types – proposal exchanges and question exchanges; residents, in contrast, typically introduce reporting exchanges, statement
exchanges, and assessment exchanges. When preceptors begin proposal exchanges (15 exchanges), PGY-1 residents typically respond with phatic responses, accepting recommendations with passive brief responses, and statements, which provide the preceptor with additional objective data to consider. In response to their preceptors’ question exchanges (14 exchanges), PGY-1 residents typically use statements, reported speech, and phatic responses. Providing details about the patient and evaluating this clinical data, residents initiate reporting exchanges (13 exchanges) that incorporate objective statements about the case and proposals about treatment. Preceptors often respond to residents’ reported speech with phatic responses, supporting the resident with backchannel and succinct acceptance of their claims. In response to residents’ initiation of statement exchanges (11 exchanges), preceptors frequently accept these objective statements with various phatic responses, acknowledging the residents’ factual claims about the patient’s previous medical attention, test results, and clinical history. Most often, the preceptor allows the resident to discuss the objective data about the patient case with little interruption. Residents’ assessment exchanges in this quartile (6 exchanges) usually occur with objective statements about the case; preceptors respond with supportive phatic responses, indicating their attention, and some questions.

In the second quartile, preceptors continue to initiate the most frequent exchange types – question exchanges and proposal exchanges; PGY-1 residents, in contrast, introduce most of the reporting, statement, and assessment exchanges. Preceptors’ question exchanges occur even more frequently in this quartile (22 exchanges) than the first quartile, as they attempt to elicit from residents the critical details and data necessary to make informed clinical decisions. Residents often respond with statements and reported speech, which share more objective and narrated aspects of the patient case that construct the clinical story. Preceptors’ proposal exchanges (13 exchanges) often prompt residents to offer phatic responses, as they accept or agree with their
preceptors’ advice about the patient’s disease progression, test result interpretation, or treatment options. Residents also initiate several proposal exchanges (11 exchanges) in this quartile, and preceptors react to resident proposals with their own proposals and phatic responses. Residents introduce all reporting exchanges in this quartile (11 exchanges), coupling this reported speech with their proposals about what the speech suggests about the disease course, symptoms, or treatment of the patient. Preceptors typically respond to this reported speech with phatic responses; although, in some cases they assess the residents’ report in some way, evaluating the clinical aspects of the case presented in the reported speech. Residents also initiate all statement exchanges in this quartile (6 exchanges), contextualizing the objective data with reported speech and proposals. Preceptors often respond to residents’ statements with phatic responses, still maintaining a passive approach toward the conversation, and an occasional proposal or assessment of the statements.

In the third quartile, preceptors continue to dominate the most common exchange types: proposal, question, and assessment exchanges. In their proposal exchanges (14 exchanges), preceptors support their suggestions with objective statements and reports of hypothetical speech. Residents often accept these recommendations with phatic responses and sometimes offer their own insight via reported speech and statements. In response to preceptors’ question exchanges (13 exchanges), residents use phatic responses and reported speech and proposals, beginning to offer clinical theories about their patients’ situations. Preceptors also initiate assessment exchanges (7 exchanges), giving proposals in conjunction with evaluations; residents accept assessments with phatic responses, acknowledging their preceptors’ evaluations and advice. In this quartile, residents and preceptors introduce equal numbers of reporting exchanges (5 exchanges initiated by each group). When preceptors offer hypothetical reported speech to demonstrate how residents should speak or write about the patient, they also use proposals;
residents often accept the reported speech with phatic responses. When residents begin reporting exchanges with indirect and direct accounts of speech or text, they also offer proposals, and preceptors regularly answer with their own proposals. In this quartile, interlocutors do not accept reported speech wholesale and instead subject them to analysis via proposals and assessments.

In the fourth quartile of PGY-1 conversation, proposal exchanges and question exchanges remain the most common exchange types and preceptors continue to dominate them. Much more frequent in this final quartile, preceptors’ proposal exchanges (26 exchanges) prompt residents’ phatic responses. Preceptors’ question exchanges (13 exchanges) reveal attempts to broach unresolved issues associated with the case; these question exchanges include proposals – in some cases, answers to their own questions, and residents respond with proposals, assessments, and reported speech rather than the objective statements they use in earlier quartiles. Here, residents provide analytical suggestions or ideas for approaching diagnosis and treatment. Preceptors also initiate statement exchanges (5 exchanges) and assessment exchanges (6 exchanges) in this final quartile. Their statements, often coupled with proposals, subject the objective data to interpretation and recommendation, prodding the case more deliberately than in previous quartiles. Both residents and preceptors supplement the assessments with reported speech and proposals as well as phatic responses. In response to a PGY-1 resident’s initiation of an assessment exchange (1 exchange), the preceptor ignores the exchange-initiation effort.

*Turn-taking in PGY-2 conversations.* In the first conversation quartile, PGY-2 residents introduce the majority of the most common exchange types – statement and reporting exchanges; in contrast, preceptors dominate the initiation of proposal exchanges and question exchanges. Residents’ statement exchanges (7 exchanges) present verifiable factual statements and often accompany reported speech; preceptors typically respond with phatic responses, showing their
acceptance of the residents’ statements and reports of patients’ and other clinicians’ speech. Residents also initiate most reporting exchanges in this quartile (5 exchanges), using proposals and statements with these reports; preceptors often respond with phatic responses and occasional questions, prompting residents to provide additional reported speech or phatic responses.

Preceptors’ proposal exchanges (5 exchanges) prompt residents’ phatic responses, which accept their preceptors’ advice and suggestions about the patient’s condition. Preceptors’ question exchanges (4 exchanges) incite residents’ objective statements and reported speech of patients’ stated symptoms and issues. Residents also respond to questions with phatic responses, in this case, agreeing with preceptors’ implications embedded in their questions.

In the second conversation quartile, preceptors initiate over twice as many proposal exchanges as the first quartile and some question exchanges as well; residents usually start reporting exchanges and statement exchanges in this quartile. Preceptors’ proposal exchanges (11 exchanges) offer interpretations and recommendations about the case, and residents respond with phatic responses. Preceptors’ proposals occasionally co-occur with their assessments and hypothetical reported speech, which model how the resident should speak to or write about the patient case. Preceptors also introduce all of the question exchanges in this quartile (4 exchanges), which residents typically answer with patient data: statements, reported speech, and phatic responses. Residents’ reporting and statement exchanges (3 exchanges and 2 exchanges, respectively) prompt preceptors’ phatic responses, proposals, and assessments.

In the third quartile of PGY-2 conversations, residents tend to initiate the majority of proposal exchanges, the most commonly employed exchange type, and reporting, assessment, and statement exchanges; in this phase, preceptors mainly begin question exchanges. Residents’ proposal exchanges in this quartile (8 exchanges) prompt preceptors to convey their own proposals and phatic responses accepting the proposals. Again, the preceptors tend not to accept
their residents’ suggestions without analysis; instead, they offer their own appraisal of the patient case that the resident offers. When preceptors make proposals (6 exchanges), residents tend to accept their proposals with phatic responses and offer occasional reported speech to supplement their preceptors’ proposals. Residents initiate all of the reporting exchanges in this quartile (5 exchanges), and preceptors’ responses include phatic responses and assessments. In response to residents’ assessment exchanges (4 exchanges), preceptors offer phatic responses and their own assessments of the patient case. Residents’ statement exchanges (2 exchanges) prompt varied responses from preceptors, including assessments and phatic responses. In this quartile, preceptors’ question exchanges (5 exchanges) prompt residents to answer with objective statements and reported speech.

In the fourth conversation quartile, preceptors dominate the conversation with proposal exchanges and assessment exchanges; while residents initiate most of the question exchanges and statement exchanges in this quartile, preceptors’ proposal exchanges (9 exchanges) offer final recommendations for dealing with the patient case, and residents typically accept these proposals with little analysis. Preceptors also introduce assessment exchanges (4 exchanges), which residents accept with phatic responses. Residents’ question exchanges (6 exchanges), attempt to resolve any remaining uncertainties the novice physician senses and prompt preceptors to offer assessments and proposals. Occasionally, statement exchanges occur in the fourth quartile of PGY-2 conversations, and when residents start these statement exchanges (2 exchanges), preceptors respond with assessments and proposals.

*Turn-taking in PGY-3 conversations.* In the opening quartile of PGY-3 conversations, residents dominate the conversation by contributing all reporting and statement exchanges; both residents and preceptors initiate proposal exchanges in this opening quartile. Residents’ reporting
exchanges (10 exchanges) co-occur with proposals and phatic responses, and preceptors respond to this reported speech with occasional questions and statements or reported speech. They also respond with phatic responses, demonstrating their attention to residents’ reported speech.

Residents introduce all statement exchanges in this first quartile (8 exchanges), building on these objective assertions about the patient case with reported speech and proposals. Preceptors respond to their residents’ objective assertions about their patients with phatic responses, allowing the PGY-3 resident to construct the clinical narrative with relatively few interjections or digressions.

In response to preceptors’ proposals (5 exchanges), residents offer phatic responses and reported speech or statements about the patient case to clarify the clinical narrative. Conversely, when preceptors respond to residents’ proposals (4 exchanges), they offer phatic responses, pose questions to request that the ideas be refined, and submit their own proposals.

After the relatively uninterrupted opening presentation of the patient case by the resident in the first quartile, the second quartile of PGY-3 conversations tend to be dominated by preceptors’ questions and proposal exchanges; furthermore, both residents and preceptors introduce statement exchanges in this quartile. Preceptors’ question exchanges (18 exchanges) prompt residents to provide reported speech and statements, presenting essential details of the case. Most proposals in this quartile are initiated by preceptors (15 exchanges), and PGY-3 residents typically give phatic responses and their own proposals about the patient’s condition, symptoms, test results, diagnosis, and treatment. When preceptors introduce statement exchanges (7 exchanges) – often based on their access to the medical record where objective data about the patient has been documented – they also offer phatic responses and proposals in conjunction with their statements. Residents’ responses to preceptors’ statements vary, ranging from reported speech about others’ speech or text to proposals and statements. When PGY-3 residents offer statements (5 exchanges), they also offer proposals and reported speech, attempting to convey
their understanding of the case, based on objective data, experiential data acquired from the patient and others, and suggestions about the clinical importance of the emerging narrative.

In the third quartile of PGY-3 conversations, preceptors begin most of the proposal exchanges (76%) and question (90%) exchanges; residents’ exchange-initiation in this third quartile includes statement exchanges and reporting exchanges. Preceptors’ proposal exchanges (19 exchanges) occur more often in this quartile and prompt residents to react with phatic responses and occasional proposals. Even at advanced levels of residency training, residents accept their preceptors’ clinical and procedural recommendations with very little analysis. PGY-3 residents do initiate proposal exchanges (6 exchanges) in this quartile, and preceptors respond with phatic responses and their own proposals. Preceptors’ question exchanges (9 exchanges) prompt residents to provide reported speech and statements. When a PGY-3 resident does introduce a question exchange (1 exchange), the preceptor responds with proposals. Residents’ statement exchanges (9 exchanges) provoke preceptors to provide assessments, statements, and phatic responses. Residents’ reporting exchanges (9 exchanges) prompt preceptors to contribute assessments and phatic responses, accepting and analyzing the resident’s accounts of speech about the patient. When preceptors use reported speech – typically hypothetical speech (6 exchanges) – residents respond with phatic responses.

The fourth quartile of PGY-3 conversations demonstrates that preceptors again dominate the exchange-initiation with proposal, question, and reporting exchanges; PGY-3 residents typically initiate statement exchanges. Preceptors’ proposal exchanges (25 exchanges) prompt residents’ phatic responses and occasional proposals. Preceptors typically introduce question exchanges (9 exchanges), and residents respond to these questions with reported speech, phatic responses, and the occasional proposal. Most typically, residents answer their preceptors’ questions with a brief response, suggesting that these questions often pose basic inquiries that
require one-word answers. Reporting exchanges in this quartile are usually initiated by preceptors (6 exchanges), and residents often accept this reported speech – typically hypothetical speech – with phatic responses and no additional analysis or probing. Residents’ statement exchanges (5 exchanges) prompt preceptors to give proposals and assessments. When a preceptor introduces a statement exchange (1 exchange), the resident offers a phatic response.

**Conclusion.** This section has outlined the major trends in the third level of analysis, turn-taking organization, while examining the four quartiles of resident-preceptor conversations. At the beginning of these conversations, residents offer objective statements and subjective reports of patients’ clinical experiences, which preceptors generally accept with phatic responses. In the opening stage, preceptors and more-experienced residents also introduce proposals, which interlocutors accept and supplement with statements. During the middle of these conversations, preceptors offer questions and proposals, which less-experienced residents address with statements and reports and more-experienced residents augment with proposals. To prompt the closing phase, preceptors pose proposals and questions, which all residents accept and shape with proposals and assessments. In sum, more-experienced residents offer more proposals in all stages of the conversation than less-experienced residents.

This section has outlined the trends in turn-taking organization to characterize the institutionally specific ways residents and preceptors structure their conversational exchanges. To consider how physicians’ turns and exchanges produce larger stages in these conversations, in the next section I return to a broader analysis to identify the major phases of these discussions.

**Structural Organization**

In the previous three sections, I have examined turn design, interactional asymmetry, and turn-taking organization to understand the activities performed by conversational turns, the
imbalance in clause contribution, and the arrangement of turns within exchanges. For an understanding of the even broader structural organization, the analysis in this section considers the occurrence of certain clause types in different quartiles of the conversation (see Table 3.3 in the Appendix for full statistics) to identify the major phases in these conversations across residency level. The first three sections below examine structural organization across conversation quartiles at the PGY-1, PGY-2, and PGY-3 levels; the final section compares these PGY-specific trends to examine overall structural organization across quartiles.

**Structural organization in PGY-1 conversations** (Subset Table 3.11). In the first quartile of PGY-1 conversations, residents contribute more clauses than preceptors (58.3% and 41.7%, respectively).

<table>
<thead>
<tr>
<th>Conversational Category</th>
<th>Question</th>
<th>Statement</th>
<th>Assessment</th>
<th>Report</th>
<th>Proposal</th>
<th>Phatic Response</th>
<th>Total Clauses in Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-1 R</td>
<td>4</td>
<td>16.0%</td>
<td>50</td>
<td>90.91%</td>
<td>5</td>
<td>33.33%</td>
<td>44</td>
</tr>
<tr>
<td>PGY-1 P</td>
<td>21</td>
<td>84.0%</td>
<td>5</td>
<td>9.09%</td>
<td>10</td>
<td>66.67%</td>
<td>7</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-1 R</td>
<td>2</td>
<td>5.26%</td>
<td>14</td>
<td>87.5%</td>
<td>6</td>
<td>30.0%</td>
<td>42</td>
</tr>
<tr>
<td>PGY-1 P</td>
<td>36</td>
<td>94.74%</td>
<td>2</td>
<td>12.5%</td>
<td>14</td>
<td>70.0%</td>
<td>2</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
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<tr>
<td>Quartile 3</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PGY-1 R</td>
<td>1</td>
<td>4.35%</td>
<td>7</td>
<td>70.0%</td>
<td>6</td>
<td>20.69%</td>
<td>29</td>
</tr>
<tr>
<td>PGY-1 P</td>
<td>22</td>
<td>95.65%</td>
<td>3</td>
<td>3.0%</td>
<td>23</td>
<td>79.31%</td>
<td>17</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quartile 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-1 R</td>
<td>8</td>
<td>30.77%</td>
<td>10</td>
<td>43.48%</td>
<td>5</td>
<td>15.15%</td>
<td>17</td>
</tr>
<tr>
<td>PGY-1 P</td>
<td>18</td>
<td>69.23%</td>
<td>13</td>
<td>56.52%</td>
<td>28</td>
<td>84.85%</td>
<td>7</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
Besides phatic responses, which PGY-1 residents and preceptors both convey, residents initiate the most dominant clause categories in this first quartile – statements and reported speech (19.9% and 18.5% of all clauses in the first quartile, respectively). PGY-1 residents employ most statements (90%) and reported speech (86%) when compared to their preceptors. Preceptors express a greater share of proposals (62.2%), which comprise 16.3% of all clauses in the first quartile, and more questions (84%), which comprise 9.1% of this quartile.

The second quartile of PGY-1 conversations reveals that residents and preceptors contribute roughly equal proportions of clauses (50.5% and 49.5%, respectively). Other than phatic responses, the most common clause type are proposals (21.3% of all clauses in this quartile), which residents dominate over preceptors (60.3%) as they conceptualize the data they presented in the first quartile. Residents offer the majority of reported speech, the next most common clause type in this quartile (16.1% of all clauses), contributing 95.5% of reports. Preceptors, in contrast, ask most questions (94.7%), which comprise 13.9% of all clauses.

In the third quartile of PGY-1 conversations, residents convey a smaller proportion of clauses (39.4% and 60.6%, respectively), as the preceptor begins to direct and dominate the conversation more noticeably. Other than phatic responses, the most common clause type is proposals (28.7% of all clauses in this quartile), but unlike the second quartile, preceptors contribute the majority of proposals in this quartile (73.8%). The report (16.5% of all clauses in this quartile), although dominated by residents (63%), is also used by preceptors more often in this quartile (37%) as they use hypothetical reported speech to teach and guide residents. Assessments also occur somewhat regularly in this quartile (10.4% of all clauses), and preceptors convey the majority of the assessments (79.3%).

In the fourth quartile, PGY-1 residents contribute the smallest proportion of clauses (29.6%) than other quartiles, allowing the preceptors to use more clauses (70.4%). The most
common clause category in this final quartile is the proposal, which accounts for 34.7% of all clauses; preceptors convey the majority of the proposals in this quartile (86.3%). Residents also contribute some proposals (13.7%), but their more common response in this final quartile is the phatic response (38.37%). After phatic responses, which comprise 29.3% of all clauses in this quartile, assessments are next most frequently employed clauses (11.2% of all clauses), and preceptors express most assessments (84.9%), evaluating various aspects of the patient case.

*Structural organization in PGY-2 conversations* (Subset Table 3.12). In the first quartile of PGY-2 conversations, residents contribute more clauses (63%) than preceptors (37%). In the first quartile of PGY-2 conversations, phatic responses comprise the majority of the clauses (32.7%), followed by reported speech and statements, which account for 25.9% and 16.7% of all clauses in this quartile, respectively. Residents convey 85.7% of reports and 100.0% of statements, demonstrating their mastery over the patient data. Because their case presentations present the objective and experiential data, preceptors add relatively few statements and reported speech about the case. Proposals occur somewhat often (14.8% of all clauses in this quartile), and preceptors employ the majority of the proposals (62.5%) when compared with residents.

Second quartiles of PGY-2 conversations are characterized by an increase in proposals (30.2% of all clauses in the quartile) over objective data such as statements (5% of all clauses in the quartile); they demonstrate that residents convey greater proportions of clauses than preceptors (63% and 37%, respectively). After phatic responses (32.1% of all clauses in the quartile), proposals are the most common clause type, accounting for nearly a third of all clauses; preceptors contribute proposals (72.92) more often than residents (27.1%), who instead tend to share reported speech (15.1% of all clauses in the quartile) with their preceptors by contributing 58.3% of reported speech compared with their preceptors’ 41.7% of reported speech. PGY-2
residents report what patients and others have said, and preceptors offer advice for diagnosis and treatment. Residents readily accept preceptors’ proposals with 58.8% of phatic responses.

In the third quartile of PGY-2 conversations, residents maintain verbal dominance, contributing more clauses (59.9%) than their preceptors. Proposals (26.5% of all clauses in the quartile) and phatic responses (25.9% of all clauses in the quartile) dominate in the third quartile. PGY-2 residents’ proposals dominate over their preceptors’ proposals (58.14% and 41.86%, respectively). More assessments emerge in the third quartile of PGY-2 conversations (19.14% of all clauses in the quartile), and preceptors contribute the majority of these assessments (64.52%) when compared with residents.
In the fourth quartile of PGY-2 conversations, preceptors direct the conversation by contributing more clauses than residents (58.6% and 41.5%, respectively). Similar to the fourth quartile of PGY-1 conversations, the final quartile of PGY-2 conversations are characterized by phatic responses (36.8% of all clauses), proposals (23.7% of all clauses), and assessments (13.2% of all clauses). Roughly equal in terms of phatic responses, residents convey 51.8% and preceptors employ 48.2%. However, residents contribute a far smaller proportion of proposals than preceptors (27.8% and 72.2%, respectively) and assessments (35% and 65%, respectively). Questions also occur often in this final quartile (15.8% of all clauses in the quartile), and preceptors dominate this clause category, asking 75% of the questions.

*Structural Organization in PGY-3 conversations* (Subset Table 3.13). In the first quartile of PGY-3 conversations, residents convey more clauses than their preceptors (80% and 20%, respectively). In this quartile, phatic responses are the most common clause type (26.79% of all clauses in the quartile), and residents employ more than preceptors (69.3% and 26.8%, respectively). Other common categories include reported speech (23.6% of all clauses in the quartile) and statements (17.9% of all clauses in the quartile), which residents dominate, contributing 97% of the reported speech and 96% of the statements. Also common are proposals, which residents contribute much more than their preceptors (76.4% and 23.6%, respectively).

In the second quartile of PGY-3 conversations, residents use more clauses overall than their preceptors (58.5% and 41.5%, respectively). Other than phatic responses (31.7% of all clauses), proposals occur most often in this quartile (21.9% of all clauses in this quartile), similar to the second quartiles of PGY-1 and PGY-2 conversations. PGY-3 residents contribute a smaller proportion of proposals than their preceptors in this quartile (44.8% and 55.2%, respectively). Instead, late novices contribute 90.5% of the reported speech (compared with preceptors’ 9.5%),
and PGY-3 residents contribute 68.3% of the statements (compared with preceptors’ 31.7%).

Reported speech accounts for 13.7% of all clauses in this quartile, and statements account for 13.4% of all clauses in this quartile. Questions occur more often in this quartile than the first (11.1% of all clauses in the second quartile compared with 5% of all clauses in the first quartile); preceptors ask 73.5% of the questions in this quartile.

Subset Table 3.13 Conversational Category Distribution across Quartiles for PGY-3 Residents

<table>
<thead>
<tr>
<th>Conversational Category</th>
<th>Question</th>
<th>Statement</th>
<th>Assessment</th>
<th>Report</th>
<th>Proposal</th>
<th>Phatic Response</th>
<th>Total Clauses in Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quartile 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-3 R</td>
<td>4</td>
<td>28.57%</td>
<td>48</td>
<td>96.0%</td>
<td>14</td>
<td>70.0%</td>
<td>64</td>
</tr>
<tr>
<td>PGY-3 P</td>
<td>10</td>
<td>71.43%</td>
<td>2</td>
<td>4.0%</td>
<td>6</td>
<td>30.0%</td>
<td>2</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-3 R</td>
<td>14</td>
<td>5.0%</td>
<td>50</td>
<td>17.86%</td>
<td>20</td>
<td>7.14%</td>
<td>66</td>
</tr>
<tr>
<td>PGY-3 P</td>
<td>34</td>
<td>11.11%</td>
<td>41</td>
<td>13.40%</td>
<td>25</td>
<td>8.17%</td>
<td>42</td>
</tr>
<tr>
<td>Quartile 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-3 R</td>
<td>9</td>
<td>26.47%</td>
<td>28</td>
<td>68.29%</td>
<td>14</td>
<td>56.0%</td>
<td>38</td>
</tr>
<tr>
<td>PGY-3 P</td>
<td>25</td>
<td>73.53%</td>
<td>13</td>
<td>31.71%</td>
<td>11</td>
<td>44.0%</td>
<td>4</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-3 R</td>
<td>34</td>
<td>11.11%</td>
<td>41</td>
<td>13.40%</td>
<td>25</td>
<td>8.17%</td>
<td>42</td>
</tr>
<tr>
<td>PGY-3 P</td>
<td>19</td>
<td>6.07%</td>
<td>24</td>
<td>7.67%</td>
<td>24</td>
<td>7.67%</td>
<td>45</td>
</tr>
<tr>
<td>Quartile 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-3 R</td>
<td>5</td>
<td>26.32%</td>
<td>15</td>
<td>62.50%</td>
<td>5</td>
<td>20.83%</td>
<td>23</td>
</tr>
<tr>
<td>PGY-3 P</td>
<td>14</td>
<td>73.68%</td>
<td>9</td>
<td>37.50%</td>
<td>19</td>
<td>79.17%</td>
<td>22</td>
</tr>
<tr>
<td>Total Clauses in Category</td>
<td>% in Quartile</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PGY-3 R</td>
<td>19</td>
<td>6.07%</td>
<td>24</td>
<td>7.67%</td>
<td>24</td>
<td>7.67%</td>
<td>45</td>
</tr>
<tr>
<td>PGY-3 P</td>
<td>26</td>
<td>8.87%</td>
<td>11</td>
<td>3.75%</td>
<td>32</td>
<td>10.92%</td>
<td>37</td>
</tr>
</tbody>
</table>

Third quartiles of PGY-3 conversations reveal that residents initiate proportionally fewer exchanges than their preceptors (43.1% and 56.9%, respectively), but residents convey slightly more clauses than their preceptors (51.1% and 48.9%, respectively). Similar to PGY-1 and PGY-2 third quartiles, phatic responses occur often in this quartile (42.8% of all clauses in the quartile), and proposals follow (21.4% of all clauses in the quartile). In terms of proposals, residents
contribute fewer proposals than their preceptors (32.8% and 67.2%, respectively). Residents and preceptors also express reported speech in this quartile (14.4% of all clauses in this quartile), with residents reporting the patients’ and others’ speech (51.1%) and preceptors offering hypothetical reported speech to model and guide the resident (48.9%). In the third quartile of PGY-3 conversations, assessments only account for 7.7% of all clauses.

Moving on to the fourth quartile of PGY-3 conversations, residents still contribute slightly more clauses than their preceptors (51.9% and 48.1%, respectively). Following the patterns of the previous quartile, the fourth and final quartile of PGY-3 conversations is characterized by phatic responses (37.2% of all clauses in the quartile), proposals (26.6% of all clauses in the quartile), and reported speech (12.63% of all clauses in the quartile). Residents convey far more phatic responses than preceptors (77.1% and 22.9%, respectively). Similar to the fourth quartile of PGY-2 conversations, PGY-3 residents express only 28.2% of the proposals in this phase, allowing their preceptors to contribute far more (71.8%). In terms of reported speech, preceptors offer somewhat more reports (54.1%) – mostly hypothetical reported speech intended to model effective communication – than residents (45.9%). The next most common category, assessments (10.9% of all clauses in this quartile), demonstrates that PGY-3 residents employ fewer assessments (37.5%) than preceptors (62.5%).

**Structural organization across quartiles.** In this section, I describe the overall structural organization of these conversations across the four conversation quartiles, regardless of residency level. Among all residents, phatic responses occur often in the first quartile, accounting for around 30% of all clauses in this phase of the conversation (30.8% in PGY-1, 32.7% in PGY-2, and 26.8% in PGY-3 conversations). The next most common categories in this quartile, reported speech and statements, tend to be dominated by the residents as they present the objective data
(statements) and experiential accounts (reported speech) to construct the clinical narrative. Also common in this first quartile are proposals, dominated at the PGY-1 and PGY-2 level by preceptors (62.2% and 62.50%, respectively, compared with residents); in contrast, at the PGY-3 level, residents contribute more proposals than their preceptors (76.4%). The total proportion of questions to the rest of the clauses in the first quartile decreases slightly with each level of residency (9.1% at PGY-1, 6.2% at PGY-2, and 5% at PGY-3 levels).

In the second quartile, phatic responses occur often and account for around 32% of all clauses in this phase of the conversation (35.5% in PGY-1, 32.1% in PGY-2, and 31.7% in PGY-3 conversations). The next most common category, the proposal, occurs in roughly one-fifth of clauses in the second quartile of PGY-1 and PGY-3 conversations (21.3% and 21.9%, respectively) and 30.2% of clauses in PGY-2 conversations. First-year resident contribute proportionally more proposals (60.3% of all proposals in the second quartile) in their conversations than PGY-2 residents (27.1%) or PGY-3 residents (44.8%). The next most common category, reported speech, occur progressively less when compared to all of the other categories in the second quartile, as residents advance through residency training (16.1% in PGY-1, 15.1% in PGY-2, and 13.7% in PGY-3 conversations. PGY-3 residents’ next most common category is the statement (13.4% of all clauses in the second quartile). In contrast, the next most common category of PGY-1 conversations is the question (13.9% of all clauses in this quartile), unlike more-advanced levels of training where questions are asked more infrequently.

In the third quartile, phatic responses again occur most often at all residency levels, accounting for around 35% of the clauses in the quartile (32.6% in PGY-1, 25.9% in PGY-2, and 42.8% in PGY-3 conversations). The second most common clause type in this quartile across all residency levels is the proposal. Even though the proportion of total clauses decreases with each higher level of residency (with PGY-1 third quartiles containing 28.7% proposals, PGY-2
containing 26.5%, and PGY-3 containing 21.4%), preceptors contribute more proposals than residents. The next most common categories are reported speech, which residents dominate (PGY-1 residents employ 63%, PGY-2 residents convey 100%, and PGY-3 residents contribute 51.1% in their conversations), and assessments, which preceptors dominate (contributing 79.3% in PGY-1, 64.5% in PGY-2, and 79.2% in PGY-3 conversations).

In the fourth and final quartile, phatic responses occur often across all levels of residency training, accounting for 29.3% among PGY-1, 36.8% among PGY-2, and 37.2% among PGY-3 residents for all clauses in the quartile. The next most frequent clause category is the proposal, which accounts for 34.7% among PGY-1, 23.7% among PGY-2, and 26.6% among PGY-3 residents for all clauses in the quartile. Residents contribute increasingly more proposals in this quartile as they advance through residency (PGY-1 residents convey 13.7%; PGY-2 residents employ 27.8%; and PGY-3 residents contribute 28.2%); preceptors dominate this category at all levels of residency (86.3%, 72.2%, and 71.8%, respectively). Assessments are also relatively common in the final quartile at all residency levels, accounting for 11.2% among PGY-1, 13.2% among PGY-2, and 10.9% among PGY-3 residents for all clauses in the quartile. Preceptors offer more assessments in this quartile, particularly at the PGY-1 level (84.9%) rather than the PGY-2 and PGY-3 levels (65% and 62.5%, respectively).

Conclusion. In this section, my analysis of structural organization has suggested that from the beginning to the end, conversations shift from a dialogue about data to a discussion about future actions; furthermore, more-experienced residents convey more proposals and assessments than less-experienced residents. In the beginning of these conversations, residents contribute more statements and reports, and more-experienced residents offer initial proposals. In the middle phase, preceptors offer questions, proposals, and hypothetical reports, whereas residents express
reports and, at more-experienced levels, proposals. During the final phase of these conversations, preceptors dominate with more proposals and assessments, and more-experienced residents again present more proposals to the discussion.

Results Conclusion

This Results section has outlined the turn design, interactional asymmetry, turn-taking organization, and structural organization of these conversations to provide insight into institutional roles and objectives. I have examined the activities performed in conversational turns, the variations in resident and preceptor contributions, the turn-taking arrangement, and the overall structural trends. These four separate levels of conversation analysis offer an understanding of how resident-preceptor conversations progress from beginning to end, and they provide insight into how conversations between preceptors and residents develop as the residents gain experience and expertise. This entire section suggests the following:

- Residents and preceptors achieve particular activities in their conversational turns: phatic responses, proposals, reported speech, assessments, statements, and questions.
- As residents gain experience, they contribute more phatic responses, proposals, assessments, and questions.
- When compared to their preceptors, residents of all levels convey more reports and statements than their preceptors but fewer proposals, assessments, and questions.
- Because preceptors ask more questions and offer more proposals and assessments with early novices, they direct the conversation more than they do with late novices.
- Late novices participate in these conversations more actively than less-experienced residents, contributing proportionally more clauses in each category; their turns allow them to brainstorm ideas and suggest and assess clinical choices.
• From the beginning to the end of the conversations, these discussions shift from a dialogue about objective and subjective data to a discussion about future actions.

• At the beginning of these conversations, residents convey objective statements and subjective reports of patients’ clinical experiences, which preceptors often accept with phatic responses; preceptors and more-experienced residents also introduce proposals, which interlocutors accept and supplement with statements.

• During the middle of these conversations, preceptors pose questions, proposals, and hypothetical reports, which less-experienced residents acknowledge with statements and reports and more-experienced residents supplement with proposals.

• To initiate the closing stage of the discussion, preceptors direct the discussion with proposals, assessments, and questions; and more-experienced residents pose their own proposals to contribute meaningfully to final clinical decisions.

Based on these results, the analysis in next section considers how these conversational patterns allow physicians to reach institutional goals in different phases of the conversation and at different levels of residency.

Analysis

As these preceptors and residents move from the beginning to the end of their conversations, they shift from sharing clinical data to offering ideas for proceeding with the case. More dominant in the beginning of their conversations, residents generally contribute objective statements, subjective reported speech, and phatic responses as they develop an outline of the clinical case. Preceptors question and, with residents, analyze the outline during the middle of the conversation to debate issues and draw conclusions about the next clinical actions. Preceptors dominate the end of the conversation, conveying more questions, proposals, and assessments;
these responses facilitate preceptors’ modeling of clinical reasoning and communicating and their sharing advice about clinical actions. These interactional trends enable residents to present their understanding and interpretation of the clinical data and allow preceptors elicit pertinent information, test residents’ clinical knowledge, suggest possible decisions, and evaluate clinical choices. As Fig. 3.2 shows, these responses enable interlocutors to achieve one overarching institutional goal for each quartile and nine minor institutional objectives in these conversations.

The rest of this introductory section explains how residents and preceptors work to achieve these institutional goals in certain quartiles of their conversations. In the four subsequent sections, I use representative examples to illustrate in more detail how residents and preceptors at different levels of residency work toward institutional objectives to professionalize novices into the field. This institutional conversation analysis identifies how residents and preceptors embed arguments and attempt to persuade each other using rhetorical strategies, Chapter 4 addresses.

Fig. 3.2 Institutional Objectives in Quartiles of Resident-Preceptor Conversations

The overarching institutional goal of the first quartile of the conversation engages the physicians in aligning their understanding of the clinical case; to achieve this objective, residents provide the framework of the case by sketching the clinical data associated with the patient and offering some initial theories about their cases, while preceptors probe some of these details to
refine their knowledge of the case. In this opening phase, residents dominate the discussion with objective statements and subjective reported speech in an effort to construct the outline of the clinical narrative. They share details about the patients’ medical history, current symptoms, past and future procedures and testing, test results, snippets of oral and written speech, and subjective accounts of patients’ experiences. In response, preceptors ask questions about residents’ clinical outlines and offer periodic proposals to refine the shared understanding of the clinical context.

Residents differ slightly in their first-quartile contributions, based on experience. PGY-1 and PGY-2 residents dominate the first quartile with factual assertions (statements) and personal accounts (reported speech), presenting clinical data as realistic portrayals of the patient case. Extending their clinical outlines, experienced PGY-3 residents more readily offer proposals about the case, clinical choices, and procedural decisions in the first conversation quartile; third-year residents offer more conceptualizations of what these facts suggest clinically than their first- and second-year counterparts. During this first quartile, preceptors probe all of these residents’ stories with inquiries (questions) and suggestions (proposals) that sharpen the clinical narrative.

In an effort to achieve the institutional objective of analyzing clinical data to discover and debate clinical concepts, the minor goals in the second and third quartiles of these conversations engage the physicians in analyzing the clinical data the resident presented in the first quartile, recommending potential clinical actions, and interpreting data. In these middle quartiles, questions and proposals characterize the dialogue as residents and preceptors probe the clinical narrative more deeply and share suggestions and possibilities for testing, diagnosing, and treating the patient. This phase tends to be more symmetrical in terms of clause contribution as residents and preceptors examine the pertinent details of the case jointly and articulate their reasoning about specific clinical decisions. In these quartiles, preceptors’ proposals dominate, and residents participate by sharing subjective reported speech and text rather than objective statements. These
interactional strategies enable the physicians to analyze less-concrete aspects of the patient case and persuade each other about how to manage the case.

The process of analyzing clinical data in the second and third quartiles looks different depending on the residents’ level of experience. Focusing on clinical data and some interpretations of the data in the second quartile, PGY-1 residents recount portions of speech and text along with accounts of patient behavior (reported speech) and begin offering ideas about managing the emergent issues (proposals). During this quartile, PGY-1 preceptors primarily ask questions and offer some assessments and proposals to refine their insight into the case and prepare them to offer definitive proposals and assessments in the subsequent quartiles. In this quartile, PGY-2 and PGY-3 residents and their preceptors offer more proposals about handling the patient case and assessments of various issues rather than just objective statements and reports. In short, interlocutors try to discern the outcomes of clinical details and reach agreements about problems. Preceptors direct the third quartile with PGY-1 residents by using proposals, assessments, and hypothetical reported speech, which outline essential clinical actions in the patient case through arguments. The increase in proposals and assessments in the third quartile of PGY-2 and PGY-3 conversations allows physicians to offer and critically analyze options for managing the case.

In contrast with the mutual participation in the middle quartiles, the institutional goal of ensuring the effective care of patients in the fourth quartile requires preceptors to assume directive roles as they give guidelines for undertaking tasks for patients and offer final insights about clinical problems. Preceptors instructively pose their arguments in proposals and assessments in this quartile, and residents readily accept these recommendations. Preceptors overwhelmingly dominate the last phase of these conversations, initiating more exchanges and offering greater proportions of proposals and assessments, which residents accept with phatic
responses. Although more-experienced residents offer a greater proportion of proposals and assessments than less-experienced residents in the final quartile, all residents allow preceptors to advance proposals and assessments about how to manage the case clinically, procedurally, and conceptually. At the end of these conversations, preceptors sketch the aspects of the case that ought to be prioritized. Expressing their arguments more insistently in this quartile, preceptors assume that residents will accept their clinical directive unless they explicitly disagree.

Although all resident-preceptor conversations follow this general model, less-experienced residents contribute fewer clauses than more-experienced residents in each phase of the resident-preceptor conversation. More-experienced residents’ years of interviewing, examining, and monitoring patients surface in their greater participation and clinical aptitude as well as their more active role in these conversations. Whereas preceptors may articulate a greater percentage of clauses in conversations with first-year residents to guide these novices more specifically and thoroughly, third-year residents direct and dominate discussions with preceptors, employing medical discourse conventions with more independence. As indicated above, the rest of the discussion in this section exemplifies the trends in the institutional objectives using representative exemplars and analysis.

Quartile 1

While residents narrate and preceptors help them hone the outline of the patient case, they review objective and subjective data to work toward the major institutional goal of aligning their understanding of the clinical case. In the opening quartile, residents dominate the discussion as they initiate statement and reporting exchanges, and preceptors tend to accept their descriptions with little interruption or interjection. The “interactional asymmetry in participation” (Heritage, 2004, p. 239) reflected in residents’ greater proportion of clauses in the first quartile stems from
residents’ “rights of access to knowledge” (p. 239) about the patient, which preceptors lack because they have not interviewed or examined the patient. Residents assert statements about patients’ presenting complaints, prior medical attention and history, and testing to form their outline of the case; this data enable them to explain why the patient has come to the clinic, what testing and treatments have been attempted, and what aspects of the patient’s history might influence the issues. Preceptors question, assess, and propose ideas about this data to improve the outline so they can be equipped to interpret and analyze the data in subsequent quartiles.

Statements, which occur ten percent more often in the first quartile than other quartiles, facilitate residents’ formation of the clinical outline, a core institutional objective in the beginning of the conversation. Because prior testing and procedures enable residents and preceptors to understand the course of the patient’s diagnosis and medical condition, reports of medical tests and procedures occur often and sketch the concrete details of the case. For example, PGY-1 resident Corey Taylor explains the tests and vaccines the healthcare team administered to his alcoholic patient while she was admitted to the hospital:

Corey Taylor: They did hepatitis studies, I believe, while she was in the hospital that were all . . negative.

Jackie Rogers: negative?

Corey Taylor: I’m trying to remind myself.

And it looks like, like in the past, HERE as well, she got Hep A and Hep B one dose in May –

Jackie Rogers: Vaccines?

Okay. . (CTJR1 lines 25-32)

By listing the patient’s recent hepatitis testing and inoculations, Dr. Taylor makes his preceptor aware of the diagnosis and prophylaxis already conducted on a patient who is susceptible to this disease. These statements help the interlocutors to avoid repeating tests and to decide when to give other vaccines. The resident’s sketching of these prior tests and his preceptor’s clarifying questions ensure they both comprehend these core details of the case. Their resulting aligned
knowledge of the case prepares them to make decisions in subsequent quartiles about other hepatitis vaccines and screening procedures needed to stabilize or improve the patient’s situation.

Statements reporting the results of tests and procedures, the next most common statement type, also occur in early quartiles and allow residents to contribute to the institutional goal of outlining previously established medical facts or clinical data in the case. These statements prime residents and preceptors for later analysis and decision-making about what testing, treatment, or recommendations to offer the patient. For instance, later in the discussion about his patient, resident Dr. Taylor challenges an end-stage liver disease score other clinicians have documented:

Corey Taylor: They had mentioned –
her MELD [Model for End-Stage Liver Disease] score at one point, I swear, on one of their notes, said twenty-eight.
I can’t. . . calculate a MELD score that high on HER.
What I’m finding was, like, a MELD score of around twelve.
Because she has, like, an elevated bilirubin.

Jackie Rogers: Mm hm.

Corey Taylor: But her INR [International Normalized Ratio] was like one-three [1.3].
It wasn’t, like, super high.

Jackie Rogers: Okay. .

Corey Taylor: Her renal function was normal,
all that kind of stuff. (CTJR1 lines 67-75)

Because they need to determine the progression of the patient’s liver disease to make treatment decisions, Dr. Taylor shares the inpatient clinicians’ calculated MELD result and his own estimate of the score. He then discloses the patient’s bilirubin, INR, and renal-test values to construct a summary of the patient’s critical clinical statistics. The preceptor allows the resident to review these values without interruption, and later, she analyzes these results in the broader context of the complete clinical narrative Dr. Taylor constructs; she then recommends the medications and communicative methods the resident should use with this patient.

Like the patient’s past medical tests, procedures, and test results, statements about the patient’s history of medical attention enable the resident to achieve the goal of outlining the
narrative of the patient’s medical attention and care in the first quartile. These statements prevent treatment repetition and clarify what others have done to diagnose, treat, and monitor the patient. Because they rely on residents for this data, preceptors rarely make statements about the history of medical attention. Although some of this data can be found in the medical record, preceptors typically read this information silently as residents orally outline the case. For example, in PGY-3 resident Jared Chopra’s conversational turn, he explains where the patient sought attention for injuries he sustained from a recent fall to sketch the care the patient has already received:

Jared Chopra: Uh, he went to the – para – uh, [local hospital] ED [emergency department] via paramedics. THAT night, they did a work-up on him. It was negative. They sent him home. They had him follow-up with an orthopedic guy named Dr. Scott, um, so he’s been following with HIM. THEY suggested that. . he see a chiropractor, Dr. Curtis Martin, so he’s been doing THERAPY, under Dr. Martin’s, um. . supervision. (JCRW1 lines 12-22)

In this excerpt, Dr. Chopra explains that after the patient fell in a restaurant, he immediately went to an emergency room where they tested him for various medical conditions and discharged him. By explaining that the patient continues to be monitored by an orthopedic physician and chiropractor, Dr. Chopra ensures that other clinicians have been examining the patient’s injured bones. While he constructs this portion of the clinical outline, Dr. Chopra reveals that these specialists will continue to monitor the patient’s orthopedic health, allowing him to focus on other medical issues. Thus, after this exchange, Dr. Chopra introduces the patient’s possible hernia and cardiac health, which soon become the focus of the rest of the conversation.

To accomplish the institutional goal of outlining the clinical case, residents supplement objective statements with subjective accounts, contributing reported speech in the first quartile to illuminate the human side of the clinical outline. Because the residents have “rights of access to
knowledge” (Heritage, 2004, p. 239) about the patient, they share what the patient and other clinicians have said and written about the patient’s clinical situation. Although the information in declarative statements about the patient’s behavior or experience – the most common reported speech – has been acquired via subjective conversations and documents, speakers convey these clauses as unequivocal statements of fact, suggesting that they fully commit to their truth. For example, in their discussion of the patient who fell, PGY-3 resident Dr. Chopra relays a story the patient provided during the interview without hedging or marking the story as being reported:

Jared Chopra:  
[He] had an episode of a fall  
February second two-thousand-and-eleven.  
He… was in a MCDONALD’S eating with his family,  
and he SLIPPED on a wet surface and fell BACKWARDS,  
mainly on the left side of his hemithorax.  
Ever since then, he’s had his –  
some residual left-sided HAND numbness,  
some pain in the low back and NECK. (JCRW1 lines 3-10)

Framing this story as indisputable fact, the resident sketches the essential details of the story – when the patient fell, what part of his body became injured, and which injuries have persisted. These details from the patient’s account provide a framework for the other information to follow. The preceptor does not interrupt and reads along in the medical record as the resident synthesizes previously documented data and his oral conversation with the patient into a coherent outline for the preceptor to consider. Later, they probe the details of this outline critically to make decisions.

When residents explicitly mark reported speech as being spoken or written by someone else, they convey a subjective part of the clinical outline from someone else’s perspective; this marking enables them to avoid taking full credit, accepting, or promoting the statement. Thus, indirect reports overtly employ intertextuality by indexing the speaker of the speech or text. After committing to the truth of the patient’s recent fall, for instance, Dr. Chopra then designates the
next segment of the clinical outline – the patient’s resultant hernia – as a subjective account. This subjective report serves to develop the human dimension of the clinical outline:

Jared Chopra: And he said ever since then,
he’s been feeling an abdominal fullness
down there when he coughs,
when he yells,
anything that would increase his inter-abdominal pressure,
he starts to feel a pressure down there,
VERY tender there,
and he was worried that maybe he had a, a, a, you know,
something happened with his, you know, a blow-out
of his MESH or something like that. (JCRW1 lines 28-37)

By marking it as the patient’s concern that the fall damaged the mesh from his previous hernia surgery and caused another hernia, Dr. Chopra implies that he questions whether the patient actually suffers from a hernia. This reported speech prepares the preceptor for Dr. Chopra’s subsequent description and analysis of his hernia examination, which he deems insufficient for diagnosing a hernia. Although the resident does not seem convinced that the patient’s hernia has recurred, he shares this portion of the narrative to construct a complete clinical outline.

Similar to indirect reports, direct reported speech also enables residents to build clinical narratives with consideration of the patient’s experiential account and provides evidence for residents’ analyses. When Dr. Chopra quotes the patient’s claim that the orthopedic physician evaluated his hernia, he primes the preceptor for his analysis of the patient’s demeanor:

Jared Chopra: And he said,
“You know what, the orthopedic evaluated my hernia,
and he said it’s literally just all muscle.
Don’t worry about it.”
But HE’S unsure.
Mind you, this guy has a pan-positive –
everything I asked him –

Ryan White: L Yeah.
Jared Chopra: Pan-positive review of systems.
Ryan White: L Got ya.
Jared Chopra: So, I think he’s a little bit on the anxious side.
Ryan White: Okay. (JCRW1 lines 88-99)

After reporting the patient’s perception that the orthopedic specialist did not consider his hernia to be recurring, Dr. Chopra emphasizes the patient’s remaining concern. He then evaluates the patient as an anxious individual, which prepares the preceptor for his forthcoming proposal that he send the patient to a surgical specialist for a fully evaluation of the hernia. Throughout this exchange, Dr. White supports the resident with affirmative responses, allowing the resident to analyze the direct quotations and assemble the components of the clinical outline uninterrupted.

When residents directly report their own speech or text, they attempt to closely represent the communication practices employed in a specific situation and to shape the clinical outline with their contribution to the physician-patient interview. These direct reports, common in the first quartile, display residents’ clinical competence and reveal the issues they have already addressed. Providing a real-time explanation of what occurred in the patient room allows residents to recount who said what and when, constructing a precise outline of the clinical data and allowing the interlocutor to feel as though she or he witnessed the interview firsthand. For instance, PGY-3 resident Dr. Keller’s extended report of her discussion with her patient assembles a dialogue to prepare her interlocutor for subsequent analysis:

Molly Keller: Well, he has a loose definition of every, EVERYTHING because then I said, “Okay, so WHEN did the cough start?” Because he was like, “Well, I think it started right around the time that I relapsed.” And I go, “Okay. . but you were originally ON the prednisone for a COPD [chronic obstructive pulmonary disease] exacerbation, right?” And he’s like, “Yeah.” I was like, “So, you’ve only been on prednisone for three weeks?” “Oh, no, it’s been, like, six weeks.” I mean, I can’t. . . [2 sec.] I don’t feel like it’s me at this point. I think it’s him. (MKST1 lines 87-100)
By carefully explicating the back-and-forth discussion with the patient about the reason he has been taking prednisone, Dr. Keller portrays herself as competent in her use of logical questions and depicts the patient as unreliable. By incorporating the patient’s contradictory responses into her clinical narrative, the resident reveals why her outline of the patient case appears incomplete and why she views the patient as erratic. In effect, she builds and begins to offer preliminary theories about the clinical outline, the next institutional objective in the first quartile.

Particularly with PGY-1 residents, preceptors ask a range of questions in the first quartile to achieve the third institutional objective in the first quartile: refining their clinical outlines. Questions enable them to align their understanding of the case so they can engage in analysis in the middle quartiles. The least-experienced residents receive more prompting from preceptors in this quartile because they more frequently exclude relevant information from their case outlines.

In conversation with PGY-1 resident Seth Nair, preceptor Ray Johnson poses several prodding questions and subsequent answers to hone the clinical outline and direct the novice’s thinking:

*Ray Johnson:* Okay, so when you think about the different problems you’re facing with her, um, which are the ones that are – could cause most HARM, are most – or seem most urgent to you to, kind of, make it, to – to, sort of, nail down and figure out what’s going on?

*Seth Nair:* Mm hm.

*Ray Johnson:* And, of course, your BIGGEST concern is the chest pain.

*Seth Nair:* Yeah.

*Mm hm. (SNRJ1 lines 52-63)*

After Dr. Nair’s initial clinical summary, Dr. Johnson poses these questions to urge the resident to prioritize the most important medical problem in his clinical outline. When the resident responds with an inquiry, Dr. Johnson realizes that this early novice struggles to understand his question. Accordingly, he reiterates what the resident has already shared in the opening narrative and then
answers his own question – the patient’s chest pain ought to be prioritized. The resident agrees with his preceptor, accepting his assessment that the chest discomfort should be given precedence. Through this exchange, the preceptor’s questions tweak the clinical outline and equip the interlocutors to engage in analysis and decision-making in subsequent quartiles.

While preceptors attempt to refine the clinical outline with clarifying, interpretive, and other questions, more-experienced residents work toward the institutional objective of formulating initial interpretations that they often jointly analyze with preceptors in later quartiles. Preceptors contribute very minimally in the beginning of PGY-3 conversations as late novices construct the case for their preceptors and experiment with some proposals, showing their advanced ability to select the appropriate information to share. In contrast with PGY-1 residents, who respond to preceptors’ questions with objective statements and reported speech, more-experienced residents respond with proposals and assessments. For example, PGY-1 resident Dennis Riley responds to his preceptor’s clarifying questions about his patient’s cough with declarative reports that represent the patient’s subjective account of his cough:

*Jackie Rogers:* How much is he coughing?
*Dennis Riley:* The cough, not a big symptom of his. When he gets this shortness of breath, he gets a cough.

*Jackie Rogers:* I know, but how LONG has the cough persisted?
*Dennis Riley:* Uh. . . this has been an ongoing thing. Five years with the cough.

*Jackie Rogers:* Okay, is there anything. . . that he’s ON that could cause the cough?
*Dennis Riley:* Yeah, he’s – he’s BEEN taking. . . [2 sec.] uh. . . he’s on lisinopril and hydrochlorothiazide –

*Jackie Rogers:* Okay, and you have to sto –
*Dennis Riley:* You have to stop it with that kind of a history.

(DRJR1 lines 39-53)

Without extrapolating beyond his preceptor’s questions, Dr. Riley answers her inquiries with clinical data he acquired through talking with the patient about his symptoms. He does not extend
his responses beyond reporting exactly what he learned from talking with the patient. In contrast, when posed with a question from her preceptor, PGY-3 resident Dr. Collins volunteers a preliminary interpretation of and theory about her patient’s incontinence issue:

Ted Baker: So, does she HAVE, like, this sudden, terrible urge?  
Maria Collins: And she can’t make it to the bathroom.  
Ted Baker: Okay.  
Maria Collins: But it’s not like she’s leaking throughout the day or it’s after coughing.  
Ted Baker: Coughing.  
Maria Collins: It doesn’t sound like stress.  
It sounds like, maybe, mm. .  
Maybe like a diabetic. . uh. . neuropathy.  
Ted Baker: So, you’re thinking neurogenic possibly?  
Maria Collins: Yeah.  
(MCTB1 lines 29-39)

This late novice does not merely answer her preceptor’s question with a report of how the patient described her incontinence nor does she allow the preceptor to lead her through the analysis of what could be causing the patient’s incontinence; instead, Dr. Collins offers her explanation for the incontinence – diabetic neuropathy. Her interpretation in this exchange establishes a theory to analyze further in subsequent quartiles. Later, the preceptor poses a series of questions to prod this hypothesis.

After residents have formed their clinical outline and some preliminary theories about the case, their preceptors pose questions to refine their outlines, working together to achieve the first quartile’s overarching objective of aligning the physicians’ understanding of the case. As they move into the second quartile, they begin working toward the goal of analyzing clinical data to discuss clinical concepts and theories.

**Quartile 2**

Unlike first-year residents whose preceptors interrupt with questions in the first quartile, more-experienced residents’ preceptors usually suspend questions until the second quartile. After
residents have provided a full clinical outline and some interpretations, questions enable
preceptors to assist residents in reaching the institutional goal of refining their clinical outline.
The most common inquiries, clarifying questions, enable preceptors to elucidate the patient case
and point out any holes in residents’ outlines. Clarifying questions allow these doctors to align
their thinking so they can cooperatively analyze the clinical data to make decisions about
diagnosing, treating, and communicating with patients. For example, as PGY-3 resident Dr.
Collins discusses her patient’s persisting urinary incontinence with preceptor Dr. Ted Baker, he
asks several clarifying questions about the treatment she has already given the patient:

Maria Collins: Well, the Detrol LA –
Ted Baker: Has Detrol made it worse?
Maria Collins: No. . it just isn’t helping.
Ted Baker: Doesn’t help AT ALL.
Maria Collins: Yeah.
Ted Baker: In what dose is it?
Maria Collins: Um. . I have her on. .
Ted Baker: Is that the TOLTERO –
Maria Collins: Yeah, tolterodine –
Ted Baker: Two –
Maria Collins: Two milligrams.
Yeah. (MCTB1 lines 93-104)

After asking whether the Detrol LA has exacerbated the patient’s incontinence, Dr. Baker then
asks the resident for the dosage and the generic name of the drug. The preceptor’s clarifying
questions help the resident hone her clinical outline and prime Dr. Baker to offer suggestions in
the following exchange, such as lowering the dosage and adding another medication. Embedded
in this series of questions, which these physicians use to solve this patient’s immediate need, is a
lesson for the resident about which fragments of clinical data ought to be included in her
presentation; in the process, they collectively refine the outline for their upcoming analysis.

Similar to clarifying questions, factual questions shape residents’ outlines of objective
data so they and preceptors can analyze the testing and treatment issues with more certitude. For
instance, when PGY-3 resident Dr. Chopra and his preceptor recognize that his patient may face a
serious risk of suffering a sudden cardiac event, they work through a series of factual questions to
refine the clinical outline and prepare them to decide about whether to prescribe a statin:

Ryan White: So, he’s male, he’s age sixty-two, right?
Jared Chopra: Yeah.
Ryan White: His blood pressure today?
Jared Chopra: Excellent.
One-twenty-four-over-seventy-three.
Ryan White: Okay, that’s good. It’s on meds though.
Jared Chopra: Uh, yeah.
Ryan White: And then, cholesterol?
Jared Chopra: Two-forty-one. . . was his total?
Ryan White: That was last year’s, yeah.

(JCRW1 lines 156-166)

After they realize that the patient’s cardiac risk does not clearly point to ordering the patient a
cholesterol-lowering statin, the preceptor prompts the resident to work through the Framingham
formula. In the process, they answer several established factual questions that cumulatively
provide them with a final score indicating the patient’s risk of suffering from a stroke or heart
attack. These questions elucidate the clinical outline, increasingly providing sharper insight into
whether the patient faces serious risk of experiencing a cardiac event, which prepares the
physicians to make decisions about treating and discussing his cardiac risk.

As residents acquire more experience in their training, they begin asking progressively
more questions to preceptors, demonstrating their comfort in inquiring about and starting analytic
conversations about clinical issues. In contrast to less-experienced residents who outline the
clinical data, answer questions with objective or subjective data, and allow preceptors to instruct
them, more-experienced residents engage in joint questioning and analyzing. For example, PGY-

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According to Aronowitz (1998), the Framingham study (1950) prospectively examined a large
population to determine how individual risk factors play a role in cardiovascular disease
symptoms and diagnoses. Today, the Framingham equation calculates a patient’s individual risk
of developing cardiac disease based on several factors.
3 resident Neal Jackson collaborates with his preceptor as she explains the drawbacks of a pharmacologic stress echocardiogram, proposing and probing the test:

*Sandra Tao:* You’re getting it at one static moment with the, um. . .
the do – dobutamine,
but you don’t really know. . .
you know, how much he can. . . DO.
Let’s see what THIS says.

*Neal Jackson:* And the mitral insufficiency may overestimate his ejection fraction?
You mean?
Can’t – doesn’t it do that if you have mitral regurgitation?,

*Sandra Tao:* Mm hm. .

*Neal Jackson:* It’ll overestimate. . . your EF.

*Sandra Tao:* Yeah. Mm hm.

*Neal Jackson:* It’s because it’s not going where you want it to go.

Yeah. .

(NJST1 lines 113-126)

Rather than passively accepting Dr. Tao’s arguments about the dobutamine stress test, this experienced resident contributes to the discussion actively. He demonstrates his knowledge of this type of test by posing an interpretive question about how the test will represent the patient’s ejection fraction. He also offers proposals about how the patient’s mitral regurgitation will influence the efficacy of the test, meaningfully adding to his preceptor’s interpretive work and attempts to achieve the institutional objective of clarifying the clinical outline.

After refining the clinical outline, preceptors and residents begin working toward the institutional goal of considering how to act on clinical issues. Facilitating this process are assessments, which more-experienced residents and preceptors contribute in the second quartile. Because preceptors possess greater “knowhow” and “knowledge,” (Heritage, 2004, p. 239) than residents, they convey more assessments than all novices. The greater proportion of assessments in PGY-3 residents’ conversations might be explained by their developed ability to gauge the management of cases, effectiveness of clinical choices, and progress of procedural tasks. Assessments allow speakers to emphasize certain issues, think critically about decisions and
actions, and consider the best possibilities for treating, testing, and diagnosing the patient. For example, as PGY-1 resident Dennis Riley describes his patient’s chest-pain symptoms, the preceptor assesses the patient in a way that calls attention to the seriousness of his complaints:

Dennis Riley: The shortness of breath and chest pain don’t coincide.

Jackie Rogers: Okay... [3 sec.]
Yeah, I’m a little worried about this guy. . (DRJR1 lines 125-127)

Because the resident has not yet acknowledged the urgency of his patient’s complaints, the preceptor verbalizes her concern, prompting the resident to realize they must analyze this issue in more depth. In contrast, PGY-3 resident Dr. Collins independently engages in this same sort of assessment in her conversation with preceptor Ted Baker and offers a response to the evaluation:

Maria Collins: But she seems a little slow.
Ted Baker: Yeah. .
Maria Collins: But VERY nice, sweet, she’s –
Ted Baker: Like wouldn’t figure out that –
Maria Collins: “If I emptied my bladder beforehand. . ”
Ted Baker: Yeah. .
Maria Collins: Yeah, so, I, I, I think I need to just tell her,
“You need to start scheduling, like, every couple hours –”
(MCTB1 lines 128-135)

By assessing her patient as cognitively challenged, Dr. Collins apprises her preceptor of another potential reason for her urinary incontinence. Without waiting for him to offer a suggestion for how to react to this evaluation, Dr. Collins then proposes one way of talking with the patient about planning her trips to the bathroom to avoid future incontinence. The resident’s interpretation of her patient’s problem and her suggested solution set the groundwork for an extended discussion of how she should act on the patient’s apparent cognitive struggles and resulting incontinence, including different ways to teach the patient to do scheduled toileting.

Proposals, which characterize the end of the second and much of the third quartile of these conversations, tend to be offered by preceptors and more-experienced residents, who use these suggestions to actively analyze the patient case so they can decide how to proceed.
Proposals about a disease course contribute to the overarching institutional goal of analyzing clinical concepts and allow physicians to prepare for possible clinical interventions, such as testing, treatments, or procedures. Preceptors and more-experienced residents contribute more of these proposals probably because of their interactional “asymmetry in knowledge” (Heritage, 2004, p. 239) about clinical conditions and symptoms. In contrast, PGY-1 residents convey a smaller proportion of proposals about disease courses in their conversations because they have less knowledge about disease processes. For instance, as PGY-1 resident Dr. Taylor answers his preceptor’s questions about the patient’s blood markers, he enables his preceptor to make and explain a proposal about the patient’s liver disease:

*Jackie Rogers:* How high is the bili?
*Corey Taylor:* Four-point-one was the last one.
*Jackie Rogers:* Okay. .
So it was going up?
*Corey Taylor:* Right.
*Jackie Rogers:* \[\text{L}\] Yeah, it was going up a little bit.
*Corey Taylor:* But she’s currently, she does –
*Jackie Rogers:* \[\text{L}\] And what’s her albumin?
*Corey Taylor:* Her albumin’s two-two, yeah.
*Jackie Rogers:* \[\text{L}\] So. . it’s, it’s bad.
She’s got end-stage liver disease. (JRCT1 lines 102-112)

Building from the data the resident shares about the patient’s bilirubin and albumin, Dr. Rogers offers a culminating interpretation that the patient suffers from end-stage liver disease. In subsequent exchanges, the preceptor expounds on this preliminary interpretation to teach Dr. Taylor how to translate the patient’s blood-test results and assess the progression of the patient’s liver disease. Because this less-experienced resident does not make the connections between the blood markers and the disease, the preceptor draws the correlations and models logical thinking.

Working toward the goal of analyzing clinical data, preceptors and more-experienced residents offer proposals about explanations of test results to advance their perception of the case, display clinical reasoning, or offer interpretations for one’s interlocutor to evaluate or revise.
When preceptors interpret test results, they show residents, typically early novices, how they ought to read certain results. For instance, after PGY-1 Dr. Nair explains what occurred during his patient’s hospitalization, Dr. Johnson interprets the tests conducted:

*Ray Johnson:* And, from what you said in the ER visit, it sounds like. . . they RULed her out on the basis of troponins –

*Seth Nair:* Yeah.

*Ray Johnson:* Her EK[G] didn’t show any acute changes.

*Seth Nair:* No.

*Ray Johnson:* And then, we scheduled the STRESS test –

*Seth Nair:* Mm hm.

*Ray Johnson:* Sort of, like, to be ABSOLUTELY sure. . . that there’s nothing more. (SNRJ1 lines 85-93)

Because Dr. Nair’s initial outline of the hospital visit excluded an explanation of why the healthcare team discharged the patient, Dr. Johnson proposes some interpretations of their documented tests. He concludes that they analyzed the patient’s troponins and EKG, which suggested that the patient did *not* suffer from myocardial infarction. Dr. Nair concurs with his preceptor’s proposals, not contributing to them or extrapolating from them; as a result, in the next exchange the preceptor offers extended instructions about how the resident should proceed.

Like proposals about disease courses, at more-experienced levels, residents express greater ability and more readiness to propose their own interpretations of tests and clinical findings to achieve the goal of analyzing clinical data. Instead of relying on their preceptors to analyze imaging scans and test results, they engage in this intellectual work independently and share their ideas with preceptors so they can assess their proposals. For instance, PGY-3 resident Dr. Chopra reads the patient’s lipid markers during the conversation and then interprets them:

*Jared Chopra:* Um. . . as far as his LIPIDS are concerned, he had a lipid panel done last YEAR, um, and. . . oh, it’s pretty high. Uh. . . two-hundred-forty-one was his total cholesterol, LDL’s one-eighty-six, so I should probably REPEAT that.
Ryan White: Is he on something?
Jared Chopra: He is NOT on anything. (JCRW1 lines 119-126)

As he presents the patient case, Dr. Chopra notices in the medical record that the patient’s lipid panel revealed high cholesterol, which he recognizes as being too high. Not only does he acknowledge the elevated cholesterol, but he also proposes a response to the elevation – repeating the test. Unlike early novices who allow their preceptors to interpret results and propose interpretations and solutions for their patients’ issues, late novices work toward the institutional goal of interpreting clinical data on their own; in response, their preceptors pose questions to probe their interpretations and proposals.

Throughout the second quartile, residents and preceptors work toward the overarching institutional goal of analyzing the data to consider and debate clinical concepts. By asking questions and offering proposals and assessments, preceptors help residents refine the clinical outline and ponder potential clinical actions. Residents’ reports, proposals, and assessments facilitate their achievement of the goals of reviewing and interpretive clinical data. Interpretation of data continues into the third quartile where residents begin settling on selecting and accomplishing appropriate clinical actions.

Quartile 3

Perhaps the most apparent evidence of physicians working toward the institutional goal of interpreting and analyzing clinical data occurs when they use proposals, which typify the third quartile. Offering tentative proposals enables speakers – often preceptors in conversations with less-experienced residents – to recommend a clinical decision without mandating or instructing the interlocutor to accept that choice. These open-ended suggestions enable interlocutors – typically residents – to accept or reject suggestions and thus exercise clinical autonomy. The less-common imperative proposals more forcefully urge the interlocutor to accept the advice.
Often tentative and imperative proposals work in tandem to work toward the goal of analyzing the patient case in depth. For example, Dr. Rogers offers tentative and imperative proposals about how to follow-up with PGY-1 resident Dr. Taylor’s patient with liver disease:

*Jackie Rogers:* But, I, I would just see her at a short interval.

*Corey Taylor:* Yeah. Like?

*Jackie Rogers:* Two to four weeks.

*Corey Taylor:* Okay.

*Jackie Rogers:* She – we’re going to have to keep a close eye. Obviously, you know, if she has a fever, worsening abdominal pain, vomiting, anything like that, she’s going to have to come in right away. . That would indicate worse prognosis.

[lines 319-323 omitted]

Yeah, I don’t know if we have – need to have the end-of-life talk quite yet, but we’re getting there.

*We’re. . getting there.* (CTJR1 lines 310-327)

After tentatively suggesting that Dr. Taylor follow up with the patient in the near future, Dr. Rogers proposes a timeframe for him to follow. She then offers several imperative proposals about when the patient must come to the hospital immediately, analyzing the seriousness of the patient’s condition. Becoming tentative again toward the end of the exchange, Dr. Rogers open-endedly proposes that discussing end-of-life issues with the patient may become necessary soon. Her extended analysis models appropriate clinical reasoning for the early novice.

Residents’ gradual increase in proposals from first to third year of residency shows that they become progressively more confident in their interpretive competence, equipping them to contribute to the institutional goal of analyzing clinical data and making decisions more actively. More-experienced residents appear more comfortable posing suggestions and arguments that endorse specific clinical decisions, procedural tasks, clinical etiology, and disease courses. Making proposals empowers residents to suggest possibilities for handling specific clinical decisions or procedural tasks, demonstrate their reasoning about clinical problems, and offer an
idea for analysis or revision by one’s interlocutor. For example, when PGY-3 resident Dr. Chopra’s preceptor advises him to prescribe a statin for his patient on account of his elevated lipids, the resident proposes that the patient’s lipids may have changed since his last blood test:

Jared Chopra: I can call him BACK; I can call him back, right?

Ryan White: Yeah, as long as you think he’s reliable for that.

Jared Chopra: Maybe he was eating a double de –
big mac with cheese when they got that, that – (JCRW1 lines 207-211)

Proposing that the patient’s poor diet could account for his elevated cholesterol from the prior year, Dr. Chopra proposes that calling the patient back and collecting a new blood sample might change the decision to prescribe a statin. In direct contradiction with his preceptor, Dr. Chopra proposes his own approach, which his preceptor accepts. In contrast to early novices who often seek and accept their preceptors’ advice, late novices often express their own proposals, which sometimes oppose their preceptors’ recommendations.

Not only do residents and preceptors offer proposals in the third quartile, but they also spend time seeking the clinical reasoning of other physicians to analyze the clinical data, a critical institutional objective. In the process, residents engage with an experienced physician about clinical issues, and preceptors test their residents’ logic to guide their thinking. With less-experienced residents, preceptors’ interpretive questions probe the novice’s clinical interpretation skills by asking them to interpret or evaluate some aspect of the patient’s state, condition, treatment, or diagnostic testing. This type of question encourages interlocutors to verbalize their rationale and allows the asker to request that the interlocutor to make sense of some subjective issue. For example, Dr. Johnson asks PGY-1 resident Seth Nair an interpretive question about his physical examination to assess his analysis of the cause of the patient’s chest pain:

Ray Johnson: By the way,
was it a dermatomal distribution that would make SENSE for you, down her –
the electric shocks down her arm from her NECK?
Was it worse with certain positions of the neck?

Seth Nair: You know, I didn’t move her neck around too much. I just, kind of, palpated around her neck, and then, I kind of touched, you know, kind of pressed her arms, her fingers. And everything hurt on the left side.

Ray Johnson: Yeah.

Seth Nair: AND on the right side, and on the legs too. (SNRJ1 lines 253-263)

In response to the preceptor’s question about the distribution of the patient’s pain, the resident describes how he examined the patient and at which points in the exam she reported discomfort.

Rather than interpreting the patient’s complaints, this resident focuses specifically on what he did and how the patient responded. Later, the preceptor offers an assessment of the patient’s pain, based on his account of the physical examination findings, to analyze the data in more depth.

Perhaps because more-advanced residents have mastered objective clinical issues, they ask their preceptors more interpretive questions and answer their preceptors’ interpretive questions with more nuanced responses about clinical dilemmas, achieving the goal of analyzing data. In contrast to PGY-1 resident Dr. Nair’s answer that described what he did during the exam and how the patient responded, PGY-3 resident Dr. Collins responds to her preceptor’s interpretive question with a proposal about what she plans to do for the patient:

Ted Baker: Does she deal with constipation CHRONICALLY?

Maria Collins: No. So, I thought maybe we could just continue to monitor her for this. (MCTB1 lines 284-288)

When the preceptor asks about the patient’s constipation, Dr. Collins reports that she does not regularly suffer from the condition. She then proposes that rather than treat the condition, she will closely follow the symptom. Instead of just reporting what the patient has reported about her experiences with constipation, Dr. Collins concludes with her conception of the next logical step.
During the third quartile, preceptors also often assess clinical decisions to achieve the institutional objective of interpreting and analyzing the case. Despite slight differences among resident experience levels, residents assess clinical decisions much less often than preceptors, who assume the role of the evaluator. By conveying whether a specific decision for treating or testing the patient is wise or ineffective, preceptors serve as the “teacher” when the efficacy of clinical choices arises. For example, in response to PGY-2 resident Jessica Davis’ proposal to prescribe the patient the hypertension medication lisinopril, preceptor Dr. Rogers assesses the clinical decision as acceptable but less effective than another:

*Jackie Rogers:* You could do that if you wanted. Um, I’d probably start with a diuretic. Has the least side effects.

*Jessica Davis:* The diuretic?

*Jackie Rogers:* You’re probably going to need twenty-five.

*Jessica Davis:* Okay.

*Jackie Rogers:* If you want to start conservatively, that’s fine. (JDJR1 lines 150-157)

By telling the resident that she “could” prescribe lisinopril if she prefers, Dr. Rogers implies that she favors the diuretic as the best option for treating the patient. Her assessment of the side effects of the diuretic and her claim that the resident will “probably” need a twenty-five milligram dosage critique the use of the drug and indirectly urge the resident to select the diuretic.

Also working toward the goal of analyzing clinical decisions, residents assess clinical choices as effective or ineffective, weighing in on clinical decisions and implying that other clinical possibilities should be considered. For example, when PGY-2 resident Dr. Saad assesses his apprehension with prescribing a potentially addictive muscle relaxer, he creates a space in the conversation for analyzing the patient’s possible dependency on pain medications:

*Mounir Saad:* Because I don’t feel comfortable with Baclofen, I, I’m not going to lie. Um.

*Louise Hu:* Is he on narcotics as well?
Mounir Saad: He’s, he’s on –
this guy is legit, in my opinion,
because he has a bottle of narcotics –
his Vicodin is still –
I mean, he’s got one of these big bottles,
it’s halfway full,
and they’re expired of October of last year.

Louise Hu: Mm hm.

Mounir Saad: So, I don’t think this guy is a BIG-TIME. . narcotic user,
but he does take his Baclofen. (MSLH1 lines 224-237)

When Dr. Saad evaluates Baclofen as a drug he feels uncomfortable prescribing, he prompts his
preceptor’s clarifying question about whether the patient takes narcotics; Dr. Saad not only
responds directly to the question but also analyzes his sense of the patient’s use of narcotics. He
explains why he does not perceive the patient to suffer from drug dependency, citing the patient’s
half-full bottle of Vicodin and expiration dates as evidence. Thus, his assessment of prescribing
Baclofen prompts analysis of clinical choices and tasks.

To work toward the institutional goal of determining the next clinical actions, less-
experienced residents often seek or accept direct advice in the third and fourth quartiles; they use
procedural or clinical questions to initiate conversations about how to enact certain decisions.
These questions overtly offer the interlocutor authority in suggesting or proposing how to handle
a clinical decision or procedural action. Procedural or clinical questions are the only questions of
which residents ask a substantial percentage (nearly half, compared with less than 20 percent),
perhaps because this question type enables them to acquire useable, concrete information about
how to manage the case. When residents ask procedural or clinical questions, they draw on their
preceptors’ asymmetry in “institutional knowhow” and “knowledge” (Heritage, 2004, p. 239).

For example, appealing to his preceptor’s institutional knowledge, PGY-1 resident Dr.
Corey Taylor asks his preceptor how to delete a diabetes diagnosis from his patient’s record to
prevent nurses from performing blood tests. He asks a specific, goal-directed inquiry:
Corey Taylor: How do I get RID of this so they quit putting in all these labs and stuff? She doesn’t HAVE diabetes.

Jackie Rogers: Okay, um... [1 sec.]

Corey Taylor: Is there a way –

Jackie Rogers: Go, yeah, go into “Assessment.” Let’s see if this works. Now... no, wait a minute, unclick “Hypertension.” Click “Diabetes,” and then... [1 sec.] and then look at, no, no, no. (CTJR2 lines 11-19)

After asking a focused question about how to perform a procedural task in the EMR, his preceptor directs him with imperative proposals. Although these proposals might be too controlling to motivate critical consideration and thought, they facilitate the resident’s completion of an immediate need. Residents with more experience, like PGY-2 resident Dr. Saad, also ask procedural questions to acquire advice about enacting clinical tasks. Unlike their less-experienced counterparts, though, they accompany these questions with some analysis:

Mounir Saad: Um... for this guy, can I, then, also write him down for, like, lipids, too, and...

Louise Hu: Absolutely, lifestyle –

risk, risk-factors modif –

Mounir Saad: Yeah, he used to be a big-time drinker, too.

Louise Hu: Okay.

Mounir Saad: And a big-time smoker, but he stopped. (MSLH1 lines 359-365)

In this exchange, not only does Dr. Saad ask his preceptor, Dr. Hu, whether he should order a lipid test, but he also adds that the patient used to drink and smoke. This data provides fodder for their subsequent analysis of the patient’s risk factors for heart disease. More balanced in terms of turn-taking, these interlocutors jointly examine and assess what to do for the patient.

In the third quartile, these physicians work toward institutional goals of interpreting and analyzing data, debating clinical actions, and achieving clinical tasks; in the process, they reach the overarching objective of analyzing data to make decisions. As they move into the final
In the final quartile of these conversations, preceptors dominate with substantial proportions of proposal and question exchanges as they mention the most relevant final topics of concern and work toward the institutional goals of accomplishing clinical tasks and making final decisions to ensure patients’ adequate care. The preceptors’ near three-quarters of the exchange-initiation and clause contribution demonstrates their “interactional asymmetry in participation” (Heritage, 2004, p. 239) because they have “institutional knowhow” and “knowledge” (p. 239) that PGY-1 residents lack. The preceptor clearly dominates both the direction and content of the conversation in this final quartile, guiding residents’ attention to certain aspects of the case they may have ignored and more firmly suggesting ideas about how to proceed with the case.

Moving beyond a consideration of the next clinical steps and fully enacting clinical tasks in the fourth quartile, preceptors often use hypothetical reported speech in the final phase of the conversation to model ways of speaking or writing about the patient. Hypothetical uses of text or speech accomplish clinical tasks because preceptors model the speech or text they advocate residents actually use when they return to the patient room. Through this type of reported speech, the speaker instructs the interlocutor by sharing how he or she usually communicates about or with patients in these situations. Preceptors typically convey this reported speech (about 85% of the time) because preceptors have asymmetry in “knowhow” (Heritage, 2004, p. 239) when it comes to talking with and writing about patients in medical situations.

Preceptors employ hypothetical reported speech and text because they want to model how to talk to the patient even though there is “social distance” (Fairclough, 2003, p. 169) between
themselves and the patient. In other words, because preceptors typically never see residents’ patients in this clinic, they cannot actually say the suggested words in front of patients. Instead, they use hypothetical speech to teach the resident about medical communication in a certain situation. For example, when preceptor Dr. Rogers realizes the gravity of her PGY-1 resident’s patient’s chest pain, she models how he should question the patient when he returns to the room:

*Jackie Rogers:* CONSIDER going to the ER, but if it’s stable, and he hasn’t had it in awhile. . But double-check about, you know, ask him SPECIFICALLY, “WHEN was your last episode –”

*Dennis Riley:* “Your very, most recent –”

*Jackie Rogers:* “MOST recent episode of chest pain? What were you doing to cause it?”

*Dennis Riley:* Mm hm.

*Jackie Rogers:* “Any change with this?” (DRJR1 lines 163-170)

Beginning with a tentative proposal about sending the patient directly to the emergency room, the preceptor suggests that they must determine the urgency of this pain. By repeating the hypothetical question about when the patient last suffered from the pain, Dr. Rogers emphasizes the significance of determining the patient’s most recent experience. She also tells him to ask him what triggered his pain and whether the trigger has recently changed. Her framework of questions serves as a substitute for her actually asking the patient these questions in front of the resident; this modeling enables him to achieve the goal of accomplishing a clinical task.

Later, Drs. Rogers and Riley discuss how the resident should instruct the patient to take nitroglycerin tablets; in this exchange, the preceptor asks the resident to model how he would hypothetically explain the procedure and interjects with positive reinforcements and corrections:

*Jackie Rogers:* How do you tell people to take them?

*Dennis Riley:* So, “You take – with chest pain, you take one under your tongue.”

*Jackie Rogers:* "Sit –“

*Dennis Riley:* “You’ve got to sit down first because it could drop your pressure.” Yeah.

*Jackie Rogers:* “One under your tongue. If no relief in three to five minutes –”
Jackie Rogers: About five minutes, yeah.

Dennis Riley: “Take another.”

Jackie Rogers: Mm hm.

Dennis Riley: “And call.”

Jackie Rogers: Or, if no relief, usually three, you know –
Q five minutes times three.
If no relief in five minutes –
“If no relief and five minutes after that and you’ve taken three,
then you call 911.”

Dennis Riley: Okay, I always thought it was the second one.

Jackie Rogers: Yeah.

Dennis Riley: Okay.

Jackie Rogers: “You call 911 after that.” (DRJR1 lines 197-217)

Although she asks the resident to present his instructions for how to take the medication, she
overlaps and interrupts his modeling to fine-tune his explanation. Because she cannot correct the
resident’s mistakes in the room with the patient, she revises his hypothetical speech to prepare
him to enact this clinical task. She emphasizes the final part to the instructions, repeating, “You
call 911” twice to stress the gravity of persistent symptoms and ensure the patient’s safety.

Preceptors facilitate more-experienced residents’ ability to accomplish tasks with
assessments of procedural tasks, which focus on the goal of performing clinical actions. Because
these assessments often occur in the context of the resident’s attempt to complete some time-
dependent task for the patient, these assessments tend to occur with proposals about procedural
tasks. Unlike early novices who accept their preceptors’ assessments and proposals wholesale,
more-experienced residents ask clarifying questions as their preceptors explain the task. For
instance, PGY-3 resident Dr. Collins suggests a task, asks for feedback, and probes the response:

Maria Collins: I could probably order that [post-void residual],
But then I’d have to end up sending her to urology, maybe?
Or just treat her here –

Ted Baker: I mean, no, you can,
I do them HERE.  

Maria Collins:  

Ted Baker: You do them here?

Yeah.
They’re not.  EASY and,
you know.  it’s nursing staff,
After suggesting that she order a post-void residual, the resident tentatively suggests that she should refer the patient to a urologic specialist, phrasing her proposal as a procedural question. Her preceptor responds by explaining that she can conduct the test in the clinic, which she prods with a clarifying question. This question prompts the preceptor to assess and expound on his suggestion to order the test in the clinic. At the end of the exchange, not only does the resident know what to do, but she also knows how the task will be conducted, giving her a richer understanding of the procedural process.

Imperative proposals about procedural tasks are also action-oriented and commonly occur in the context of a resident’s procedural question; the resident typically seeks assistance from the preceptor about accomplishing some procedural task, and the preceptor then instructs the resident about how to accomplish the task. Although these imperative proposals come across as instructive, these proposals serve the immediate need of assisting the interlocutor in navigating some procedural task. Preceptors employ this proposal type more commonly – and even more with less-experienced residents – because they have experience with the EMR system, the typical subject matter of these types of exchanges. Residents often accept preceptors’ proposals in the final quartile with phatic responses, and they respond to questions with argumentative proposals and assessments rather than objective and subjective data. PGY-3 residents also initiate more proposal exchanges than their less-experienced colleagues.

For instance, toward the end of their second conversation about PGY-1 Dennis Riley’s patient with potentially serious chest pain, preceptor Jackie Rogers compellingly instructs him to call a cardiologist’s office to schedule an appointment for the patient:

*Jackie Rogers:* Either way, you need to call Richards TODAY. . . and say, “This is what’s going on.”  
“This guy’s got recurrent angina – when do –
Dennis Riley: Okay.

Jackie Rogers: So, put it in – the ball in his court.
If you can’t talk to Richards, um. . you know, call over to the office, talk to one of the partners over there –
Dennis Riley: Okay.
Jackie Rogers: Whoever’s in the office, and we need – you know, we just need some. .
Dennis Riley: Okay. (DRJR2 lines 23-34)

Walking the resident through the steps in the process of scheduling the patient an appointment with a specialist, Dr. Rogers carefully explains what he ought to say when he talks with the cardiologist. Her hypothetical speech aims to facilitate the early novice’s ability to complete the task and emphasize the most important details of the case. Looking to fulfill the institutional goal of ensuring the patient’s health and well-being, the resident accepts Dr. Rogers’s advice willingly to complete a particularly urgent task for his patient.

Because speakers of imperative proposals about clinical decisions express their suggestions as imperative or declarative, they provide little opportunity for interlocutors to exercise clinical autonomy; instead, the institutional aim of these proposals is to actually make a final decision about solving a clinical problem. Because of the seriousness or import of the clinical judgment, this goal achieves the larger objective of ensuring effective care of patients. Like tentative proposals about clinical decisions, preceptors dominate the imperative proposals about clinical decisions, making what Fairclough (2003) might call “demands” (p. 168) that prescribe, modalize, or proscribe in a more forceful manner than tentative proposals. For instance, when PGY-1 resident Dr. Riley tells his preceptor that his patient’s wife wants him to continue working despite his chest pain, preceptor Dr. Rogers adamantly instructs him to direct the patient and his wife otherwise:

Dennis Riley: And his wife’s giving him a hard time about not working.
She was like, “Absolutely NOT.”
Jackie Rogers: No.
Dennis Riley: “He can’t get off work. We need that money.”

Jackie Rogers: No, so, you tell him that it’s because of his HEALTH, that you’re his DOCTOR, and you’re telling him he can’t work, so...

Dennis Riley: Yeah.

Jackie Rogers: That would probably work a little better for him.

Dennis Riley: Yeah.

Jackie Rogers: Okay. (DRJR5 lines 26-30)

Without hedging or modalizing her reported speech, Dr. Rogers instructs the resident to order the patient to stay home from work. Because her priority is ensuring the patient’s safety and health, she unwaveringly insists that the resident talk with this particular patient in a certain way.

Although preceptors and more-experienced residents converse more equally, toward the end of these conversations, preceptors similarly mandate certain final decisions with late novices to achieve the goal of ensuring the effective care of patients. Despite their efforts to allow more-experienced residents to independently interpret, analyze, and make decisions, preceptors hold a more important objective – responsibly caring for patients. For instance, toward the end of the conversation with PGY-3 resident Dr. Chopra, the preceptor instructs him to obtain permission from the patient to acquire imaging reports for documentation:

Ryan White: And just make sure and say, “Are you – you’re going to be getting all your treatment as far as from your back... stuff.” And then just have him sign a release saying I want to s – Make sure all those films, the x-rays and stuff, were normal at final reading. So have him sign a release from [local hospital].

Jared Chopra: Oh, to get the films?

Ryan White: Yeah, yeah.

Jared Chopra: Sure, sure. (JCRW1 lines 287-297)

Although this preceptor allows this late novice to autonomously engage with different options and ideas throughout the conversation, in the final quartile he initiates some instructive
hypothetical reported speech. In this exchange, he directs the resident to “make sure and say...” certain points to the patient. By imagining he is actually talking directly to the patient, the preceptor attempts to make sure the resident acquires necessary documentation for the patient’s record. In effect, Dr. White guarantees the patient receives adequate and thorough care.

In the final quartile of these conversations, residents and preceptors strive to achieve the minor goals of accomplishing clinical tasks and making final decisions about clinical problems to realize the ultimate institutional objective of ensuring quality care.

Conclusion

In this chapter, I have examined these resident-preceptor conversations according to the occurrence of turn design, interactional asymmetry, turn-taking organization, and structural organization. By identifying what activities these physicians’ turns accomplish, when they enact particular activities, and how certain activities generate or limit interlocutors’ responses, I have considered these residents’ conversational strategies along a continuum of legitimate peripheral participation (Wenger, 1999). These physicians’ discourse reveals the specific ways preceptors use scaffolding to enable their residents to require less explicit instruction and exercise greater independence in their clinical thinking as they move through training. By shifting from directive, instructive proposals, questions, and assessments to more flexible, open-ended responses, preceptors push residents to become more autonomous in their clinical decision-making process.

The analysis of the specific institutional objectives embedded in these conversations demonstrates how preceptors help residents progress toward professional expertise. The core institutional goal of the first conversation quartile engages the physicians in aligning their understanding of the patient case. Dominating this early phase of the conversation, residents offer a general outline of the case by sharing objective statements and subjective reported speech, and
more-experienced residents also give some preliminary interpretations of the case in the form of proposals. These conversational strategies achieve the minor goals of forming outlines and preliminary theories of the clinical case. In response, preceptors pose questions and proposals to develop a clearer sense of the case and work toward refining the clinical outline.

In the middle conversation quartiles, residents and preceptors attempt to achieve the institutional goals of identifying, analyzing, and making decisions about clinical concepts using questions and proposals. During these middle phases, residents and preceptors hypothesize about what the clinical outline suggests, explain and interpret data, and consider clinical actions. Preceptors dominate this part of the conversation with proposals. Whereas early novices participate by reporting more subjective data and asking action-oriented questions, late novices convey proposals, assessments, and reflective questions to engage in decision-making. The minor goals in these quartiles help residents understand how to proceed with the case and reach the institutional objectives of analyzing data to consider concepts and make decisions.

In the final conversation quartile, preceptors dominate the conversation to achieve the institutional goal of ensuring effective patient care. Striving to help residents make appropriate clinical choices, preceptors instruct novices about final decisions with proposals and assessments. Although more-experienced residents convey a greater proportion of proposals and assessments about how to interpret and make decisions for patients, all novices allow their preceptors to direct the conversation with final thoughts. Preceptors’ suggestions, evaluations, and hypothetical reported speech instruct residents accomplish specific clinical tasks so they can attain the most critical and central goal of medicine: *primum non nocere*, or “first, do no harm.”

In considering which of the major conversational categories in this analysis provide access to the rhetorical strategies being employed in these conversations, this analysis suggests that proposals, reported speech, and questions allow these physicians to assert their clinical
arguments most saliently. The most overt articulation of medical reasoning or persuasion occurs in *proposals* where speakers explicitly suggest what they view as the meaning of test results, the cause or course of a disease, the appropriate testing or treatment option, or the best means of accomplishing a task. A more implicit expression of argument in these conversations occurs in *reported speech*, where speakers convey their perception of the relevant subjective data and the degree to which they commit to the truth of subjective data (i.e., by using or excluding a reporting clause). Finally, *questions*, which direct the conversation in certain directions at critical points, represent the most-implicit form of persuasion because questions suggest which aspects of the patient case speakers require to understand the case and make crucial clinical decisions.

Having completed the more quantitative conversation analysis in this chapter, I next examine my conclusions in Chapter 4 by means of qualitative rhetorical analysis. In the process, I demonstrate how residents and preceptors embed clinical arguments into these three major conversational categories: questions, proposals, and reported speech. Examining the rhetorical *topoi* embedded into these categories demonstrates how these *topoi* help these physicians to practice or model clinical *logos or ethos*. Using Aristotle’s concepts of *topoi, ethos, and logos*, I contend that as residents advance through residency training, they shift from using forensic to deliberative rhetoric as they become professionalized members of the medical field.
CHAPTER 4

The Role of Common *Topoi* in Developing Clinical Ethos and Logos:

A Rhetorical Analysis of Conversations in an Internal Medicine Clinic

In the previous chapter, I examined the structure of resident-preceptor conversations using institutional conversation analysis (Heritage, 2004) to answer the first part of my primary research question: *What interactional and rhetorical strategies do residents and preceptors use in conversations about resident-authored chart notes to allow novice physicians to participate in the oral and written discourses of medicine?* This framework outlined the major stages in resident-preceptor conversations, how interlocutors organize their exchanges and turns in these conversations, what interactional asymmetries emerge in these discussions, and what speakers accomplish in individual turns. The analysis in Chapter 3 suggested where in these conversations residents and preceptors assert arguments and attempt to persuade each other of their clinical competence and *ethos*. Therefore, in this chapter I turn to the second part of this research question and utilize a rhetorical lens to explain how argumentation allows novice physicians to participate in the oral and written discourses of medicine. Using Aristotle’s notions of *topoi*, *logos*, and *ethos*, I argue that from the first year to the final year of residency novice physicians shift from relying on forensic rhetoric to deliberative rhetoric; during this shift, they move from presenting concrete clinical knowledge to beginning to assume clinical *endoxa* and contemplating nuanced concepts as more-seasoned professionals.

Scholars in various disciplines have discussed the value of using rhetorical theories to examine medical conversations, positing – often implicitly – that rhetorical frameworks enable an
understanding of the sources and means of persuasion as well as the way medical communication influences clinical thinking. In her introduction to Health and the Rhetoric of Medicine, Judy Segal (2005) argues that rhetorical theory can help scholars understand and solve problems in healthcare and medical contexts. She advocates examining who persuades whom and through what means, when persuasion occurs (kairos), how speakers create and appeal to their audiences, where minds connect, and how the terms of a debate determine what can be said. Similarly, although implicitly rhetorical,32 Barton (2004) suggests that oral genres characterize the means of professional medical practice, especially because physicians’ work relies on both oral and written discourse. Groopman (2008) also implicitly supports a rhetorical analysis of physicians’ dialogue, contending that even with modern technology, “language is still the bedrock of clinical practice. . . . This dialogue is our first clue to how our doctor thinks” (p. 8).

Also implicitly addressing how a rhetorical perspective can facilitate understanding medical communication, Aronowitz (1998) discusses how researchers, clinicians, and patients identify, categorize, and assign personal and social meanings to new medical conditions. He examines the historical and contextual processes of etiology by exploring how Western society classifies diseases, how the circumstances of diagnosis affect prognosis, and how the diagnosis and scale of certain chronic diseases can be contentious. When he refers to the dichotomy between “ontological and holistic ideal-typical notions of illness” (Aronowitz, 1998, p. 9), he posits that disease notions are dependent on, not reducible to, social interaction. Work by scholars like Segal, Barton, and Aronowitz beg the question: how do novice physicians develop their ability to understand and convey their clinical reasoning to patients and other clinicians?

32 Sources that I consider “implicitly rhetorical” discuss and analyze issues using a rhetorical perspective without using specific rhetorical terms, such as Aristotelian concepts and theories, or without using the term rhetorical, even though that is their goal and function.
Some scholars have analyzed the rhetorical model of conversations between novice and experienced physicians, scrutinizing the pedagogical means and value of resident-preceptor dialogue. Hunter (1991) argues that the case presentation – a narrative act at the core of medical education and communication – “represents (and re-presents)” (p. 51) the patient’s initial complaints as well as relevant observations, reasoning, and conclusions. She posits that the case presentation generates medical knowledge. She characterizes the language and rhetoric of the case presentation as flat, dry, and neutral as the novice physician attempts to organize information, reduce subjectivity, increase reliable diagnosis and treatment, and subject the account to scientific inquiry.

In conversations between novice and experienced physicians, preceptors share anecdotes of previous patients with similar narratives of their conditions, enabling novices to compare patient cases to “illness script[s]” (Macnaughton, 1998, p. 204). This activity generates knowledge by providing concrete examples for inexperienced doctors to attach to scientific or evidence-based theories; this activity also teaches novice physicians medical etiquette and protocol. Montgomery (2005) identifies the purpose of the case presentation as helping novices develop a sense of medical phronesis, or practical wisdom or judgment. She argues that patient narratives provide physicians with time- and context-dependent data. To develop their practical clinical reasoning, resident physicians begin with the patient’s first version of the illness narrative and develop a hypothesis, against which they test the rest of the details of the patient’s story. This generative process helps novices learn “flexible, interpretive, ineradicably practical rationality” (Montgomery, 2005, p. 8).

Analyzing the role of resident-preceptor conversations in developing medical knowledge both individually and collectively, some researchers have examined the types of discourses and voices present in conversations between novice and experienced physicians. In his influential text
on hematologists’ communication practices, Atkinson (1995) considers how physicians confer, collaborate, and convey their expertise to fellow doctors, focusing on how clinicians use spoken and written language to see and teach novices to see medical truths. Atkinson (1995) posits that we must study physicians’ rhetorical techniques and constructions of medical practices by analyzing how medical knowledge gets generated, reproduced, distributed, validated, and used in a “literate and research-oriented activity” (Atkinson, 1995, p. 57).

Atkinson (1995) contends that physicians use multiple, co-existing, and sometimes-competing voices to integrate resident physicians into the discourses of the field during resident-preceptor conversations. The junior doctor conveys “the voice of the eye-witness,” (p. 131) and the senior physician articulates “the voice of experience” (p. 131); another voice, “the voice of science” (p. 131), emerges when doctors appeal to published medical data in an effort to adhere to biomedical values. Senior physicians’ “framework of reminiscence” (Atkinson, 1995, p. 140) enables them to share relevant anecdotes that relate to the case or that demonstrate de-contextualized medical theories. Throughout these conversations, senior physicians interrupt and de-contextualize junior physicians’ accounts of patient cases to repair mistakes and to transform narrative accounts into general tenets of medical knowledge and practice (Atkinson, 1995).

Examining the contexts where medical discourses appear, Macdonald (2002) modifies Bernstein’s three main contexts of production, reproduction, and transmission of discourse in his discussion of medical discourse. He argues that the primary context or production of medical discourse occurs during primary contextualization in the medical research article, and the secondary context or reproduction of medical discourse transpires in the physician-patient interview. Macdonald (2002) contends that the recontextualizing context can be found in the medical textbook where the relocation of medical discourse occurs.
Despite these scholars’ attempts to locate the voices and contexts of medical discourse, they ignore the rhetorical means through which residents progress toward mastering the voices and contexts of medicine. In other words, these scholars do not examine the rhetorical strategies underpinning residents’ and preceptors’ persuasive transactions. Moreover, while some scholars discuss models of resident-preceptor dialogue, others have explicitly evaluated the rhetorical competence of inexperienced physicians dismissively; in so doing, they have failed to account for the intricate and skillful ways novice physicians communicate. For example, focusing on experienced physicians’ methods of prompting residents to supply accurate information and reasoning during case presentations, Pomerantz et al. (1995) argue that preceptors offer interns spaces to revise their presentations, pose inquiries with embedded hints, regard answers as possible but re-ask questions, and handle evaluations as possible but in need of more consideration. Pomerantz et al. (1995) claim that, rather than explicitly correcting interns’ mistakes, preceptors give trainees opportunities to change their clinical evaluations by pausing and providing brief positive feedback; this practice enables interns to modify their mistakes and take credit for correct answers. Allowing residents to come to conclusions on their own, Pomerantz et al. (1995) contend, enables learning and affords novices agency and responsibility (Lave & Wenger). This scholarly focus on how preceptors encourage inexperienced doctors to give “correct” clinical answers detracts from residents’ process of learning sophisticated methods of clinical communication.

Identifying precepting as a pedagogical interaction, Erickson (1999) asserts that the case presentation allows preceptors to assess residents’ gradual initiation into the medical discourse community. These conversations also enable residents persuade preceptors of their competence. Residents must manage interactional issues, such as face threats, footing, and performed social identity, as they strive to be seen as clinically proficient. Because the preceptor must critique the
intern’s medical reasoning and simultaneously respect the intern as a doctor, the preceptor must demonstrate co-membership and avoid direct correction. Although Erickson (1999) implies that residents must *persuade* their faculty physicians of their competence, he does not discuss the means through which preceptors and residents navigate this rhetorical situation.

Explicitly devaluing resident physicians’ rhetorical prowess in these pedagogical conversations, Lingard and Haber (2002) characterize novice physicians’ techniques as unsystematic and unsophisticated. The authors argue that medical novices engage with experts in their clerkships through an unsystematic cycle of “trial-error-feedback-interpretation-application/retrial” (p. 159). They conclude that the residents in their study struggle to identify rhetorical information in their preceptors’ feedback and instead generalize feedback as formal rules and engage in trial and error. Maintaining that novice physicians often interpret feedback acontextually because of a structuralist understanding of the genre, Lingard and Haber (2002) contend that experts often struggle to make their genre knowledge explicit in useful, contextual ways. They argue in favor of “rhetorically explicit genre instruction in the context of situated practice” (Lingard & Haber, 2002, p. 168). Implying that novice physicians require overt instruction in order to understand and apply rhetorical feedback, Lingard and Haber (2002) disregard the rhetorical strategies resident physicians do employ in their conversations with more experienced doctors.

In his examination of the “collegial talk” (Atkinson, 1999, p. 75) between fellow physicians and attending physicians, Atkinson discusses how novices and preceptors share, validate, and refute medical knowledge during “the case presentation proper” (p. 84). Atkinson argues that the fellow physician possesses official rights to deliver the case despite a few interruptions, interpolations, and repairs in which speakers make additions or corrections to their discourse. While the attending uses *other-initiated repair* and the trainee engages in *self-initiated*
repair, both develop and clarify the narrative and reveal asymmetries of professional status and structure. The case presentation does not always end with a decision but instead serves to establish a shared understanding of the case and a distribution of professional accountability. Like Pomerantz et al. (1995), Erickson (1999), and Lingard and Haber (2002), Atkinson (1999) focuses on how more-experienced physicians prompt novice physicians to provide a more complete and accurate version of the clinical narrative rather than focusing on how novices learn rhetorical appeals and means of persuading others to understand or agree with their reasoning.

Despite their insights about how conversation enables novices to acquire disciplinary knowledge, the scholars who discuss conversations between experienced and inexperienced doctors tend to dismiss novices’ rhetoric as deficient or only implicitly use rhetorical frameworks, giving limited attention to the rich, developmental nature of this medical talk. As indicated at the outset of this chapter, my examination of Aristotle’s common topoi facilitates an understanding of clinical logos, or “the rational appeal. . .the audience’s reason[ing] or understanding” (Corbett & Connors, 1999, p. 18), and ethos, or “the ethical appeal. . .from the character of the speaker” (p. 19). I also trace the progression in residents’ rhetorical strategies across residency level, demonstrating how early novices (PGY-1 residents) use forensic rhetoric to review clinical data and late novices (PGY-3 residents) use deliberative rhetoric to analyze clinical data. Further, I examine how preceptors support novices at various stages of experience and argue that preceptors use directive, instructive methods in their interactions with early novices and reflective, open-ended techniques with late novices.

This chapter demonstrates that resident physicians experiment with clinical logos and ethos in their conversations. I contend that residents use the same common topoi but shift from a focus on clinical actions in the first year to clinical principles in the third year (antecedent-and-consequence, possible-and-impossible, authority, and past-fact-and-future-fact). Early novices
inquire about and suggest the most appropriate subsequent steps in testing, treating, and monitoring their patients, and they seek and accept preceptors’ instructions somewhat passively. Because late novices share enough commonly accepted knowledge, or *endoxa*, with preceptors, they spend their time exploring the theoretical underpinnings of clinical decision and pursuing analytical discussions about clinical concepts and future circumstances. I also posit that residents use specific *topoi* to rehearse and analyze the clinical *ethos* of their patients and themselves (antecedent-and-consequence and testimonial), becoming increasingly independent in their ability to interpret patients’ dialogue and tailor their own language to patients’ unique identities and roles as they advance through their training.

Understanding how residents use *topoi* to engage with clinical *logos* and *ethos* at various stages in their training offers a clearer conception of the rhetorical stages in the process of professional enculturation in medicine. The analysis in this chapter furthers the discussion by Pomerantz et al. (1995) about how residents acquire progressively more independence as they advance through residency; I attempt to map out in more detail the continuum of clinical rationality that Pomerantz et al. (1995) reference. Furthermore, my rhetorical analysis in this chapter does not devalue residents’ rhetorical competence like Lingard and Haber (2002) and instead reveals how professional rhetoric is learned *in situ*. This analysis responds to calls by Atkinson (1995) and others to conduct a detailed analysis of novices’ talk to generate a model of how professionals discuss and use documents authored by novices to provide spaces for them to participate in and practice the discourses of their field.

33 Aristotle uses *endoxa* to refer to well-known wisdom or knowledge held by experienced individuals or the public. In the context of the field of internal medicine, such disciplinary knowledge seems to be acquired during the first half of residency training during which residents learn the routine diagnostic tests, screening, and treatments for commonly encountered medical conditions and illnesses.
The discussion of this rhetorical analysis is organized according to my results and analysis. To describe these results, I first discuss how the major conversational categories under discussion – proposals, questions, and reported speech – pose arguments, addressing whether the persuasive force tends to be implicit or explicit. Next, I explain the major usage trends among common *topoi*, comparing how different groups of residents and how preceptors use these *topoi* to participate in the oral and written discourses of medicine. Finally, I describe the common responses that interlocutors offer when speakers employ these common *topoi* in their proposals, reported speech, and questions. Following my results in the Analysis section, I first discuss the role of common *topoi* in supporting residents’ learning of oral and written discourses of medicine. Next, I examine the differences in early and late novices’ use of more- and less-analytical *topoi* and preceptors’ use of these *topoi* for modeling and scaffolding residents’ learning. I then outline the major developmental differences in the rhetorical strategies residents use in early, middle, and late stages of residency. Finally, I offer a fine-grained analysis of early and late novices’ use and preceptors’ application of common *topoi* for guiding decision-making and encouraging analysis.

**Results**

**Common Topoi in Major Argumentative Categories**

Although, by definition, all of the major categories under consideration in this chapter (proposals, questions, and reported speech) attempt to persuade the interlocutor via rhetorical appeals, they do so using different degrees of explicitness and rhetorical appeals (*logos* and *ethos*). Fig. 4.1 demonstrates the explicit-implicit continuum in these conversational categories as well as the common *topoi* and rhetorical appeals commonly employed in these categories. Proposals, the most explicit form of posing an argument about how to proceed with the patient case, direct the interlocutor to see testing, diagnosing, and treating the patient from the speaker’s
Reported speech, a presentation of data derived from a human source like the patient or another healthcare professional, or oneself, can explicitly or implicitly advance a specific way of understanding or proceeding with the patient case from a particular subjective standpoint.

Fig. 4.1 Explicit-Implicit Continuum of Conversational Categories and Topoi

Questions, the most implicit form of arguing, suggest the direction one should take when examining or making decisions about a patient case; questions point the interlocutor toward certain issues in the case by implying specific decisions. As described later in this chapter, proposals and questions tend to co-occur in these conversations, and these categories also appeal to interlocutors’ sense of logic or logos; thus, I will discuss them separately from reported speech, which appeals to interlocutors’ sense of character or ethos.

As explained in Chapter 2, in their proposals and questions, residents use antecedent-and-consequence, possible-and-impossible, authority, and past-fact-and-future-fact topoi. When they use antecedent-and-consequence proposals and questions, speakers associate various combinations certain signs, symptoms, diagnostic testing, diagnoses, and treatments. Speakers’
possible-and-impossible proposals and questions outline particular decisions one can make in diagnosing, categorizing symptoms, testing, or monitoring the patient. Authoritative proposals and questions rely on firsthand experience with the patient, intuition about treating the patient, or personal inclinations about how to proceed. Past-fact-and-future-fact questions persuade by using previously acquired information to surmise the prospect of future conditions.

Physicians employ antecedent-and-consequence and testimonial reported speech most frequently. In antecedent-and-consequence reported speech, physicians correlate clinical information by recounting someone’s description or analysis of the clinical context. Testimonial reported speech offers a version of the patient’s experiences, symptoms, or behavior in an entirely subjective way. Full definitions and examples of these topoi can be found in Chapter 2, beginning on page 72. In the rest of this section and the analysis section, I share and explain representative examples of trends in the data.

Residents’ and Preceptors’ Usage of and Response to Common Topoi

The analysis in this section describes the trends in residents’ and preceptors’ usage of these common topoi within these three major conversational categories (proposals, questions, and reported speech). I also explain how speakers tend to respond to their interlocutors’ topoi use. Tables 4.1, 4.2, and 4.3 in the Appendix include the overall frequencies of residents’ and preceptors’ topoi usage within the three major conversational categories as well as the total number of interlocutors’ active responses (proposals, reported speech, assessments, statements, and questions) and passive responses (brief responses). As mentioned in Chapter 2, the numerical results in the next section aim to demonstrate trends rather than represent objective quantitative statistics; my detailed analysis of representative exemplars, which begins on page 184, represent the true qualitative nature of the results in this chapter.
Frequencies of topoi in proposals, questions, and reported speech. Overall, less-experienced residents employ proposals and questions with these three frequently used topoi less often than more-experienced residents; also, less-experienced residents’ preceptors contribute far more of these proposals and questions than preceptors of more-experienced residents. The least-experienced PGY-1 residents use antecedent-and-consequence, possible-and-impossible, and authoritative topoi in proposals less often than the most-experienced PGY-3 residents (65 instances compared with 83 instances). The PGY-1 residents’ preceptors draw on these topoi in far more proposals (over twice as many as PGY-1 residents) than the PGY-3 residents’ preceptors (slightly more than PGY-3 residents). All groups of residents ask questions using antecedent-and-consequence, possible-and-impossible, and past-fact-and-future-fact topoi less than half as many times as their preceptors (PGY-1 residents ask 15 questions, PGY-2 residents ask 8 questions, and PGY-3 residents ask 17 questions compared with their preceptors’ 58, 26, and 35 questions, respectively). Notably, the least-experienced residents’ preceptors ask roughly twice as many of these types of questions as preceptors in conversations with the more-experienced residents.

Residents at all levels employ antecedent-and-consequence proposals less often than preceptors but more often as they advance through residency training, and preceptors ask antecedent-and-consequence questions more often with inexperienced residents. PGY-1 residents contribute 38.3% of these proposal types in conversations with their preceptors whereas PGY-3 residents contribute 46.3% of these proposals in conversations with their preceptors. The antecedent-and-consequence question type occurs less often among residents (4 instances at each level) than preceptors. Preceptors ask questions with this topos more than twice as often with the least-experienced PGY-1 residents (17 instances) than with either PGY-2 or PGY-3 residents (7 and 8 instances, respectively).
The least-experienced PGY-1 residents employ possible-and-impossible proposals less often than more-experienced residents and preceptors, but all residents ask possible-and-impossible questions in the same proportions to their preceptors. PGY-1 residents employ these proposals less than one-third as many times as their preceptors, whereas the most-experienced PGY-3 residents utilize this strategy nearly as often as their preceptors. Residents contribute possible-and-impossible questions approximately 35% of the time, and preceptors contribute 65% of these question types; the proportions remain roughly equal at all levels of residency.

All groups of residents utilize authoritative proposals nearly the same number of times, but preceptors use authoritative proposals and questions more often with less-experienced residents. PGY-1 residents’ preceptors contribute more than three times the authoritative proposals than their residents (109 and 30 instances, respectively). In contrast, preceptors contribute significantly fewer authoritative proposals with more-experienced residents (21 and 23 instances with PGY-2 and PGY-3 residents, respectively). Residents rarely use the past-fact-and-future-fact *topos* in questions (6 instances among all residents); preceptors, in contrast, use this argumentative structure in their questions often, more with the least-experienced PGY-1 residents (25 instances) than with more-experienced PGY-2 and PGY-3 residents (11 instances).

The least-experienced PGY-1 residents use reported speech more than other residents and preceptors. Overall, the least-experienced residents use these three frequently employed *topoi* in reported speech more than twice as often (124 instances) as the other two groups of residents and more than five times as often as any preceptors. Although PGY-2 residents and PGY-3 residents employ these *topoi* less often (56 instances and 64 instances respectively) than PGY-1 residents, they use this strategy more than three times as often as their preceptors, in part because they have interviewed and examined the patient, and they have read and reviewed the medical record before conversing with the preceptor. Residents at all levels employ antecedent-and-consequence
reported speech more often than their preceptors but less as they advance through residency training. Residents offer overwhelmingly more instances of testimonial reported speech than preceptors but fewer as they advance through residency (PGY-1 residents offer 90 instances; PGY-2 residents offer 26 instances; and PGY-3 residents offer 45 instances).

In general, less-experienced residents offer fewer proposals and questions but more reported speech than more-experienced residents and preceptors. Less-experienced residents offer fewer proposals and questions, and more-experienced residents pose more proposals and questions. Preceptors tend to use more proposals and questions with inexperienced residents who require explicit, directive guidance. In contrast, more-experienced residents and preceptors use proposals and questions more proportionately with each other and respond to each other more actively and analytically (see page 185 for a definition of analytical *topoi*). Less-experienced residents tend to narrate others’ perspectives on the patient case using reported speech more often than more-experienced residents who synthesize and analyze clinical data more often than they recount others’ words indiscriminately. All groups of residents use more reported speech than their preceptors, who rely on them to present a summary of the physical examination and interview during this case presentation.

*Responses to proposals and questions.* In terms of speakers’ responses to their interlocutors, preceptors reply to their residents’ proposals and questions with active responses whereas residents tend to respond to their preceptors’ proposals with passive responses. Preceptors respond to this subset of PGY-1 residents’ proposals with brief responses half the time and respond with other more active forms of response the other half the time. For example, Jackie Rogers supports her resident’s antecedent-and-consequence proposal about treating his patient’s early satiety with brief responses rather than offering more active feedback:
Corey Taylor: But I think as we get more FLUID off –
Jackie Rogers: Yeah!
Corey Taylor: That’s going to improve.
Jackie Rogers: Yeah.
Corey Taylor: That’s the big thing with – (CTJR1 lines 129-133)

In these two proposals, Corey Taylor explicitly argues that the patient's problem with early satiety (consequence) could be a result of her fluid overload (antecedent) and that draining the patient's fluid (antecedent) will lead to improved feelings of satiety (consequence). Throughout this exchange, Dr. Rogers simply responds to her resident with affirming backchannel, supporting his explanation without specifically commenting on the cogency of his logic.

In response to PGY-2 and PGY-3 residents’ proposals, preceptors respond with active forms of response, such as proposals and questions, more often than brief responses, engaging with these residents in a more in-depth discussion of the patient case. In a conversation between PGY-3 resident Dr. Chopra and his preceptor, the resident suggests that his incomplete examination (antecedent) would be strengthened with a surgical consultation (consequence):

Jared Chopra: I think the best thing is to refer him to [hospital’s outpatient surgical clinic] and see what they –
Ryan White: Is that who did his surgery? (JCRW1 lines 71-73)

Extending his announcement of the patient's abdominal pain, the resident argues that, because he could not properly examine the patient’s potential hernia (antecedent), the patient should go to the surgical clinic for evaluation (consequence) and official diagnosis. After the resident suggests which surgical practice he intends to refer the patient for his hernia evaluation, Dr. White asks a past-fact-and-future-fact question about who previously operated on this patient (past fact), implying that the patient ought to go back to the surgeon where he had his first surgery (future fact), perhaps in the interest of continuity of care. They engage here in an active discussion of whether and why to refer the patient for additional evaluation.
Residents respond to this subset of their preceptors’ proposals with more brief responses than any other form of response: all groups of residents respond to their preceptors’ proposals with approximately three-quarters passive and one-quarter active responses. For instance, a discussion about the source of a patient’s breathing problems prompts the preceptor Dr. Tao to offer PGY-3 resident Dr. Jackson several proposals, which the resident accepts:

*Sandra Tao:* Yeah, and at this point, it could be either or both of them contributing to each other.

*Neal Jackson:* Mm hm.

*Sandra Tao:* Because it only takes a LITTLE problem with one to tip the other one out of balance, too.

*Neal Jackson:* Mm hm. (NJST1 lines 96-102)

Attempting to understand the source of the patient's breathing symptoms, Dr. Tao suggests that understanding etiology can be challenging because “either or both” the patient’s lungs or heart (antecedent) can enflame symptoms in the other (consequence). Throughout this exchange, Dr. Jackson does not contribute actively; instead, he concurs with his preceptor’s claims passively, accepting her explicit arguments without challenging or supplementing them.

When residents pose questions using these frequently used *topoi*, they prompt preceptors to offer proposals more often than passive brief responses; preceptors actively engage with their residents’ implicit suggestions for proceeding with the patient case. For example, when Dr. Riley uses the antecedent-and-consequence *topos* in his inquiry about whether he should increase the patient’s medication, his preceptor recommends a dosage and reminds the resident about other considerations with the medicine:

*Dennis Riley:* And just increase the hydrochlorothiazide?

*Jackie Rogers:* You can put it up to twenty-five. Yeah, what’s his pressure today? Let me see. .

*Dennis Riley:* One-thirties – one-thirty-one over sixty-six.

*Jackie Rogers:* L Okay. I – yeah. . Put the hydrochlorothiaz – up
thiazide up to twenty-five.

Dennis Riley: Okay. (DRJR1 lines 56-64)

This exchange begins with Dr. Riley’s follow-up to his preceptor’s suggestion that he discontinue the patient’s lisinopril (antecedent) on account of his cough, a common side effect of the drug (consequence). Dr. Riley asks whether he ought to increase the patient’s other hypertension medicine after he discontinues the lisinopril (antecedent) to ensure the patient's blood pressure does not rise (consequence). Suggesting a dosage, Jackie Rogers tentatively recommends that Dr. Riley increase the patient's hydrochlorothiazide to 25 milligrams. To ensure that the increased dosage will maintain or improve the control over the patient's hypertension, Dr. Rogers asks about the patient's blood pressure. After the resident shares the patient's blood pressure reading from the current visit, Jackie Rogers suggests definitively that Dennis Riley should increase the hydrochlorothiazide. This exchange engages both interlocutors in active analysis of clinical data and joint decision-making about the patient’s medicine.

When preceptors ask questions using these commonly employed topoi, residents respond with reported speech and proposals, participating in an in-depth examination of how to proceed with the case. For example, in analyzing how to handle the patient’s symptoms of cough, Dr. Johnson asks how the first-year resident plans to manage this symptom:

Ray Johnson: So, you want to do anything ABOUT that?
Seth Nair: I mean, we can. . try stopping the Lipitor, but, I mean, if she has high cholesterol, I don’t know what else we could change it. . TO. . (SNRJ1 lines 443-446)

After Dr. Nair correlates the Lipitor (antecedent) and the patient's muscle aches (consequence), Dr. Johnson asks whether the resident would like to do anything specific to further evaluate or treat the patient's symptoms. To investigate whether the patient's Lipitor has been causing her muscle aches, Dr. Nair suggests the option of taking the patient off the cholesterol-lowering medicine. He also voices his uncertainty about what medicine to replace the Lipitor. This
exchange demonstrates how a preceptor’s question can enable residents to show their knowledge and can create an opportunity for the resident to present his indecision and need for guidance.

Generally, preceptors direct and instruct less-experienced residents more often and, with more-experienced residents, deliberate about clinical issues more critically and equally. Preceptors respond to the least-experienced residents’ proposals more often with passive brief responses than with active responses, whereas they actively respond to more-experienced residents’ proposals with analytic responses. All residents accept their preceptors’ explicit proposals most of the time, passively consuming their recommendations without critically examining them. In response to residents’ questions, preceptors typically offer specific proposals, prescribing certain actions be taken in managing the patient case. Similarly, when preceptors pose questions using these frequently employed topoi, residents offer reported speech to present a sense of the interview from the patient room and proposals to share their conception of how to proceed with the patient case.

Responses to reported speech. With less-experienced residents, preceptors respond to reported speech with questions, probing the resident to share more information or analyze the information in some way. For instance, in this exchange between PGY-1 resident Dennis Riley and Dr. Rogers, the preceptor probes the resident to provide more details about his testimonial and antecedent-and-consequence based on the patient’s report of his cough:

**Dennis Riley:** He does have a **cough**, productive yellowish-white mucus, **SOMETIMES** relieved by Albuterol but **NOT** significantly, he said.

**Jackie Rogers:** How much is he coughing?

**Dennis Riley:** The cough, not a big symptom of his. When he gets this shortness of breath, he gets a cough.

**Jackie Rogers:** I know, but how **LONG** has the cough persisted?

**Dennis Riley:** Uh. . this has been an ongoing thing.
In this exchange, the reported speech serves as fodder for questioning and analysis among both speakers. When Dr. Riley reports the patient's account of the nature of the cough and breathing difficulties (testimonial), he correlates the patient's use of the medication Albuterol (antecedent) with the patient's subjective evaluation that the drug occasionally reduces his cough (consequence). Attempting to understand the severity of the cough, Dr. Rogers asks the resident to clarify how much the symptom affects the patient to acquire a fuller story to analyze the best course of action. Contrasting the cough with the patient’s more serious chest pain, Dr. Riley argues that the patient does not emphasize the cough but rather associates his shortness of breath (antecedent) with his cough (consequence). Again prodding the resident for narrative details, Dr. Rogers inquires about the timeframe of the cough, trying to identify factors that might trigger the symptom. Throughout this exchange, the preceptor pushes the resident to add specifics to the clinical narrative so they can analyze the patient’s report to decide how to manage the case.

Roughly half the time (35.7%), preceptors respond to residents’ reported speech passively; the rest of the time, they do not respond at all. For example, Jared Chopra presents the following account of the patient’s explanation of his current symptoms, merging testimonial and antecedent-and-consequence reported speech, with no response from his preceptor:

Jared Chopra: He. . was in a MCDONALD’S eating with his family, and he SLIPPED on a wet surface and fell BACKWARDS, mainly on the left side of his hemithorax. Ever since then, he’s had his – some residual left-sided HAND numbness, some pain in the low back and NECK, (JCRW1 lines 5-10)

In this lengthy monologue, Dr. Chopra explains the patient's account of his recent fall, including the date and place where the fall occurred, what he had been doing when he fell, and the nature of the fall itself (testimonial). The preceptor remains silent as the resident draws correlations
between the fall (antecedent) and the patient's numbness (consequence), suggesting that the fall led to the sensation problem. Dr. Chopra also associates the patient's pain in his neck and back (consequence) to the fall (antecedent), suggesting that the patient has sustained injuries from the accident. Throughout this narration, Dr. White’s silence allows the resident to illustrate the patient’s story and provide the preceptor with a secondhand understanding of the clinical context.

Typically, residents respond to their preceptors’ reported speech with brief responses or no response at all, passively accepting their demonstration of how to talk or write about a patient (i.e., hypothetical reported speech). For instance, when Dr. Johnson uses the antecedent-and-consequence *topos* to offer a hypothetical account that a patient with a serious risk of cardiac illness might offer, the resident remains silent, allowing the preceptor to instruct him:

*Ray Johnson:*  
So, if she says,  
“Well, my dad died at thirty-six of a first MI [myocardial infarction].”  
That concerns me.  
If she’s a smoker.  
If, um, if she tells me,  
“When I go up a flight of stairs, I get the pain.”  
“When I rest, it goes away.”  
So, exercise-induced pain. is really a. tight correlate.  
She’s not giving you any of these types of symptoms?

*Seth Nair:* No. (SNRJ1 lines 108-117)

In providing Dr. Nair with examples of what should concern him about the patient's pain, Dr. Johnson points out that if the patient tells the resident that her father died young from a heart attack (antecedent) or if she reveals that climbing the stairs produces the pain (antecedent) and relaxing lessens the pain (antecedent), then the patient has strong cardiac risk factors (consequence). After describing various symptoms that indicate the patient has high risk of cardiac conditions or events, Dr. Johnson asks whether the patient has reported any of those symptoms, implying that if the patient *does* have those symptoms (antecedent) then the chances of her chest pain indicating a serious problem could be high (consequence). Dr. Nair simply
responds that the patient does not provide any of these symptoms, passively accepting the preceptor’s reported speech without engaging in the discussion more actively.

Generally, preceptors passively accept inexperienced residents’ reported speech as their rendition of the patient interview but actively respond to more-experienced residents’ accounts with critical responses that deliberate about the case more fully. All residents accept their preceptors’ hypothetical reports regarding how they ought to talk or write about the patient case. In the following analysis, I examine what these trends in physicians’ topoi usage and response suggest about novice physicians’ participation in the institutional discourses of medicine.

**Analysis**

These physicians use common topoi in proposals, questions, and reported speech to rehearse and model clinical logos and ethos with novice physicians during situated practice. Proposals and questions typically focus on the rational or logical side of clinical reasoning, using logos. Proposals represent the most explicit ways in which novices review and preceptors use specific lines of reasoning; in the process, they offer realistic options for managing the patient case in a rational, defensible way. Questions implicitly suggest arguments by guiding the speaker’s selections of data to explain the case. In contrast, reported speech focuses on the speaker’s sense of character, using ethos. With reported speech, speakers portray their own role as a doctor, their perception of the patient, and the way they would depict themselves in a specific context to be medically effective. In the next section, I describe the function of the most frequently employed topoi in residents’ learning process. Later in this analysis, I demonstrate and exemplify the differences topoi usage as residents progress through residency training.

*The Role of Common Topoi in Residents’ Learning Process*
Residents use antecedent-and-consequence, possible-and-impossible, past-fact-and-future fact, testimonial, and authoritative *topoi* to assert their arguments both explicitly and implicitly in proposals, questions, and reported speech. These *topoi* exist on a continuum of least-analytical to most-analytical (see Fig. 4.2). I define less-analytical *topoi* as reviewing previously established information to imply some future circumstance (past-fact-and-future-fact), recounting subjective accounts by a patient or fellow clinician (testimonial), or sharing a personal perception of a situation (authority); I consider these *topoi* less-analytical because they involve less reflection, explanation, and reasoning. The most-analytical *topoi* involve critical consideration of relationships or correlations (antecedent-and-consequence) or the range of potential options in a specific situation (possible-and-impossible); I consider these *topoi* analytical because they require extrapolating, inferring, and drawing conclusions about clinical issues. Notably, any of these *topoi* can be engaged with in more or less analytical ways, depending on the context of use.

Fig. 4.2 Continuum of Analytical Topoi in Resident-Preceptor Conversations

Overall, more-experienced residents and preceptors employ more of the most-analytical *topoi* whereas less-experienced residents use more of the less-analytical *topoi*. With the less-analytical past-fact-and-future-fact and testimonial *topoi*, residents select, organize, and present relevant objective and subjective clinical data that needs to be shared with a colleague to determine how to proceed with the patient case. When residents use testimonial reported speech, they present for analysis subjective evidence that can only be acquired via talking with the patient.
or reading data in the medical record; in the process, they depict themselves and their patients as displaying certain professional persona. Residents’ testimonial reported speech pinpoints relevant fragments of the clinical conversation that portray their patients as specific *types* of patients (e.g., compliant) and show how they perceive themselves as certain *types* of doctors (e.g., compassionate). With the least-analytical authoritative *topos*, residents use intuition and their *sense* of the patient case to determine how to what they perceived in the patient through sight, touch, or, again, intuition.

When residents use the most-analytical antecedent-and-consequence to present their proposals and questions, they hone their ability to understand and convey their clinical rationale; these lines of reasoning address why another physician ordered a specific test or changed a certain medication, how to identify the connections between symptoms and diagnoses, and how to express these relationships when talking with patients or writing to other physicians. Residents embed the antecedent-and-consequence *topos* into reported speech to show how signs, symptoms, progress, and compliance correlate with their patients’ identities or *ethos* (e.g., unrelated complaints indicate the patient may be a hypochondriac). When residents use the other most-analytical *topos*, possible-and-impossible, they recall and analyze potential avenues to explore in decision-making: possible tests, risks, medications, side effects, diagnoses, and options for follow-up.

Preceptors assert arguments to communicate their clinical *logos* and *ethos* to their residents, utilizing the most-analytical *topoi* to instruct early novices and initiate analysis with late novices. When preceptors use the antecedent-and-consequence *topos* in proposals, they expose residents to the relationships they must recognize in specific clinical situations: what signs or symptoms should be prioritized, when to order certain tests, how to make decisions about diagnosis and treatment, and how to connect clinical data to draw conclusions about outcomes.
When preceptors use the possible-and-impossible *topoi* in proposals, they provide residents with a selection of clinical choices and allow residents to reason through available options for testing, diagnosing, treating, and following up with patients. When preceptors ask antecedent-and-consequence and possible-and-impossible questions, they examine more-experienced residents’ clinical reasoning and assess whether they understand the typical thought process for drawing clinical correlations and for considering viable options. Preceptors model professional *ethos* using antecedent-and-consequence reported speech when they offer exemplars of how they or patients discuss certain symptoms, signs, side effects, or diagnoses to direct residents to specific testing, monitoring, or treating.

In terms of less-analytical *topoi*, preceptors use more directive past-fact-and-future-fact, testimonial, and authoritative *topoi* with less-experienced residents. Preceptors’ past-fact-and-future-fact questions stress the objective aspects of the clinical case inexperienced residents have neglected. Their questions implicitly steer residents toward particular lines of reasoning, indicating their own rationalization of the situation and scaffolding the residents as they work through the clinical dilemma. When they use testimonial *topoi* in reported speech, preceptors talk as though they are speaking with a patient or colleague, implying that residents should mimic their method of communicating with or about patients to appear qualified or effective. Because preceptors do not examine and communicate directly with patients in this clinic, they do not have the opportunity to *show* residents how to discuss issues with patients. Instead, they use reported speech as a teaching tool in the absence of authentic modeling in front of the patient. When preceptors use the authoritative *topos*, they present how they *tend* to test, diagnose, treat, or monitor patients in similar situations; they sometimes instruct residents about exactly what they must do to ensure appropriate care. With authoritative *topoi*, preceptors model particular clinical decisions that residents should view as absolute or unquestionable.
Residents and preceptors use these frequently employed *topoi* differently, depending on the stage of residency training, as they shift from using forensic to deliberative rhetoric (see Fig. 4.3). In the early stages of training, residents’ rhetoric parallels Aristotle’s *forensic*, or judicial oratory, in which speakers use the past to persuade the audience by presenting “the essential facts of the case under consideration” (Corbett & Connors, 1999, p. 270). Although Aristotle associated forensic rhetoric with outlining past details of a case to persuade others during court proceedings, early novices in this context use the aforementioned *topoi* in their forensic rhetoric to share clinical data so their preceptors can model the deliberation required to make decisions for specific patients. Less certain of their analytical abilities and their clinical opinion, early novices recreate conversations with patients and review established objective medical data as the main facts of the case. They recount past facts as though they are reporters attesting to their version of the clinical anecdote in an attempt to acquire recommendations from preceptors about the next clinical actions; early novices often accept this advice wholesale.

In the middle stage of training, residents begin using *deliberative* rhetoric more often as they gain confidence in their critical thinking and decision-making abilities. Aristotle associated deliberative rhetoric with reaching resolutions about public or political matters, which involves persuading “someone to do something or to accept our point of view . . . [for] the future” (Corbett & Connors, 1999, p. 23). In this setting, late novices use *topoi* in their deliberative rhetoric to analyze, reflect, and consider clinical issues in a more theoretical manner.
Because late novices have distilled the tacit clinical *endoxa* that their preceptors modeled during early residency, they use these conversations to look forward at the future of this patient’s case and to analyze larger issues more deeply. More-experienced residents narrate their patients’ clinical anecdotes in conjunction with their own responses to and analyses of clinical *ethos* and *logos*. Also, they challenge, probe, and demonstrate more sophisticated judgment in utilizing
suggestions from other clinicians. In the late stages of training, residents use topoi to show their grasp of clinical paradigms, guidelines, and ethos, revealing deliberative thinking.

Like experienced residents, preceptors employ deliberative rhetoric to instruct residents about appropriate actions to take in managing patient cases and to encourage them to analyze clinical principles and identities. In early residency, preceptors’ logos often draws attention to incomplete explanations of clinical narratives so as to direct residents about clinical actions, rarely providing early novices with opportunities to disagree or engage with ideas critically. Preceptors also confront residents’ perceptions of their own ethos and their patients’ traits, modeling how they ought to present issues and their character as a professional. In the middle stages of residency, preceptors urge residents to analyze their next steps and rationalize their clinical decisions in consideration of other viable options, pushing them to make thoughtful decisions. With more-experienced residents, preceptors often use open-ended strategies, prompting late novices to brainstorm explanations, challenge clinical notions, propose their own ideas about how to proceed, and consider the nuances of clinical ethos. Because of these trends in preceptors’ teaching strategies, early novices function as reporters who provide established clinical data for the preceptor to analyze whereas late novices tend to participate more actively in deliberating about the clinical situation.

I have divided the following analysis into two subsections, each addressing one group of residents’ use of topoi toward the goal of appealing to logos or ethos; each of these sections also addresses how and why interlocutors respond to topoi in certain ways. The first section discusses how early novices use topoi to display and practice ethos and logos, recreating conversations with their patients, seeking expert advice, and revealing their comprehension of clinical choices. The first section portrays and analyzes how preceptors use topoi to correct, challenge, instruct, analyze, and model medical ethos and logos with residents. The second section explains how late
novices employ topoi to question, analyze, and convey their mastery over clinical logos and ethos. I also consider preceptors’ use of topoi in these conversations to support their residents’ rhetorical appeals, encouraging their justification of clinical decisions, prompting critical analysis of clinical concepts, modeling what they perceive to be the valued professional ethos, and urging residents to analyze their own clinical ethos.

**Early Novices’ Topoi Use in Conversations**

As mentioned, early novices’ forensic rhetoric focuses on retrospectively sharing established clinical data and seeking advice about the subsequent steps to take in the case rather than analyzing underlying clinical rationales. During the first part of the case presentation, less-experienced residents reconstruct their past experiences with the patient so the preceptor can envision what occurred during the patient encounter and can decide how to direct the resident to proceed. Less-experienced residents typically review the subjective narrative (e.g., the patient’s complaints) and the objective data (e.g., test results) they have collected. They also offer some tentative ideas for managing the case. Preceptors generally allow early novices to present clinical issues without significant interruption in the beginning of conversations. Later in the discussion, they question and implicitly revise residents’ case presentations with proposals and reported speech. Preceptors’ questions and proposals for early novices tend to be directive and closed-ended, pointing them in concrete directions and explaining concepts as unequivocal.

In the beginning of early residents’ case presentations, they relate patients’ narratives as established primary data, which they present to the preceptor to analyze deliberatively. As they recount earlier conversations and reconstruct patients’ chronicles of their medical problems, early novices implicitly represent their patients as certain types of individuals (i.e., as having a certain ethos). In response, preceptors affirm residents’ portrayals of patients and help residents refine
their sense of patients’ *ethos* to adapt to their clinical needs productively. For example, portraying his patient’s *ethos* as nervous, Dr. Nair uses antecedent-and-consequence reported speech to suggest the patient’s uneasiness (antecedent) may be linked to her pain (consequence):

Seth Nair: So, I was like, you know, there’s PROBABLY some . component of anxiety going.

Ray Johnson: Yeah, good pick-up.

Seth Nair: So, I tried talking to her a little bit about that.

Ray Johnson: Yeah. And was she forthcoming with that?

Seth Nair: She told me she’s happy. She doesn’t really have any stress in her life.

Ray Johnson: Mm hm.

Seth Nair: So, I mean, she denied anything like that, um. . (SNRJ1 lines 196-205)

Because the resident found the patient rocking in her chair and crying, he hesitantly suggests that her pain (consequence) could be triggered by concern about something in her life (antecedent), emphasizing “PROBABLY” to suggest his uncertainty. Citing his reaction to this patient’s agitation, Dr. Nair reports that he sought a firsthand account from the patient about the stress in her life. Without explicitly hypothesizing about the connection between the patient’s stress and her pain, the resident informs the preceptor of the patient’s response and passively allows Dr. Johnson to show him how to assess the issue in more depth. In response, Dr. Johnson seeks more of the resident’s previous conversation with the patient to prepare him to model deliberation for this early novice. Although Dr. Nair reports that the patient denied any stress, the preceptor primes the resident for his forthcoming framework for how to acquire more detail about potential psychological triggers. Because Dr. Nair’s account of his patient’s *ethos* appears inconsistent, later in the conversation Dr. Johnson suggests how to acquire a better portrait of the patient’s anxiety by sharing how he usually talks with such patients.

In response to residents’ forensic depictions of the subjective and objective clinical data, sometimes preceptors volunteer proposals using the authoritative *topos*, which conveys the results of their expert deliberation without explaining their deliberative efforts to residents transparently.
These proposals tend to be met with passive acceptances by early novices, who rarely engage in active discussion about authoritative suggestions. Perhaps because preceptors make some decisions instinctively, they offer advice without explicating their thought process; however, such approaches engender reflexive agreement from novices. For instance, as they discuss treating the patient’s hypertension, Dr. Rogers suggests a treatment by relying on her experience (authority):

*Jackie Rogers:* I would PROBABLY. . . start him on Cozaar, though, too.
*Dennis Riley:* Okay.
*Jackie Rogers:* Because I think he’s going to need it. . .
*Like maybe start him at fifty.
*Dennis Riley:* Okay. (DRJR1 lines 65-69)

Without justifying her suggestion, Jackie Rogers recommends that she “would” prescribe Cozaar if the patient were hers (authority). Offering the recommendation tentatively but without a clear opening for debate, she indicates that she thinks the patient will “need it.” Dr. Rogers suggests that the resident should accept the advice based on her expertise or perhaps a well-known but unexplained clinical guideline. After hedging with “Like maybe,” Jackie Rogers advises a common dosage of Cozaar, implying that her advice is not a rule but rather an option that Dr. Riley can modify using his own judgment or research. Because the preceptor withholds her explanation of this advice, the resident passively accepts her suggestion, not critically analyzing the treatment plan or dosage recommendation.

In addition to instructing residents about the next actions they need to take in treating the patient, preceptors also challenge and revise the *ethos* residents present in their recreated conversations with patients. When residents report their past conversations in ways that assume their *ethos* to be uncomplicated, preceptors sometimes interject to modify residents’ approaches so they can better respond to patients’ needs in the future. For example, when Dr. Taylor reports a patient’s concern with how her pain medication makes her feel (testimonial), he reports his suggestion that the patient discontinue the medicine, conveying himself as a competent clinician:
Corey Taylor: Pain-wise, she’s mentioned this tramadol makes her kind of –
  feel kind of crazy, so I told her, you know, we can just stop that –
Jackie Rogers: What, where is she having pain?
Corey Taylor: She – from the belly, the distention with the belly pain, things like that. 
  She mentions, like, her belly’s hurting her. 
  But I told her – 
  And some back pain with it, too, 
  but I told her the best thing for her, then, 
  I would recommend more NSAIDs [non-steroidal anti-inflammatory drugs] 
  than anything and AVOIDING Tylenol. 
Jackie Rogers: OH, I don’t know. 
  I wouldn’t do NSAIDs with that liver failure, hm mm. 
  No, don’t give her, no. (CTJR1 lines 200-214)

In response to the patient's stated aversion to tramadol, Dr. Taylor recounts that he told her to stop 
the medicine and take non-steroidal anti-inflammatory drugs (NSAIDs) instead of Tylenol, which 
would adversely affect her failing liver. Reporting this part of the narrative as clear-cut, Dr. 
Taylor portrays himself as a conscientious, thoughtful physician. However, Jackie Rogers 
interrupts him sharply, highlighting the harmful effects of NSAIDs on the patient’s liver and 
instructing Dr. Taylor not to give the patient drugs from this class. In the process, Dr. Roger 
undercuts the presumed expertise embedded within Dr. Taylor’s anecdote, treating him like a 
student and preparing him for her impending deliberations about treating the patient’s pain. 

In conjunction with their recreations of their conversations with patients, early novices 
often explicitly inquire about what preceptors would do if they were treating the patient 
themselves, requesting guidance about how to draw on the past facts of the case to achieve 
immediate goals for a specific patient. When residents appeal to their expertise in this way 
(authority), preceptors usually respond with questions or proposals to model how they reason. For 
example, first-year Dr. Taylor inquires about whether he ought to order blood work for his patient 
who has recently been hospitalized and in the process, defers to Dr. Rogers’ authority:

Corey Taylor: I mean, she just RECENTLY had all this lab work. 
  Do – would you REPEAT any of it today? 
Jackie Rogers: [ Looks pretty good. 
  This was just. ]
Corey Taylor: February third.

Jackie Rogers: All right, um... [2 sec.]
What’s her CBC? (CTJR1 lines 256-262)

Seeking his preceptor’s sense about when to order another test, Dr. Taylor asks whether Dr. Rogers would check the patient's blood work again if this were her patient (authority). Stressing “RECENTLY,” he insinuates that the current blood work should suffice for treating the patient at this visit but pursues her approval. Dr. Rogers answers by asking about the patient's complete blood count result, indicating which test results they must review before determining whether to reorder lab work. Instead of answering outright, Dr. Rogers directs the resident back to the objective data, instructing him about the statistics he must acquire to resolve this dilemma. In the process, she links the established statistics with her deliberation about ordering labs.

In addition to directing residents to make certain decisions, preceptors also explain to early novices how to select facts required for deliberation. Preceptors initiate proposals and questions that call attention to gaps in residents’ accounts of their interactions with patients. Preceptors’ explicit analyses of residents’ reported data help novices brainstorm explanations for clinical findings and approaches for managing the case; in effect, preceptors model how to use forensic rhetoric constructively for deliberation and decision-making. For instance, preceptors ask early novices directed antecedent-and-consequence questions to point out correlations between symptoms and conditions that are missing from residents’ case presentation. Less-experienced residents often respond to such questions in a forensic style – by giving firsthand accounts of the past physical exam, interview, or documented data. Preceptors then probe this data to model deeper thinking about clinical correlations and future diagnoses. For example, Dr. Rogers inquires about Dr. Taylor’s patient’s abdomen:

Jackie Rogers: Now, is she TENDER in her abdomen?
Because, you know, you can get SBP [spontaneous bacterial peritonitis] /unclear/ –

Corey Taylor: She IS having some abdominal tenderness,
that’s the other thing.
I was looking –

Jackie Rogers: She IS tender?
Corey Taylor: Yeah, I mean just like diffu –
Yeah, some diffuse – (CTJR1 lines 232-240)

Dr. Rogers’s request for the results of Dr. Taylor’s examination of the patient’s abdomen points to a physical finding he excluded during his presentation; in effect, she implicitly correlates abdominal tenderness (antecedent) with liver enlargement or failure (consequence). Offering a possible diagnosis associated with such tenderness – spontaneous bacterial peritonitis – prompts the resident to consider the ramifications of this symptom. When the resident confirms that the patient's abdomen feels tender, Dr. Rogers reiterates her question to echo that tenderness can indicate a serious symptom they should analyze more closely. The resident then explains the nature of the tenderness, using his preceptor’s questions to guide his analysis of his exam.

Discussing this finding pushes the resident beyond simply announcing the symptom as a past fact and incites Dr. Rogers’ following advice about what other signs should alarm him and how he can deliberate about responding to them.

As they prompt residents to give evidence to support their decisions, preceptors suggest correlations between patients’ symptoms and actions that should be taken, signaling what should trigger alarms and how residents should justify their choices. Residents often respond to these suggestions by relying on the forensic data and searching for supporting information as their preceptors guide them. For instance, in his analysis of his patient’s cardiac condition (antecedent), PGY-1 Corey Taylor asks his preceptor whether he ought to start the patient on a beta blocker (consequence), and the preceptor responds with an explicit assessment of this treatment, which the resident later confirms with documented data:

Corey Taylor: Does she need to be on a beta blocker?
Jackie Rogers: Something like that –
Yeah, well, I don’t even know if her blood pressure would TOLERATE that even, so .
Corey Taylor: again, yeah.
So... [2 sec.]
I’m trying to see assessment note for her. (CTJR1 lines 164-170)

Because of the patient's portal hypertension (antecedent), the resident asks his preceptor whether to prescribe a beta blocker (consequence) for this patient. Dr. Rogers responds by reminding the resident that they must consider the patient’s blood pressure before deciding to prescribe this drug. She rationalizes that the patient’s blood pressure could respond adversely to this medicine, insinuating that the drug may be dangerous. Later, after her verbalized deliberation, the preceptor and resident jointly analyze a lab report in the patient’s medical record, assessing more past facts to deliberate about and cooperatively decide not to prescribe a beta blocker for this patient.

After they guide residents to select appropriate facts for deliberative thinking, preceptors then coach their residents about utilizing past facts to deliberate about concrete actions; they do so by responding to residents’ presentations of clinical data with tentative proposals. Early novices typically accept such recommendations as “right” rather than engaging with the advice. In the conversation between Dr. Taylor and Dr. Rogers, for instance, after determining that the patient suffers from liver disease, they acknowledge the limited pain treatments. In response to Dr. Taylor’s report that the patient’s pain medicine causes unwanted side effects, Dr. Rogers uses the possible-and-impossible topos to propose the patient take the pill differently (possible):

Jackie Rogers: Can she cut it in half?
And try.
Corey Taylor: I can tell her to do that, yeah.
Jackie Rogers: Yeah.
See if she can do that.
Take a smaller one.
Corey Taylor: Okay. (CTJR1 lines 225-231)

Drawing on the evidence Dr. Taylor has presented, Jackie Rogers suggests a potential solution to the side effects from the only feasible painkiller, tramadol: the patient should cut the pill in half and take half in the morning and half in the evening (possible). She poses this option as a
potentially helpful rather than proven tactic, employing deliberative rhetoric to persuade the resident. Despite the preceptor’s inquisitive presentation of this method, the resident passively agrees to try this strategy to help relieve the patient’s pain and does not critique the advice.

Although early novices often reflexively accept their preceptors’ deliberative efforts, they sometimes attempt to initiate their own deliberation to connect fragments of established data with clinical actions. Their deliberative efforts demonstrate their understanding of how past facts point to certain tests and treatments. For example, when they use antecedent-and-consequence proposals, early novices correlate reported symptoms and diagnostic tests to rehearse the methods of acquiring data to verify diagnoses. In response, preceptors probe residents’ proposals about testing to encourage them to consider whether tests align with the established facts. For example, when PGY-1 Seth Nair and his preceptor discuss how to diagnose a patient who complains of knee swelling and pain (antecedent), Dr. Nair proposes a somewhat invasive test (consequence), which his preceptor implicitly revises with a series of questions and proposals:

Seth Nair: Yeah, I think she might need to get tapped. I mean, if there’s some fluid there, I kind of want to see what’s in it. um. .
Ray Johnson: Okay. Um. . how long has she had that? What’s the history of that knee?
Seth Nair: She told me this started – the flare up of this particular knee started about two days ago.
Ray Johnson: Okay. . yeah. I mean, you can tap it. The other – the, the EARLIER thing you might want to consider doing is some anti-inflammatories. (SNRJ1 lines 301-312)

To assess the patient’s knee swelling and pain (antecedent), the resident hedges in suggesting that the patient undergo knee arthrocentesis (consequence); he suggests the procedure because it can pinpoint the cause of recurrent knee swelling and indicate treatments. To help decide how to proceed, Dr. Johnson backpedals to inquire about when the patient had her previous knee arthrocentesis and what definitive diagnoses have been established, modeling a logical means of
deliberating about the next most rational step. Unconvinced by the narrative Dr. Nair has shared, Dr. Johnson uses the modal verb “might” to advise Dr. Nair to use a less-invasive approach to managing the patient's knee pain – anti-inflammatory medications. Without explicitly stating that arthrocentesis is inappropriate, Dr. Johnson compels the resident to return to forensic rhetoric by reconsidering the patient’s history of knee issues; the preceptor leads the deliberation explicitly, asserting that a less-invasive treatment would be more practical.

In this same conversation, the preceptor then uses a possible-and-impossible proposal to advocate more appropriate remedies that the resident might suggest to the patient, explicitly correcting the resident’s suggestion in his deliberation. Dr. Johnson utilizes the facts Dr. Nair has presented about the patient’s knee swelling and pain to offer more treatment options:

Ray Johnson: So, icing it, you know, and getting off of it a little bit might be the first thing. And, then, if she’s not better in two weeks,
Seth Nair: L Okay.
Ray Johnson: Then tapping is the next –
Seth Nair: L Okay.
Ray Johnson: You know, thing to consider. (SNRJ1 lines 337-343)

In response to the resident’s plan to “tap” the patient’s knee (arthrocentesis), Dr. Johnson promotes less-invasive strategies that could resolve the problem: reducing stress on the knee and applying ice to the knee (possible). Although Dr. Johnson recommends these viable treatments, he presents the other possibility: the patient's knee will not improve and will require arthrocentesis (possible), Dr. Nair’s original proposition. The preceptor outlines the appropriate steps in managing this symptom, using the conditional term “might” to mitigate his instructions as possibilities rather than requirements. Dr. Nair passively concurs with Dr. Johnson’s multi-step advice for treating this patient’s pain, accepting his revisions of his preliminary deliberation.

Unlike explicit assertions that convey their deliberations to early novices, questions allow preceptors to implicitly prod residents to analyze their clinical actions. In these cases, preceptors
draw on residents’ forensic accounts of patients’ symptoms to offer a framework for deliberating about the case. For example, modeling how to analyze his patient’s chest pain, Dr. Rogers presents questions that should guide their decision about when to send the patient to a specialist:

*Jackie Rogers:* The only question is how quickly does he need to see the cardiologist? Does he need to see him TODAY in the ER? Or can he wait a week... and see him next week?

*Dennis Riley:* Okay.

*Jackie Rogers:* So, go and talk about that.

*Dennis Riley:* Okay. (DRJR1 lines 169-174)

By asking about how soon they should send the patient to a cardiologist, Dr. Rogers presents the critical dilemma in the case: what is the likelihood that the patient will suffer from a serious cardiac event in the near future (possible)? Jackie Rogers implies that the patient’s description, timeframe, and trigger for his pain matter to their impending decision about when to send the patient to a specialist. These questions remind Dr. Riley to acquire more details about the patient’s symptoms before sending him home. The preceptor’s emphasis on these questions prompts Dr. Riley to accept her outline for proceeding and making a final decision.

Preceptors also use questions to exhibit how to utilize established paradigms to assess the patient’s reported complaints. For instance, after resident Dr. Nair sketches the patient’s account of her pain, Dr. Johnson asks a series of antecedent-and-consequence questions to analyze the stated symptoms, recapping a standard method of deliberating about causes of chest pain:

*Ray Johnson:* No other considerations... for chest pain?

*Seth Nair:* No. Not, not at this point.

*Ray Johnson:* I don’t think so.

*Ray Johnson:* She doesn’t get it laying down at nighttime? Or after meals?

*Seth Nair:* So, you’re not thinking REFLUX?

*Ray Johnson:* Huh uh.

*Ray Johnson:* Which is, you know, a, a real common reason for chest pain, and she’s on Protonix, I noticed. (SNRJ1 lines 146-155)
Because the resident does not satisfactorily rule out all explanations for chest pain, Dr. Johnson urges the resident to consider various symptoms (antecedents) that can be connected with chest pain (consequence). Implying that the patient's pain could indicate acid reflux disease (possible), Dr. Johnson poses his question using negative structure to highlight the resident’s oversight. Explicitly emphasizing this potential trigger for the patient’s pain, the preceptor reminds him that reflux (antecedent) often produces chest pain (consequence) and that the patient currently takes medicine for reflux, reinforcing his point that the resident ought to consider this diagnosis.

Without overtly stating his own interpretation of the patient’s chest pain, Dr. Johnson complicates the resident’s thinking and attempts to provide him with a basis for deliberation.

In addition to prompting early novices to consider various clinical explanations and actions, preceptors also use residents’ forensic data to advocate what they perceive as a valued professional ethos. This focus enables preceptors to explicitly deliberate about ways of responding to certain kinds of patients effectively. Preceptors sometimes demonstrate their proposed ethos in full simulated conversations. For instance, Dr. Johnson uses antecedent-and-consequence reported speech to model how to discuss anxiety, which the patient has denied:

Ray Johnson: “Have you – have suffered any particular crisis in your life recently?”
This is just a question I’ve learned to ASK when I get to THAT point where I’m uncomfortable, and I s – and I’m not seeing the whole picture.
I will say, “Has anything happened in the last maybe two to three months that’s really CHANGED life for you. . and has been a real challenge?”
And you’ll – and then they’l break down and cry and tell you.
And you, you find there IS this somatic complaint.
They didn’t want to tell you THAT, so they – they brought the PHYSICAL. . but, there’s this OTHER side and they may – and they may need counseling support or just a little bit of MICRO-counseling support right here in the office from YOU.

Seth Nair: Mm hm. (SNRJ1 lines 372-387)
Because of Dr. Nair’s earlier account of his conversation with the patient about stress in her life, Dr. Johnson infers that the patient is nervous but private about her feelings, requiring more subtlety to determine whether her pain is correlated with psychological distress. Enumerating the types of questions he usually asks patients in this situation, Dr. Johnson explains that patients sometimes reveal the psychological trigger of their somatic condition. Advocating that the resident establish a compassionate, empathic, yet indirect *ethos*, the preceptor models how Dr. Nair can voice his concern more artfully to determine the source of his patient’s pain. After watching his preceptor deliberate about some ways of talking with this particular patient, the resident accepts this approach, consenting to enact his preceptor’s template for coming across as a concerned, insightful primary care physician.

The analysis in this section has suggested that early novices use forensic rhetoric to outline objective and subjective clinical data so they can suggest and seek advice about the next steps in the patient case. They recreate their encounter with the patient to facilitate preceptors’ sharing of their analysis and advice. Preceptors’ instructive proposals and reported speech and closed-ended questions allow them to model deliberative rhetoric for residents to direct them about clinical concepts and *ethos* as well as concrete actions they need to take. In the next section, I demonstrate how late novices use these frequently employed *topoi* to deliberate about clinical concepts and notions in more depth than early novices; I analyze how preceptors prompt more analytical, reflective conversations with more-experienced residents.

**Late Novices’ Topoi Use in Conversations**

During the first half of residency, novices present the facts of their patient cases to preceptors using forensic rhetoric, and preceptors explicitly question these facts and model effective clinical deliberation, which early novices accept and agree to follow. In contrast, during
the second half of residency, novices begin to deliberate about the facts of their cases more independently while they present them to preceptors in their conversations. By middle residency, when more-experienced residents’ preceptors question their assumed ethos or logos, they often respond with critical deliberation of how they came to draw certain conclusions rather than allowing preceptors to do this work. Residents in middle residency also examine and confront recommendations from other clinicians, unlike their first-year counterparts who tend to accept written and oral advice wholesale.

Late novices, in contrast, typically do not assume clinical ethos and logos to be uncomplicated like novices in early and middle residency. Instead of presupposing their own and their patients’ ethos in their clinical anecdotes, late novices scrutinize and react to clinical roles as they narrate past conversations. Generally, late novices more critically deliberate about using clinical logos and ethos; in particular, they draw on the facts of the case not as primary data to be presented to their preceptor for analysis but as fodder for their own evaluation and consideration. In addition to answering preceptors’ questions and deliberating about their clinical decision-making process autonomously, late novices also volunteer evidence in support of their clinical ethos and logos. With more-experienced residents in middle and late residency, preceptors generally ask more-analytical questions, encouraging late novices to deliberate about not only what and how to manage the case but also why.

While preceptors encourage novices in middle residency to question their patients’ language, more-experienced residents deliberate about how to proceed with their cases by critically analyzing their patients’ narratives. Instead of allowing their preceptors to model this deliberative work like early novices, late novices consider what their patients might say in response to follow-up questions and speculate about how they might respond. For example, in
their conversation about a patient who allegedly has “dark, tarry stool,” Dr. Hu questions PGY-2 resident Dr. Saad about the patient’s testimonial:

*Louise Hu:* Are those his words?

Mounir Saad: His exact words are “dark, tarry stools.”

*Louise Hu:* “Dark, tarry stools.”

Mounir Saad: I think it’s because he heard it in, in [local hospital] BEFORE . . . [2 sec.]

Um. . . [1 sec.]

*Louise Hu:* If you had to say, “Well. . .” [1 sec.]

“What IS your definition?” . . . [2 sec.]

Mounir Saad: Of dark, tarry stools?

He would say they look black.

*Louise Hu:* Black stool?

Mounir Saad: Yeah. (MSLH1 lines 56-68)

When the resident reveals the patient's use of clinical vocabulary, Dr. Hu prods the patient’s medical savvy and asks whether he employed those actual terms in his telling of the story. She implies that Dr. Saad should share the patient’s exact words so they can acquire a clear picture of the facts; these facts serve as data to substantiate their decisions about testing and treating the patient. When the resident confirms that the patient used those terms, Dr. Hu ponders why the patient might use that language and how they can ascertain what the patient means. As they collaboratively deliberate about why the patient has portrayed himself as conversant with medical language, Dr. Saad deduces that the patient heard the term used by other doctors during his recent hospital stay. He then extrapolates what he imagines his patient would say in response to a question asking him to characterize "dark, tarry stools," scrutinizing the patient’s dialogue critically. This analysis later steers the resident toward potential explanations for the irregular bowel movements and possible treatments.

Although novices in middle residency often reveal their ability to analyze their patients’ ethos, they sometimes make unsupported claims that presuppose their own or their patients’ identities. Their preceptors respond to these unexplained authoritative proposals by rearticulating
their understanding of these claims and subjecting them to evaluation. Although with early novices preceptors tend to explicitly revise presuppositions of ethos, with more-experienced residents, preceptors point out unsupported assumptions and expect residents to independently explain their assertions. This technique enables experienced residents to scrutinize their clinical hunches conscientiously. In their conversation about a patient’s physical limitation, for instance, PGY-2 resident Dr. Saad shares the patient’s extremity movement, questioning his limitation:

Mounir Saad: The other issue I have with him is that –
this guy can MOVE –
has some extremity MOVEMENT.

Louise Hu: You don’t belie[ve] – obviously –

Mounir Saad: I, I can’t.
He’s got a card that says that he had a cervical fusion by Dr. Edwards.
So, I can’t really BELIEVE that he has –
the guy’s got a pretty impressive motorized. . . [1 sec.]
WHEELCHAIR there.
He went through REHAB.

Louise Hu: Hm. (MSLH1 lines 190-200)

When the resident begins to dispute the patient’s supposed inability to move, Dr. Hu reiterates the resident’s sense that the patient may not be fully paralyzed (authority) to identify his implicit sense of the patient. Her rephrasing of the resident’s insight presses him to spell out what aspects of the patient’s physical limitation he struggles to understand and justify his hunch that the patient cannot move by citing another physician’s documentation of neck surgery. Later in the conversation, they deliberate about where to refer this patient for specialized therapy.

Not only do more-experienced residents display greater independence in analyzing and unpacking their clinical intuition, but they also challenge and question preceptors’ advice more confidently, deliberating about advice assertively. In contrast with early novices’ ready acceptance of preceptors’ proposals, PGY-2 resident Dr. Davis challenges her preceptor’s proposed treatment (consequence) for her patient’s hypertension (antecedent):

Jackie Rogers: Why would you give her am[lodipine] – WHY would that be your first choice?
Jessica Davis: Um. . mostly just. . not having to. . monitor her. .
In response to Dr. Rogers’ question about why she would prescribe amlodipine (consequence) for the patient’s hypertension (antecedent), Dr. Davis points out that this drug does not adversely affect kidney function and thus does not involve close monitoring. She implies that she prefers not to be required to test the patient's renal function regularly, perhaps because of the challenge of ensuring that this patient complies with blood tests. After the preceptor suggests a diuretic, Dr. Davis hesitates, asking about the kidney-function issue again and revealing her knowledge of this drug’s side effects. Rather than accepting the preceptor’s proposal reflexively, this more-experienced resident questions Dr. Rogers and critically considers an opposing idea, which begins a deliberative exchange about benefits and drawbacks to different hypertension drugs.

More-experienced residents also question preceptors’ unexplained authoritative proposals, using deliberative rhetoric to offer their own clinical approaches and perceptions of issues. Rather than accepting preceptors’ authoritative proposals like first-year residents often do, more-experienced novices pose questions and alternative proposals in more thoughtful deliberation. After Jackie Rogers recommends that resident Dr. Davis order her patient a certain dosage of hydrochlorothiazide without justifying her advice, the resident probes the advice:

*Jackie Rogers:* Yeah, I’d start the patient on, you know, twenty-five hydrochlorothiazide.
That’d be a good choice.

*Jessica Davis:* Yes, you jump RIGHT to twenty-five?

*Jackie Rogers:* Do twelve-point-five, if you want.
Yeah, I mean, do twelve-point-five – (JDJR1 lines 128-133)
Dr. Rogers directs her resident to prescribe a certain dose of hydrochlorothiazide here without defending her suggestion, relying on her experience (authority) rather than a more elaborated explanation. Dr. Davis responds by challenging the decision to start the patient on such a high dose, emphasizing “RIGHT” to insinuate her preference to start at a more conservative dosage. Rather than automatically accepting the recommendation, the resident challenges the advice and initiates deliberation about the clinical decision; in so doing, she reveals her understanding of prescribing this hypertension medication and asserting her clinical autonomy. After she calls her preceptor’s suggested dosage into question, Dr. Rogers revises her proposal and accepts the resident’s preferred dosage, deferring to the resident in making the final decision.

Unlike early novices who recount their interview with the patient as though they are reporters relating established facts, the most-experienced late novices often analyze and deliberate about their narrations of their patients’ stories and *ethos* to correlate symptoms, treatments, and diagnoses. With these residents, preceptors allow them to expound on reported speech with little interruption. For instance, highlighting several inconsistencies in her patient’s narrative, PGY-3 resident Dr. Keller’s reported speech depicts him as unreliable and erratic:

Molly Keller: Well, he has a loose definition of every,
EVERYTHING because then I said,
“Okay, so WHEN did the cough start?”
Because he was like,
“Well, I think it started right around the time. . that I relapsed.”
And I go, “Okay. .
but you were originally ON the prednisone
for a COPD [chronic obstructive pulmonary disease] exacerbation, right?”
And he’s like, “Yeah.”
I was like, “So, you’ve only been on prednisone for three weeks?”
“Oh, no, it’s been, like, six weeks.”
I mean, I can’t. . . [2 sec.]
I don’t feel like it’s me at this point.
I think it’s him. (MKST1 lines 87-100)

Beginning with an evaluative assertion criticizing the patient’s “loose definition,” or imprecise clinical anecdote, Dr. Keller outlines her conversation with the patient in a way that attempts to
understand the onset of his cough. Struggling to understand why the patient has been taking long-term steroids, Dr. Keller quotes herself as asking the patient whether he started the prednisone (consequence) in response to a COPD exacerbation, an antecedent to starting this medication. She concludes that she cannot connect the fragments of this patient’s story, deducing that the patient’s inability to present a clear clinical narrative prevents her from assessing his situation and making decisions; in short, the patient’s unbelievable claims hinder her deliberative efforts. During this lengthy narration, Dr. Tao allows the resident to analyze the complicated account and the patient’s character as untrustworthy. Later, the preceptor asks questions to untangle the story and assist Dr. Keller in deliberating about how to talk with unpredictable patients like this one.

Late novices also analyze their patients’ narratives by hypothesizing about potential explanations for patients’ reported conditions, deliberating with preceptors about what patients’ accounts might suggest clinically. Preceptors often rephrase residents’ theories of patients’ reports into possible diagnoses so residents can visualize their deliberative process. For instance, in their joint attempt to understand the cause of her patient’s urinary incontinence, PGY-3 resident Dr. Collins uses a possible-and-impossible proposal to interpret the patient’s reported experience, and her preceptor responds with his analysis of the possible diagnosis:

Maria Collins: Because she can’t feel it until she’s, like, almost, like, has an –
Ted Baker: Until it’s coming out.
Maria Collins: Yeah, like an overflow or something /unclear/.
Ted Baker: Right.
So, you’re not sure if it’s overflow versus. .
URGE that’s WAY out of control.
Maria Collins: Mm hm. (MCTB1 lines 42-49)

As the resident details how the patient described her urinary incontinence, Dr. Baker interrupts to interpret the patient’s problem. In response to his suggestion, Dr. Collins adds her own explanation for the patient’s narrative: she may suffer from overflow (possible). Juxtaposing the two potential causes, Dr. Baker summarizes the possibilities, “overflow versus. . URGE,” which
prepares them to assess the likelihood of these diagnoses and make plans for monitoring and treating the patient. As they deliberate about the case together, they outline potential diagnoses in a mutually reflective, inquiring manner.

Along with questioning preceptors’ explications of how to test or treat patients, the most-experienced novices also offer statistics and therapeutic guidelines that challenge others’ advice. Rather than merely accepting their preceptors’ suggestions like early novices, late novices present contradictory evidence to provoke thoughtful deliberation. For example, when Dr. White uses the possible-and-impossible topos to advise his resident to run a prostate-cancer test (possible), Dr. Chopra responds with a statistic:

*Ryan White:* If I’m going to draw blood work today, it could be a test that’s, uh, optional.

*Jared Chopra:* Isn’t it almost fifteen percent of patients that are African American with a NORMAL digital rectal AND a normal PSA [prostate-specific antigen] –

*Ryan White:* Yeah.

*Jared Chopra:* Fifteen percent COULD still have prostate cancer. (JCRW1 lines 330-336)

Because the resident plans to order blood work for this patient, Dr. White suggests the option of testing the patient's PSA (possible). Dr. Chopra responds with a statistic about the risk of prostate cancer among African American patients and points out that, even if the patient's rectal exam and PSA tests come back normal, the patient still faces a notable risk of developing this cancer. With this statistic, he implies that the tests may be irrelevant. Although Dr. White previously pointed out the patient’s relatively low risk of prostate cancer (impossible), Dr. Chopra suggests that the patient still faces a significant chance of the disease (possible). In this exchange, the resident deliberates about his preceptor’s advice critically by challenging its efficacy. In the process, he reveals his understanding of the test and his autonomy as a proficient primary care physician.

Revealing their developing ability to probe clinical data like their preceptors can, the most-experienced residents initiate speculative questions about clinical choices as they deliberate
about theoretical clinical issues with their preceptors. In the process, they often acknowledge the scope of their work as primary care physicians and their insight about which symptoms require evaluation by specialists. Preceptors support residents as they reason through their clinical dilemmas relatively independently. For instance, PGY-3 resident Jared Chopra uses an antecedent-and-consequence question to analyze his physical examination:

Jared Chopra: But I figured WHY, why let it go? I mean if, you know, if I don’t trust my exam – and I don’t –
Ryan White: Well, especially if he felt the bulge there.
Jared Chopra: Yeah.
Ryan White: And I don’t FULLY trust my exam,
Jared Chopra: Then I should have a general surgeon evaluate it.
Ryan White: Okay.

(JCRW1 lines 100-109)

Even though Dr. Chopra previously mentioned that he did not perceive alarming symptoms in the patient, he suggests here that he does not want to ignore the possibility of a hernia. He argues that if he deems his examination insufficient (antecedent), he should refer the patient to a specialist to assess and advise the patient (consequence). Dr. White validates Dr. Chopra’s plan by reminding the resident that the patient reported feeling a bulge in his inguinal ligament, which suggests a greater likelihood that the surgeon might discover a hernia. Implicitly correlating his incomplete examination of a potential hernia (antecedent) with a potentially negative consequence for the patient (e.g., strangulation of the hernia), Dr. Chopra uses open-ended deliberation to sketch his clinical reasoning for the preceptor to consider and help him evaluate.

Using tentative tone, late novices often deliberate about established clinical diagnoses with open-ended questions and proposals so they and their preceptors can cooperatively consider potential explanations for uncertain clinical problems. These residents reflectively present proposals that correlate certain symptoms and diagnoses, and preceptors respond by probing the suggestions with open-ended questions; these questions push residents to support their
conclusions with evidence. For example, when PGY-3 resident Dr. Jackson theorizes about the trigger (antecedent) for his patient’s heart disorder (consequence), his preceptor asks a question encouraging him to validate his correlation:

Neal Jackson: And I’m just wondering if that is really his. . . underlying. . . issue. . . [5 sec.]
Sandra Tao: So, how are you going to distinguish that? (NJST1 lines 47-50)

Contemplating the patient’s established history with mitral regurgitation, Dr. Jackson posits that this heart condition could be contributing to the patient’s breathing difficulties. Rather than presenting facts about the patient as the primary data and allowing the preceptor to speculate about what those facts could mean as first-year residents often do, this late novice uses the facts as fodder for his own deliberative work. Dr. Tao then probes the resident’s proposal by asking about how he plans to determine the plausibility of his theory urging him to substantiate his hypothesis with evidence. Rather than telling him outright what test or treatment to use as she might with early novices, Dr. Tao expects this resident to discern different symptoms defensibly.

Later in this conversation, Dr. Jackson volunteers another open-ended proposal that examines the nuances of his patient’s symptoms; this suggestion incites deliberation about an indistinguishable correlation between causes and symptoms. In response, the preceptor offers speculative questions to push the resident to consider the unclear aspects of the case. In this example, Dr. Jackson uses the possible-and-impossible topos to broach the issue of the potential triggers (possible) for the patient’s breathing difficulties, which his preceptor scrutinizes:

Neal Jackson: Like, is it orthopnea, or is it just. . . is it, like, GERD [gastroesophageal reflux disease] that’s causing. . . [1 sec.] some bronchoconstriction and COUGH, or I don’t know exactly what’s –
Sandra Tao: Can it be both?
Neal Jackson: I’m SURE it can be both.
Sandra Tao: It CAN be both. (NJST1 lines 202-209)
Without his preceptor prompting him, Dr. Jackson voices the complexity of differentiating between symptoms that could be causing the patient’s breathing problems (possible), showing his advanced insight about this patient’s symptoms. In response, Dr. Tao presents another possibility: both of those conditions could be causing the symptoms. She implies with this question that an interaction could be causing the breathing difficulties (possible). Dr. Jackson concurs, insinuating that he should consider a multifaceted testing and treatment plan. Not committing to the claim that the symptoms likely contribute, the preceptor emphasizes that the causes "can" be contributing to the symptoms. As other preceptors do with late novices, this preceptor frames her proposal as conceivable but not indisputable, affording her resident autonomy in his analysis. In contrast to early novices who often allow preceptors to probe the clinical facts independently, Dr. Jackson deliberates about the connection between conditions and symptoms, and his preceptor’s responses serve to stimulate his thinking during his decision-making process.

In their analysis of documented medical data, preceptors ask late novices to justify other clinicians’ recommendations in a process of scrutinizing their clinical logos; this deliberative work prompts residents to pose their own hypotheses about clinical predicaments. The most-experienced residents supplement their analytical proposals with reported speech or clinical data, showing their skill in using clinical data to navigate areas of uncertainty. For example, after PGY-3 resident Dr. Jackson mentions other clinicians’ recommendation that his patient not undergo surgery, Dr. Tao poses a probing antecedent-and-consequence question:

*Sandra Tao*: He, he’s not a candidate for surgery because of what?

*Neal Jackson*: They thought that his heart –

*Sandra Tao*: His lungs were too bad?

*Neal Jackson*: Or his heart was too bad? . .

*Sandra Tao*: His lungs and his heart.

*Neal Jackson*: Okay.

*Sandra Tao*: But, I think, that he would do fine . . with most types of surgery. (NJST1 lines 69-77)
Asking what symptoms or conditions (antecedent) prevent the patient from being a surgical candidate (consequence), Dr. Tao questions whether the patient's heart or lung conditions exclude him from being healthy enough for surgery. The resident responds that previous physicians deemed both his heart and lungs as too compromised for surgery; however, in his next turn, Dr. Jackson explicitly contradicts the clinician who discouraged surgery, later citing the patient's normal stress test and pulmonary test as proof that the patient could safely endure an operation. In contrast with the forensic rhetoric of early novices, the preceptor’s question here prompts the resident to scrutinize and challenge documented advice in a process of shared deliberation.

The discussion in this section has shown how residents use common *topoi* to develop clinical *logos* and *ethos* and how preceptors draw on these *topoi* to support their residents’ learning. As they progress through their training, residents’ *logos* and *ethos* shifts from attention in the first year on reporting and reviewing data and seeking instruction as inexperienced physicians to concentration in the final year on analyzing principles and deliberating about clinical choices as self-sufficient doctors. Through forensic rhetoric, less-experienced residents’ *logos* focuses on recapitulating established clinical data and isolating the next steps they need to take in the patient case. In conversations with early novices, preceptors ask leading, closed-ended questions that point their residents in specific directions, and they perform extended hypothetical monologues, which these residents accept and agree to mimic with their patients. In contrast, more-experienced residents and their preceptors use these frequently employed *topoi* in more open-ended and deliberative ways. They focus their *logos* not merely on the past events and next actions that need to be taken but also on the underlying factors, interactions, and reasons for making clinical decisions. Late novices’ reported speech also stimulates a more critical conversation about how to analyze the patient’s and one’s own *ethos*. Preceptors indirectly prompt residents to deliberate about how to draw correlations between pieces of clinical data and
interpret patients’ portrayals of themselves; in the process, residents develop their own ethos. From the first to the final year of residency, then, residents’ communication with preceptors shows their development from less analytical, less professionalized, more concrete, and more dependent learners to more analytical, theoretical, and independent thinkers and members of the medical community.

Conclusion

In this chapter, I have demonstrated how, from the beginning of residency training to the end, resident physicians become more deliberative about the future as they critique and analyze their logos and ethos using common topoi (antecedent-and-consequence, possible-and-impossible, past-fact-and-future-fact, testimonial, and authoritative). This progression toward deliberative rhetoric enables residents to master clinical endoxa and understand clinical concepts, strategies, and communicative practices in ways that empower them to independently analyze future circumstances. Preceptors use these same topoi to direct early novices and engage with late novices about clinical logos; when they focus on ethos, preceptors portray how residents can come across to patients as professional and credible and illustrate how to facilitate conversations with patients about health and wellness.

In a more in-depth examination of the evolution of novice physicians’ rhetoric, I have extended Atkinson’s (1995) discussion of the voices of medicine by demonstrating how early novices reason through questions and proposals about the next actions to take in managing the patient case. I have shown how early novices use forensic rhetoric to report the facts of the case as their primary data, which reflects what Atkinson (1995) refers to as “the voice of the eyewitness” (p. 131). Early novices’ forensic rhetoric correlates symptoms and diagnoses.
(antecedent-and-consequence), reviews plausible options for testing and treatment (possible-and-impossible), and relies on the informed opinion of their preceptors (authority).

Speaking from the perspective of “the voice of experience,” (Atkinson, 1995, p. 131) preceptors seek concrete data from early novices, explicitly instruct them about their next steps, and use directive, closed-ended responses to model clinical *logos* and *ethos*. Preceptors instructively exemplify relationships between symptoms and immediate actions that need to be taken (antecedent-and-consequence), indicate the most logical alternative for proceeding with testing or treating the patient (possible-and-impossible), and prioritize their own informed opinion about how patients in these situations ought to be treated (authority). Preceptors also model ways of talking (testimonial) with certain *types* of patients (e.g., nervous) to show how residents might adapt their speech to accommodate patient’s unique identities (e.g., patients with developmental delays). Typically, early novices passively accept preceptors’ advice and performed simulated conversations and focus on the established information and immediate details of the case through their use of forensic rhetoric.

In a more fine-grained analysis of the process Pomerantz et al. (1995) reference in their discussion of novice physicians’ increasingly independent communication practices, this chapter demonstrates that more-experienced residents and their preceptors pose arguments more implicitly and analytically. Because they assume clinical *endoxa*, they focus on deliberating about clinical principles, guidelines, and rationales in their conversations. Exercising their greater independence and knowledge, late novices reveal their knowledge and critical thinking abilities by focusing on broader clinical concepts and examining their patient cases more deliberatively, deliberating about underlying factors of patients’ conditions (antecedent-and-consequence), contemplating different clinical options (possible-and-impossible), and critiquing and synthesizing informed opinions (authority).
Assuming late novices understand fundamental issues, preceptors imply shared knowledge and urge late novices to examine the clinical situation critically. They accomplish this goal by analyzing the various elements that might contribute to a patient’s condition (antecedent-and-consequence), justifying decisions about potential options for testing or treating patients (possible-and-impossible), and probing informed opinions and facts (authority and past-fact-and-future-fact). Experienced residents react to analytical topoi with theoretical proposals, statistics and guidelines, and their own hypothetical scenarios of how they intend to communicate with the patient, attempting to portray themselves as independent, competent physicians.

As this analysis demonstrates, residents and preceptors discuss resident-authored chart notes and clinical cases differently depending on the resident’s level of training. With early novices, preceptors often seem like instructors who direct their students and answer questions about the next clinical steps. In their interactions with late novices, however, preceptors act more like colleagues or collaborators with whom residents brainstorm and analyze clinical principles in a process of shared decision-making. By the time they reach their final year of residency training, residents’ argumentative strategies more closely mirror their preceptors’ techniques as they work toward professional enculturation and expertise. In the next chapter, I examine two residents’ think-aloud protocol sessions to examine the rhetorical techniques used by an early and late novice during independent note writing; in the process, I compare residents’ collaborative and independent rhetorical strategies.
CHAPTER 5

The Role of Rhetorical Strategies in Novice Physicians’ Writing Process: An Analysis of Think-Aloud Protocol Sessions in an Internal Medicine Clinic

In the preceding two chapters, I identified the interactional structure of resident-preceptor conversations and the typical rhetorical stages through which these physicians move during their conversations; I argued that specific forms of interaction and rhetorical structure support novices’ enculturation into the field of medicine. The discussion in these chapters responded to my primary research question in this dissertation: What interactional and rhetorical strategies do residents and preceptors use in conversations about resident-authored chart notes to allow novice physicians to participate in the oral and written discourses of medicine? In particular, these analyses demonstrated that first-year residents tend to use their writing process to document forensic data, such as patients’ and preceptors’ conceptions, evaluations, and deliberations about the case; more-experienced residents, in contrast, use the writing process to engage in a more active analysis and deliberation with preceptors about clinical concepts.

To explore the role of forensic and deliberative rhetoric during residents’ independent writing process, the current chapter explores how residents use the writing process for learning and engaging with clinical concepts. In this chapter, I construct what Brandt (1992) has called a sociocognitive model of writing by examining the role of resident-preceptor conversations and rhetorical strategies in novices’ composing activities. I build this emergent sociocognitive theory of writing by conducting rhetorical analyses of these resident physicians’ think-aloud protocol
sessions. In addition to demonstrating the argumentative approaches that structure residents’ thinking, this analysis provides insight into residents’ perspectives of their writing process. As such, the discussion in this chapter provides a richer analysis of how residents use their writing process as part of their professional enculturation than an examination of their conversations alone can convey. This chapter also offers insight into how the social interactions with preceptors extend into independent literate activities and how independent cognitive activities emerge in late novices’ composing practices.

The rhetorical analysis of residents’ think-aloud protocol sessions in this chapter responds to my secondary research question in this dissertation: What rhetorical strategies do resident physicians consider while they are independently composing final written notes in patient charts? These residents’ think-aloud protocol sessions and retrospective interviews reveal their literate movement through similar rhetorical stages evident in their conversations with preceptors. Below, these results suggest that early novices use their independent note-writing process as an exercise in documenting the forensic data they collected during their conversations with patients and preceptors; in so doing, they adopt preceptors’ and other clinicians’ suggestions for the next steps in the case as their own. In contrast, late novices utilize the composing process as an opportunity to deliberate about clinical ethos and logos more independently and introduce their own conceptions of the case in consideration of future readers’ questions and needs. While this analysis supports the discussions in Chapters 3 and 4, in this chapter I move beyond these analyses by considering how rhetorical strategies enable residents to advance toward greater

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34 As I discussed in Chapter 1, residents interview and examine the patient, confer with a preceptor, return to the patient room to conclude the appointment, and later write the final note in the patient’s medical record; although residents compose fragments of the note during each of the aforementioned steps, the substance of the note tends to be written after the conversation with the preceptor and concluding conversation with the patient.

35 For the script I used during the think-aloud protocol training and the questions I asked during the retrospective interviews, see Chapter 2 pages 42 - 43.
independence in their writing process. In the process, I develop a sociocognitive model of residents’ composing, which can be used beyond this study to understand and improve resident physicians’ engagement in literate practices and professional enculturation.

In an examination of how social context becomes salient in individuals’ composing processes, Brandt (1992) uses think-aloud process models to inquire about the competencies required for people to participate in an emergent process like writing. She analyzes writers’ composing processes by examining the chronology of actions writers take during composing (sequences of drafting, revising, rereading, etc.) and the reasons for taking those actions; she also considers how rhetorical and social contexts emerge in the process of writers justifying and interpreting their behavior, emphasizing the “power of accounts in organizing the sense of an event” (p. 333). Brandt (1992) contends that exploring these dimensions of writers’ composing processes generates a rich sociocognitive theory of writing within particular contexts. She concludes that writers’ descriptions of their own behaviors may indicate “the social structures that bear on literate interpretation” (Brandt, 1992, p. 343). Accordingly, examining novice physicians’ writing processes in this chapter generates a sociocognitive theory of literate practices; this theory suggests how previous conversations and rhetorical strategies affect residents’ reflections on their writing processes during concurrent think-aloud protocol sessions and retrospective interviews.

Focusing on the cognitive side of writing, Flower and Hayes (1981) characterize the thinking processes involved in literate activities to develop a cognitive theory of composing. They argue that writing involves specific reflective strategies that writers arrange and manage while they compose. They also posit that the act of writing is guided by writers’ objectives, which they develop as they compose to express their purposes. In their cognitive process model, Flower and Hayes (1981) sketch three core steps: (1) defining critical activities involved in composing; (2) demonstrating how different parts of the process become incorporated into the composing
activity; and (3) considering disciplinary questions that alter the activity. To engage in this literate practice, writers draw on their long-term memory to collect material, configure that information, and tailor it to their present composing needs. Flower and Hayes (1981) argue that a cognitive process model enables researchers to think about writing in terms of critical processes and sub-processes rather than in terms of products.

In examining writers’ cognitive processes, several scholars have followed Flower and Hayes by using think-aloud methodologies to examine writers’ audience awareness (e.g., Berkenkotter, 1981; Kirsch, 1991). In her early study of audience awareness, Berkenkotter (1981) observed expert writers composing and thinking out loud to compare rhetoric and non-rhetoric scholars’ considerations of audience. In contrast with her hypothesis that “writers trained in discourse theory would be more flexible in adapting to the needs of a lay audience than writers in other disciplines” (Berkenkotter, 1981, p. 390), she found that writers’ formal education played a lesser role in their audience awareness than their perception of the writing activity. She also found that writers expressed varying degrees of audience awareness depending on their writing purposes. Although all participants engaged in the same writing activity, those who chose to narrate or inform others about their experiences examined audience-related issues less often and in lesser detail than writers who attempted to persuade their readers.

Authorial autonomy has been another theme in think-aloud protocol studies of writers’ composing processes. Berkenkotter (1984) introduces authorial control as a problem that other scholars (e.g., Sommers, Brannon, Knoblauch, and Murray) have identified with professional writers: they struggle for “the authority over their texts and the means for gaining authorial control” (p. 312). Reporting her use of think-aloud protocols with undergraduate participants, Berkenkotter (1984) examines how critically writers consider their readers’ feedback on their writing; she found that some writers resist audience opinions, others ignore feedback, while
others regard the feedback so highly that they try to integrate all reader comments into their revisions. She concludes that “the writer's personality, level of maturity, and ability to handle writing problems” (p. 313) influenced their response to audience members. Importantly, by dealing with audience members, some writers developed and others lost a sense of authority, which provides insight into how writer acquire authorial control.

In addition to examining constructs like audience awareness and authorial control, scholars have also used think-aloud protocol methodology to understand other rhetorical processes writers employ while composing. In an early study of writers’ rhetorical problems, Flower and Hayes (1980) explore how writers generate internal representations of rhetorical challenges. Flower and Hayes (1980) identify various rhetorical elements and goals in their analysis: “exigency or assignment; audience; reader; persona or self; meaning; text” (p. 24). Contending that most information people have about “rhetorical problems exists in the form of stored problem representations” (Flower & Hayes, 1980, p. 25), they conclude that competent writers respond to all objectives associated with the rhetorical problem and generate a multifaceted network of goals for affecting their audience; these cognitive processes help them form new ideas in more breadth and depth. In Kirsch’s (1991) study of how writers respond to different audiences, she identifies various “interpretive frameworks” (p. 25) that surfaced during the protocol sessions, arguing that writers’ conception of the composing task and audience lead them to focus on different aspects of the rhetorical context.

Some scholars consider reading to be a literate activity equivalent to writing and have thus used think-aloud protocols to explore the rhetorical concerns associated with reading activities. Because of their perception that reading ought to be considered a constructive discourse act rather than a passive receptive process, Haas and Flower (1988) posit, “When readers construct meaning, they do so in the context of a discourse situation, which includes the writer of
the original text, other readers, the rhetorical context for reading, and the history of the discourse” (p. 167). They probe how the constructive process of writing unfolds cognitively and how readers can recognize and control the discourse act. Offering a caveat for their think-aloud methodology, Haas and Flower (1988) suggest, “Although a thinking aloud protocol can show us a great deal, we must keep in mind that it reveals only part of what goes on as a reader is building a representation of a text” (p. 168). 36 They acknowledge that the reading process often occurs so quickly that readers cannot examine or articulate all of their thoughts about the subject, the author, and the knowledge represented in the text. Still, they advocate examining rhetorical issues in protocol data while individuals read and write because this methodology offers access to valuable episodes in writers’ processes.

Although the aforementioned influential studies of literate practice employ concurrent think-aloud protocols, several scholars have advocated using retrospective interviews to study writers’ composing activities. Addressing the value of retrospective interviews as complements to concurrent protocols, Greene and Higgins (1995) analyze interviews in which writers discussed strategies or variables they considered while composing during a specific writing task. They advocate using structured or open-ended interviews that focus on particular aspects of a text or the writing process, and they point out that the success of retrospective protocols depends on a writer’s selective reporting and assessment of previously conducted composing activities. Despite this limitation, retrospective accounts allow scholars to acquire insight into connections between

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36 When using think-aloud protocol methodology to examine literate activities, some scholars have questioned its effectiveness; they critique the incomplete or idiosyncratic nature of these reports as well as the inaccessibility of certain thought processes. Because participants are asked to think out loud while they engage in reading and writing activities, sometimes they struggle to complete the task and think aloud simultaneously. However, other scholars maintain that think-aloud methodology enables researchers to answer certain questions and thus provide some insight into the considerations individuals make during literate activities. For a full discussion of the limitations of think-aloud protocol, see the discussion in Chapter 2 beginning on page 45.
texts, context, and writers’ processes because writers analyze their techniques after composing; this method allows them to reflect and describe their choices without hindering the writing process. Used together, concurrent protocols can document what writers do, and retrospective accounts can provide insight into why writers make certain choices.

In his examination of the process of protocol analysis, Smagorinsky (1995) posits that a scholar’s analytic method should derive from theoretical frames of the research problem under consideration. He argues that the discovery of writing processes must be supported by other forms of data, such as interviews, textual analyses, or social interactions that envelop writing. Because I ask in this dissertation about how interaction and rhetorical strategies play a role in residents’ writing processes, I consider how resident-preceptor conversations and rhetorical techniques emerge in both concurrent think-aloud protocol sessions and retrospective interviews. Using the rhetorical framework from Chapter 4 facilitates an explanation of how these novices structure their arguments about their patients’ cases while they write and while they explain their writing to someone else. Ultimately, combining concurrent think-aloud protocol methodologies with retrospective interviews and analyzing this data using rhetorical notions provided insight into both how and why writers engage in their writing processes in particular ways.

Employing complementary protocol analyses in this chapter, I first describe the results of a rhetorical analysis of all nine participants’ concurrent think-aloud protocol transcripts. I then examine an early and late novice’s transcripts in an in-depth case study analysis of the rhetorical stages in their writing processes and supplement this analysis with their retrospective interviews. Although I shared an extensive number of examples from the conversation corpus in Chapters 3 and 4, the analysis in this chapter aims to exemplify the trends in the think-aloud corpus through a detailed comparison of two novices whose concurrent and retrospective protocols represent the major patterns in their counterparts’ transcripts.
In this chapter, I examine the role of social and cognitive dimensions in early and late novices’ concurrent and retrospective protocols to consider how residents use their writing process in this context. In line with Brandt’s (1992) sociocognitive theory of writing, the physicians in this study utilize both social experiences and cognitive activities when they engage in independent literate practices. I define the social components of one’s literate practices to include any interactions that come to bear on the process of learning, understanding, interpreting, or completing tasks to solve a professional problem; these social exchanges include interacting with patients, discussing the case with preceptors and other clinicians, reading texts written by other healthcare professionals, modeling the preceptors strategies, and participating in other shared endeavors for the patient case. The cognitive activities involved in a professional’s literate practices include internally driven reflections or deliberations about a workplace dilemma: considering concepts in published medical texts, devising personal conceptions about the patient case, and writing without assistance from others. Notably, this final activity involves residents in independent contemplation about the social nature of medicine; as they consider how their texts will be used by potential readers, they must synthesize both previous social interactions as well as their individual reasoning.

Based on this understanding of residents’ literate practices, I report how early novices use common topoi to enact forensic rhetoric while they compose; using their writing process as an exercise in accurate documentation, they recreate conversations to record clinical narratives, model the expert opinions they learned during their conversations, and exhibit their understanding of clinical concepts with limited analysis. In contrast, late novices deliberate about clinical logos and ethos more thoroughly and analytically while they compose; using writing as a more contemplative exercise in clinical thinking and learning, late novices grapple with clinical ethos, question and challenge others’ advice, and introduce new conceptions of clinical logos during
their writing process. Even without direct prompting from preceptors, resident physicians’ rhetorical strategies during note-writing correspond to the techniques they use when they converse with preceptors, suggesting that these pedagogical conversations may come to bear on their thought processes during independent composing. This analysis builds a sociocognitive model of residents’ literate practices that accounts for the social and cognitive activities that contribute to novice physicians’ professional enculturation.

**Results**

Below, I first describe the most commonly used *topoi* in the residents’ concurrent think-aloud protocol sessions and reiterate the delineation between less- and more-analytical *topoi*. Then, I share examples from the think-aloud protocol transcripts of the most salient *topoi* in the transcripts to demonstrate how these *topoi* shape residents’ considerations while they compose. Finally, I outline the frequencies and proportions of each common *topos* in the think-aloud data.

As in the resident-preceptor conversations, the most frequently employed *topoi*, or argumentative topics, in these think-aloud protocol sessions include past-fact-and-future-fact, testimonial, authority, antecedent-and-consequence, and possible-and-impossible (see Table 5.1 in the Appendix for specific frequencies and percentages). As discussed in Chapters 2 and 4, the numerical results in this chapter point to the trends in the rhetorical strategies used while residents independently compose in their patients’ medical records. Representing the qualitative nature of these results, my in-depth analysis of exemplars from one early and one late novice’s think-aloud protocols and interviews provide thick descriptions of these rhetorical strategies.

As described in Chapter 4, these frequently employed *topoi* can be considered less- or more-analytical, depending on the degree of examination of clinical issues. Less-analytical *topoi* reveal one’s own or another’s felt sense of a situation (authority), relate established objective
information to imply a likely future situation (past-fact-and-future-fact), or report subjective narratives (testimonial); these *topoi* engage the speaker in less reflecting, justifying, and rationalizing. The most-analytical *topoi* engage speakers in critical thinking about correlations or associations between clinical data and conclusions (antecedent-and-consequence) or the gamut of possible clinical options in a certain context (possible-and-impossible); I define these *topoi* as analytical because they involve the speaker in deducing, extrapolating, and drawing conclusions about clinical issues. Although certain *topoi* can be generally considered more or less analytical, speakers can utilize any of these *topoi* in more or less analytical ways, depending on how they embed the lines of reasoning into the conversation.

In the context of think-aloud protocols, the least-analytical authoritative *topos* simply announces one’s own or one’s perception of a clinician’s understanding of a clinical issue without explanation, representing the clinical insight as an assumed truth that the resident expects the reader to accept. For instance, when PGY-2 resident Jessica Davis discusses the reason for her transgendered patient’s hypertension in her think-aloud session, she hypothesizes that the patient likely suffers from hypertension even if she had not smoked or used hormones. She reflects, “You know, I suspect that the. . that she PROBABLY has underlying. . . [2 sec., typing] um, just PRIMARY benign hypertension. . .” (JD lines 57-58). Without explaining *why* she believes that the patient suffers from primary benign hypertension to explicate her logic, Dr. Davis relies on her authority as a competent primary care physician to assert this point.

Sometimes when they use authority during their think-aloud sessions, residents rely on another clinician’s informed opinion, assuming that opinion as their own and conveying the idea as a given that the reader ought to accept. For example, PGY-1 resident Seth Nair reiterates his preceptor’s recommendation for him to order a creatine-kinase blood test to explore a potential cause of her myalgias: “And so, for her, what we’re going to do about the myalgias, I checked a
CK on her. .” (SN line 35). Without explaining why he advocates this test or what he will do with the test results, Dr. Nair depends on the informed opinion he acquired during the conversation with his preceptor, Dr. Johnson.

In terms of the less-analytical *topoi*, residents share past-fact-and-future-fact and testimonial *topoi* in their think-aloud protocol sessions while they compose final notes; these *topoi* enable them to construct the clinical narrative for potential readers and provide context for their own or another clinician’s subsequent decisions. For example, in PGY-1 resident Dennis Riley’s introduction to his note about his patient with alarming chest pain, he uses past-fact-and-future-fact as well as testimonial *topoi* to build the context for his forthcoming discussion of the correlations between the patient’s chest pain and other symptoms. He reflects:

Uh, he’s a sixty-five-year-old. . OBESE White male, who was here to. . for a checkup to establish with a new doctor. Um, he said that he wasn't happy with his former PCP [primary care physician] and asked to be scheduled with a MALE, um. . His past medical history: coronary artery disease. . sleep apnea, stroke. . lymphedema, venous stasis, dermatitis, and ulcers, HYPERTENSION. (DR lines 2-7)

Beginning with data about the patient’s age and weight, the resident’s past-fact-and-future-fact *topos* prepares him to share the patient’s medical history of coronary artery disease, stroke, and hypertension; essential to a reader’s ability to understand why the resident interpreted the chest pain as potentially serious, this past medical history builds a logical context for discussing the decision he and the preceptor made to run cardiac tests on the patient and make a referral to a cardiologist. Similarly, the testimonial *topos* about why the patient began seeing Dr. Riley at this visit constructs the context for a forthcoming explanation about his initial plan to familiarize himself with the patient’s various medical problems and his subsequent decision to act on the
acute chest pain issue immediately. These topoi, though limited in analysis, assemble the background of the case to enable later argumentation.

When residents use the most-analytical topoi in their think-aloud protocol sessions, they reflect on correlations between pieces of clinical data and consider the range of possible choices to sketch their deliberation for readers who may take up managing the patient’s care. Using analytical topoi allows residents to wrestle with the clinical logos and ethos in more explicit ways than when they review established objective and subjective data or simply rely on their clinical hunches; as a result, readers of their notes will be more likely to understand their clinical reasoning and make informed decisions for continuing the care. For example, in response to the patient’s testimonial that he could not recall whether he had been diagnosed with the infection H. pylori, PGY-2 resident Mounir Saad composes in the patient’s medical record and reflects, using the antecedent-and-consequence topos: ‘“He is unsure whether or not. . . he was H. pylori positive. . .’ [3 sec., typing] ‘However, I DOUBT he is since he was not discharged on any antibiotics. . .’ [5 sec., typing]” (MS lines 17-18). After reporting the patient’s uncertainty about the diagnosis, this resident extrapolates that the patient does not suffer from the infection because other clinicians discharged him from the hospital without antibiotics that treat this condition, giving readers a clear sense of the clinical history and the assumptions under which Dr. Saad made certain decisions at this visit.

Using a similar analytic strategy, PGY-3 resident Maria Collins reflects on various possibilities as she writes about her patient’s fecal incontinence, logically advancing toward her decision to monitor rather than treat the patient and providing readers with some sense of her thought process. In this excerpt, the resident uses the possible-and-impossible topos to analyze the situation: “I'm not sure if she's having diarrhea or if it's medication-induced; her metformin could be causing some loose stools, but we need to MONITOR this” (MC lines 57-58). As she
documents the patient’s reported bowel problems, she wonders about potential explanations for incontinence. She cites a specific medication and condition that can explain the patient’s condition and mentions her intent to monitor this problem in the future. Thus, when another physician takes on this patient case in the future, she or he will comprehend Dr. Collins’s considerations about potential reasons for the patient’s incontinence and the rationale behind her decision to monitor the patient rather than treat her more aggressively.

In the following section, I report the percentages of the most frequently used topoi in the think-aloud transcripts among each group of residents. After these results, the analysis section characterizes the trajectory of residents’ sociocognitive considerations while they compose notes in patients’ charts; I focus on the rhetorical strategies residents employ and the degree to which they draw on previous conversations with preceptors while writing.

*Proportions of topoi in think-aloud protocol transcripts.* Less-analytical topoi are more common in these think-aloud transcripts than more-analytical topoi. Overall, the most prevalent topos in the transcripts, past-fact-and-future-fact, tends to be slightly more prevalent among PGY-3 residents (19.7% of their transcripts) than PGY-1 and PGY-2 residents (18.1% and 17.6% of the transcripts, respectively). The second overall most frequently used topos, testimonial, tends to be used more often by PGY-2 residents and PGY-1 residents (26.1% and 13.6% of their transcripts, respectively) than PGY-3 residents (12.8% of their transcripts). The third overall most prevalent topos, authority, is employed in greater proportions among the less-experienced PGY-1 and PGY-2 residents (19.6% and 18.6% of their transcripts, respectively) than the most-experienced PGY-3 residents (12.4% of their transcripts). The fourth most commonly used topos, antecedent-and-consequence, is used more often by PGY-3 residents (15% of their transcripts) than PGY-2 residents (12.6% of their transcripts); interestingly, PGY-1 residents use this topos proportionally
more than other residents (21.1% of their transcripts). The least frequently used topos, possible-and-impossible, is used more often by PGY-3 residents (9% of their transcripts) than PGY-1 and PGY-2 residents (7% and 1%, respectively).

More significant than the proportions of these topos in the transcripts are the differences in usage by residents at different levels. Similar to residents’ use of various rhetorical approaches at different stages in their post-graduate residency training, these novice physicians demonstrate their progress by moving through particular rhetorical stages in their cognition and in their reliance on the social interactions with preceptors. Although comparable to their rhetorical techniques in resident-preceptor conversations, residents’ rhetorical strategies during their independent note-writing process manifest somewhat differently than their rhetorical techniques in situated conversations. Specifically, they do not employ rhetorical strategies to engage with another person in real time or to seek advice about the patient case; instead, they use rhetorical strategies to represent previous social interactions with patients and preceptors or to reason through clinical concepts they are striving to understand better, as I discussed above.

Below, I explain the overall trends in the ways novice physicians at different levels of training utilize these topos and use social and cognitive processes while they compose. I exemplify the trends in these think-aloud protocol sessions by analyzing two novices’ think-aloud sessions and retrospective interviews.

**Analysis**

The concurrent think-aloud protocols and retrospective interviews suggest an emergent sociocognitive theory of physicians’ literate practices, which includes various social and cognitive activities in which these residents participate. As Fig. 5.1 below demonstrates, the social components of residents’ literate practices (on the left-hand side of the figure) often begin
in the patient examination room; there, residents interact with patients, jot down basic notes about their cases, and form preliminary interpretations of interviews and physical examinations. Next, residents typically converse with their preceptors about patient encounters to develop a sense of how more-experienced physicians think through various issues in their patient cases; during this interaction, residents read their first draft of their chart notes to preceptors, add information to their notes, and develop their understanding and analysis of the case. The final social component of residents’ literate practices involves reading and interpreting previous clinicians’ written documents about the patient; although residents do not always interact with the other clinicians involved in the patient’s care, reading and considering these medical record notes engages residents in a social interface.

In terms of more cognitively based activities (on the right-hand side of Fig. 5.1), residents read publications, brainstorm their own ideas, and engage in independent note-writing. During this process, residents sometimes consider characterizations of clinical concepts in published medical texts, such as books, electronic sources, and scholarly journals; when they read and consider these sources, they reflect on the established views of certain clinical concepts and align their developing sense of the case with standard perspectives. Usually after encountering the social and cognitive data sources, residents offer their own conceptions of clinical concepts by brainstorming their perceptions of connections and divergences in clinical evidence. Equipped with this clinical data, the culminating literate practice – writing clinical documents – integrates both social and cognitive activities as residents attempt to synthesize the clinical sources into a coherent document so future healthcare professionals can manage the patient case. In sum, the social dimension of residents’ literate practices includes conversations with patients and

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37 Although Fig. 5.1 connects these social and cognitive influences with lines, this process of reading, writing, conversing, and thinking does not unfold linearly; instead, these activities occur recursively throughout residents’ clinic shifts.
preceptors as well as documents authored by other clinicians, and the cognitive activities includes reading medical publications, brainstorming interpretations of clinical issues, and composing documents for others to read.

Fig. 5.1 An Emergent Sociocognitive Model of Resident Physicians’ Literate Practices

These social and cognitive activities come to bear on residents’ writing process, and as Figure 5.2 demonstrates below, the rhetorical strategies and degree to which novice physicians depend on social or cognitive sources during writing differ depending on their stage of residency.

Similar to the trends in their conversations with preceptors, early novices rely on forensic rhetoric while writing and represent their conversations with preceptors as their own conception of the case. Early novices’ concurrent think-aloud protocols and retrospective interviews often reveal them recounting conversations, representing others’ opinions, and reiterating clinical decisions while they compose final notes in patients’ medical records.
In short, they use their note-writing process as an exercise in accurate modeling and documentation of previous social interactions. More-experienced residents, in contrast, rely on deliberative rhetoric and introduce novel notions of clinical *logos* and *ethos* while they write. Late novices’ reflections during and after their writing process indicate that they analytically examine patients’ *ethos*, assess others’ advice to show their own clinical rationale, and scrutinize clinical *logos* and *ethos* more explicitly. Unlike early novices, more-experienced residents use their composing process as an opportunity to engage in learning and clinical thinking.
To describe novices’ writing processes, the following analysis includes two subsections, each discussing a resident’s *topoi*, rhetorical appeals, and reliance on social or cognitive sources while composing final notes in their patients’ records. I analyze one representative PGY-1 resident and one PGY-3 resident to compare in this detailed case study. Showing how novices’ reflections during independent note-writing follow the same rhetorical trajectory that their conversations with preceptors follow, I argue that these novices shift from reliance on forensic, social data to engaging in deliberative, more cognitive processes. This analysis reveals how early novices engage in the writing process as an exercise in careful documentation of social exchanges and how late novices engage in composing as an independent cognitive activity that allows them to brainstorm new ideas and articulate their own reasoning effectively.

**One Early Novice’s Topoi Use during Independent Writing**

As mentioned, in this context early novices tend to use forensic rhetoric in the same ways they do in conversations with their preceptors; they recreate discussions, depend on others’ clinical opinions, and demonstrate comprehension of clinical concepts with limited analysis, relying heavily on the social side of their sociocognitive writing process. Focused on the interactions that surround their literate practices, less-experienced residents use forensic rhetoric during note-writing to practice recording approved clinical anecdotes for future physicians to use as they manage the patient case. Consequently, their process of writing notes in medical records typically does not serve as an opportunity for them to consider new concepts or experiment with clinical reasoning. Instead, they focus on the objective of chronicling the clinical *logos* and *ethos* which they and their preceptor agreed upon during the conversation.

At the beginning of his reflection on his note about his patient with end-stage liver disease, PGY-1 resident Corey Taylor first recreates his conversation with the patient; sharing
data from the case without analyzing them substantially, he does not stray from the specific details he and his preceptor reviewed in their discussion; his reliance on the exchange with his preceptor demonstrates the role of the social in his independent writing process. He uses the past-fact-and-future-fact topos to document the patient’s narrative and offer her perspective of the clinical situation, which prepares for his subsequent attempts at analysis: “She has a history of alcohol abuse and, um, APPARENTLY has been in the hospital, uh, two days BEFORE it actually had taken, some fluid taken off his [sic] belly at that time as well” (CT lines 4-5).

After contextualizing the patient’s alcohol addiction, hospitalization, and fluid overload, he proposes a tentative, hedged analysis of the clinical context: “but then because of financial reasons, she wasn't able to. . um, get her MEDICATION filled for her, aldactone and her Lasix, which are water pills to, kind of, help keep the fluid down in her belly” (CT lines 5-7). Introducing an antecedent-and-consequence claim about the patient’s inability to take her medications as directed, Dr. Taylor uses the definition topos to identify the medication as “water pills” and the goal of these drugs. Without extrapolating about the patient’s condition, the negative effects of not taking the medication, or his expectations for her disease progression, Dr. Taylor proceeds to narrate more of his encounter with the patient, portraying the established social account as the primary focus of the note. Although he initiates a potentially analytic claim about the patient’s psychosocial financial and mental difficulties, he resumes his reliance on the social exchanges that surround this case.

Soon after this attempt to construct the clinical context, Dr. Taylor again depends on forensic rhetoric and his social interactions with the patient to convey more of their conversation, preparing for a partial analysis of the clinical context. Although a more expanded analysis might provide a potential reader with greater insight into this resident’s thought process, his reflection
focuses on closely reporting the patient’s subjective reports of her symptoms. Drawing from the patient’s testimonial, Dr. Taylor partially examines the effects of a recent procedure:

Um, really wasn't COMPLAINING of much today, just said that she, um, DOES still have some kind of early FULLNESS after EATING, um, which is, kind of, classic for. . the ascites that she's had, or the abdominal fluid, but it had been improving somewhat, since she's gotten this fluid off. (CT lines 14-16)

After recounting the patient’s discomfort from her abdominal fluid, Dr. Taylor correlates the patient’s diagnosis of ascites with her symptom of early fullness, hedging that she feels better after the procedure. Although he introduces a potentially deeper explanation of the patient’s improved symptoms, he does not explain why removing the fluid has improved her symptoms or how he will proceed with treatment to ensure her progress. Instead, the resident concludes with his announcement of the antecedent-and-consequence relationship.

In the next line, Dr. Taylor does suggest that the patient’s medication has maintained her improved symptoms but still does not grapple with what these results suggest for her future care or prognosis. Again, he relies on the established forensic data acquired from interactions with the patient instead of the less-certain nature of her disease progression. Rather than using this writing activity to critically consider the implications of the patient’s reported symptoms, this early novice limits his reflection to clinical data he acquired through social exchanges.

In a summative tone, Dr. Taylor concludes his reconstruction of the patient’s alcoholism narrative by announcing his concern that she may be persisting in her alcohol use and thus, advancing her liver disease; this hypothesis models a logical move his preceptor made during their conversation, demonstrating how his use of a more-analytical topos during his composing process reenacts a social exchange of ideas with his mentor rather than his own cognitive exercise. Dr. Taylor’s restatement of Dr. Rogers’s conclusions does not explicate the evidence or
justify this possible-and-impossible claim: “Um, the other issues with her, she does – I, I'm worried, you know, that she may be continuing to use alcohol because it appears that her liver disease is all related to her ALCOHOL use” (19-20). Instead of outlining the impetus for this theory, Dr. Taylor recounts in his ensuing reflection that the patient has denied consuming alcohol since she returned home from the hospital and has indicated plans to remain sober. Although he initiates the analytical possible-and-impossible line of reasoning, he resumes his forensic account instead of engaging in an elaborated analysis of the course of the patient’s liver disease or his plans for managing her condition or discussing the outcomes with her. His writing process here refers to the discussion with his preceptor as the main source of clinical reasoning.

Evidently, then, early novices embody experts’ opinions as their own during their writing processes, relying on modeling their preceptor’s feedback in this sociocognitive literate practice. Echoing his preceptor’s concern about the patient’s chances of developing viral hepatitis, for instance, Dr. Taylor mentions the patient’s previous hepatitis diagnosis. He then announces his recommendation that the patient be vaccinated for hepatitis and pneumococcus, a suggestion the preceptor reinforced in their conversation multiple times: “Also, vac - vaccinate her against, uh, pneumococcus just because the inf – you know, uh, a pneumonia can really put somebody down who’s already got liver disease and can be, um, really THREATENING” (CT lines 67-69). Demonstrating his understanding that pneumococcus can be serious in a patient with end-stage liver disease, Dr. Taylor does not reveal his grasp of the repercussions of this virus or a multifaceted plan for protecting this patient. Instead, his reflection shows his internalization of his preceptor’s repeated advice to inoculate the patient before she left the clinic. Modeling his preceptor’s approach, the early novice adopts her suggestion as his own plan for the patient and moves on to discuss the patient’s recent endoscopy and chance of developing esophageal varices.
In his contemplation about the patient’s varices, this first-year resident exhibits in his think-aloud session how early novices show their understanding of clinical actions with limited analysis; they use their writing process not as a reflective activity during which they analyze medical concepts but simply as an exercise in documenting and reviewing basic clinical issues. For instance, Dr. Taylor refers to the patient’s previous endoscopy and offers a partial explanation of the effects of esophageal varices. He offers his basic understanding of this condition using a combination of past-fact-and-future-fact, antecedent-and-consequence, and possible-and-impossible topoi:

Um, the other thing I was thinking about today is that, um, she's had a, a scope down her throat in the past to LOOK for esophageal VARICES because those can be a risk for patients WITH liver disease. Can cause bleeding and, um, can be. . life-threatening, REALLY. (CT lines 42-45)

Reiterating that the patient previously had an endoscopy, Dr. Taylor correlates varices with a worse prognosis for patients suffering from liver disease, introducing a point not discussed during the resident-preceptor conversation. He suggests the possibility of the patient bleeding or dying from varices, referring to the critical nature of the condition. Although he introduces a new concept, he does not deliberate about why varices can be so dangerous or how he might help the patient prevent them in the future. Instead, he goes on to state the patient’s negative endoscopy – a report by another clinician in the medical record – as the resolution of this issue. Later, he parenthetically mentions that a beta blocker can prevent bleeding. Again, he begins to analyze this issue but only cursorily engages with the clinical reasoning behind the test result, condition, and treatment. His repeated return to forensic accounts of the case while he writes reveals his reliance on modeling his social interactions with his preceptor rather than engaging in an individually driven cognitive enterprise.
As he concludes his think-aloud session, Dr. Taylor again turns to his earlier conversation with his preceptor to reiterate their agreed-upon major concerns with this patient, appropriating the opinions shared in that social exchange as his own. Using a combination of more- and less-analytical *topoi* while he writes, Dr. Taylor argues that his main interests include helping the patient avoid hospitalization and preparing to address her end-of-life issues and treatments:

REALLY trying to prevent her from having to go back into the hospital, and there may be a point where we have to really discuss, kind of, um, TREATMENT options with her because it seems like her liver disease is pretty SEVERE, but it's been, kind of, COMPENSATED right now, so that's something that we're going to have to look at, you know, down the line with further treatment. (CT lines 73-76)

At the beginning of this excerpt, Dr. Taylor uses the past-fact-and-future-fact *topos* to review a significant clinical detail he highlighted in the first line of the think-aloud session – the patient’s recent hospitalization. Here, he conveys his primary goal: helping the patient avoid future hospitalizations. Using the antecedent-and-consequence *topos* to correlate the patient’s worsening condition with discussing her grave condition with her, the resident models his preceptor’s point that they may soon be compelled to address end-of-life options. Hedging that the patient’s liver disease has recently improved, Dr. Taylor hesitantly concludes with potential avenues for additional treatment but leaves those options unexamined. By echoing the preceptor’s suggestions and alluding to treatment options without exploring them, the resident reveals his greater reliance on opinions acquired through social collaboration rather than his individual attempts to engage in an independent cognitive exercise.

Comparable to their think-aloud sessions, while early novices discuss their composing processes in retrospective interviews, they also rely on forensic accounts of social interactions to explain their cognitive processes; they cite their previous conversations with patients and
heathcare professionals as the primary rationale for their writing choices. When asked about how he assessed and wrote about this patient’s compliance, for example, Dr. Taylor recreates a discussion with the patient about what medications she takes, quoting the responses she gave to his questions. Rather than delving into the potential psychological or social reasons affecting this patient’s compliance, Dr. Taylor explicates his method of evaluating compliance by reporting what the patient said: “Um, you know, ‘I'm taking THESE pills, you know, I'm taking TWO pills in the morning, and I'm taking THREE pills at night.’ She just couldn't tell me EXACTLY what medications they were.” In considering his writing process, Dr. Taylor catalogues and comments on the social exchanges in which he participated, not mentioning any independent thinking he did while composing. Rather than interpreting her words or the broader implications of her difficulty with recalling her drug regimen, this early novice draws a conclusion about the patient’s compliance: “She can't remember the exact NAMES, but it SEEMED like she was taking them.”

In representing how he evaluates and writes about his patient’s compliance, this early novice struggles to articulate his deliberative process and instead emphasizes social exchanges as the reason for his decisions and his representation of those decisions in his notes.

The analysis in this section suggests that, during his writing process, first-year resident Dr. Corey Taylor relies on his preceptor’s advice and utilizes rhetorical techniques that model and briefly explain professional encounters. Recreating the patient’s clinical narrative to document the fundamental “facts” of the case, Dr. Taylor begins his think-aloud protocol reflection with established objective and subjective data. Throughout his composing process, he restates, adopts, and models the expert opinions offered by his preceptor and other physicians during their discussion about the patient, depicting social exchanges as inseparable from his cognitive process about managing the case. While writing, Dr. Taylor reveals his understanding of the clinical logos associated with making decisions, but his critical thinking tends to be limited when he
independently he introduces and analyzes medical concepts. In the absence of a preceptor who can demonstrate clinical deliberation, this early novice offers a sense of the broad clinical *logos* and *ethos* without engaging in an in-depth analysis of the issues.

The discussion in the next section considers a third-year resident’s think-aloud protocol session to reveal the more-involved independent cognitive activities in which late novices engage while they compose. Because they have internalized the modeling early novices must rehearse during note-writing, late novices use their writing processes as deliberative cognitive activities.

*One Late Novice’s Topoi Use during Independent Writing*

Early novices tend to embody and model earlier conversations with patients and preceptors as their own as they write; in contrast, late novices deliberate about clinical *ethos* and *logos* more critically and engage in self-initiated cognitive activities during their composing process. These more independent exercises enable late novices to use their writing process to examine novel clinical concepts and plans. While writing final notes in their patients’ medical records, more-experienced residents engage in responding to patients’ *ethos* and the relationship between subjective interactions and clinical decisions. To provide a more thorough archive of their clinical reasoning for future readers to consider in treating patients, late novices also assess and critique other clinicians’ recommendations; they strive to explain their own rationale and consider clinical *ethos* and *logos* in depth. These rhetorical strategies parallel the techniques that emerge in resident-preceptor conversations and demonstrate that, during note-writing, late novices engage in the deliberation they practice with preceptors; because they have internalized their preceptors’ models of clinical reasoning, they use this composing activity to develop their clinical reasoning skills further and practice composing rhetorically effective notes.
Although late novices also review clinical narratives as they compose their final notes, their reflective process involves more critical analysis of clinical ethos than their first-year counterparts; in this way, their writing process engages them in a learning activity rather than merely an exercise in documentation. For example, during her think-aloud session, PGY-3 resident Molly Keller analyzes her interactions with her erratic patient with an inconsistent account of his cough. As she composes the clinical narrative, she evaluates the patient’s ability to present his medical history, coupling testimonial and antecedent-and-consequence topoi:

“So, upon further trying to CLARIFY with patient the timeline of all of these EVENTS,” um. . . [4 sec., typing] “he was UNABLE to give me an ACCURATE,” um. . . [3 sec., typing]
“course of his symptoms and the prescriptions. . .” [3 sec., typing] Um, and at that point I'm just. . REALLY just wondering what, what EXACTLY is going on, um, you know, with everything just between the CHEST pain and the, and the COUGH, and being on STEROIDS, and referring himself to a PULMONOLOGIST. It, kind of, really clouds the whole picture of what EXACTLY is going on. (MK lines 42-48)

This late novice begins contemplating the patient’s clinical narrative by explaining his conflicting story, assessing his narrative as inaccurate, and undermining his ethos as a competent patient. As she gauges her grasp of the patient case in this reflection, Dr. Keller reiterates the patient’s reported symptoms and supposed treatments, concluding that she cannot fully understand or reconstruct the clinical anecdote. By documenting the problematic nature of this patient’s narrative, Dr. Keller suggests that the next healthcare professional who takes on this patient’s case ought to reexamine various components of the case to compensate for the inevitably flawed account she has recorded in the chart. In contrast with early novice Corey Taylor, who simply restates what the patient said with limited assessment of the significance of the clinical narrative,
Dr. Keller implies some repercussions with her analysis; thus, she allows her writing process to facilitate a cognitive activity that extends beyond the social interactions at the center of the note.

This late novice also characterizes the patient’s *ethos* in ways that reveal her clinical *logos* and, thus, allow clinicians who might read the note to be prepared to treat the patient; this cognitive pursuit allows the resident to deliberate about the most appropriate way to articulate her clinical rationale. When she quotes the patient’s inappropriate question, Dr. Keller uses the antecedent-and-consequence *topos* to correlate the patient’s unreliability with her inability to respond to his many needs:

“Patient asked, ‘So, WHAT are you going to do about my COUGH?’”

Um. . “To which I explained to him,” um, “that he will need. . to have a follow-up appointment,” um. . “in order to,” um, “manage his COUGH or other symptoms. . he is currently having, as I had spent over an HOUR with the patient ALREADY.”

(MK lines 211-214)

By informing potential readers that the patient voiced unrealistic expectations of a pre-operative appointment, Dr. Keller not only reports the objective “facts” of the case but also shares a sense of the patient’s social difficulties. Her characterization of this patient’s **ethos** and her reported interactions with the patient demonstrate her critical examination and reflection on the broader issues in this case. Not only do the patient’s physical complications impede him from being healthy enough for surgery, but his inability to communicate effectively also signals psychosocial problems. This resident uses her note-writing process to characterize her struggles communicating with the patient for future clinicians to consider in approaching the patient.

In addition to analyzing patients’ *ethos* while they independently compose notes in their patients’ medical records, late novices also examine advice from other clinicians during their writing process, using their composing activities as another opportunity to deliberate about
clinical data. After documenting the patient’s claim that a physician at an urgent-care center prescribed the steroid prednisone for six weeks, Dr. Keller articulates her disbelief in this claim—a suspicion she expressed in her conversation with her preceptor. She later writes in the medical record her instructions to the patient to obtain clearer details about the prescription, drawing on the possible-and-impossible *topos* to analyze the probability of another clinician prescribing this drug for the reported purpose:

And then, I’d also . . . [2 sec., typing] “I instructed him to Fig. out EXACTLY WHO prescribed. .” um, “the prednisone. . . [4 sec., typing] and how LONG he was SUPPOSED to be on it. . in addition to,” um, “what he was REALLY taking it for,” um. And then, my thinking there was just because, as I said before, there’s - you - you’re NOT going to be on SIX weeks of, uh, P.O. prednisone for, uh, just a COPD exacerbation, unless, like, PULMONOLOGY will put, you know, some of the really bad, um, COPDers ON a daily prednisone as, like, a CHRONIC thing. (MK lines 165-171)

Skeptical that an urgent-care physician would prescribe this medication long-term for an acute COPD exacerbation, Dr. Keller reflects on the likelihood of this clinical decision. As she examines a potential reason to prescribe this steroid for certain patients, Dr. Keller acknowledges that occasionally she has seen pulmonary specialists make this clinical decision with patients who suffer from severe COPD. Deliberating about the circumstances of this clinical decision allows this late novice to contemplate the other clinician’s clinical *logos*. Unlike early novices who often reiterate their preceptors’ and others’ advice as authoritative givens, this late novice engages in careful consideration about the reasoning behind another clinician’s decision while she composes her note, contemplating this physician’s *logos* by considering treatment possibilities.

While they engage in independent writing, late novices also introduce and critically analyze their own conceptions of the clinical *logos* associated with interpreting test results and
reports, cognitively considering novel clinical issues that they did not vet with their preceptors. After she writes in the medical record about her review of the stress test, for example, Dr. Keller analyzes why the cardiologist deemed the test “non-diagnostic.” She hypothesizes about this report in her think-aloud reflection using the antecedent-and-consequence line of reasoning:

Um, and I, you know, my SUSPICION when I was reading that, is that he was NOT able to get it up, to get his heart rate up to goal, secondary, probably more so to, um. . PULMONARY issues, than, than anything cardiac. (MK lines 18-24)

Here, the late novice theorizes that the cardiologist interpreted the patient’s stress test as inconclusive because of a problem with achieving the target heart rate during the test; she then associates this physical incapacity with the patient’s lung condition rather than his heart issues. She does not passively accept the cardiologist’s assessment of the stress test as non-diagnostic or report the results as established forensic data in the way Dr. Taylor reports the results of his patient’s endoscopy; instead, this late novice deliberates about why the stress test could not be interpreted by the specialist. In effect, she suggests that the patient’s lung condition must be managed before the healthcare team can adequately assess his heart function using a stress test. By reflecting on her interpretation of the cardiologist’s report, this late novice shows how the writing activity compels her to consider issues she may not have discussed with her preceptor.

Toward the end of her independent note-writing, this late novice concludes by introducing a completely new notion about managing the patient case: she questions whether the patient ought to be seen by an otolaryngologist to evaluate his cough. Although she did not discuss the prospect of a referral to this specialist during the resident-preceptor conversation, Dr. Keller’s analysis here reveals how engaging in note-writing prompts her to develop insight into her role as a primary care physician and her patient’s persistent symptoms:
And then, um, and then the only other thing I was really thinking is, you know, in terms of an ENT REFERRAL potentially in the future, because it's possible he could have some, like, a POLYP or something that's irritating the vocal cords and causing him to have this chronic COUGH, ESPECIALLY with his history of tobacco use, um, that's going to put him at risk for this. (MK lines 230-233)

Beginning with the possible-and-impossible topos, Dr. Keller suggests that the patient may need an appointment with an otolaryngology specialist to explore the possibility of a polyp on his vocal cords. Demonstrating her deeper understanding of the various potential explanations for a long-lasting cough, this late novice describes how a polyp can cause a chronic cough. She cites the patient’s established history with tobacco as one antecedent to vocal cord polyps, suggesting the patient’s increased chance of developing this condition. Deliberating about this potential trigger for the patient’s cough reveals how this late novice develops a more profound grasp of the case while she writes by initiating and critically considering new conceptions of the case.

Similar to their think-aloud protocol sessions, when late novices discuss their writing processes during retrospective interviews, they deliberate about their writing decisions and individual sense of logos and ethos rather than reflexively adopting or modeling others’ conceptions of the case. Unlike the early novice’s simplification of the cause of his patient’s medical problems, this late novice does not assume her patient’s issues to be uncomplicated. Instead, she poses a variety of questions when asked to characterize her writing process: “Then, there was the whole, COUGH and BREATHING issues, versus, was he actually having CHEST pain? And THAT'S why he was in the ER? And THAT'S why he wound up having a stress test done?” Rather than portraying her patient’s case as clear-cut or echoing her preceptor’s points about the patient case as her own, this late novice analyzes her writing process as contributing to
her cognitive process. In other words, she uses this literate activity to recognize the nuances of her patient’s case and deliberates about the clinical *logos* behind other physicians’ choices.

Later in the retrospective interview, Dr. Keller probes another physician’s interpretation of the patient’s EKG, again utilizing the writing process as an opportunity to consider the case more critically. She claims, “So, I don't even know, what they meant by ‘abnormal’ exactly. But, um, it, kind of, becomes a moot point at that time.” She proceeds to explain her sense of the test’s purpose, the significance of the results, and the implications for future treatment, deliberating about other physicians’ interpretations and decisions in the context of *her* note-writing process. Dr. Keller also probes the patient’s language as she retrospectively analyzes her composing process; she explicates that she recorded the patient’s claim that “they” prescribed a long-term steroid medication but questions the antecedent of “they.” Her analysis of her writing process enables this late novice to deliberate about clinical logic and *ethos* as well as to challenge and analyze the competing issues in the patient case.

As demonstrated in this section, late novices use their writing process to deliberate about clinical issues and, in so doing, employ cognitive processes more actively than their first-year counterparts. Although their conversations with patients and preceptors come to bear on their concurrent and retrospective reflections on their writing, they more often analyze these social interactions as well as clinical *ethos* and *logos*. Composing in medical records thus facilitates late novices’ brainstorming of new clinical conceptions they did not discuss with preceptors, enabling them to move beyond the established clinical plan into an independent writing activity. As more fully professionalized physicians, late novices participate in a complex cognitive task that engages them more deeply in the clinical issues at play.

*Conclusion*
As I demonstrate in this chapter, novice physicians’ rhetorical strategies and reliance on previous social interactions differ depending on their degree of experience and comfort with engaging in independent clinical deliberation. As Brandt’s (1992) ethnomethodological model suggests, the role of social context and structure in personal writing practices can be significant; indeed, the analysis in this chapter shows that social context comes to bear on all residents’ reflective practices while they compose final written notes on their patient cases. However, early novices tend to rely more heavily on their preceptors’ advice while they compose notes, and their sense-making more significantly involves reiterating, modeling, and managing social interactions as they compose (Brandt, 1992). Utilizing forensic rhetoric more often, the writing process of early novices becomes, in part, an exercise in documenting clinical anecdotes in their patients’ charts, echoing their preceptors’ opinions and suggestions, and displaying their understanding of clinical norms and actions.

In contrast to early novices’ dependence on the social, the composing process seems to contribute materially to late novices’ independent critical thinking and learning; because they have internalized fundamental clinical issues, they use deliberative rhetoric more prominently, critically analyzing and detailing clinical issues to explain their decisions and assess advice. Also, when they introduce and analyze novel clinical notions, late novices use the note-writing process to critique clinical logos and ethos as they consider what future clinicians may need to know to treat the patient effectively. Similar to Berkenkotter’s (1981) conclusion about other professional writers, late novices seem to “automatically internalize their audiences; as they write, they ask themselves the questions that their readers might be expected to ask. In the process of being one's own reader, an expert writer is constantly revising” (p. 396). Through their more introspective reflections on their composing, late novices utilize their writing process as an occasion to engage in more deliberation with a different educational goal. Rather than rehearsing clinical deliberation
skills to exhibit their grasp of the approved clinical plan, more-experienced residents aim to develop a detailed clinical note for future clinicians.

The analysis in this chapter has shown that the social interactions between residents and preceptors in the clinic extend into residents’ independent note writing practices and emerge in the reflections they make while composing about medical data. Although preceptors’ clinical opinions come to bear on all residents’ considerations while writing, less-experienced residents’ writing processes appear to be more of an exercise in accurate documentation and modeling of previous conversations; in contrast, more-experienced residents use their composing process as cognitive exercises in analyzing previously discussed issues and introducing novel concepts. In Chapter 6, I explain the implications of the separate analyses conducted in Chapters 3, 4, and 5 in the fields of medical education, medical communication and discourse, and rhetoric. I argue that this exploratory study provides hypotheses about this emergent sociocognitive model of residents’ literate practices for scholars to test using other methodological standpoints to examine workplace literacy, writing across the curriculum efforts, and medical education and training.
CHAPTER 6

Resident Physicians’ Literate Practices: Implications and Future Research

Considering the three separate studies in this dissertation, this concluding chapter suggests additional possibilities for the emergent sociocognitive model of resident physicians’ literate practices introduced in the previous chapter. In this chapter, I also share what this dissertation contributes to discussions of professional literate practice, medical communication, and medical education. After sketching some prospective studies that may help to confirm or extend the conclusions in this dissertation, I conclude with some possibilities for future research in the area of professional literate practice in a medical workplace setting.

Major Conclusions

This dissertation study began with three related but separate research questions, and the responses to these questions led to the construction of the emergent sociocognitive model of literate practices in Chapter 5. The first question inquired about the interactional and rhetorical strategies residents and preceptors use in their conversations about resident-authored chart notes and about how novices participate in the oral and written discourses of medicine. The responses to this question examined the social dimension of the sociocognitive model through an institutional conversation analysis and a rhetorical analysis; these two analyses collectively provided a sense of the overall structure of the conversations and the forms of argumentation and persuasion that comprise teaching and learning in this context. Exploring this question first in an institutional conversation analysis in Chapter 3 (Heritage, 2004) identified the structure of
resident-preceptor conversations to reveal the typical arc of these conversations, the common institutional goals they aim to achieve, and the ways argumentation and persuasion emerge. This first study revealed that less-experienced residents rely more on statements and reports to answer their preceptors’ questions; they take instructions from faculty physicians in the form of proposals and assessments. More-experienced residents, in contrast, convey more proposals and assessments, taking a more active role in these conversations; their preceptors tend to ask reflective, open-ended questions to prompt residents to think more analytically.

Because this first study identified arguments in these conversations, it led to the second study in Chapter 4: a rhetorical analysis of resident-preceptor discussions. The second study examined how arguments about medical concepts contribute to novices’ learning by dissecting the structure of the arguments in these conversations and focusing on residents’ use of Aristotelian *topoi* and rhetorical appeals. This study revealed the shift novices make from relying on forensic rhetoric to using deliberative rhetoric as they work toward professional enculturation. This second study demonstrated that early novices look to the past as they recount objective and subjective data about patients, and they turn to their preceptors to model appropriate clinical *ethos* and *logos*; in contrast, late novices engage in deliberative rhetoric, considering the future of the patient’s case more critically and analyzing the clinical situation more broadly.

Because resident physicians conclude their conversations with preceptors and complete their clinical notes later, the second research question sought insight into the rhetorical strategies resident physicians employ while they independently compose final written notes in patients’ medical records. To respond to this question in Chapter 5, I explored the *topoi* in residents’ concurrent think-aloud protocol sessions and retrospective interviews. This analysis considered how social and cognitive elements of deliberation come to bear on residents’ writing processes, focusing on the *cognitive* dimension of the sociocognitive model of residents’ literate practices.
This emergent model reveals that less-experienced novices use the composing process as an exercise in accurate documentation of social exchanges whereas more-experienced novices take the opportunity to use writing as a cognitive activity where learning can occur. Whereas early novices focus more heavily on narrating previous social interactions while they compose, late novices utilize the writing process to analyze clinical advice and grapple with novel concepts that did not surface in their conversations with preceptors.

The third research question, to which each of the three abovementioned studies responded, inquires about the differences in residents’ interactional and rhetorical strategies from the first to the third year of training. This developmental component to the dissertation outlined a model of professionalization in novice physicians’ literate practices. As discussed above, less-experienced novices rely on modeling and following others’ advice more than more-experienced residents, who experiment with clinical argumentation and deliberation actively during their conversations and writing process. As such, by the end of residency training, novice physicians’ rhetorical strategies and discourse more closely mirrors their preceptors’ clinical reasoning.

Through a close examination of residents’ dynamic conversations and their reflections while writing, these three studies provide a fine-grained analysis of the literate practices that occur while residents’ written product evolves. Taken together, the three triangulated studies in this dissertation constitute an emergent sociocognitive theory of the stages in residents’ learning vis-à-vis their situated literate practices. As this model suggests, residents rely on social interactions and their own cognitive exercises to engage in clinical reading and writing; as they progress through residency, they rely less on social exchanges and more on their own reflections on clinical concepts. By responding to these three research questions, this dissertation participates in scholarly discussions about medical rhetoric and communication, professional literate practice, and medical education. The next section outlines the major contributions this dissertation offers.
Contributions

Broadly, this dissertation’s explicit use of a rhetorical lens responds to calls by Atkinson (1995), Segal (2005), and others to employ rhetorical frameworks in studies physicians’ communication with each other. Extending Pomerantz et al.’s (1995) and Lingard and Haber’s (2002) limited case study examinations of the interactions between novice and experienced physicians, this dissertation more specifically and systematically scrutinizes how argumentation and persuasion play a role in professional enculturation in medicine. These three studies challenge Lingard and Haber’s (2002) deficit model that novice physicians rely on a model of “trial-error-feedback-interpretation-application/retrial” (p. 159) because of their inability to skillfully employ rhetorical strategies. In contrast, this dissertation identifies and examines the particular rhetorical phases in these residents’ learning to characterize novices’ rhetorical competence along a continuum of literate development.

Because of the primary focus on literate practices in this dissertation, these studies contribute to discussions of professional writing and reading and uniquely employ classical rhetoric as a theoretical framework. Considering the shift in the field toward examining the social quality of literacy (Prior, 1998; Schultz, 2006), this dissertation shows how oral and written language become interwoven in a particular professional context to provide spaces for residents to learn and engage in professional rhetorical practices. This study attempts to follow Jackson (2004), Belfiore and Folinsbee (2004), and Prior (2006), all of whom advocate examining specific literate practices in situ rather than studying acontextual products or artificial processes as evidence of literacy. The analysis of this situated data reveals how residents move from relying on forensic accounts of conversations to engaging in deliberative conversations and reflections; in short, they use literate practices as activities that initiate and facilitate learning.
By analyzing residents at different levels of experience, this dissertation also draws on Wenger’s (1999) notion of legitimate peripheral participation by comparing the interactional and rhetorical techniques utilized by different groups of novices. By examining how residents acquire disciplinary expertise, I argue that early novices ask more questions about the next clinical steps, more often accept proposals and assessments wholesale, and assume a more passive role in conversations than their more-experienced counterparts. In contrast, late novices reveal their greater participation in this community of practice by offering more assessments and proposals, asking reflective open-ended questions, and taking an overall more active role in these conversations. Preceptors contribute to residents’ increasing legitimate peripheral participation by gradually taking a less directive approach, asking more open-ended questions, and posing more flexibly suggestions and assessment as residents acquire experience. In short, this dissertation suggests a model of how conversations between novice and experienced professionals contribute to novices’ progression toward greater professional independence.

The objects of study in this dissertation – conversations, reflections during the writing process, and interviews – facilitate a clearer understanding of how immersion in literate practices contributes to novices’ professional enculturation. Rather than relying on survey data to study professionals’ literacy as other scholars have done (e.g., Pinelli et al., 1995; Brown et al., 2004), the situated methodology in this dissertation examines disciplinary professionalization through novices’ verbal interactions and reflections about their writing practices. The findings that demonstrate how resident-preceptor conversations come to bear on residents’ considerations during independent note-writing confirm claims by Heath (1983) and Brandt (1989) that oral and written communication influence and develop alongside each other in many contexts. This dissertation shows that, as novice physicians advance through training, they rely less on evoking
and modeling social exchanges with preceptors while they compose; instead, they use the writing process as another learning activity that engages them in critical deliberation and analysis.

Contributing to discussions of collaborative thinking in studies of professional literate practice, this dissertation also examines the weak hypothesis of distributed cognition (Salomon, 1993) by contending that the social elements of residents’ environments come to bear on their considerations as they compose. Salomon (1993) challenges the strong argument about distributed cognition, which posits that all cognition is distributed in all contexts, by arguing that not all cognition distributes evenly in all situations; he contends that that sometimes cognition occurs primarily in individual minds, whereas other times cognition disperses among external collaborators and objects. Analyzing the think-aloud transcripts in this dissertation shows how the residents’ prior conversations with preceptors play a role in their considerations as they compose final notes in their patients’ medical records. More aligned with Salomon’s weak theory, though, less-experienced residents rely primarily on their social interactions with preceptors and thus on the distributed cognition in the clinic, using their note-writing process as an exercise to accurately document approved clinical plans. On the other hand, late novices use their writing process to participate in an ostensibly more independent cognitive activity that engages them to think critically about familiar and novel clinical issues.

Along with contributing to discussions of medical communication and professional literate practice, this dissertation offers models that may facilitate teaching writing in the disciplines (WID) as well as medical education. In consideration of Russell’s (2002) discussions of how writing can materially contribute to learning, this dissertation offers a sociocognitive perspective on how physicians embed reading and writing into their learning process. Thus, the emergent sociocognitive model of literate practices in the previous chapter can serve as a heuristic for approaching teaching writing in the disciplines. Specifically, scholars and teachers of
writing might build writing activities around authentic workplace problems and facilitate conversations about these problems before and after students compose; they might also follow their progression during independent writing to determine whether they ultimately use the composing process as a cognitive exercise that engages them in new learning and thinking.

Extending beyond the writing classroom, this dissertation has implications for medical education in outpatient and inpatient settings where resident physicians collaborate with faculty physicians. Unlike prior studies in medical education that suggest novices require individualized feedback to improve their learning and literacy skills, this dissertation offers a more detailed description of preceptor responses. These analyses identify responses that stimulate critical thinking and learning as well as responses that are correlated with greater passivity. The fine-grained analysis of specific open-ended questions, flexible proposals, and reflective assessments in this dissertation may support medical educators in better understanding or even improving their pedagogical approaches to conversing with novices about professional problems and documents.

While the three analyses in this dissertation productively contribute to discussions of medical communication, professional literate practice, and education, I faced some challenges in this project. In the next section, I discuss these limitations and some possibilities for future research that may respond to these challenges.

**Limitations**

Although this dissertation provides greater insight into the social and cognitive influences that influence on residents’ literate practices, some challenges in this project precluded other useful analyses. First, issues associated with The Health Insurance Portability and Accountability Act of 1996 (HIPAA) prevented any consideration of written medical record notes in this
Although the research questions motivating this study did not require textual analyses of written chart notes, many scholars who employ think-aloud protocol methodologies advocate triangulating findings with examinations of various drafts (e.g., Flower & Hayes, 1985). Because residents read aloud portions of the written note during their conversations and writing reflections, my methodology provided some access—though incomplete—to the artifact at the center of these verbal activities. Regardless of the convention to analyze think-aloud protocol transcripts in conjunction with texts, some scholars support using think-aloud protocol data as a legitimate source in its own right. Justifying her decision to analyze the writers’ protocol transcripts but not their produced texts, for example, Kirsch (1991) explains, “I decided not to reproduce and rate the letters composed by writers because I was primarily interested in exploring how writers' representations of readers evolve and change during the process of composing” (p. 37). Similarly, in this dissertation, the primary focus of analysis was the social nature of the residents’ reading and writing practices; thus, examining situated conversations and residents’ reflections while they composed provided access to sources of data that allowed the research questions to be answered.

Think-aloud protocol as a methodology also presented a challenge in this dissertation because the richness of the data from those sessions and retrospective interviews depended on the residents’ personal awareness and memory of their conversations and writing processes. Because residents’ experience with delivering oral case presentations prompted some of them to speak about the patient case before or after they composed the notes, a few residents simply reflected on their thought processes after they had already written the notes; others simply read what they had

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38 Although informed consent could have been obtained from patients to collect and analyze portions of their medical record, the complicated process of acquiring those written products as well as the greater likelihood of a breach of confidentiality with such data deterred me from seeking IRB approval for this type of data collection.
written in their notes.\footnote{Because of the oral tradition in medicine, physicians often dictate their written medical record notes into a recorder, which a transcriber later puts into written form. Because of the similarity of the think-aloud activity to this dictation activity, some residents actually referred to the think-aloud task as a dictation task. As such, instead of thinking aloud about all of the ideas that came to their mind while they composed, some of the participants in this study may have perceived the recorder as simply a tool to dictate their ideas about the case and/or the notes.} Two participants produced more in-depth, thoughtful think-aloud sessions, contemplating their writing and thoughts as they wrote in thorough and introspective manner. This data, particularly the two especially thoughtful think-aloud sessions, offer some insight into the issues, problems, and readers the residents believe they consider while they compose notes in their patients’ charts. Nevertheless, a more extensive think-aloud protocol training session or greater monitoring of the residents’ think-aloud sessions may have produced even more insight into residents’ thinking processes.

In addition to lacking access to written chart notes and working with limited think-aloud data, this dissertation employed case study methodology, which produced several challenges. Although case study methodology enables a finer-grained analysis of the data, this methodology also brings inherent limitations. Foremost, this dissertation only considered the verbal patterns and literate practices of nine resident physicians and six preceptors, limiting the generalizability of these findings. Certainly, individual differences may have played a role in some of the patterns that emerged in the analyses, particularly because only two second-year residents participated in the study. Because of individual differences, the conclusions from this study cannot be considered representative of residents and preceptors in internal medicine.

Furthermore, the observational nature of this case study methodology served to describe rather than to explain the differences in less-experienced and more-experienced residents, preventing causal claims. Without controlling conditions and variables as researchers can in a laboratory setting, I cannot make claims or draw conclusions about cause-and-effect relationships...
in these analyses. For example, preceptors’ personal styles of instructing residents – for example, the time they offer novices to respond to questions or comments – may encourage or hinder specific forms of learning and knowing. However, a naturalistic study hinders systematic elimination of all confounding variables; as such, I cannot fully articulate assertions about the effect of individual differences on residents’ learning and development. Instead, I offer qualified conclusions about the differences in residents’ learning and literacy.

Although I compare the trends in less-experienced and more-experienced residents’ verbal patterns in this dissertation, I cannot make claims about residents’ progression across training without following the same resident physicians longitudinally over the course of the three-year program. Again, individual differences in residents’ aptitude, learning style, communication, and verbal proficiency render each participant unique. Notably, the residents who volunteered for this study self-selected, which also suggests something about their personality and willingness to be observed by a researcher. Because of these individual differences, I cannot account for some of the findings that are inconsistent with the overall trends in residents’ progress through residency. Consequently, comparing groups of individual residents at different levels of training can only reveal the differences between these specific resident physicians and can only suggest potential trends in development. To make more accurate claims about the progression of residents’ learning across time, one might design a longitudinal study to trace the shifts in language, argumentation, and learning over the course of training.

Finally, because of the research questions and confidentiality concerns associated with this dissertation, I did not observe residents’ interactions with patients, which represents a valuable component of their literate practices and learning. As outlined in Chapter 1, resident physicians compose portions of the chart note in the examination room while they interview and examine patients and in the bullpen while they confer with preceptors; after they conclude their
discussions with preceptors, they return to the exam room to conclude the appointment and often alter the note again. Only at the ends of their shifts do they work through the entire note a final time and make conclusive changes. Because of the accretion in their writing process, an exhaustive examination of residents’ literate practices might involve a study incorporating all of the verbal interactions involved in these residents’ reading and writing activities.

**Future Research**

Despite the limitations mentioned in the previous section, this dissertation points to specific lines of research that might confirm or extend the suggestive findings outlined in this dissertation; future work in the area of professional literate practice in medicine might broaden the research questions, data sources, number of participants, and temporal scope of this dissertation. First, because this dissertation has developed a preliminary sense of the rhetorical stages through which residents transition as they gain experience as physicians, a study analyzing both concurrent think-aloud protocols and their written artifacts might reveal how these stages emerge, or are represented, in the documents that reflect their understanding of patient cases. One future research question might inquire about the potential correlation between the rhetorical strategies employed in resident-preceptor conversations, think-aloud reflections, and in the written material itself. A similar study might examine the various drafts of the written note that residents develop throughout their clinic shift to explore whether traces of the *topoi* and appeals shared in resident-preceptor conversations appear in different stages of novices’ writing processes. Another research question might probe whether residents enact preceptors’ rhetorical strategies when they return to the room with the patient by comparing the argumentative structure of resident-preceptor conversations as well as resident-patient conversations.
Although a key strength of this dissertation is the use of situated data sources, additional data sources could be collected in future research to extend the emergent theories in these three studies. First, as mentioned above, exploring the rhetorical techniques that appear in resident-authored chart notes might support conclusions about the effect of resident-preceptor conversations on residents’ development as professional writers. Next, although audio recording resident-preceptor conversations allowed for a systematic analysis of physicians’ talk, video recording their conversations may facilitate research on how these physicians’ nonverbal interactions (e.g., gestures or facial expressions) or their shared use of various texts (e.g., lab reports or visual texts) contribute to their professional enculturation. Also, observing and recording other pedagogical conversations in a medical setting might provide a useful perspective on how these novice physicians develop as professionals. For example, in teaching hospitals, residents engage in “chart review” discussions, during which preceptors and residents discuss a sample of the novice’s clinical notes and evaluate them; this data source might answer questions about how direct feedback on writing supports residents’ professional learning and literacy.

In addition to extending this research with different questions and data sources, future work on residents’ professional enculturation might include a greater number of participants and follow them over the course of a longer period of time to improve generalizability. Equipped with the emergent sociocognitive theory of residents’ literate practices in this dissertation, future research might hone in on specific parts of the model and longitudinally follow a group of novices. By observing a greater number of residents and preceptors, research on the role of communication in residents’ literate development can account for individual differences that may have affected my ability to detect trends in this dissertation. Moreover, observing the same group of novice physicians over the course of their residency program can provide a more accurate representation of how their interactional and rhetorical strategies develop during their training.
Conclusion

As I have argued in this dissertation, medical work relies on language: dialogue between doctors and patients, conversations between physicians, published medical texts, and written material composed by and for clinicians. Because communication imbues clinical activities, novice physicians must learn to understand and reproduce language as they contemplate clinical problems. As third-year resident Dr. Molly Keller explained when asked about her literate goals, talking and thinking are embedded in clinical literate practices:

The main objective is just accurate and complete documentation of. . . the visit, of what’s going on, of all the objective data. And then, for me, my thought process of. . . my decision-making in terms of my assessment and plan and what I’m doing for this patient.

And then, a lot of times, too. . . what my next step would be then. . .

For this near-expert physician, the past, the present, and the future are inextricably interwoven into literate practices that engage her in talking, reading, writing, thinking, and learning. These activities not only enable her to accomplish medical work but also critically contribute to her progress toward the professional enculturation her residency training aims to achieve.
APPENDIX

Think-Aloud Protocol Instructions

Thank you so much for agreeing to participate in my study and provide data for my dissertation. I appreciate your time and effort! Please read these instructions carefully before beginning your think-aloud protocol session. Thanks again! -Diana Awad Scrocco

Talk-Aloud Protocol Instructions:

1) Choose a quiet place to write your notes in your clinic patients’ charts.

2) Turn on the recording device by pressing the red “Record” button (the “Play” button will automatically depress too).

3) Ensure that the device is recording by saying your name aloud (when you talk, the “Rec/Batt” light should flicker). Please note that your tape will run out after 45 minutes, and you will have to eject the tape and flip it over.

4) As you write each note, say everything that comes to mind. Say what you’re thinking about while writing, not what you’re doing and not just the words you’re actually writing. So, you might say something like, “I’m wondering if I should include here that the patient just lost her job because…” But you shouldn’t say things like, “I’m clicking on the H&P section now…”

5) After writing each note, briefly reflect on your writing process (consider issues, choices, problems, etc.).

6) When you have finished your notes, turn off the recorder and call me for a brief interview.

7) We will arrange a meeting for me to retrieve the recorder (and for you to receive your compensation).

Practice Task:

Use this white space and the back of this paper to write and think aloud about this prompt:

Imagine you receive this data about a new patient. What would you write in your assessment and plan?

Mr. Smith is an 89-year-old man who experienced alternate diarrhea and constipation for approximately two months. The patient has received antibiotics on at least one occasion (date unknown) for a urinary tract infection. It seems that he has had multiple medical problems in the past including Nephrotic syndrome, CVA, history of colon polyps as well as a family history of colon cancer. (*retrieved from http://www.hopkins-gi.org/CMS/CMS_Page.aspx?CurrentUDV=31&CMS_Page_ID=FCDB8551-CC25-45F0-A6F1-B60804D33D01)
Table 3.1 Turn Design Categories, Frequencies, and Percent Contributions

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Minor Category</th>
<th>Total Clauses &amp; Percent of All Clauses in the Corpus</th>
<th>Combined Resident &amp; Preceptor Proportions: Total Clause Frequency &amp; Percent Contributions</th>
<th>PGY-1 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-2 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
<th>PGY-3 Clause Frequency &amp; Percent Contributions Between Residents &amp; Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phatic responses</td>
<td>Brief acceptance</td>
<td>677</td>
<td>20.2%</td>
<td>R: 371</td>
<td>54.8% P: 306</td>
<td>45.2%</td>
</tr>
<tr>
<td>Incomplete thought</td>
<td></td>
<td>392</td>
<td>11.7%</td>
<td>R: 218</td>
<td>55.6% P: 174</td>
<td>44.4%</td>
</tr>
<tr>
<td>Explicit claim of uncertainty</td>
<td></td>
<td>40</td>
<td>1.2%</td>
<td>R: 26</td>
<td>65.0% P: 14</td>
<td>35.0%</td>
</tr>
<tr>
<td>Total Phatic Response</td>
<td></td>
<td>1109</td>
<td>33.1%</td>
<td>R: 615</td>
<td>55.5% P: 494</td>
<td>44.5%</td>
</tr>
<tr>
<td>Proposals</td>
<td>Tentative proposal about a clinical decision</td>
<td>201</td>
<td>6.0%</td>
<td>R: 51</td>
<td>25.4% P: 150</td>
<td>74.6%</td>
</tr>
<tr>
<td>Imperative proposal about a procedural task</td>
<td></td>
<td>118</td>
<td>3.5%</td>
<td>R: 19</td>
<td>16.1% P: 99</td>
<td>83.9%</td>
</tr>
<tr>
<td>Imperative proposal about a clinical decision</td>
<td></td>
<td>114</td>
<td>3.4%</td>
<td>R: 36</td>
<td>31.6% P: 78</td>
<td>68.4%</td>
</tr>
<tr>
<td>Proposal about a disease course</td>
<td></td>
<td>97</td>
<td>2.9%</td>
<td>R: 25</td>
<td>25.8% P: 72</td>
<td>74.2%</td>
</tr>
<tr>
<td>Proposal about physical examination</td>
<td></td>
<td>79</td>
<td>2.4%</td>
<td>R: 68</td>
<td>86.1% P: 11</td>
<td>13.9%</td>
</tr>
<tr>
<td>Proposal about etiology</td>
<td></td>
<td>78</td>
<td>2.3%</td>
<td>R: 32</td>
<td>41.0% P: 46</td>
<td>59.0%</td>
</tr>
<tr>
<td>Proposal about explanation</td>
<td></td>
<td>63</td>
<td>1.9%</td>
<td>R: 35</td>
<td>55.6% P: 28</td>
<td>44.4%</td>
</tr>
<tr>
<td>/Interpretation of test results</td>
<td>Tentative proposal about a procedural task</td>
<td>Total Proposals</td>
<td>Reported speech</td>
<td>Declarative statement about the patient's behavior or experience</td>
<td>Indirect reported speech or text</td>
<td>Hypothetical use of speech or text</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>---------------------------------</td>
<td>------------------</td>
<td>-----------------</td>
<td>-------------------------------------------------</td>
<td>---------------------------------</td>
<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td>55</td>
<td>1.6%</td>
<td>R: 11</td>
<td>20.0%</td>
<td>P: 44</td>
<td>80.0%</td>
</tr>
<tr>
<td>Category</td>
<td>Statements</td>
<td>%</td>
<td>R:</td>
<td>%</td>
<td>P:</td>
<td>%</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------</td>
<td>---</td>
<td>----</td>
<td>---</td>
<td>----</td>
<td>---</td>
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<tr>
<td>Search for information in records</td>
<td>57</td>
<td>1.7%</td>
<td>R:</td>
<td>29</td>
<td>50.9%</td>
<td>P:</td>
</tr>
<tr>
<td>Statement of the history of medical attention</td>
<td>32</td>
<td>1.0%</td>
<td>R:</td>
<td>30</td>
<td>93.8%</td>
<td>P:</td>
</tr>
<tr>
<td>Factual statement about the patient</td>
<td>25</td>
<td>0.7%</td>
<td>R:</td>
<td>20</td>
<td>80.0%</td>
<td>P:</td>
</tr>
<tr>
<td>Announcement of the reason for patient visit</td>
<td>24</td>
<td>0.7%</td>
<td>R:</td>
<td>23</td>
<td>95.8%</td>
<td>P:</td>
</tr>
<tr>
<td>Reports of the patient’s medical history</td>
<td>22</td>
<td>0.7%</td>
<td>R:</td>
<td>17</td>
<td>77.3%</td>
<td>P:</td>
</tr>
<tr>
<td>Total Statements</td>
<td>305</td>
<td>9.1%</td>
<td>R:</td>
<td>239</td>
<td>78.4%</td>
<td>P:</td>
</tr>
<tr>
<td>Questions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Clarifying question</td>
<td>123</td>
<td>3.7%</td>
<td>R:</td>
<td>23</td>
<td>18.7%</td>
<td>P:</td>
</tr>
<tr>
<td>Procedural or clinical question</td>
<td>68</td>
<td>2.0%</td>
<td>R:</td>
<td>32</td>
<td>47.1%</td>
<td>P:</td>
</tr>
<tr>
<td>Interpretive question</td>
<td>63</td>
<td>1.9%</td>
<td>R:</td>
<td>7</td>
<td>11.1%</td>
<td>P:</td>
</tr>
<tr>
<td>Factual question</td>
<td>34</td>
<td>1.0%</td>
<td>R:</td>
<td>12</td>
<td>97.1%</td>
<td>P:</td>
</tr>
<tr>
<td>Causal question</td>
<td>11</td>
<td>0.3%</td>
<td>R:</td>
<td>1</td>
<td>91.1%</td>
<td>P:</td>
</tr>
<tr>
<td>Total Questions</td>
<td>299</td>
<td>8.9%</td>
<td>R:</td>
<td>64</td>
<td>21.4%</td>
<td>P:</td>
</tr>
</tbody>
</table>
Table 3.2 Exchange and Clause Distribution in Conversation Quartiles

<table>
<thead>
<tr>
<th>Quartile 1</th>
<th>Quartile 2</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PGY-1</strong></td>
<td><strong>PGY-2</strong></td>
</tr>
<tr>
<td><strong>Total Exchanges</strong></td>
<td>51</td>
</tr>
<tr>
<td><strong>Initiated Exchanges:</strong></td>
<td>R: 25</td>
</tr>
<tr>
<td><strong>Frequency and Percent Contributions</strong></td>
<td>P: 26</td>
</tr>
<tr>
<td><strong>Total Clauses</strong></td>
<td>276</td>
</tr>
<tr>
<td><strong>Clause Frequency and Percent Contributions</strong></td>
<td>R: 161</td>
</tr>
<tr>
<td><strong>Average Clauses Per Exchange</strong></td>
<td>5.4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quartile 3</th>
<th>Quartile 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PGY-1</strong></td>
<td><strong>PGY-2</strong></td>
</tr>
<tr>
<td><strong>Total Exchanges</strong></td>
<td>44</td>
</tr>
<tr>
<td><strong>Initiated Exchanges:</strong></td>
<td>R: 13</td>
</tr>
<tr>
<td><strong>Frequency and Percent Contributions</strong></td>
<td>P: 31</td>
</tr>
<tr>
<td><strong>Total Clauses</strong></td>
<td>279</td>
</tr>
<tr>
<td><strong>Clause Frequency and Percent Contributions</strong></td>
<td>R: 110</td>
</tr>
<tr>
<td><strong>Average Clauses Per Exchange</strong></td>
<td>6.3</td>
</tr>
</tbody>
</table>

---

40 All PGY-1 residents had more than one conversation with their preceptors about their patients. Therefore, I have calculated totals and percentages for all conversations and for primary conversations about these patient cases because primary conversations tend to follow a more formalized model than subsequent conversations.
Table 3.3 Conversational Category Distribution in Conversation Quartiles

<table>
<thead>
<tr>
<th>Conversational Category</th>
<th>Question</th>
<th>Statement</th>
<th>Assessment</th>
<th>Report</th>
<th>Proposal</th>
<th>Phatic Response</th>
<th>Total Clauses in Quartile</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quartile 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PGY-1 R</strong></td>
<td>4</td>
<td>16.0%</td>
<td>50</td>
<td>90.91%</td>
<td>5</td>
<td>33.33%</td>
<td>44</td>
</tr>
<tr>
<td><strong>PGY-1 P</strong></td>
<td>21</td>
<td>84.0%</td>
<td>5</td>
<td>9.09%</td>
<td>10</td>
<td>66.67%</td>
<td>7</td>
</tr>
<tr>
<td>**Total Clauses in Category</td>
<td>% in Quartile**</td>
<td>25</td>
<td>9.06%</td>
<td>55</td>
<td>19.93%</td>
<td>15</td>
<td>5.43%</td>
</tr>
<tr>
<td><strong>Quartile 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PGY-2 R</strong></td>
<td>1</td>
<td>10.0%</td>
<td>27</td>
<td>100.0%</td>
<td>1</td>
<td>16.67%</td>
<td>36</td>
</tr>
<tr>
<td><strong>PGY-2 P</strong></td>
<td>9</td>
<td>90.0%</td>
<td>0</td>
<td>0.00%</td>
<td>5</td>
<td>83.33%</td>
<td>6</td>
</tr>
<tr>
<td>**Total Clauses in Category</td>
<td>% in Quartile**</td>
<td>10</td>
<td>6.17%</td>
<td>27</td>
<td>16.67%</td>
<td>6</td>
<td>3.70%</td>
</tr>
<tr>
<td><strong>Quartile 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PGY-3 R</strong></td>
<td>4</td>
<td>28.57%</td>
<td>48</td>
<td>96.0%</td>
<td>14</td>
<td>70.00%</td>
<td>64</td>
</tr>
<tr>
<td><strong>PGY-3 P</strong></td>
<td>10</td>
<td>71.43%</td>
<td>2</td>
<td>14.00%</td>
<td>6</td>
<td>60.00%</td>
<td>2</td>
</tr>
<tr>
<td>**Total Clauses in Category</td>
<td>% in Quartile**</td>
<td>14</td>
<td>5.00%</td>
<td>50</td>
<td>17.86%</td>
<td>20</td>
<td>7.14%</td>
</tr>
<tr>
<td><strong>Quartile 4</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PGY-4 R</strong></td>
<td>2</td>
<td>5.26%</td>
<td>14</td>
<td>87.5%</td>
<td>6</td>
<td>30.00%</td>
<td>42</td>
</tr>
<tr>
<td><strong>PGY-4 P</strong></td>
<td>36</td>
<td>94.74%</td>
<td>2</td>
<td>12.50%</td>
<td>14</td>
<td>70.00%</td>
<td>2</td>
</tr>
<tr>
<td>**Total Clauses in Category</td>
<td>% in Quartile**</td>
<td>38</td>
<td>13.92%</td>
<td>16</td>
<td>5.86%</td>
<td>20</td>
<td>7.33%</td>
</tr>
<tr>
<td><strong>Quartile 5</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PGY-5 R</strong></td>
<td>2</td>
<td>22.22%</td>
<td>7</td>
<td>87.50%</td>
<td>4</td>
<td>21.05%</td>
<td>14</td>
</tr>
<tr>
<td><strong>PGY-5 P</strong></td>
<td>7</td>
<td>77.78%</td>
<td>1</td>
<td>12.50%</td>
<td>15</td>
<td>78.95%</td>
<td>10</td>
</tr>
<tr>
<td>**Total Clauses in Category</td>
<td>% in Quartile**</td>
<td>9</td>
<td>5.66%</td>
<td>8</td>
<td>5.03%</td>
<td>19</td>
<td>11.95%</td>
</tr>
<tr>
<td><strong>Quartile 6</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PGY-6 R</strong></td>
<td>9</td>
<td>26.47%</td>
<td>28</td>
<td>68.29%</td>
<td>14</td>
<td>56.00%</td>
<td>38</td>
</tr>
<tr>
<td><strong>PGY-6 P</strong></td>
<td>25</td>
<td>73.53%</td>
<td>13</td>
<td>31.71%</td>
<td>11</td>
<td>44.00%</td>
<td>4</td>
</tr>
<tr>
<td>**Total Clauses in Category</td>
<td>% in Quartile**</td>
<td>34</td>
<td>11.11%</td>
<td>41</td>
<td>13.40%</td>
<td>25</td>
<td>8.17%</td>
</tr>
</tbody>
</table>

Quartile 3
| Quartile 1 | PGY-1 R | 1 | 4.35% | 7 | 70.0% | 6 | 20.69% | 29 | 63.04% | 21 | 26.25% | 46 | 50.55% | 110 | 39.4% |
| Quartile 1 | PGY-1 P | 22 | 95.65% | 3 | 3.0% | 23 | 79.31% | 17 | 36.96% | 59 | 73.75% | 45 | 49.45% | 169 | 60.6% |
| Total Clauses in Category | % in Quartile | 23 | 8.24% | 10 | 3.58% | 29 | 10.39% | 46 | 16.49% | 80 | 28.67% | 91 | 32.62% | 279 | 100% |
| Quartile 2 | PGY-2 R | 4 | 30.77% | 8 | 80.0% | 11 | 35.48% | 23 | 100.0% | 25 | 58.14% | 26 | 61.90% | 97 | 59.9% |
| Quartile 2 | PGY-2 P | 9 | 69.23% | 2 | 20.0% | 20 | 64.52% | 0 | 0.0% | 18 | 41.86% | 16 | 38.10% | 65 | 40.1% |
| Total Clauses in Category | % in Quartile | 13 | 8.02% | 10 | 6.17% | 31 | 19.14% | 23 | 14.20% | 43 | 26.54% | 42 | 25.93% | 162 | 100% |
| Quartile 3 | PGY-3 R | 5 | 26.32% | 15 | 62.50% | 5 | 20.83% | 23 | 51.11% | 22 | 32.84% | 90 | 67.16% | 160 | 51.1% |
| Quartile 3 | PGY-3 P | 14 | 73.68% | 9 | 37.50% | 19 | 79.17% | 22 | 48.89% | 45 | 67.16% | 44 | 32.84% | 153 | 48.9% |
| Total Clauses in Category | % in Quartile | 19 | 6.07% | 24 | 7.67% | 24 | 7.67% | 45 | 14.38% | 67 | 21.41% | 134 | 42.81% | 313 | 100% |
| Quartile 4 | PGY-1 R | 8 | 30.77% | 10 | 43.48% | 5 | 20.83% | 23 | 51.11% | 22 | 32.84% | 90 | 67.16% | 160 | 51.1% |
| Quartile 4 | PGY-1 P | 18 | 69.23% | 13 | 56.52% | 28 | 84.85% | 7 | 29.17% | 88 | 86.27% | 53 | 61.63% | 207 | 70.4% |
| Total Clauses in Category | % in Quartile | 26 | 8.84% | 23 | 7.82% | 33 | 11.22% | 24 | 8.16% | 102 | 34.69% | 86 | 29.25% | 294 | 100% |
| Quartile 5 | PGY-2 R | 6 | 25.0% | 4 | 80.0% | 7 | 35.00% | 7 | 63.64% | 10 | 27.78% | 29 | 51.79% | 63 | 41.4% |
| Quartile 5 | PGY-2 P | 18 | 75.0% | 1 | 20.0% | 13 | 65.00% | 4 | 36.36% | 26 | 72.22% | 27 | 48.21% | 89 | 58.6% |
| Total Clauses in Category | % in Quartile | 24 | 15.79% | 5 | 3.29% | 20 | 13.16% | 11 | 7.24% | 36 | 23.68% | 56 | 36.84% | 152 | 100% |
| Quartile 6 | PGY-3 R | 9 | 34.62% | 8 | 72.73% | 12 | 37.50% | 17 | 45.95% | 22 | 28.21% | 84 | 77.06% | 152 | 51.8% |
| Quartile 6 | PGY-3 P | 17 | 65.38% | 3 | 27.27% | 20 | 62.50% | 20 | 54.05% | 56 | 71.79% | 25 | 22.94% | 141 | 48.1% |
| Total Clauses in Category | % in Quartile | 26 | 8.87% | 11 | 3.75% | 32 | 10.92% | 37 | 12.63% | 78 | 26.62% | 109 | 37.20% | 293 | 100% |
Table 4.1 Frequencies of *Topoi*-Specific Proposals and Interlocutors’ Responses\(^{41}\)

<table>
<thead>
<tr>
<th>Major Category: Proposals</th>
<th>PGY-1 Residents</th>
<th>PGY-2 Residents</th>
<th>PGY-3 Residents</th>
<th>PGY-1 Preceptors</th>
<th>PGY-2 Preceptors</th>
<th>PGY-3 Preceptors</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Topoi:</strong> Relationship (Antecedent and Consequence)</td>
<td><strong>Topoi:</strong> 18</td>
<td><strong>Topoi:</strong> 6</td>
<td><strong>Topoi:</strong> 36</td>
<td><strong>Topoi:</strong> 29</td>
<td><strong>Topoi:</strong> 20</td>
<td><strong>Topoi:</strong> 42</td>
</tr>
<tr>
<td>P: 1</td>
<td>P: 1</td>
<td>P: 5</td>
<td>P: 0</td>
<td>P: 1</td>
<td>P: 4</td>
<td>P: 4</td>
</tr>
<tr>
<td>RS: 0</td>
<td>RS: 3</td>
<td>RS: 0</td>
<td>RS: 0</td>
<td>RS: 0</td>
<td>RS: 0</td>
<td>RS: 0</td>
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<tr>
<td>A: 2</td>
<td>A: 0</td>
<td>A: 0</td>
<td>A: 0</td>
<td>A: 1</td>
<td>A: 0</td>
<td>A: 0</td>
</tr>
<tr>
<td>S: 1</td>
<td>S: 0</td>
<td>S: 2</td>
<td>S: 3</td>
<td>S: 0</td>
<td>S: 0</td>
<td>S: 0</td>
</tr>
<tr>
<td>Q: 1</td>
<td>Q: 0</td>
<td>Q: 6</td>
<td>Q: 1</td>
<td>Q: 0</td>
<td>Q: 0</td>
<td>Q: 2</td>
</tr>
<tr>
<td><strong>Topoi:</strong> Circumstance (Possible and Impossible)</td>
<td><strong>Topoi:</strong> 17</td>
<td><strong>Topoi:</strong> 3</td>
<td><strong>Topoi:</strong> 21</td>
<td><strong>Topoi:</strong> 64</td>
<td><strong>Topoi:</strong> 15</td>
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Table 4.2 Frequencies of *Topoi*-Specific Questions and Interlocutors’ Responses

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Table 4.3 Frequencies of *Topoi*-Specific Reported Speech and Interlocutors’ Responses

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Table 5.1 Topoi in Resident Physicians’ Think-aloud Protocol Sessions

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REFERENCES


(Eds.), Ethics and representation in qualitative studies of literacy (pp. 134-154). Urbana, IL: National Council of Teachers of English.


Brandt, D. (1989). The message is the massage: Orality and literacy once more. Written Communication, 6, 31-44.


