Turn-Taking in Face-to-Face Conversations: A Proposed Theory of Chair Swiveling

by
Lyshuand Smith

A THESIS

submitted to

Oregon State University

Honors College

in partial fulfillment of
the requirements for the
degree of

Honors Baccalaureate of Science in Integrative Biology
(Honors Associate)

Presented November 22, 2017
Commencement June 2018

AN ABSTRACT OF THE THESIS OF

Lyshuand Smith for the degree of Honors Baccalaureate of Science in Integrative Biology presented on November 22, 2017. Title: Turn-Taking in Face-to-Face Conversations: A Proposed Theory of Chair Swiveling.

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Abstract approved:_____

Frank Bernieri

Abstract approved:_____

Courtney Campbell

Abstract approved:_____

John Edwards

Abstract approved:_____

Steven Ortiz

The purpose of this thesis is to propose swiveling behavior as a potential speech transitioning device and to discuss the methodology behind qualitative and quantitative analysis of swivels in relation to subjects' partners. Due to the impacts of gaze and body orientation direction on speech transitioning, it is deduced that, if swiveling behaviors generally impact people's inclinations for head and gaze orientation, then swiveling may, too, serve as regulatory behaviors in conversation. Swivels are categorized based on the direction of their motion and the joints involved. A methodology for determining the direction and angle at which swivels cause changes in body orientation is also proposed to facilitate the study of swivels. Lastly, the utility of swivel analysis is discussed, including several confounding variables to alter individuals' swiveling behaviors.

Key Words: swivel, nonverbal communication, turn-yielding signal, turn-taking, attempt-suppressing signal, interruptions, simultaneous speaking, back channel, accompaniment behavior, body orientation, body motion, gaze, interior design

Corresponding e-mail address: smithlys@oregonstate.edu

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APPROVED:

Frank Bernieri, Mentor, representing Psychology

Courtney Campbell, Committee Member, representing Philosophy

John Edwards, Committee Member, representing Psychology

Steven Ortiz, Committee Member, representing Sociology

Toni Doolen, Dean, Oregon State University Honors College

I understand that my project will become part of the permanent collection of Oregon State University, Honors College. My signature below authorizes release of my project to any reader upon request.

Lyshuand Smith, Author

Acknowledgements

I would like to thank Dr. Frank Bernieri for his unyielding help in challenging my thinking and methodologies for research and writing. In my opinion, only a truly enlightened person could have challenged me enough to thoroughly change the way I think about and approach social interactions. I feel that just as I have had to write and rewrite this Honors thesis I have had to rewrite how I see people in the outside world and how I approach problems. There is nothing more valuable than a person who will call you out on your assumptions and failures when you are too biased to recognize them.

I would also like to thank Ameer Almuaybid for teaching me valuable lessons about research and lab work in the field of social psychology. Without all of those articles he gave me to read and those long discussions we had, I don't think I would have been able to find the niche to add to in the field.

I would like to thank Amber Fultz, the inspiration behind my idea of socially appropriate swiveling behaviors. Her professional attitude and demeanor in Dr. Bernieri's research lab made her a perfect person to discuss swiveling behaviors in the context of speech turn-taking and speaker-listener roles. She gave me some valuable input in the formation of my theories.

I would like to thank everyone in my committee for being so dependable and patient with we throughout the thesis-writing process. Among my thesis committee members, Dr. Steven Ortiz proved valuable in helping me to orient my ideas toward more practical settings and concepts while helping me to learn more about the large-scale implications that the study of swiveling behaviors might bring. Dr. Courtney Campbell, on the other hand, helped me gain further interest in the subject of swiveling behaviors through the discussion of biomedical ethics and doctor-patient interactions. This connection really helped me to feel confident and remain steady in my intellectual pursuits toward understanding nonverbal behaviors.

Lastly, I would like to thank Philip Carroll for his endless support in all respects. Somehow the kindest person I have ever met also has room to critique and assess my work and cognitions to help me improve. Ever-present in my life, he always helped to buffer the emotional distress involved with major set-backs in my progress, health, and thinking. Creative (or artistic) at heart, it was really hard not to become emotionally attached to my intellectual work. Without him I doubt I would have had the level of resilience that I have exhibited over the years.

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Chapter 1 – Introduction

It is miraculous how we can have conversations without preoccupying ourselves with signaling intent to speak by interrupting one another or explicitly claiming the floor by consciously making large, distracting motions to call attention to ourselves. While behaviors such as wildly waving one's arms or restless fidgeting would effectively cause the speaker to terminate his utterance to allow for another to speak, anyone who behaves this way would be perceived as obnoxious or rude and any conversations with them would be ended prematurely. Though the body is essential for the coordination of speech through what are termed *nonverbal cues* (Roth & Lawless, 2002, p. 4), their execution is much more subtle and unconscious than would be expected. The use of nonverbal behaviors is not purely for the sake of attempting to speak during a bout of listening. Not only do nonverbal cues accompanying speech improve listeners' understanding of the speaker's intended message, they enable the listener to communicate internal states and reactions without interrupting or distracting the speaker. Furthermore, the largely spontaneous initiation of such nonverbal behaviors reduces the likelihood of becoming preoccupied with speech-regulating behaviors when trying to sustain a conversation (Patterson, 1991, p. 476). With a culmination of various nonverbal cues to communicate a general message, both listeners and speakers may interact without sacrificing the fluidity of conversation.

While conversations are regulated by the culmination of nonverbal cues, the study of each behavior involved with the coordination of speech helps to better understand the impact that they have on how conversations occur. Thus, the purpose of this discussion is to propose the communicative significance of a commonly observed yet poorly

understood behavior: swiveling in one's chair. Not only is it a behavior that has not been theorized about, it has hardly even been given any attention in a research setting. Though swiveling behaviors are generally only observed when a person is seated on a chair capable of rotating about a central axis, it will be argued through the course of this thesis that such behaviors have the potential to impact the coordination of verbal exchanges through their relationship with the alteration of individuals' body orientation, which in turn impacts gaze behaviors. While the relationship between swivels and speech coordination has not yet been determined, our current understanding of more covert bodily cues such as gaze, body orientation, and general body movements and their relationships with the regulation of speech offer the potential for swivels to function in a similar manner. The potential impacts of future research regarding swiveling behaviors could be profound. Their observation in practical settings, such as in clinical psychology or patient-doctor interactions, could provide crucial information about individuals' readiness to speak or to prepare to disclose personal topics.

Beginning with the discussion of speech transitioning in face-to-face conversation and how this is regulated through nonverbal cues, I will propose a hypothesized pattern of swiveling behaviors based on the adoption of speaker and listener roles. In the following chapters I will discuss how swiveling behaviors may be defined, categorized, and studied (Chapter 2) and propose some theoretical propositions related to swiveling behavior (Chapter 3).

Speech Regulation and Turn-Taking

The fluidity of a conversation, with the relative absence of mutual silence and simultaneous speech, is a feat achieved through an understated yet essential exchange

between interactants. In contrast to verbal exchanges, this conversation occurs through nonverbal cues produced by each person to alert their partner to their intentions for speech. It takes no less than a few hundred milliseconds [and about 1500 for simple sentences] to formulate a simple statement after processing and reacting to another's utterance, which, itself, takes no less than 200 milliseconds (Bogels & Torreira, 2015, p.46). Given the amount of time required to both react to and develop a simple utterance, one can only image how long it would take to formulate more complex ideas. Therefore, if we only knew to respond to another's utterance upon its completion, then we would experience longer periods and a greater frequency of awkward pauses between people's speech. Instead, transitions in speech generally occur with little overlap or mutual silence, likely resulting from expectations to speak before encountering the end of a partner's utterance (Bogels & Torreira, 2015, p.46). This effect can be achieved through a variety of nonverbal cues, from voice intonations to changes in gaze behavior, which notify conversational partners to the moments when they are ready to speak or stop speaking.

Speech Transitioning as a Negotiation

The ease and speed of transitioning between interactants' speech is a cooperative effort only achieved by the production and recognition of signals for speech transitioning. In order for people to effectively communicate intent to adopt or maintain speaker-listener roles, they must produce the appropriate signals matching intent and also be receptive to such signals. Thus, interruptions and simultaneous speech may be reduced when listeners[1] recognize moments for feasible speech by being receptive to their

[1] For the purpose of discussion, the terms, "listener" and "auditor," will be used to describe interactants who do not claim the speaking turn at any given moment (as defined by Duncan, 1972). While listeners will typically remain silent during long utterances, they may still produce accompaniment signals,

partners' cues signaling a willingness to relinquish their role as speakers; awkward pauses in conversation may be reduced through speakers' receptivity to listeners' willingness to begin speaking[2] (Duncan, 1972). During disagreements about the feasibility of a speech transition, speakers must first be able to recognize the listener's signals and then modify his or her transitioning to better fit the needs of the listener (Kendon, 1967). Likewise, speakers will often look for reassurance to continue speaking or to begin the termination of that utterance (Kendon, 1967). It can thus be considered a *negotiation* to determine who speaks and when because this nonverbal exchange involves the input of both interactants in order for it to be functional.

Speech transition negotiation through nonverbal cues may involve multiple channels[3] which give similar or conflicting messages to regulate the total message encoded (LaFrance & Mayo, 1978). This means that greater variation may exist in what each person may express given the production of any combination of nonverbal behaviors. While a few behaviors appear to have more weight in managing conversation, no single behavior will have a direct and uniform relationship with conversation dynamics (Duncan, 1972). The study of conversations through the observation of nonverbal cues is greatly complicated by the not yet understood interactions between behaviors. Nevertheless, conversation-regulating behaviors may be broken down into simplified units based on channel or function to better understand speech-regulating

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including shorter utterances, to signify that the listener remains attentive to the speaker's utterance (Duncan, 1972; Kendon, 1967).

[2] For the purpose of discussion, the term, "speaker," will be used to describe a person who claims the speaking turn at any given moment (as defined by Duncan, 1972).

[3] A channel is one of various paths through which communication occurs (LaFrance & Mayo, 1978). Channels may be verbal or nonverbal and can be termed generally as visual (dominant), auditory, olfactory, etc. or can be termed according to a specific behavior through which communication occurs (i.e. gaze, body motion, touch).

signals (Roth & Lawless, 1978). For example, these behaviors may be differentiated based on whether they serve to inhibit or invite reciprocation (Amerikaner, 1980). This will in turn impact the negotiation of speech transitioning through the inhibition or invitation contribution to the conversation.

Speech Transition-Enabling Cues

Imagine a scenario where a person is talking about an issue encountered with a co-worker with a friend. As she concludes her ideas about why the issue has arisen, she finally asks her friend what he thinks. As she does so, she does not simply continue looking down introspectively. Instead, as one could expect to see when being induced to respond, she looks up at her friend to say, “But what do you think?” This is an example of what Duncan (1972) refers to as speech transition-enabling cues which occur as a shift in the focus of conversation occurs from the speaker to the listener. A speaker will signal to the listener just before and while she asks the listener a question or transitions the topic of conversation to the listener so that his partner may be prepared to answer. In this case, the act of looking up at one’s conversational partner assists in the communication to that person a willingness to begin listening to him. When produced by the speaker, speech transition-enabling cues are discrete behavioral cues that accompany the intended end of the speaker’s utterance; such signals communicate to the listener that he or she should prepare to respond (Duncan, 1972). As a result, the listener is obliged to respond and potentially take dominion over the conversation (Duncan, 1972). Alternatively, a listener may attempt to speak during a pause in a speaker’s speech or may utilize behavioral cues, such as withdrawal of gaze, to communicate a withdrawal of attention from the speaker (Duncan,1972; Kendon,1967). Nevertheless, auditors’ attempts to speak will be

unsuccessful unless met with the production of transition-enabling cues by the speaker as well (Duncan,1972). Thus, in order for an exchange in speech turns to occur fluidly, both the speaker and the listener must provide and be receptive to signals that communicate willingness for the exchange to occur.

Speech Transition-Discouraging Cues

Participants in a conversation may also signal to their partners the intent to maintain current listener-speaker roles. For example, people may employ what Duncan (1972) refers to as accompaniment[4] (or "back channel") behaviors while listening to someone speak to reinforce the present speaker's dominion over the conversation and to avoid speaking themselves (Duncan, 1972). Listeners may alternatively remain silent, though this response is generally to be avoided in conversation as it reduces the fluidity of a conversation (Duncan, 1972). Alternatively, speakers may preemptively suppress listeners' attempts to speak by employing *attempt-suppressing signals*. According to Duncan (1972), attempt-suppressing signals, such as gesturing with the hands, virtually eliminate any attempts to speak among listeners, regardless of any transition-facilitating cues performed by either speaker or listener. Thus, while it appears that both speakers and listeners have the capacity to regulate conversations through nonverbal cues, the role as speaker enables a person to hold greater power over the nature and timing of speech-transitioning.

[4] Accompaniment ("back channel") behaviors may be verbal or nonverbal. A person may complete or repeat the speaker's sentence, request for clarification, or say, "mm-hmm" or "yeah" to avoid speaking (cited in Duncan, 1972). In contrast to other verbal responses, such expressions do no constitute a turn or a claim for a turn (Duncan, 1972).

Nonverbal Behaviors Dictating Speech Regulation

As indicated above, conversations are not merely dictated by verbal exchanges. Instead, a variety of nonverbal cues are used to adjust the messages encoded verbally to better fit the individual's true intentions. While people may overtly attempt to hide certain sentiments or motivations through the explicit utterance of contrary ideas or the avoidance of certain topics, nonverbal behaviors may not be controlled so readily by conscious thought. What results is a collection of consciously driven nonverbal behaviors, such as the holding of hands to avoid gesturing too heavily, in addition to nonconsciously driven nonverbal behaviors which counteract emotional concealment. Ultimately, the body provides a great deal of information in spite of attempts to conceal internal states through the "leakage" of cues (O'Hair, 1981). According to D. McNeill, even among the parts of the body that we can actively control, such as the hands, nonverbal behaviors enable people to unwittingly display their inner thoughts and ways of understanding situations (as cited in Cohen et al., 2010, p. 134). As a result, each utterance will be paired with a plethora of nonverbal cues to regulate the message communicated to a conversational partner, each with variable impact on the direction of the conversation. For example, if two individuals have a conversation while seated at a table across from each other and with no clear visibility to the other's legs, then the impact of leg movements on conversational transitions would be limited and any information stemming from leg movements would be uninformative to each person. Thus, visually accessible cues would be considered to have a greater impact on conversation. Therefore, the presumed impact of swivels on conversational dynamics

would not only be dependent on access to a swiveling chair, but also each person's visual access to the legs.

Presumably, face-to-face interactions should provide visual access to at least some channels. Gaze, body orientation, and body motion are among the most studied and permeating channels through which people may communicate verbal intent. Due to their proposed relationship with swiveling behaviors, the impacts of gaze, body orientation, and body motion on the regulation of speech will be discussed below. While each may work in conjunction to disclose the same message, some may conflict with one another, especially when conscious thought regarding bodily behaviors occurs. Thus, it is imperative to consider the complex relationship between each of these channels.

Gaze. Defined as steady or intent looking, gaze appears to be intrinsic to speech transitioning, both directly and indirectly. Kendon (1967) found speakers to change the direction in which they gazed to indicate readiness to take up a listening role. Though speakers will still look at their partners during an utterance, Kendon (1967) found that speakers will spend more time looking away than when listening. Thus, altering the length and frequency of gazes directed toward a partner will communicate a transition in focus between oneself and the partner. For example, speakers will signal an end to a long utterance by steadily looking at their partners just before the utterance is completed; this reduces the occurrence of delayed or absent responses by partners from 71% to 29% (Kendon, 1967; Argyle & Dean, 1965). This phenomenon is similar to the use of intonational phrase boundaries or drawls in speech at the end of a phrase to indicate an end to one's speech turn (Bogels & Torreira, 2015; Duncan, 1972). Not only does this behavior signal to the auditor that he or she should prepare to speak, but it also enables

the speaker to determine whether the auditor is willing and prepared to do so, allowing the speaker to adjust this transition accordingly (Kendon, 1967). The expectation that gaze should be directed at the partner when asking him or her a question has guided researchers like Miles L. Patterson (1977) to ensure that confederates[5] direct their gaze toward subjects when asking them questions[6]; this behavior has also been observed and regulated when confederates recovered after pauses in speech. In contrast, the beginning of an utterance is characterized by looking away from one's partner, which in many cases occurs just before speaking begins (Kendon, 1967). In fact, Kendon (1967) found that over 70% of utterances began this way and only three out of the fourteen subjects he analyzed did so with less than half of their utterances. Thus, gaze behavior is deeply entrenched in the regulation of conversational transitions between listener and speaker.

Body orientation. Defined as the degree to which a person's shoulders and legs are oriented toward or away from another person (Matsumoto, Hwang, & Frank, 2016, p. 387). Through its influence on gaze behaviors, it is surmised that body orientation has the ability to have an indirect influence on speech regulation. Indeed, a person would feel more comfortable speaking if the intended listener exhibited more nonverbal behaviors corresponding to an invitation to speak. Direct body and head orientation also enables a partner to distinguish where one is looking, enabling them to more effectively receive feedback on one's internal states through greater access to gaze behaviors (Moors et al., 2016). Even a head orientation 30° away from the partner results in significant

[5] Confederates in social psychological research are individuals who interact with subjects as covert members of research team, also referred to as "actors."
[6] For the application of Patterson's (1977), the confederate's gaze was an important factor in analyzing the effects of distance and body orientation on the frequency of eye-contact made by subjects. Thus, to ensure that the interaction seemed more realistic to subjects (and thus increase the validity of the results), actors needed to conform to certain gaze-directed norms.

misjudgments about gaze behaviors (Moors et al., 2016). Likewise, body orientation impacts the person's own inclinations for gaze direction. Aiello (1972) found that gazes directed at a partner were longer when a person was directly facing them. This is likely due to the relative ease of looking at one's partner when directly oriented at them than when oriented away from them. Thus, direct head and body orientation allow for greater levels of nonverbal communication between subjects. Nevertheless, increasing one's own sensory input about the partner and vice versa is not always desired during an interaction. As described above, the beginning of an utterance is marked by a reduction of looking at a partner, due in part to a need to reduce sensory input from the listener when trying to form utterances (Kendon, 1967). Thus, altering one's body orientation from a direct orientation facilitates the reduction of stimuli and thus feedback from a partner by reducing one's ability to gaze directly at one's partner when trying to speak. As a result of this relationship between gaze and body orientation, Baxter (1971) found that eye aversion and angled (indirect) body orientation may at times substitute each other: with greater deviation from direct body orientation, the amount of gaze aversion that subjects exhibited was reduced simply because indirect body orientation may serve the same purpose as gaze aversion. Indirect gaze and thus indirect body orientation reduces partners' obligation to interact as it signals that one is not ready to be receptive to their partner (Goffman, 1964; Argyle & Dean, 1965). Therefore, whenever either is altered by an individual, it reflects changes in his or her willingness to mentally attend to the partner's utterances.

Body motion. Body motion is a general term for any movements produced by the body, either in its entirety or from its parts. Body motion ranges from so-called "body

actions," which are relatively small and involve movements such as shrugging, kicking, nodding, and gesturing (hand motions), to "body position," which involves the general arrangement of the torso, legs, and arms in relation to one another (Harrigan, 2005). The body is essential for regulating the expression of thoughts, so much so that a conversation is much more likely to break down if persons are limited in visual access to it (as cited in Roth & Lawless, 2002). This is in part because body movements are not distributed evenly or randomly across a conversation; instead, such movements are much more likely to correspond to speech rhythms (Bernieri & Rosenthal, 1991, p. 405). This may explain why the percentage of time in which bodily movement occurs and the average amount of behavioral complexity that a person exhibits are both significantly influenced by the gaze pattern of a partner: both men and women were found to move more when their partners looked at them (Bente, Donaghy, & Suwelack, 1998). Among other functions, body motion is vital for the encoding of messages to the listener as it guides attention to certain features of a topic of interest and mediates listener understanding of utterances by contextualizing encoded verbal messages (Roth & Lawless, 2002). According to Kendon (1990), body movements allow for the coordination of expectations, which in turn facilitates the development and maintenance of smooth-running encounters (cited in Roth & Lawless, 2002). Through the regulation of verbally encoded messages and drawing of attention toward certain features of the interaction, body movements may serve to improve mutual understanding.

Among other nonverbal behaviors, gaze, body orientation, and body motion have a distinct influence on perceived accessibility of each person to one another, which in turn guides speech transitioning between speakers. For instance, gaze direction and body

orientation, especially when used together, have been found to be intrinsically related to speaker-listener roles by denoting individuals' willingness to be receptive to each other's utterances (Goffman, 1964; Aiello, 1972) Thus, direct gaze or orientation will not only communicate general interest in the partner, but also a readiness to listen to what he or she has to say. Alternatively, indirect gaze [or orientation] will prepare a person to speak, as the increased stress and effort involved with thinking about what to say will cause an individual to focus more on himself than on his partner (Argyle & Dean, 1965; Kendon, 1967). As a result, alterations in interactants' gaze and body orientation, and in turn body motions, have the potential to communicate attempted speech transitions between speakers.

Swiveling Behavior with Speaker-Listener Roles

As described above, gaze, body orientation, and body motion are intrinsically involved in the regulation of an interaction by managing perceived accessibility of an individual to his partner. Often viewed as a static element of conversation, body orientation may change through the course of a conversation, though not uniformly. Instead, changes in gaze, body orientation, and other bodily movements serve to contextualize messages and to coordinate expectations, thus allowing for interactions to occur more smoothly.

At their core, swivels are merely bodily movements (or body motion), postural shifts that alter a person's body orientation, whether directly or indirectly. Swiveling behaviors are made possible when a person sits on either a

swiveling chair[7] or a swiveling stool[8] and propels his or her body or legs in either direction. It is hypothesized that the body movements which result in swiveling behaviors in swiveling seats still occur when people are seated on other surfaces. Thus, instead of inducing swiveling behaviors, swiveling chairs and stools likely *magnify* people's body movements to make them more distinguishable. While they may not be the only body movements related to speech regulation, they appear to have a powerful potential for the regulation of speech patterns. They may not only serve as turn-taking and turn-suppressing signals in themselves, but they also fundamentally impact a person's body orientation and inclination for gaze direction.

Swiveling combines the communication channels of body orientation, gaze, and body motion. As such, the purpose of this discussion is to elucidate the importance of studying swiveling behavior as a turn-taking signal as it may allow for the analysis of individuals' willingness to speak at any given moment, both during speech transitions and within utterances. Given the dynamic nature of speech regulation between listener and speaker, it cannot be assumed that all speech transitioning cues will result in speech transitions. Yet, the function of such cues as swiveling behaviors may be derived from direct observation and currently available scientific knowledge on related cues and their functions. Thus, this thesis will discuss swivels' relationship to gaze, body orientation, and body motion in the context of speech regulation and introduce the methodology for the analysis of swivels.

[7] The above images of swiveling chairs were obtained from mgbwhome.com and ikea.com respectively.
[8] The image of the stool above was obtained from northerntool.com.

Speakers' Swiveling Patterns

Consider the following two situations. In the first, you attempt to give your grandmother driving directions to go to the local park after having looked online. To ensure that you are directing her well, you will likely need to be facing her, both with your body and your head, to make sure you are orienting her correctly and not furthering her confusion. Likewise, you need to be able to recognize when she needs further explanation or when she has understood your directions, which is best achieved through a direct body orientation and necessarily requires gaze directed at your grandmother, the listener. In contrast, when asked by an acquaintance about what you did over the summer, you will likely avert your gaze from that person, the listener, to be able to focus more on your memory rather than on them, and thus think more intensely about how to answer that question, especially if you do not particularly remember. A differentiating factor between these two situations is the confidence and cognitive load involved in the formation of speech. Fluency and confidence in speech enables a person to not have to reduce cognitive load by looking away from a partner in order to feel comfortable with one's expression. Indeed, Kendon (1967) found that speech rate was greater when individuals were looking at their partners than when looking away, due to the relative fluence of speech during those periods. In contrast, hesitant speech, or more introspective speech, was often paired with a marked decline in looking at a partner; only after subjects were able to recover from these periods was direct gaze recovered (Kendon, 1967). As these two distinct situations elucidate, the demands placed on the speaker are quite distinct: in the first, the speaker must pay close attention to the listener as the efficacy of the utterance depends on remaining attentive to the listener, making the utterance more

other-oriented; whereas, the second, depends on self-reflection and involves greater cognitive load, and is thus more self-oriented. Due to the differences in cognitive load and need for receptivity to and response by the listener, it is expected that the subject of discussion during a conversation will impact the direction in which an individual will swivel. Thus, not only will speaker-listener roles dictate swiveling patterns for both interactants, but the topic of discussion will also likely alter swiveling behavior for speakers, both during speech transitions and within utterances.

Other-oriented speech. Statements directed at the listener may be in the form of asking the listener a question, giving him or her directions, or describing a physical place or object to the listener. Through a greater need to remain attentive to the listener's responses, a speaker would use direct gaze in order to invite the listener to respond (Ho et al., 2015), and would more likely orient his- or herself more directly toward the listener. Orienting the body more directly toward the listener enables the individual to increase the length of glances (Aiello, 1972) which in turn denotes to the listener a need to respond. According to Argyle and Dean (1965), this is because eye-contact places the partner under the obligation to interact. Thus, the act of swiveling toward the auditor may serve as a "turn-yielding signal" (Duncan, 1972) as it would signal to the auditor an end to the speaker's utterance and an invitation to begin speech. This behavior will also facilitate a speaker's ability to receive feedback after a self-oriented utterance (Argyle & Dean, 1965) from his or her partner by orienting his or her gaze more directly at the partner and denote social accessibility to the partner (Goffman, 1964). This behavior would enable the speaker to recognize when the listener needs further explanation and when he or she should be prepared to respond. Therefore, effective other-oriented speech requires that a

speaker remain open and receptive to the listener, a feat most effectively achieved through direct gaze and body orientation, and thus swiveling toward their partner.

Self-oriented speech. Self-focused utterances involve the discussion of personal thoughts or experiences and greater levels of introspection. In contrast to other-oriented utterances, self-oriented utterances require that the listener not verbally participate in the conversation, which may be communicated to the listener by displaying 'attempt-suppressing signals," such as gaze aversion, to reduce the likelihood of listener intervention (Duncan, 1972; Ho et al., 2015). Likewise, the greater levels of cognitive effort involved with the determination of what to disclose and what not to disclose to a partner about the self during a conversation make the need to reduce stimuli from a partner greater. This is not to say that assessing a partner's receptivity to one's self-disclosure is important during self-oriented speech. Instead, just as Kendon (1967) found that subjects would intermittently look up at their partners during speech to mark points at which they looked for accompaniment signals from their partners, feedback from partners is more tightly mediated during speech, especially during more difficult moments. Therefore, the change in subject between the self and the partner during discussion, either through the transitioning in speech turns or through a speaker's own transition in focus, will more likely result in a swivel to change his or her orientation. A speaker will be more inclined to swivel away from the listener during utterances regarding the self, yet still return his orientation toward his partner when seeking feedback from his partner. This may, in turn, result in either elastic unidirectional swivels (introduced in **Chapter 2**) or simply swivels orienting the body away from the partner, followed by swivels toward that same partner. In contrast to other-oriented speech, which

requires that a speaker be receptive to listener input, self-oriented speech is facilitated by the reduction of receptivity to external stimuli, as they may confound the formulation of verbal messages.

*Listener*s' *Swiveling Patterns*

Unlike swiveling behavior during speech, it is more challenging to determine when and whether a person is involved in self-oriented or other-oriented thought. Consider how one listening to a lecture might begin to reflect upon key phrases or ideas brought up by the speaker. At first, a person might listen attentively to the speaker's utterance, and thus be in other-oriented thought. Yet, the moment that same person begins to reflect on personal experiences or ideas, that person is no longer involved in other-oriented thought and has become inattentive to the speaker's words. Not only does gaze begin to drift away just as that of a speaker when attempting to recall something, but other nonverbal behaviors may begin to drift away from communicating sensory accessibility to the speaker. This likely does not necessarily result from an *intent* to communicate to a speaker a disinterest in what he or she is saying, but instead from a loss of self-regulation to communicate a readiness to listen, thus increasing the likelihood of swiveling away from a partner.

Ideally, listening requires that an individual be receptive to external stimuli from the speaker in order to bind the two persons into a conversation (Goffman,1964; Roth & Lawless, 2002). This behavior enables people to create and sustain an interaction by aligning individual codes of conduct to that which would communicate mutual respect and recognition, especially when actions deviate from cultural expectations (Stokes & Hewitt, 1976, p. 838). If this seems like an overly rigid view of the role of listener, then it

likely is. Through the process of socialization, people have learned the importance of behaving politely, especially when in the presence of superiors, by appearing attentive when listening, especially during long utterances. Indeed, the role of listener is marked by a significant increase in looking at the partner compared to when speaking (Exline et al., 1965; Kendon, 1967). Periods of indirect gaze while listening still occur, though they are generally very brief (Kendon, 1967). Thus, as a listener remains attentive to the speaker, he or she may be orientated more directly at his or her partner in order to enable him or her to be able to be more receptive to the messages that the speaker encodes and if they are not satisfactorily oriented toward the speaker, then they may swivel toward them.

Yet, people are not exclusively guided by custom. As discussed earlier, listeners are not merely passive participants in conversations, or metaphorically speaking, are not sponges that only soak up whatever speakers disclose to them. Listeners may reflect and prepare to respond, even in the form of "back-channel" cues, to ensure to the speaker that they remain interested in what he or she is saying (Duncan, 1972). Just as speakers will occasionally take a moment to process what they will say, listeners may enter periods of thought or reflection to prepare to respond to the speaker's utterance and add to the conversation. It is possible, then, that the swiveling patterns involved with the role as listener are also guided by self- and other-oriented thought to some extent. Indeed, B. M. DePaulo and S. E. Kirkendol found that whenever interactants behave passively, they will likely be perceived as unexpressive, inhibited, withdrawn, and uptight (as cited in DePaulo, 1992, p. 205), likely because of the dissatisfaction of interacting with a person who does not seem to add anything to the conversation. Therefore, during periods whereby they are actively listening to their partners, listeners will likely orient

themselves more directly, and thus swivel, toward their partners. Conversely, as listeners begin to switch to self-oriented thought, they will swivel away from their partners.

Due to the clear rules of interaction, initiation and termination, the removal of signals to indicate listener receptivity will eventually result in the conversation's termination (Goffman, 1964). Therefore, if the listener maintains indirect body orientation and gaze without swiveling toward their partner, this may communicate to the speaker a desire to adopt the role of speaker or the termination of the conversation. Listeners may alternatively, make more head and gaze shifts (and possibly even swivel more erratically) to request a turn shift and begin speaking (Ho et al., 2015). It may be concluded that swiveling behaviors among listeners will follow a similar convention: swiveling toward the speaker when actively listening, to both ensure that he or she is more receptive to the speaker and to sustain the speaker's speech turn. Deviation from such a behavior would in turn reflect intent to adopt the role of speaker or end the interaction.

Chapter 2 -- Definition and Analysis of Swivels

In order for swivels to be appropriately assessed, especially in the context of social interactions, they must first be defined in objective and observable terms and be able to be differentiated from other nonverbal behaviors. Likewise, the determination of an appropriate methodology for their assessment would facilitate mutual understanding and replication across research settings. Therefore, through the course of this chapter, swivels will be described and categorized based on the different movements that they entail. Two methods for swivel analysis will also be proposed that will enable the study of swivels, regardless of the specific movements involved in their execution.

The definition and analysis of swivels is complicated by the breadth of behaviors that may be considered a "swivel." Due to a lack of theory and research on swivels relative to other bodily behaviors or cues, swivels shall be defined as shifts in leg position while a person remains seated on a swiveling chair, performed through the abduction, adduction, or rotation of the thigh about the hip (see **Figure 2.1a**) or the inversion or eversion of the foot (see **Figure 2.1b**) as it rests on a stationary surface. While smaller or

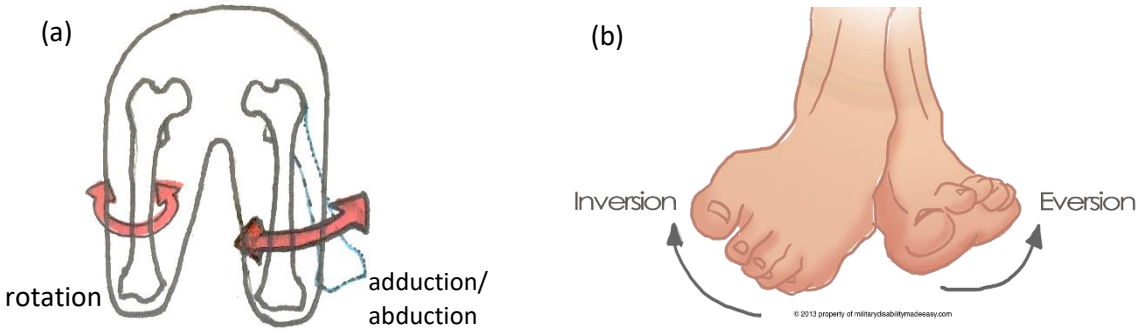

Figure 2.1: Above are the defining features of a swivel. (a) displays the hip/thigh movements that will result in a swivel. The left thigh is shown rotating to cause the leg to move side-to-side. The right thigh is shown adducting (moving toward the other thigh) and abducting (moving away from the other thigh), causing the thigh and leg to move leftward or rightward. (b) illustrates foot inversion (rotate inwardly) and eversion (rotate outwardly). This image was retrieved from the website: mycerebellarstrokerecovery.com

moderate swivels will generally involve the isolated movement of one body part (either the thigh or foot) the combination movements will allow for larger swivels. The result is a wide range of swivels, from minute leg shifts altering a leg's position by only a few inches to large rotations of the body about the swiveling chair's axis. As with all behaviors, researchers must be able to distinguish between the vast array of swiveling behaviors an individual may exhibit. This may occur through the categorization of swivels based on the bodily movements involved in the production of a swivel. Likewise, swivels may be differentiated based on the relative changes in angle that a swivel results in. Thus, the purpose of this chapter is to discuss the various ways in which swivels may be categorized and analyzed, both qualitatively and quantitatively. While great efforts have been taken to differentiate between swivels through the course of this thesis, it must be recognized that the analytical procedures described in this chapter are merely precursors for the future study of swiveling behaviors. Therefore, the detailed description of swivel analysis procedures provided in this chapter is merely to facilitate the progression of research on swivels.

For the sake of this thesis, the author performed over one-hundred hours of visual analysis of thirty-three dyadic[9] interactions (or sixty-six individuals). This analysis was then used for the development of the methodology for determining swivel directionality. The videos utilized for the study of swiveling behaviors were generated in a study by Sommer and Bernieri (2015). Participants were paired and videotaped having a 5-minute conversation as they became acquainted with one another. This was facilitated by a set of questions retrieved from the Relationship Closeness Induction Task first introduced by

[9] Dyadic interactions involve only two people.

Sedikides et al. (RCIT; 1999). The RCIT questions (see **Appendix A**) enabled participants to get to know one another better through the course of the conversation by providing them with opportunities to self-disclose. Each participant in a dyad was given a different set of RCIT questions which were deemed to involve roughly the same amount of intimacy. As a result, participants were not given the opportunity to plan their answers to questions before being asked, though, the same questions they asked were often reciprocated after their partners answered those questions. Transcripts of dyadic conversations were reviewed for the selection of time periods during which the first RCIT question was asked by each subject and answered by his or her partner. Once time periods were selected, initial direction of swivel's movement was determined. An example of the transcripts used may be found in **Appendix B**. Utilizing these transcripts, swivels performed were differentiated based on whether they involved listening or other- or self-oriented speech, through the asking and answering of RCIT questions and listening to partners' responses. Whenever an individual asked an RCIT question, such as, "so what are your hobbies?" (see **Appendix B**), the utterance was considered other-oriented speech. Whenever an individual answered such a question with, "My hobbies, um, I don't really have any hobbies, but I have a lot of interests. um, I like to dance and sing, and I guess a hobby could be reading, I like reading good books and I like watching movies and videos," such as in **Appendix B**, this was considered to be self-oriented speech. Listening occurred when a person listened to a partner answer their RCIT question.

Through the analysis of swivels in the context of speech turns and the subject of discussion, several patterns were recognized among swivels. Among them, swivels were

most often found to have a certain directionality, or the direction in which a swivel appeared to most propel a person's leg orientation toward. Likewise, swivels varied in magnitude, or the change in leg orientation angle, which in turn impacted the methodology that had to be developed in order for all swivels to be recognized and assessed. Through the recognition of diversity in swiveling behaviors observed, not only were they able to be differentiated based on the direction of movement but they could also be categorized based on the specific leg movements involved.

Functional Categorization of Swivels

This section will discuss how swivels may differ from one another and how this variation will impact the analysis of swivels. Swivels may be differentiated based on two discrete dimensions: 1) based on the leg shifts involved in the execution of the swivel and 2) based on whether swivels cause the person's legs to shift toward or away from their partner. Among leg shifts, swivels may fit into three distinct leg movements: 1) whole-body shifts, 2) knee-to-ankle shifts, and 3) one-leg shifts. Likewise, swivel directionality may be categorized as toward (T) swivels, away (A) swivels, and bidirectional swivels. Through the categorization of swivels within each of these dimensions, swivels may then be classified into any one of eight categories. While it would appear that swivels should fit into nine categories (given the subcategories within each dimension), the limited range in motion of one-leg swivels limits people's ability to perform bidirectional swivels, making this subcategory unlikely to exist. In the following sections, I will go into further detail on the distinction between swiveling behaviors.

Leg Shifts Involved in the Execution of Swivels

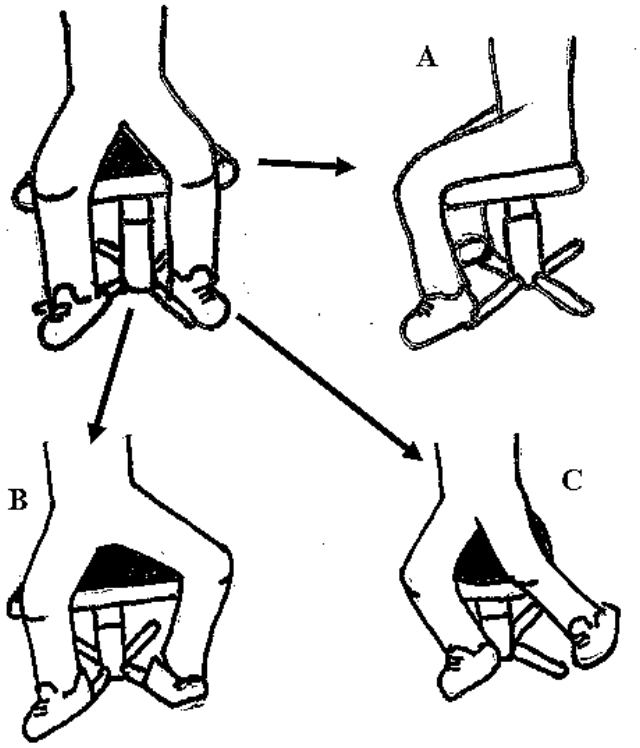

Figure 2.2: Above are the three types of swivel rotation that a subject can exhibit. The top left image represents a hypothetical original position a person may be seated in. To its right, **A** represents the final position of a swivel about the torso, whereby the entire body rotates about the axel of the swiveling chair. Therefore, the movement from the original position to the **A** position represents a whole-body swivel. In contrast, the shift from the starting position to position **B** represents a one-leg swivel. While a one-leg swivel may also involve the rotation or the torso along with the legs, this shift is almost exclusively guided by the movement of one leg as the other leg remains stationary. The transition from the starting position to position **C** represents a knee-to-ankle swivel, altering the torso's orientation without necessarily motion the position of the feet.

Different types of swivels may relate to different motivations or internal states, given their variable relationship with overall body orientation. The types of leg shifts involved in the production of swivels have a deeply permeating influence on whether any changes in leg position will be transient or remain fixed after their completion. Likewise, they influence the relationship between changes in leg positioning and that of the torso. While in some cases swivels will result in shifts of the entire body as a unit, the legs and torso will often rotate at different rates and magnitudes. Through the categorization of leg

shifts involved with the development of a swivel, it is expected that the validity of future research involving the correlation between swivels and social or internal circumstances may be improved.

Swivels may be categorized into three general types of leg shifts: whole-body shifts in body orientation, knee-to-ankle shifts, and single leg or knee shifts. **Figure 2.2** illustrates these three categories of legs shifts involved with the execution of swivels. Whole-body swivels (represented by the shift from the initial position to position **A** in **Figure 2.2**) involve the rotation of the entire body, both legs and torso, about the axis of the swiveling chair. They are believed to be propelled by the rotation of the thigh in conjunction with inversion and eversion of the feet (one foot will invert while the other everts). The direction of movement (from the swiveler's point of view) determines which foot will invert and which will evert to propel to body in that direction. Because the entire body rotates as a unit, it may be generally assumed that whole-body swivel leg rotation has a direct relationship with the rotation of torso. A real example of this behavior is depicted in **Figure 2.3** by the subject to the left. In her case, she rotates her entire body as she changes the position of the leg contacting the ground, completing her swivel with her leg at about the same angle in respect to the floor as just before the swivel. This is a key differentiating factor that distinguishes whole-body swivels from knee-to-ankle swivels.

While knee-to-ankle swivels also involve the rotation of the thigh and thus the rotation of the torso about the axel of the swivel, the feet are used to anchor the body to a certain equilibrium spot by remaining stationary on the floor or leg of the chair. This not only means that foot inversion and eversion will be more noticeable throughout the swivel, but it also causes the angle formed between the floor and the leg to change and a

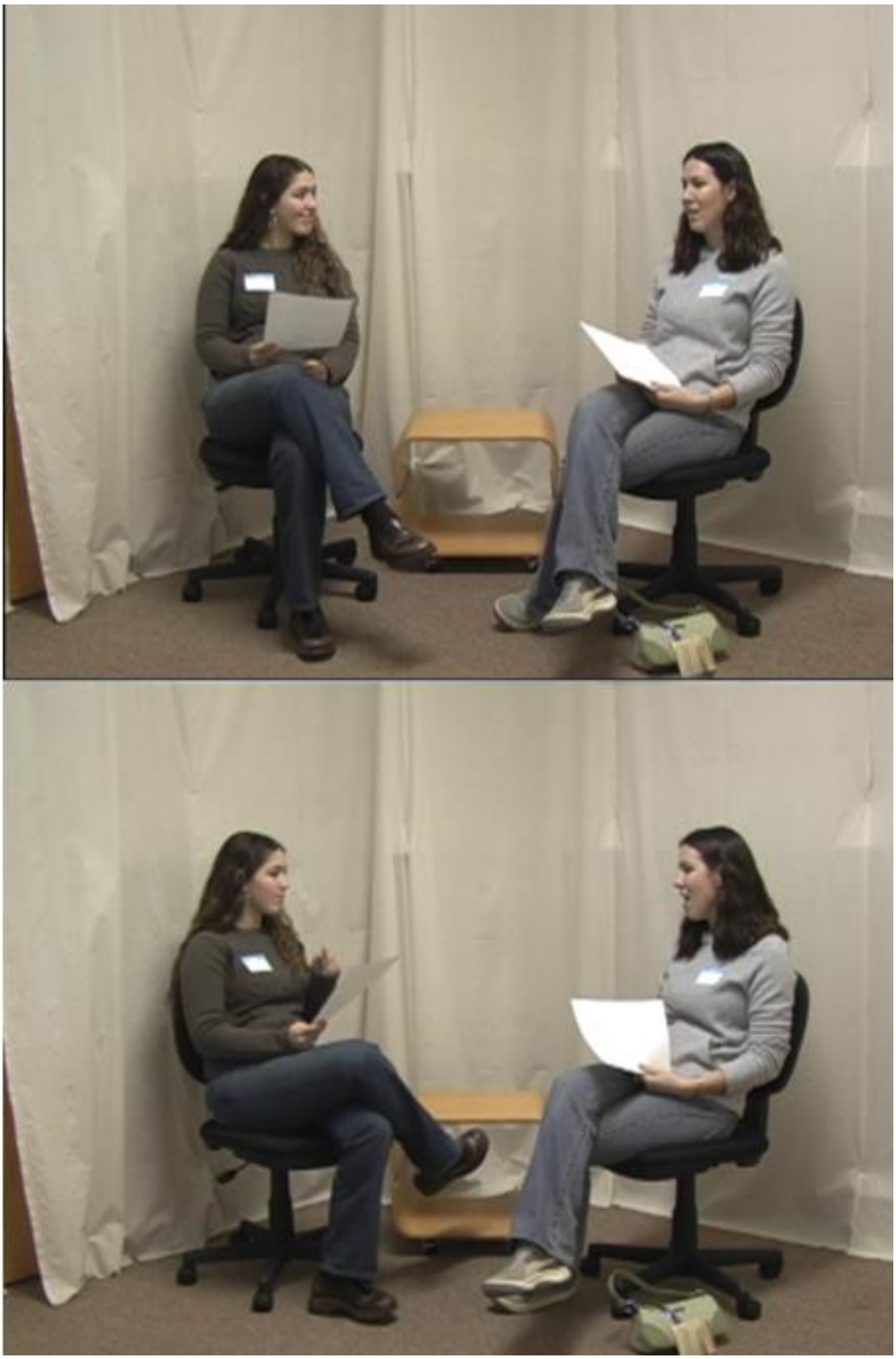

Figure 2.3: The above snapshots were taken one second apart. The subject the left is shown performing a whole-body swivel with her left leg, causing her to swivel toward her partner, while the subject to the right performs a knee-to-ankle swivel on her left leg, also causing her to swivel toward her counterpart.

Figure 2.4: The above snapshots were taken one second apart. The subject to the right is depicted performing a one-leg swivel, whereby one leg (his right leg) remains stationary, nearly immobile, as the other (his left leg) moves away from the rest of his body, as well as that of his partner. The left vertical line drawn between his right leg before and after the swivel demonstrates that his right leg has shifted negligibly. In contrast, the right vertical line demonstrates that his left knee has shifted significantly to the right.

shift in the position of the knees in relation to the ankles. (depicted in the shift between the initial position and position **C** in **Figure 2.2**). This behavior is represented by the subject to the right in **Figure 2.3** as she maintains her left foot stationary on the ground while she rotates her body and right leg toward her partner and her left foot everts.

Lastly, one-leg swivels (represented by the shift between the initial position and position **B** in **Figure 2.2**) involve either rotation or abduction of one thigh while the other remains stationary. Unlike whole-body swivels and knee-to-ankle swivels, one-leg swivels require that both legs be planted on a suface, such as the floor, the chair legs, or an end table, both at the begin of the swivel and at its end so that the person performing this swivel remains anchored to the initial leg and body orientation. **Figure 2.4** provides an example of such a swivel. These swivels tend to be remarkably small and thus difficult to detect, especially when only the knee shifts away from the body.

Directionality of Swivels

The second way to differentiate between swivels is through the determination of whether a person swivels toward, creating a T swivel, or away from his partner, forming an A swivel. Based on the proposed mechanism of altering the presentation and facilitation of stimulus receptivity through the change in body or leg orientation, it appears that rotations of the body toward or away from a partner should be clearly distinguished from one another. A swivel which shifts a person's body orientation away from a partner is performed by the male subject (right) in **Figure 2.4** to a lesser extent and very clearly by the leftward female in **Figure 2.5**. Conversely, swivels which orient the body more directly toward a partner are depicted by both subjects in **Figure 2.3**. A caveat to consider when determining the directionality of swivels is that some swivels

Figure 2.5: Pictured above are snapshots of a single dyad, taken one second apart from video recordings by Sommer and Bernieri (2015). The female subject (left) is shown executing a moderately large unidirectional knee-to-ankle swivel toward her partner involving the rotation of the torso in addition to the legs.

may involve the rotation of the body in a certain direction before returning to a person's original position. Likewise, some people may perform what are termed, "bidirectional" swivels, whereby people will swivel back-and-forth on their chairs, swiveling both toward and away from their partners sequentially. It is possible, that swivels which cause

a person to rotate in a certain direction only to return to their original positions are an artifact of people periodically checking on their partners to evaluate the status of a conversation. However, too much of this behavior may become distracting and reduce a person's receptivity to a partner more so than swiveling away from that partner. This leaves the possibility that bidirectional swivels serve to rhythmically regulate an interaction by ensuring that utterances are short or in-line with the rhythm of the swivel rotations. Since these explanations are only speculative at this point, further study and analysis of bidirectional swivels, especially in relation to conversation dynamics, will be essential for the determination of their true functions. Regardless, the following section will discuss the two methodologies developed for determining the direction of a swivel.

Methodology for Determining Swivel Direction

After reviewing dozens of hours of video and testing various ways to assess swivel behavior, two methods for determining swivel directionality arose as straight-forward and relatively easy to replicate. Utilized interchangeably based on the relative ease of analysis and coding demands, leg-orientation analysis and knee-to-ankle analysis enable coders to assess a wide variety of swiveling behaviors. Each distinguishes T swivels from A swivels based on the direction of movement (as discussed in the previous section, *Directionality of Swivels*). Leg-orientation analysis involves the comparison of leg and/or knee orientations between a subject's initial position and at the apex of his swivel (the point furthest from the initial leg orientation). In contrast, knee-to-ankle analysis involves the visual observation of how the relative position of the knees compares to that of the ankles between snapshots of the swivel at its origin and its apex. Whenever possible, leg-orientation analysis allows for greater ease of assessing the

direction and magnitude of a swivel. Nevertheless, this form of analysis becomes difficult when assessing small knee-to-ankle swivels and swivels performed by a person crossing his or her legs, at which point knee-to-ankle analysis becomes more efficient. Thus, the appropriate methodology for determining the directionality of swivels should be assessed on a case-by-case basis to ensure accurate results.

Leg-Orientation Analysis

As stated earlier in this chapter, swiveling was defined as any change in leg position as a person remains seated on a swiveling chair, performed through the abduction, adduction, or rotation of the thigh about the hip or the inversion or eversion of the foot as it propels the body in a certain direction. Yet, among swiveling behaviors, some may be simply characterized by changes the angle at which an individual's legs are oriented away from a conversational partner. In order to determine the change in leg orientation, the original leg orientation and the leg orientation at the apex of a swivel must be determined. This can be done by adapting the current methodology for body orientation analysis to fit the current needs. Social psychologist Miles L. Patterson (1977) defines the directness of body orientation as:

> the angle formed between a plane from the midline of the [subject] to the midline of the [partner] and a plane drawn from the midline of the [subject] perpendicular to his shoulder plane. The plane drawn from the [subject], perpendicular to his shoulders, can simply be interpretted as his orientation or line of regard. (p. 208).

While the qualitative analysis of swivels does not involve the observation of a shoulder plane, the shoulder plane may be replaced by the plane formed by the hips. Thus, the

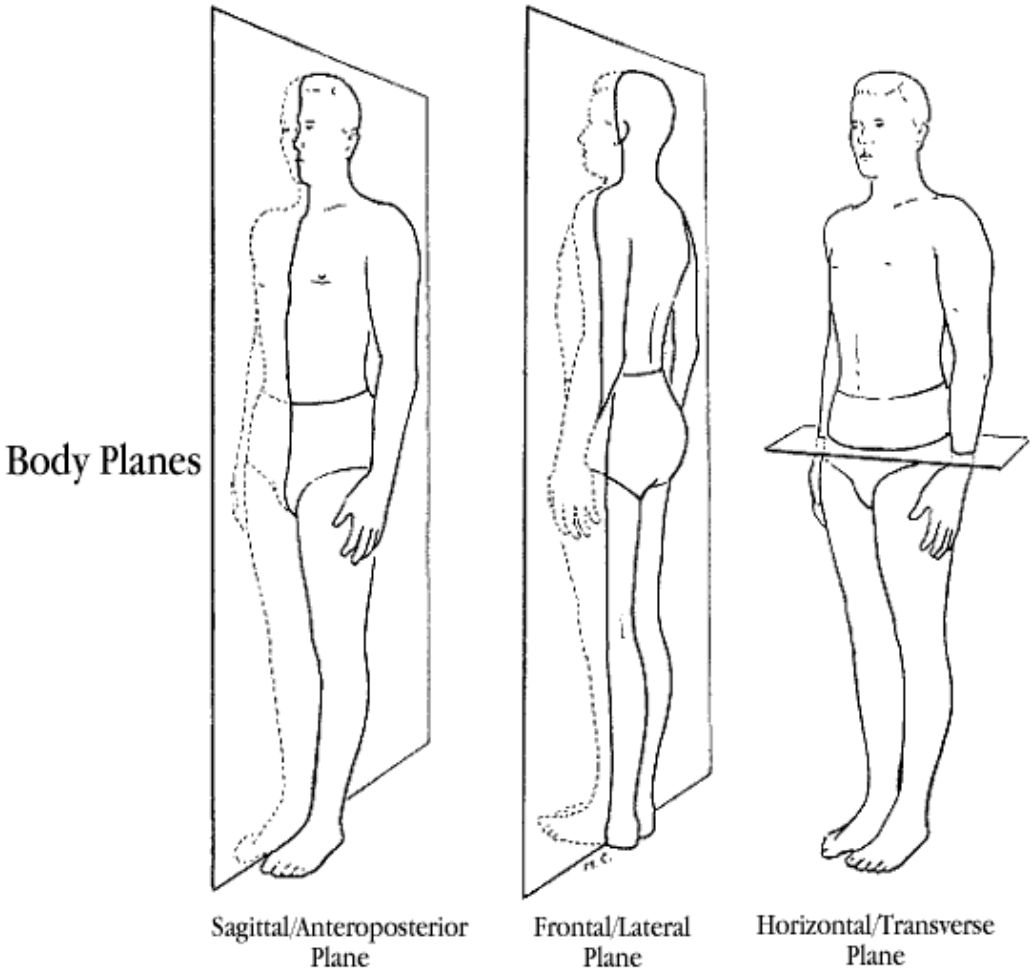

Figure 2.6: The above image represents the planes formed by the human body, which will assist in the visualization of body orientation planes. This image was retrieved from pramek.com

methodology described by Patterson (1977) may be adopted for the determination of leg orientation. The plane formed by a subject's hips [and in general, the shoulders] is essentially the *frontal plane* pictured in **Figure 2.6**. The plane formed between the midline of this frontal plane and the midline of the partner's body can be simplified as the *reference sagittal plane* (RSP), the leg orientation at which would be considered 0° if the person's legs were directly facing his or her partner. Whenever the subject's legs are oriented away from the RSP, the legs will be oriented at an angle greater than 0°. **Figure**

2.7a displays the range of body [or in this case, leg] orientations that a single individual may display in relation to his or her partner. From this, one can recognize that the leg orientation most directly facing a partner is 0°, which means that any shifts away from directly facing a partner correspond to increases in the angle formed between subjects. Likewise, since the subject's partner is regarded as the reference point for the determination of leg orientation, the maximum angle that may be formed by a subject's legs is 180°, meaning that his or her back is directly facing the partner. Thus, the direction in which a person is oriented away from his or her counterpart, on either side of the RSP, does not matter in the context of a conversation. Because the determination of leg orientation does not depend on a subject's partner's orientation, such an analysis is not considered to be dyadic. Thus, a subject's orientation in relation to his or her partner is dependent only on his or her leg orientation relative to the *position* of the partner's torso.

A pictogram may be used to analyze leg orientation by drawing lines representing the subjects' hip planes (frontal planes) and drawing an arrow to represent the legs of the subject in question. For example, **Figure 2.7b** displays a snapshot of a dyad whose interaction was video recorded for analysis by Sommer and Bernieri (2015), along with a pictogram drawn to represent the leg orientation of the subject to the left. A [dotted] line may be used to represent the RSP so that the leg orientation may be readily identified in relation to the RSP. Once leg orientation has been determined just before a swivel occurs and at the swivel's apex, coders may find the direction in which the subject has swiveled.

Utilizing pictograms to depict a person's leg orientation just before a swivel and at the swivel's apex, the difference in angle may be considered to the amplitude of the

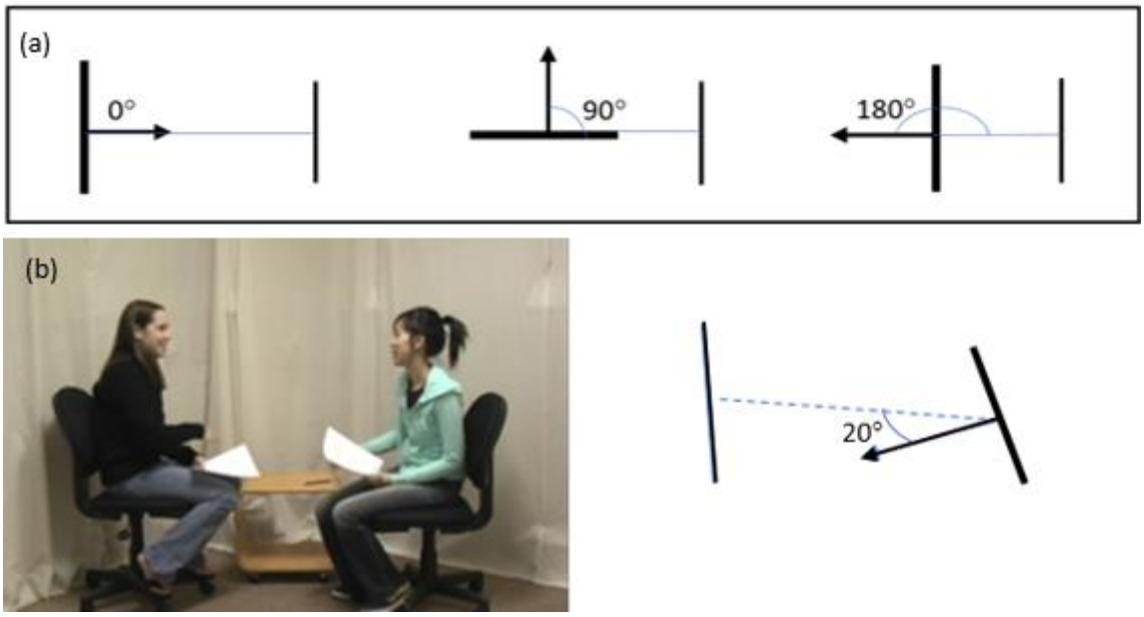

Figure 2.7: Above are pictorial representations of the range at which a person's legs may be oriented away from his/her partner and an example of how they may be used for determining leg orientation. (a) A schematic diagram representing the relative orientations of the hip planes (vertical lines), the reference sagittal plane (RSP) formed between the midline of the subject in question and the midline of her partner (blue lines), and the subject's leg orientation (arrows). (b) A snapshot (left) taken from a video recording of a conversation between two individuals, leg orientation can be determined for either of the interactants. In this case, the female subject to the right is the subject of interest is about 20° from the RSP (right).

swivel. Likewise, a toward (T) swivel will be represented by a reduction in the person's leg orientation angle, meaning that the plane formed by the knees is oriented more directly (and closer to the RSP) at the subject's partner at the swivel's apex than before the swivel began. An away (A) swivel is represented by an increase in angle of leg orientation, relative to the RSP, and has thus resulted in a more direct leg orientation than at the swivel's origin.

Knee-to-Ankle Analysis

As discussed above, knee-to-ankle analysis involves the visual observation of changes in the relative position of the knees from the individual's original position to the

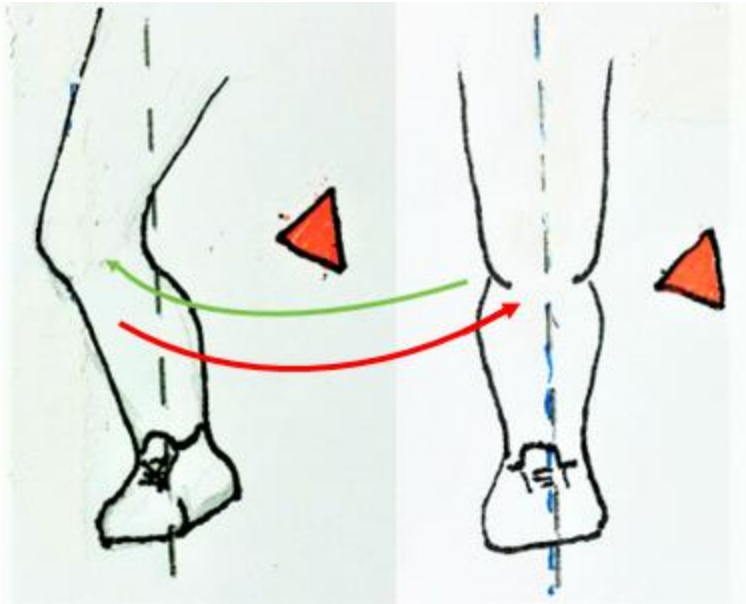

Figure 2.8: Above is a pictorial representation of the knee movements involved in the formation of A and T swivels, using the frontal view of two leg positions in relation to the partner (red triangle). As the knee moves toward a partner (red arrow) it forms a T swivel; as the knee moves away from the partner (green arrow) it forms an A swivel.

swivel's apex. This technique was found to be essential for assessing small knee-to-ankle swivels and swivels performed by a person crossing his or her legs as it involves more straight-forward determinations of swivel directionality. An example of the relative ease of determining swivel direction through this technique may be found in **Figure 2.5**. Coding direction of movement performed by the leftward subject's legs does not necessarily involve comparing her initial and final legs orientation angles. Instead, coders may use contextual clues such as how her knees are more directly facing the camera and less so at her partner at the beginning of her swivel than at the end of her swivel suggests that she swiveled toward her partner. More precisely, at the beginning of her swivel, the snapshot displays how her knees are further left on the snapshot than her ankles. Yet, at the end of her swivel, her knees are positioned more rightward than her ankles. Since her partner is sitting to the right of this subject, one can conclude that her knees moved closer

to her partner, indicating a T swivel. **Figure 2.8** further exemplifies the difference between an A swivel and a T swivel during a knee-to-ankle swivel or a one-leg swivel.

There is great variation in swiveling behaviors. Some swivels are simply unidirectional, and involve the shifting of leg orientation from an initial position into a final position, while others involve the shifting of the legs or torso independent from one another. Since the reasons behind this variation in swiveling behaviors is not yet understood, great efforts should be taken to better understand these widespread and readily recognizable behaviors. It is expected that the analytical procedures described in this chapter may serve as precursors for the future study of swiveling behaviors. It is uncertain whether swivels should be analyzed quantitatively through the comparison of initial and apex legs angles from the RSP. Nevertheless, unidirectional and possibly even bidirectional swivels may now be analyzed quantitatively through the procedures outlined above. Likewise, the qualitative analysis of the directionality and continuity of swivels may be assessed in the context of speech transitions, as well as other conversational elements.

Chapter 3 – Propositions for the Utility of Swivel Analysis

Through the course of this thesis it has been proposed that swiveling behaviors serve to signal an interest in maintaining or transferring speaker-listener roles and enabling or inhibiting interacting partners' responses. While preceding research has not tied swiveling behaviors to the regulation of speech, their proposed influence on body orientation and gaze direction allow for the possibility of integrating swivels into the collection of nonverbal cues to regulate interactions. Through the introduction of methods to categorize and quantitatively assess swivels, it is expected that swivels will be able to be more readily studied in a research setting. Nevertheless, it must be acknowledged that it is likely false that swiveling behaviors exclusively serve to regulate speech transitioning. As with any other channel, swivels likely do not have a single communicative or signaling purpose. Even among my own observations of conversations video recorded for the Sommer and Bernieri (2015) study, a clear relationship between swivels and speaker-listener roles and self- versus other-oriented speech did not appear, with the exception of self-oriented speech (see **Figure 3.1**). Among those who swiveled as they answered an RCIT question, over 65% percent (or twenty-eight out of forty-three) swiveled away. In contrast to my predictions regarding other-oriented speech, though, a smaller proportion of subjects (fourteen out of thirty-two or about 44% of subjects) swiveled toward their partners than those who swiveled away (eighteen out of thirty-two or 56% of subjects). This observation still meant that fewer swiveled away from their partners when asking them a question (an example of other-oriented speech) than when speaking about themselves. So the topic of discussion might still influence swiveling behavior among speakers. It is unclear whether swiveling behaviors that deviated from

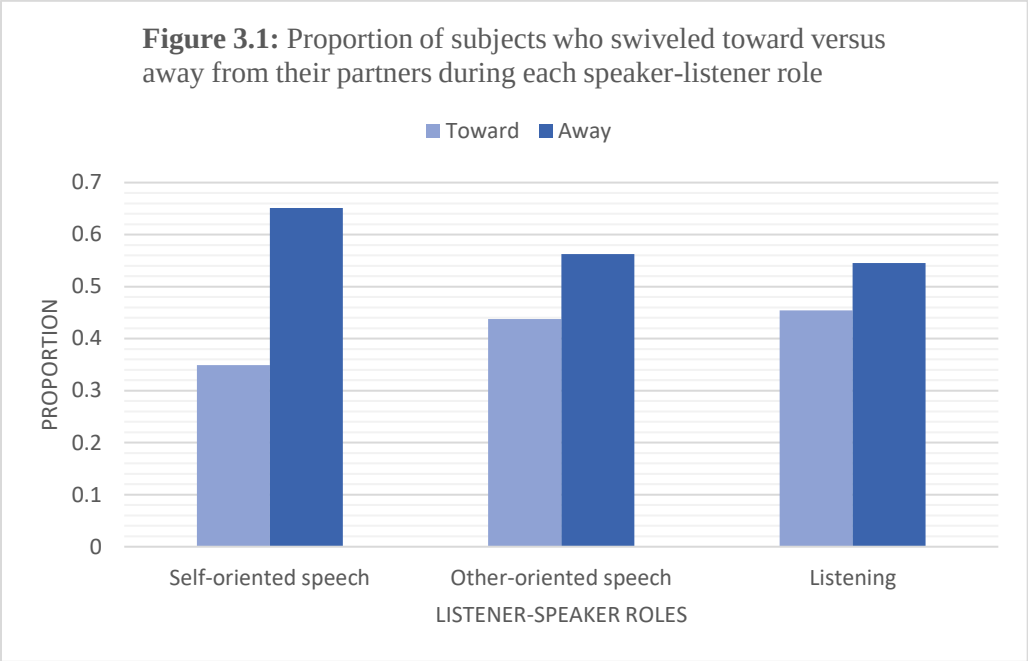

Figure 3.1: Above are the proportions of subjects analyzed from the Sommer & Bernieri (2015) study who were found to swivel away or toward their partners when asking an RCIT question (other-oriented speech), answering an RCIT question (self-oriented speech), and listening to a partner answer an RCIT question (listening).

the proposed patterns could have been influenced by impressions people had of their counterparts, by social anxiety, or by cross-cultural differences. Deviations in the expected swiveling patterns could have also been "made up for" by other nonverbal behaviors to signal the same intent. Over the course of the following pages, I will discuss how the study of swivels may be complicated by individuals' internal states, dedication to proper self-presentation, and the possibility of cross-cultural differences, as well as the practical implications of these influencers.

Practical Implications of Swiveling Behavior

Swiveling behavior has the capacity to stem from a variety of social factors. Just as social norms and individual differences in comfort with intimacy impact the behavior of other nonverbal cues, it is proposed that swiveling behavior will be similarly impacted

by individual and cross-cultural differences. The extent to which each influences such a novel behavior is yet to be determined.

Perhaps the simplest analysis of swivels results from the assumption that the directionality of swivels is inherently driven by shifts in focus between the self and the partner. If this holds true, then whenever a person is the topic of conversation he or she will be more likely to swivel away from the partner; whenever a partner is the topic of conversation he or she will be more likely to swivel toward the partner. For example, a subject from the Sommer and Bernieri (2015) study who was asked, “If you could travel anywhere in the world, where would you go and why?” swiveled away when she responded with, “uh, actually, the place I would want to go is actually Spain, and I'm going there actually this summer, um.” Likewise, when she asked her partner, “What are your hobbies?” she swiveled toward her partner. Goffman (1964) discusses how important it is to orient oneself toward the person or people with whom one is speaking, especially when others share the same general space without participating in the conversation. This behavior signals to those with whom one speaks that one is attuned to their presence and is receptive to what they have to say (Goffman, 1964).

This behavior may also be attributed to innate differences in how bodily orientation affects cognitive processes. As an individual listens attentively to a partner, his or her allocentric orientation (directed at the partner) and his or her partner’s egocentric (self-focused) orientation, evoke self-involvement in the partner by stimulating parts of the brain like the bilateral frontoparietal brain regions and medial structures such as the cingulate gyrus, involved with the formation of emotion, processing, and memory, thus allowing him or her to reflect and self-disclose (Nagels et

al., 2015). Likewise, an allocentric orientation of a person is involved with an enhanced effort in understanding and interpreting the verbal information provided by his partner, especially through the "mentalizing" network of the brain that allows a person to infer the mental state and social intention of his partner (Nagels et al., 2015, p. 1934). Thus, the act of orienting the self toward or away from a partner is deeply connected to how not only one's own brain is stimulated, but also that of the partner. What results may be that there are inherent aspects of orienting oneself toward or away from a partner that reflect innate requirements for effective socialization with others.

The Influence of Self-Presentational Needs

Since individuals generally aspire to be perceived positively through their interactions with others, people will often exert some level of control, either consciously or subconsciously, over the nonverbal behaviors that they exhibit (DePaulo, 1992, p. 203). This close regulation over nonverbal behaviors is ultimately guided toward presenting the self that they want others to see and how they would like to be defined (DePaulo, 1992; Cahill, 2003). As a result, nonverbal behaviors which give the impression that a person is conscientious and decent are be more likely to prevail. Given body orientation's impact on interactants' cognitive processes (Nagels et al., 2015) and gaze's influence on the perception of the direction of focus and affiliative needs (Matsumoto & Hwang, 2016), it appears as though people would want to behave in a manner which signaled to partners interest when listening and reflection when considering the self through the coordination of nonverbal behaviors. Yet, the norms which dictate expected patterns of behavior during conversation vary from culture to

culture. Simply assuming that people seek to present the same image across cultures is short-sighted and will not effectively account for differences in nonverbal behavior.

The Influence of Culture and Socialization

While some persons observed during the analysis of video recordings for the Sommer and Bernieri (2015) study exhibited the proposed swiveling behaviors in regard to the focus of conversation, not everyone observed followed the same swiveling pattern as outlined throughout the thesis. Subjects occasionally swiveled toward their partners when speaking about themselves and swiveled away when their partners spoke. Others largely swiveled in only one direction throughout the conversation, regardless of whether they spoke or listened. It is proposed that at least some of these deviations from the expected pattern of swiveling could have resulted from differences in socialization.

In a country made up of a wide variety of cultures and peoples, it cannot simply be assumed that individuals will all behave in a similar manner. For example, while gaze's association with affiliative needs, nurturance, power, and domination has deep evolutionary roots, cultures differ in the amounts of gaze considered appropriate for social interaction (Matsumoto & Hwang, 2016, p. 92). Cultures differ in the extent to which physical contact, interpersonal distance, and gaze are acceptable (Matsumoto & Hwang, 2016; Dael et al., 2016). These differences are further exacerbated by the highly individualistic nature of the dominant culture of the United States, because deviations from peers' patterns of behavior are not heavily sanctioned and intercultural differences between ethnic groups are able to be sustained (Matsumoto & Hwang, 2016). Yet, these differences in socialization likely come at the cost of efficient interactions and speech transitioning. Regardless of the reasons for their deviations, seamless speech transitioning

requires that each party be receptive to the same cues and adhere to a certain set culturally prescribed rules (Duncan, 1972). Thus, if the proposed pattern of swiveling behaviors holds true, then deviations, unless shared by the person with whom the conversation takes place, are bound to result in the reduction of fluidity in the interaction.

Establishment or Maintenance of an Intimacy Equilibrium

While differences in socialization and culture may account for individual variation in swiveling behavior, it is possible that internal states or emotion will influence swiveling on a more situational basis. Originally proposed by Argyle and Dean (1965), the affiliative conflict theory (also referred to as the intimacy equilibrium hypothesis) dictates that nonverbal behaviors during social interactions are guided by approach forces, which involve the desire for social gratification and feedback, and avoidance forces, which are guided by fear of rejection and scrutiny (Argyle & Dean, 1965). According to this theory, people strive to establish and maintain an equilibrium level of mutual comfort (Argyle & Dean, 1965; Coutts & Schneider, 1976). In the process of establishing an equilibrium between strangers, compensatory behaviors will be performed in response to undesirable changes in intimacy. Since people feel more comfortable with expressing themselves nonverbally rather than verbally (DePaulo, 1992), many of these behaviors will tend to be nonverbal. If people experience an obtrusive behavior from their partners, such as excessive self-disclosure or eye-contact, their discomfort would result from an unwanted amount of intimacy (Argyle & Dean, 1965; Coutts & Schneider, 1976; Matsumoto, Hwang, and Frank, 2016). In order to establish or reestablish an intimacy equilibrium, people will modify the obstructive channel or any other channel, including gaze, interpersonal distance, and body orientation (through swiveling), until their

personal intimacy equilibrium is achieved (Argyle & Dean, 1965; Coutts & Schneider, 1976; Matsumoto, Hwang, and Frank, 2016). Thus, if someone perceives a partner as far too distant, for example, he may nonconsciously act to compensate by decreasing interpersonal distance, or more directly gazing or orienting his body toward that partner in order to better satisfy his affiliative needs. Likewise, his partner could feel uncomfortable by these intimate advances by averting gaze, increasing interpersonal distance, or orienting her body away from her partner, reducing the amount of information gathered by that person regarding her partner (Patterson, 1995). During such times, it would be expected that swiveling behavior would deviate from the predicted pattern because each person is compensating for his or her partner's advances and essentially "testing the waters" for how much intimacy that can occur in the interaction.

This could especially be the case for many subjects in the Sommer and Bernieri (2015) study given the elevated likelihood for increased levels of intimacy from answering RCIT questions (see **Appendix A**). Upon first becoming acquainted with someone, especially within five minutes, some people might not be keen on earnestly answering a question, such as, "What is one thing in your life that makes you stressed out?" Indeed, while some subjects provided broad and generalizable responses like "tests," others might talk about their interest in graduate school, worrying about living up to standards, and where he or she is interested in applying. If the person who asked such a question expected a general response just to get through the interaction, then they might react favorably to a general response, swiveling toward their partner in affiliation. In contrast, if they received the latter response, then they would become uncomfortable due to the elevated levels of intimacy that the partner introduced to the conversation. If that

partner were receptive to that person's nonverbal cues signaling awkwardness or disinterest, they too would begin to feel uncomfortable and exhibit avoidance forces out of fear of rejection and scrutiny, even when they might have otherwise behaved according to norms of behavior. As a result, sustained or abrupt deviations from the swiveling and gaze guidelines may function as feedback for speakers to easily determine listeners' immediate impressions in regards to their statements or themselves.

If the above ideas hold true, then the inclusion of emotional reactivity and differences in socialization through cultural influences in the analysis of swivels would complicate the relationship between swivel directionality and the subject of conversation. They would result in deviations from the expected swiveling patterns. It is also proposed that some of the asymmetry in comfort levels with interpersonal intimacy results from cultural differences in what is perceived as appropriate behavior. Thus, if a member of a culture whereby elevated amounts of gaze are customary in social interactions, then he or she might make someone unaccustomed to this behavior uncomfortable and even act to reduce perceived levels of intimacy by averting gaze and even swiveling away from his or her partner. Thus, further research on the influence of cultural differences and the establishment of intimacy equilibria on swiveling behaviors would aid in an improved understanding of how each might determine how situational factors might influence swiveling patterns.

Situational Implications of Swiveling Behavior

At the root of swiveling behaviors, it is important to determine when and where swiveling chairs should be made available to people as they interact with others. In the absence of meaning behind swiveling behaviors, such behaviors may become too

distracting to those tasked with speaking, especially as utterances are developed. Yet, if swivels really do enable people to signal self-versus other-oriented speech and thought, then access to swiveling chairs could deeply influence how interactions occur. In the following pages I will discuss three different settings whose design could really benefit from research on the influence of swiveling chairs on the efficacy and regulation of social interactions.

Lecture settings are distinct from other settings in that only one person is expected to speak while the rest listen. Among the apparently limitless aspects of social interactions which could be assessed in the context of swiveling behaviors, it would be interesting to compare verbal behaviors amongst audience members between rooms equipped with stationary chairs and rooms equipped with swiveling chairs (see **Figure 3.2**). Not only could the amount of verbal feedback provided by listeners to speakers be assessed, but the relative amounts of verbal exchanges that occur between classmates, whether facilitated or repressed by the head speaker, may be determined. It is predicted that seating listeners in stationary chairs facing the head speaker would induce greater levels of attention to that person, and thus reduce inclinations toward interacting with others around them, by encouraging the adoption of listener roles. In contrast, access to swiveling chairs is expected to give people the freedom to respond, ask questions, and interact with one another by allowing them to orient themselves in any direction much more readily. It is possible, even, that access to swiveling chairs would also enable listeners to more readily process information retrieved from the lecture and thus improve their memory of lecture materials. Recall that orienting the body away from someone

Figure 3.2: The above images represent classrooms equipped with stationary chairs (top) and with swiveling chairs (bottom). These images were obtained from yw2005.com (top) and from officefurnitureinteriors.com (bottom).

stimulates parts of the brain involved in the formation of emotion, processing, and memory (Nagels et al., 2015). As a result, enabling individuals to change their body orientations throughout a lecture might facilitate learning. Thus, future research may involve testing information-retrieval in stationary chair and swiveling chair conditions.

However, these very same movements may allow the listeners performing these swivels to become more easily distracted with personal thoughts and others' movements by more readily changing the focus of their attention. Future research might therefore be useful in determining whether swiveling chairs facilitate or inhibit learning and interactions in lecture environments.

Perhaps, we have already unconsciously recognized the power that the swiveling chair gives to anyone seated on it to provide feedback to those with whom they interact. Is it an accident that offices are so often equipped with a swiveling chair for the office-holder and stationary chairs for any guests (see **Figure 3.3**)? Being seated on a swiveling chair prevents individuals' bodily movements and behaviors from becoming amplified. To a degree, this protects anxious interviewees from allowing their nervous, autonomic behaviors from becoming overly visible. Yet, this also prevents them from expressing disinterest or a desire to exchange speech turns through leg movements, thus removing some of their power to regulate the conversation. Likewise, the direction in which stationary chairs are oriented could influence the focus of people's interactions. For example, the image to the left in **Figure 3.3** displays what appears to be an office whereby the conversations between guests is prioritized above those with the office-holder, leaving the office-holder to serve more as an overseer. Therefore, future research could differentiate office designs based on the relative presence and absence of swiveling chairs to determine the offices' function in professional interactions.

Figure 3.3: In the absence of the scientific study of the influence of swiveling behaviors on conversational dynamics, offices are still customarily equipped with swiveling chairs only for office-holders and stationary chairs for guests. While office-holders may swivel their bodies in any direction, guests are limited to the orientation in which the chairs were placed, presumably limiting their ability to signal intent to switch listener-speaker roles and regulate the conversation. The above images were obtained from the websites megas.com.ua (left) and arreamentiprella.it (right).

Other areas which could benefit from additional research are clinical medicine and psychology. Swiveling chairs may prove to be useful in these settings, enabling clinicians to have visual access of swiveling behaviors in order to assess patients' attempts to self-disclose or conceal internal states. Take for example a visit to a primary care provider. Currently, only the physician is given access to the swiveling stool which enables him or her to move around and shift focus between the patient and a computer. The patient, on the other hand, is expected to sit on not only a stationary seat but also one which makes an unpleasant noise whenever he or she shifts his or her body in any way (see **Figure 3.4**). The patient's ability to move his or her body is therefore more constrained to a fixed position and orientation. Considering how, under normal conditions, people will alter gaze, body orientation, or interpersonal distance to reduce warm or caring a physician may appear to the patient, discussing personal topics with a physician can still be very difficult, especially when considering how intimate these

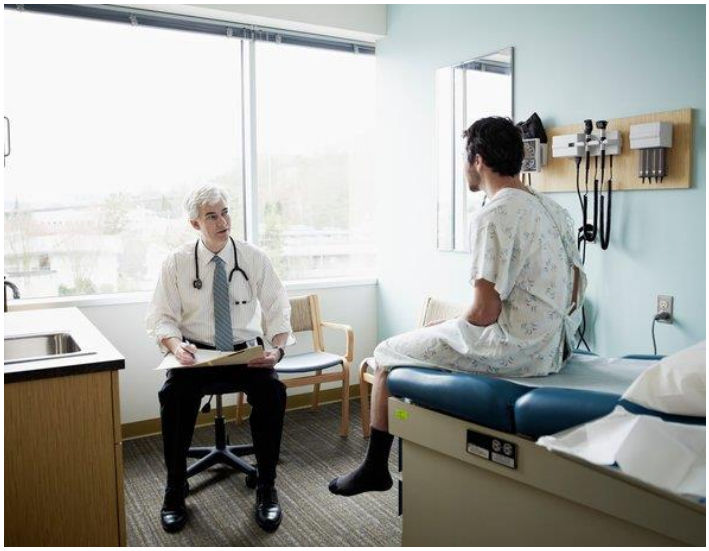

Figure 3.4: Whenever a patient meets with a physician in a clinical setting the doctor has access to a swiveling chair which he or she uses to shift focus between the patient and the computer from which information is retrieved regarding medical history and treatment options. In contrast, the patient must sit on a bed equipped with sanitary paper to reduce the transmission of communicable diseases. While this design serves to set the atmosphere of a clinical setting whereby patient and physician work together to resolve medical concerns, it may leave patients feeling exposed and unable to reduce feelings of discomfort when discussing very personal topics. The above image was obtained from well.blogs.nytimes.com.

conversations generally become. In order to facilitate effective and meaningful conversation during doctor-patient interactions, it might prove effective to redesign the environment to invite self-disclosure through access to swiveling chairs. This is predicted to allow patients to orient themselves more indirectly when trying to recall medically relevant information and when discussing uncomfortable topics. Regardless of the mutual need for information to be accurately exchanged between physician and patient, feelings of discomfort due to elevated levels of intimacy are predictably ever-present. As a result, one can hardly be surprised that people tend to feel uncomfortable when visiting the doctor's office. Yet, instead of blaming the patient for not being honest enough, it might serve the doctor-patient interactions well to transition from cold, clinical environments to warm, welcoming environments equipped with seats for patients to readily move in. The

efficacy of such a transition could even be examined through the comparison of the depth and number of self-disclosing statements between rooms equipped with stationary chairs and swiveling chairs.

To the extent the ideas forwarded in this thesis hold true, architects and interior designers will one day be advised to incorporate a theory of swiveling into their design of offices, examination rooms, and classrooms. In situations whereby feedback from auditors should be restricted, interior designers should consider the introduction of stationary chairs. In contrast, settings which depend on mutual understanding, memory, and comfort should likely be furnished with chairs which enable interactants more move more readily. Hopefully, through the introduction of psychologically-oriented furnishings, the environment in which interactions take place will better fit their intended purpose.

Conclusion

The study of swiveling behaviors promises to improve our understanding of interpersonal relations and the elements that guide speech transitioning in conversation. Through the quantitative and qualitative analysis of swivels, correlational studies may someday relate swivels to gaze behaviors and body orientation, affect, and speech transitioning. Since individuals' internal states and differences in socialization likely confound swiveling behaviors, any attempts to categorize swiveling patterns based on sex, clothing, or function should account for these proposed sources of variation. Utilizing a better understanding of how and why swiveling behaviors occur and their influence on face-to-face interactions will enable interior designers and architects to improve the efficacy of social interactions through their designs.

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Appendix A

RCIT Questions Provided to Subjects

Sommer & Bernieri (2015)

Subject	**Questions provided to facilitate social interaction**
Subject 1	What are your hobbies? What is one strange thing that has happened to you since you've been at OSU? What would you like to do after graduating from OSU? What is one embarrassing thing that has happened to you since arriving at OSU? What would be the perfect lifestyle for you?
Subject 2	What is one thing happening in your life that makes you stressed out? What is something you have always wanted to do but will probably never be able to do? If you could change anything that happened to you in high school, what would it be? If you could travel anywhere in the world, where would you go and why? If you could change one thing about yourself, what would it be?

Appendix B

	Participant 59 Subject 3 Neutral	Participant 57 Subject 1 Accepted	
		hi, I'm Paul	0:00
0:01	I'm Michelle.		
		nice to meet you.	0:02
0:02	you too,		
		um, so what are your hobbies?	0:04
0:07	my hobbies, um, I don't really have any hobbies, but I have alot of interests. um, I elike to dance and sing, and I guess a hobby could be reading, I elike reading good books,		
		mmhmm,	0:21
0:22	and I elike watching movies and videos and.		
		cool, good deal,	0:27
0:28	yep, what are your hobbies?		
		my hobbies? um, I have an addiction to guitar, basically. uh, it's one of the main things. I just got into it. um, let's see what else, photography, I really elike doing that, just the ii, blow off some steam, youknow, go out with a friend, take some good shots. uh,	0:29
0:45	mmhmm,		
		let's see what else? uh, I ski a little bit, and just tennis, and try and stay healthy by jogging.	0:47
0:53	mmhmm,		
		that's pretty much it.	0:53
0:54	I took photography in high school. it was really fun. it was fun.		
		cool, uh, so, what is one strange thing that has happened to you since you have been at Oregon state?	0:58
1:06	one strange thing?		
		Iguess.	1:07
1:08	heh, Idunno, heh.		
		eheheheh,	1:10

1:11	mm, I can't think of anything off the top of my head. mm, strange, everything's pretty normal. um, what is one thing happening in your life that makes you stressed out?		
		what makes me stressed out? uh, midterms coming up next week, yeah, the fact that I've been partying last night, [sigh] yeah, probably not the best move, but uh, I went to my classes, ehem.	1:26
1:42	what'd you say about your glasses?		
		I went to my classes.	1:43
1:44	oh, heh, I thought you said you'd lost your glasses [heheh].		
		no, no, stayed up till tlike three, and, and I, I nearly missed my first class this morning.	1:47
1:58	um, what is something you have always wanted to do but probably will never be able to do?		
		become a rock star, hehehe,	2:04
2:05	oh,		
		hehe,	2:06
2:08	yeah, everybody wants to be a star.		
		mmhmm, well, yeah Iguess. well, I kinda wanna be the um, the more discrete, humble rock star. okay fine, that's an oxymoron, but,	2:10
2:20	that's good, heh.		
		just, kinda glike the underground type, but anyway, uh, what would you elike to do after graduating from Oregon State?	2:22
2:29	after graduating from Oregon State, I wanna get married, and I wanna go to grad school. alot of people think you can't do that, but I think it's possible.		
		mmhmm,	2:39
2:40	and then, um, do some work, and after grad school, and get a PhD, become a clinical psychologist, andstufflikethat,		
		mm, wow,	2:51

2:52	have kids.		
		cool,	2:53
2:53	eheh,		
		going for the PhD?	2:53
2:55	yeah, um,		
		that's pretty intense.	2:55
2:57	yeah, I would elike to be called Dr. Young, heheh.		
		hehehe, it's all about the doctor.	3:00
3:02	yeah, I really wanna help people, so.		
		cool,	3:04
3:05	yup,		
		that's awesome.	3:05
3:08	um, let's see, if you could change anything that happened to you in high school, what would that be?		
		mm, being so kinda stuck up and not going to any parties, Iguess.	3:15
3:21	mmhmm,		
		that would be pretty much it, and well I, I, I think I stress myself out too much, youknow, worrying about college and just whatever, Imean, it was good, but I wish I was a bit more laid back.	3:23
3:33	mmhmm,		
		um, what would be the perfect lifestyle for you?	3:36
3:42	the perfect lifestyle for me is the way I'm living right now.		
		yeah?	3:48
3:49	yeah, um, I'm a Christian, so I think living the way that, um, God wants me to live is the way it should be, and glike, I'm real family oriented, and,		
		mmhmm,	4:01
4:02	um, I really have a drive to reach my goals, and glike, um, yeah, so, yeah, the way I'm living now.		
		mmhmm, so, what ii, can you elaborate on that? glike, I'm just curious, how um?	4:12
4:17	oh okay, well, youknow, glike going to church, being active,		

		mmhmm,	4:20
4:21	and um, plike I said, I'm interested in dancing, glike, that's my, my passion and singing, so I do sing every now and then for different activities at school and at church, and so um, glike, uh, I wanna give back to the community and work in the church with youth groups,		
		mmhmm,	4:40
4:41	when I get older.		
		that's cool, definitely.	4:43
4:46	um, if you could travel anywhere in the world, where would you go and why?		
		Italy,	4:52
4:53	Italy?		
		because it's such a cool and cultural place, Iguess, they make Ferraris, heheheheh.	4:53
4:59	mm.		5:00
		hehe, Idunno, I just, uh, I've just seen a ton of movies from there, and it's just gorgeous and.	