Towards a Game-Theoretic Analysis for the Study of

Disability Microaggressions as a Communicative Phenomenon

by

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A Dissertation Presented in Partial Fulfillment
of the Requirements for the Degree
Doctor of Philosophy

Approved October 2021 by the
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ARIZONA STATE UNIVERSITY

December 2021

ABSTRACT

For fifty years, inquiry has attempted to capture how groups of people experience microaggression phenomena through multiple methodological and analytic applications grounded in psychology-influenced frameworks. Yet, despite theoretical advancements, the phenomenon has met criticisms trivializing its existence, falsifiability, and social significance. Unpacking possible interactive factors of a microaggressive moment invites a revisitation of the known and unknown pragmatic conditions that may produce and influence its discomforting situational "content." This study employs an intentional, game-theoretic methodology based on brief, publicly-recorded, everyday conversation segments. Conversation segments of social interactions provide a means to conduct a mathematically-solid, computationally-tractable analysis of explaining what is happening during encounters where disability microaggressions are likely the result of partial (non)cooperation between communicators. Such analysis extends the microaggression research program (MRP) by: (1) proposing theoretical consequences for conversational repair phenomena, algorithmic programming, and experimental designs in negotiation research; and (2) outlining practical approaches for preventing microaggressions with new communication pedagogy, anti-oppression/de-escalation training programs, and calculable, focus-oriented psychotherapy. It concludes with an invitation for scholars to "be" in ambiguity so that they may speculate possible trajectories for the study of microaggressions as a communicative phenomenon.

DEDICATION

For Roger and Cindy:

Thank you for supporting my love of education.

ACKNOWLEDGMENTS

To Kelsey, Rikki, Megan T., Joy, Julie, Donna, Dayna, Evelyn, Casey, and Xavier: Thanks for taking time to be my friends. To walk through the darker emotions with me. To always love and support me. To listen. To show empathy, care, and encouragement. I appreciate you.

To my cohort, Al, Emilee, Callie, Ana, Tyler, Kevin, Cris, Cary, and Anya: We tackled this strenuous journey together, even during a global pandemic. We are still surviving. I hope we get to thrive someday soon. I'm grateful for you and I hope you know I will always be there for you when you need it.

To my ex-partners: Thank you for being here when you were and for leaving when you did. You taught me valuable lessons. I'm still learning and building self-compassion.

To Daniel Jose Sanchez: "All will be well if we think it will. I know it will be, from my end." This will always sit with me. Thank you for grounding me. For providing a space for fun, laughter, joy, comfort, love, and working through the gritty stuff, too. I hope you know how much you mean to me, whatever happens. Thanks for keeping it real.

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PREFACE

I wanted to take a moment to provide a **content warning** for this project. I recognize the potentially discomforting and violent nature of the disability microaggressions that are discussed throughout this study as I work to build an explanatory framework that attends to objective, subjective, and critical realities. Writing through examples and analyzing conversational extracts of microaggressive moments has been taxing (and at times retriggering) for my disabled and neurodiverse bodymind. That said, I do not want to subject anyone to reading something that could result in some degree of psychological or affective injury. I deal with themes of ableism, explicit language such as epithets/slurs, and frank discussions pertaining to everyday acts that perpetuate historical and cultural trauma. Please discontinue reading (i.e., step away from) this project if at any time it becomes too overwhelming. I've done my best to balance the needs of writing through the interactive nuances of this project without being overly explicit, but I know this is not an easy topic or space. My goal when writing is to understand broadly as much as possible about what is happening in a microaggressive moment while also validating experiences, perspectives, and emotions. Words do matter; I care about orienting communication towards accessibility and social justice.

CHAPTER 1

OPENINGS

For fifty years, the term *microaggression* has been used in psychiatry and psychology research to describe everyday subtle, often automatic, and typically unconscious slights or "put downs" that communicate bias, hostility, denigration, or negativity toward a person (or persons) based on their membership status with a marginalized group (Pierce, 1970; Pierce et al., 1978; Sue, 2010). These are distinct verbal and nonverbal messages that otherwise well-intentioned individuals can communicate to recipients unaware that the implication of what was said or done can produce potentially distressing effects in the body (Sue, 2010). Such utterances are "the manifestations of macroscopic level of intersectional othering that continue to (re)affirm, (re)create, and (re)solidify" (Yep & Lescure, 2019, p. 122) dynamic tensions between cultural in- and out-groups based on oppressive structures such as racism, sexism, (cis)heterosexism, ableism, classism, or religious hegemony, to name a few (Giles et al., 2010; Sue, 2010). Yet, despite theoretical advancements, the notion of microaggressions has met criticisms trivializing its existence, empirical falsifiability, and social significance (Lilienfeld, 2017). In response to such criticisms, scholars such as di Gennaro and Brewer (2019) turned to data-driven pragmatic analyses to provide evidence that microaggressions during social interactions are not imagined or "merely in the eye of the beholder" (p. 726). While work in communication studies has borrowed and used terms and concepts from psychology to theorize some communicative underpinnings of the phenomenon with frameworks such as intersectionality theory (see, e.g., Harris & Moffitt, 2019; Orbe, 2021; Yep & Lescure, 2019), scarce contributory strides have been

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made in methodology to answer the question of how to recognize the pragmatics of inexplicit, ambiguous, social actions as prejudicial in nature (Wilkes & Speer, 2021).

One particular form of microaggressions that has been relatively understudied in extant literature is interactions related to disability status (Torino et al., 2019). Keller and Galgay (2010) were first to taxonomize disability microaggressions using data gathered from conducting focus groups. Eight themes emerged from their findings, which include: (1) a denial of disability-related identity for a "person with a disability (PWD)"[1]; (2) an invasion of a PWD's privacy by requesting personal disability-related information; (3) trying to help or save a PWD when help is not needed; (4) expecting praise for helping a PWD; (5) assuming that only one disability exists in a PWD's body; (6) praising a PWD as inspirational; (7) treating a PWD as someone who is bothersome, disgusting, a waste of time, and so on; and (8) ignoring a PWD's sexuality or attractiveness. Only a few studies have contributed to Keller and Galgay's taxonomy by exploring mental illnesses (Gonzales et al., 2015) and physical disabilities such as multiple sclerosis (Lee et al., 2019) through qualitative (Dávila, 2015) or quantitative methods (Conover et al., 2017; Kattari, 2019). However, while it is clear from the literature *what* a disability microaggression is, such as "you're inspiring" (Keller & Galgay, 2010) or "that's retarded/crazy" (Bell, 2011; Peters et al., 2017), little is known about *when* and *how* disability microaggressions surface inside conversations. The conceptual fluidity and sociality of disability status (McRuer, 2006; Puar, 2017), neurodiversity/neuroqueerness

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[1] Keller and Galgay (2010) use person-first language for describing recipients of disability microaggressions. However, this can risk "reifying negative connotations of disability" and "displace attention from the ableist social oppression it seeks to challenge" (Cherney, 2019, p. 24). Thus, I use identity-first language throughout this project.

(Yergeau, 2018), and emotionality (Ahmed, 2014) makes this type of microaggression difficult to study empirically. Disability microaggressions are not simple acts of everyday denigration of what a person's body-and-mind, or *bodymind* (Price, 2015), can and cannot do. Rather, they are about the ways a bodymind intersects with multiple, simultaneous identity-markers—such as race, class, gender, and sexuality—and experiences layered in marginalization (Clare, 2017; Yep & Lescure, 2019). They are about power relations that continue to fuel embodied trauma in seemingly endless feedback loops on structural, historical, institutional, and cultural levels (Ahmed, 2014; Yep & Lescure, 2019). They are about environments, locations, temporalities, and resources that sustain inaccessibility, inequity, and social injustice in daily interactions (McRuer, 2006). In sum, their messy and complex nature makes identifying the presence and functioning of disability microaggressions during social interactions troublesome.

This project addresses the many possible pragmatic properties that undergird a disability microaggressive moment during social interactions. Specifically, existing work on microaggressions reflects an investigatory schism that invites revisitation of the known and unknown conditions that may produce and influence the discomforting "content" that may arise during situated communication. That is, little is known about what people are doing with their talk, how people understand the content of their talk, and the ways people interpret and internalize utterances given the context in which they find themselves. Unpacking the content of a disability microaggressive moment allows a study of what actually ensues during conflict-ridden, problematic situations without automatically assuming that the language used is appropriate to what is being discussed. In doing so, it becomes possible to explain how a person's communicative choices are

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tied to ableist ideologies, logics, and varying degrees and intersections of power and privilege. An examination of varying types of microaggressive moments from a communicative vantage point permits an opportunity for repairing problematic utterances in conversations (Robinson, 2006; Zahn, 1984). Communicators can consider an array of responses that work to create more accessible and inclusive talk in place of ableist scripts.

A communicative examination of disability microaggressions invites the development of game-theoretic analyses that may explain the epistemological bases currently absent in microaggression theorization (Jones, 2016; Leyton-Brown & Shoham, 2008; Parikh, 2001, 2010, 2019; Shoham & Leyton-Brown, 2009). In this dissertation, I turned to a game-theoretic model called "equilibrium linguistics" (Parikh, 2019), or earlier known as "equilibrium semantics" (Parikh, 2010), as inspiration for building a broad, holistic, and multifaceted communicative understanding of what might lead to interpreting problematic utterances as disability microaggressive moments. Drawing from game theory (Leyton-Brown & Shoham, 2008; Shoham & Leyton-Brown, 2009) and situation theory (Barwise & Perry, 1983), *equilibrium linguistics* is a mathematical framework that derives and computes variant conjectures of meaning that may arise from many possible interacting forces that affix to communicative messages. The lens draws from several linguistic approaches—Austinian (1962) performative utterances, Searlean (1969) speech acts, and Gricean (1975) conversational implicatures—to extrapolate a more "philosophically sound, mathematically solid, and computationally tractable" (Parikh, 2010, p. 283) approach for capturing ambiguous, power-laden language as it morphs across social interactions. Simply, this empirical template accounts for a balance of the potential forces that inform the pre-action, interaction, and reaction to conflictive

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behavior and failed repair responses contributing to disability microaggressive moments. In short, it offers a precise explanation for how oppressive systems such as ableism are constituted during social interactions and how communicators craft and choose responses for counteracting discriminatory messages. This dissertation outlines several game-theoretic principles for the study of microaggressions as a communicative phenomenon.

This first chapter outlines a rationale for moving towards a communicative understanding of the ambiguity underlying multiple interpretations of microaggressive moments. To unlearn the habituated interpretive insights that reinforce a preexisting psychological conceptualization of microaggressions, this chapter briefly surveys current theory and inquiry pertaining to these subtle snubs and considers potential modifications. Doing this prevents the constricted overdetermination that extant literature has accomplished and extrapolates a deeper comprehension of the areas of scrutiny where interactive contemplations might warrant a more robust empirical analysis of this phenomenon's discomforting content. I end this chapter by previewing the organization of this dissertation project.

Microaggression Theory: A Review and Rationale for Expansion

Defining microaggressions has had a complex history. Psychiatrist Chester Pierce (1970) coined "microaggression" to describe offensive mechanisms or problematic messages that victimizers deliver incessantly to brutalize, degrade, abuse, and humiliate another group of individuals through contemptuous condescension. To be exact, Pierce speculated these types of messages acted as "the chief vehicle for proracist behaviors…subtle, stunning, often automatic, and nonverbal exchanges which are 'put downs' of blacks by offenders" (Pierce et al., 1978, p. 65). Unlike largescale, "gross,

dramatic, obvious" *macroaggressions* such as lynching or the enforcement of Jim Crow laws (Pérez Huber & Solórzano, 2015a; Pierce, 1970, p. 266), Pierce intended "micro" to mean small, commonplace, cumulative utterances (vocalized or not) and behaviors that Whites use to project their racialized attitudes onto Blacks. Social actions such as mistaking a Black person for a service worker or expressing, "there is only one race: the human race," continue dehumanization (Torino et al., 2019, p. 4). As such, defining microaggression as a foundational descriptor for what was happening during a social interaction helped targets recognize and understand the distressing effects these constant bombardments had on their daily lives.

Later, the definition for microaggressions generalized inter-group dynamics by affixing social and psychological components to cultural tensions for understanding what is happening during interactivity. Psychologist Derald Wing Sue (2010) broadened Pierce's concept beyond Black-White interactions to explain how targets of microaggressions come to know these verbal, behavioral, or environmental indignities through their perceptions as highly personalized, emotionally-charged attacks. That is, according to Sue, these slights—which can communicate racial, gender, sexual-orientation, class, disability, or religious discrimination, for example—happen on varying levels of consciousness and recognition, including subconsciousness and unconsciousness. Specifically, these offenses stem from deeply held *prejudices*, or the (un)favorable feelings a person has towards someone they view as different or part of an "out-group" (Allport, 1954, p. 6). Whether intentional or unintentional[2],

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[2] According to the folk concept of intentionality, mental states such as beliefs, desires, and intentions guide human behavior. For behavior to be intentional, individuals must have a *desire* (want) for an outcome, *belief* (knowledge/thought) a behavior will lead to that outcome, and a resulting *intention* (decision) to

microaggressions reflect cultural, political, and ideological worldviews of inclusion-exclusion, normality-abnormality, or superiority-inferiority often invisible to perpetrators (Torino et al., 2019). In other words, it is the commingling of obvious and hidden biases—or unfair prejudices (Allport, 1954)—with a speaker's intentions that discursively shape how the dynamics of microaggressive moments unfold. In short, the intricacies of personal experiences during social interaction have paved the way for microaggression theorization.

Consequently, clinical psychologists crafted a taxonomy from a review of empirical work for identifying how racial-ethnic microaggressions manifest in everyday encounters. Each of the three distinct sub-forms—microassaults, microinsults, and microinvalidations—operate overtly or covertly within messages to subvert all kinds of personal experiences for minoritized individuals (Sue et al., 2007). The first form, *microassault*, refers to an explicit, conscious, and deliberate verbal, nonverbal, or environmental attack with the intent to hurt or injure someone by communicating that they are "lesser human beings" (Sue, 2010, p. 28). Regarding disability status, this can include name-calling someone a "retard," avoiding eye-contact with a wheelchair user, or discriminating by refusing to include accessible parking (Keller & Galgay, 2010; Torino et al., 2019). The second form, *microinsult*, is an unintentional behavior or "subtle snub" that conveys rudeness, insensitivity, or degradation toward a person's identity, heritage, religion, or disability status (Sue, 2010, p. 31), such as when an able-bodied person misuses terminology by remarking, "The weather is so bipolar" or "I feel like killing

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perform that behavior (Malle & Knobe, 1997). This belief-desire model is pivotal across several disciplines (psychology, linguistics, communication, etc.) for understanding what may fulfill (result in) a social action.

myself today" (Peters et al., 2017, p. 95). Finally, a *microinvalidation* occurs when a perpetrator unconsciously taps into a power structure such as ableism (see Campbell, 2009; Wolbring, 2008) and makes an unintentional comment or behavior meant to "exclude, negate, or nullify the psychological thoughts, feelings, or experiential reality of certain groups" (Sue, 2010, p. 37). Expressing, "You can't be depressed, you're smiling" (Gonzales et al., 2015, p. 236) or "Don't you think you're being…overly sensitive?" (Keller & Galgay, 2010, p. 251) invalidates the bodymind's emotions and experiences. Despite extensive literature covering these forms, little research explores microaggression manifestations related to disability status (Torino et al., 2019) and how some problematic message are littered with ableist bias.

What makes microaggressions unique from other forms of conflict-ridden communication (e.g., relational transgressions, passive aggression, or everyday incivilities) is how they target cultural, historical, and sociopolitical intersections of an individual's identity status such as race, gender, and disability (Snorton, 2017; Sue, 2010). In one study, Pérez Huber and Solórzano (2015a) composed a taxonomy via critical race theory (CRT) to argue that microaggressions are rooted both in social group domination and engrained power structures such as racism, sexism, ableism, and so on. Ties to institutional oppressive systems inevitably complicate how targets or bystanders discern what is being said or done in social situations and what effects such indignities might have on those involved in the interaction. For example, disabled people, who have experienced long-term systemic discrimination, may be more conscious of how their marginal identity markers (their disability status) impact the interpersonal dynamics of a social situation (Torino et al., 2019). A self-conscious awareness of how their bodyminds

contribute to cultural tensions might then worsen a highly stressful scenario for disabled targets, even during moments when seemingly innocuous comments (e.g., "So, what happened to you?") do occur but fail to trigger psychological distress (Keller & Galgay, 2010, p. 252; Sue, 2010). As such, unlike other types of communicative transgressions and everyday slights, microaggressions specifically function to communicate prejudice toward those with minoritized identity statuses (Torino et al., 2019) and to heighten ambiguity and discomfort in an interactive space.

Given their perplexing modes of interactive manifestation, significant research has been conducted to investigate the phenomenon's factors, themes, conditions, impacts, and responses (Torino et al., 2019). One popular theoretical explanation comes from the microaggression process model—a phasic process that identified what internal psychological dynamics occur for a target when they experience a microaggression (Sue, 2010). The model traces the sequentiality, intermittency, cyclicality, and impact of a microaggression across five domains: incident, perceptions, reactions, interpretations, and consequences. First, microaggressions begin with an incident, triggered by verbal, nonverbal, or contextual cues in ongoing discussions or nearby interactions. Second, recipients use their perceptions to determine whether the incident was bias-motivated and discriminatory based on numerous factors such as ambiguity, personal attributes, relationship aspects with perpetrators, and so on. Third, if a recipient thinks an offense occurred, they will react to the mistreatment by either questioning a perpetrator's motives, checking their own perceptions with a bystander, shifting fault back to aggressors, or placing blame on larger oppressive ideologies, to name a few. Fourth, recipients assign an interpretation to the incident's significance, the aggressor's

intentions, or to any social patterns related to the event. Lastly, recipients deal with the consequences of what happened such as feeling powerless, invisible, compliant, or pressured to represent their group. Sue's model has been used to build a constitutive understanding of power dynamics during microaggressive interactions. However, this model provides a prototypical description with little attention directed toward crafting a holistic assemblage of the situational components that generate the initial incident or the epistemics recipients use to discern a message as a microaggression.

Under the Sue-influenced interpretive framework, microaggression inquiry has attempted to capture the various ways groups of people experience this phenomenon through multiple methodological and analytic applications. Early inquiry explored this concept using an array of qualitative methodologies ranging from in-depth interviews (Torino et al., 2019), autoethnographies and vignettes (Sue, 2010, 2015), content analyses (Guo & Harlow, 2014; Nadal et al., 2011, 2014), and rhetorical/visual analyses (Pérez Huber & Solórzano, 2015b), to indigenous methodologies such as performance work (de la Garza, 2019) for recording and representing rich narratives from individuals who have experienced various kinds of microaggressions. Scholars studying disability microaggressions have turned to ethnography and grounded theory (Dávila, 2015) and focus groups (Gonzales et al., 2015; Keller & Galgay, 2010; Lee et al., 2019; Peters et al., 2017) to explore stereotypes of physical and mental disabilities when they may or may not intersect with race and sexuality. In turn, analyses of qualitative forms of microaggression data have primarily thematized these offenses into various taxonomical categories. Researchers have analyzed microaggressions centering around several identity markers including transgender (Nadal, 2013; Nadal et al., 2010), bisexuality (Todd et al.,

2016), other sexual orientations and gender identities (Haines et al., 2017; Sterzing et al., 2017), status and class (Young et al., 2015), religiosity/spirituality (Hodge, 2020; Husain & Howard, 2017), race (Holling et al., 2014; Solórzano & Yosso, 2001), intersections thereof (Lewis et al., 2016; Solórzano, 1998), and, of course, disability status (Keller & Galgay, 2010). The consensus across these studies is that targets experience microaggressions phenomenologically, bounded by nebulous contexts only identifiable by theme and seemingly innocuous examples (Torino et al., 2019). As such, no exact message structure has been recognized in the literature to suggest an agreed-upon label of what constitutes a microaggression for targets.

To rectify this concern, scholars employed quantitative methodologies for specifying what effects individuals experienced when encountering various microaggression message types. Some studies used correlational designs where individuals completed self-report questionnaires that measured psychological variables (Torino et al., 2019). The various severe, psychological distresses, somatic symptoms, and lagged-day effects microaggressions have on the wellbeing of recipients—such as anger, depression, exhaustion, humiliation, posttraumatic stress, and so on (Ong et al., 2013; Sue, 2010, 2015, 2017; Torino et al., 2019)—has prompted scholars to construct taxonomies (Cargile & Ramos Salazar, 2016) and several widely-used scales including the Racial and Ethnic Microaggressions Scale (REMS) to assess bodily harm (Forrest-Bank et al., 2015; Nadal, 2011; Sanchez et al., 2018). For the study of disability microaggressions, researchers have conducted exploratory and confirmatory factor analyses for the development and validation of the Ableist Microaggression Scale (AMS) so as to measure mental health outcomes on physically disabled individuals (Conover et

al., 2017; Kattari, 2019, 2020) who may have also identified as a sexual minority (Conover & Israel, 2019). Other studies capitalized on multiphasic, embedded mixed-method approaches with techniques from grounded theory (Torres et al., 2010), narrative analyses (McCabe et al., 2013), and field observation (Suárez-Orozco et al., 2015) to enhance statistical analyses. Few even attempted experimental designs by randomizing individuals across conditions and controls (Torino et al., 2019) to better understand the perceived consequences microaggressions have on targets (Tran & Lee, 2014) and bystanders (Owen et al., 2018; Tao et al., 2017). However, quantitative studies have not specifically investigated the interactive factors that could instigate the natural emergence of a discomforting comment individuals might interpret as microaggressive.

In response to findings that suggest a link between microaggressive acts and detrimental psychological health outcomes, scientist-practitioners and clinicians designed multiple types of training protocols for responding to and remediating the harmful effects of microaggressions (Torino et al., 2019). Contemporary microaggression works centralize a traumatology lens for building and implementing coping mechanisms for targets instead of intervention development for perpetrators and potential perpetrators (Bryant-Davis & Ocampo, 2005). Even so, social work research advanced several practices for the prevention of the formation of prejudice and individual, social, and cultural microaggressive suffering (Torino et al., 2019) by shifting the trauma-informed framework of care to one that increases awareness of hidden biases for the purposes of community-centered healing. One approach focused on creating constructive self-compassion and self-kindness intervention strategies for potential perpetrators, witnesses, and targets to decrease rumination and depressive episodes (Krieger et al., 2013; Thurber

& DiAngelo, 2017). Another method included using hypothetical pedagogical scenarios and co-operative learning strategies in classroom settings for navigating discomforting dialogues and for building cultural competency through compassion (Papadopoulos et al., 2016; Pérez Huber & Solórzano, 2018; Ramasubramanian et al., 2017; Stone et al., 2000). A final, commonly used technique has been the sharing of testimonies, personal narratives, journal writings, performances, and autoethnographies to address individual and collective suffering from microaggressive moments (Cargile & Ramos Salazar, 2016; de la Garza, 2019; Torino et al., 2019). In sum, focus has been on crafting social justice responses and anti-oppression strategies from community-based resources to radically forgive such incidents without necessarily absolving perpetrators of accountability for what happened during a social interaction (Johnson, 2019).

Despite strides to understand this phenomenon, opponents have widely dismissed these subtle offenses and deemed them insignificant (Pérez Huber & Solórzano, 2018; Solórzano, 1998; Torino et al., 2019). Because there is no identifiable message structure, one critique suggests the label of microaggression has strayed from its original application encompassing racially-charged insults to include anything that makes a person feel "unempowered"—promoting a surplus of trigger warnings and suppressing freedom of speech in everyday conversations (Vatz, 2016, p. 55). In fact, naming a harmful interaction (whether intentional or not) as "microaggressive" can be akin to Aesop's fable, "The Boy Who Cried 'Wolf'": mischaracterizing an encounter may inadvertently increase prejudices a perpetrator has towards a minoritized group (Legault et al., 2011; Torino et al., 2019). Critics liken microaggressions to rampant "political correctness" meant to shut down contradictory—often right-leaning—viewpoints

(Runyowa, 2015) rather than as accountability for more thoughtful communication during conversations addressing identity and cultural differences.

The diluting of microaggressions as a meaningful label for subtle snubs stems from supposed theoretical shortcomings under the microaggression research program (MRP). In one well-cited work, psychologist Scott Lilienfeld (2017) argued that the MRP has failed to define clear conceptual boundaries, has forced causal linkages between microaggressions and minority mental health consequences, and has inadequately sketched what contextual criteria external observers can use to independently verify a comment as offensive in a situation. He further claimed that a researcher's political values can infiltrate and obscure their investigation of the phenomenon. For example, pre-labeling ambiguous statements or actions as "aggressive" and individuals as "perpetrators" before conducting a research study on microaggressions may inadvertently prime recipients to feel anger or hostility when responding in self-reports or interviews (Lilienfeld, 2017). Thus, Lilienfeld recommended that researchers consider experimental design conditions where the term "microaggression" is juxtaposed against more neutral names such as "inadvertent slight" to delineate and operationalize specific message structures for discriminatory comments (p. 147). Without much empirical validity underpinning the theory (Torino et al., 2019), construction of appropriate intervention training programs to remediate problematic conversations becomes difficult.

True, scholars should work to make microaggression theory *falsifiable*, or capable of being proven false (see Berger & Chaffee, 1987; Popper, 1959) through research that can refute the theory (Torino et al., 2019). However, modern scientific methods—such as those used in psychological science—shortchange and temper the complex nature of the

human condition and its situatedness in real-world contexts (Sue, 2017). Replying to Lilienfeld's (2017) critique, Sue remarked how microaggressive encounters induce a scientific challenge for understanding the hidden aspects of human experience. Biases, varying consciousness, and speaker intentions, for example, do not lend themselves so easily to operational definitions, interrater agreements, control variables, and statistical sophistication (Sue, 2017). Instead, the MRP requires a more holistic approach for developing expansive theoretical (and methodological) pathways to study the data constituting microaggressions both empirically and experientially.

The rift in the psychology field highlights the need for a deeper and nuanced understanding of these daily interpersonal acts and the toll they have on psychological wellbeing (Torino et al., 2019). While the literature is clear on deterring the distressing effects stemming from this phenomenon, there is still a lack of "clear sense of what to *do* [emphasis in original], conversationally or pragmatically, to remediate or repair the damage caused by microaggressions during the actual conversation" (de la Garza, 2019, p. 62). Research has sorely glossed over the varying epistemological bases that undergird the explicit communicative conditions for an emerging microaggressive moments. In other words, communication has been treated only as a small component rather than as a salient variable and fundamental apparatus in study of these offensive messages (Torino et al., 2019). It is from this underdeveloped nexus that scholars can invite theoretical ambiguity to the forefront (de la Garza, 2019) for initiating a multifaceted, communicative exploration of microaggressions.

To consider an interactive, interdependent lens for the advancement of a communicative focus of microaggressions, the next section previews this dissertation's

organization to shed light on what may be one possible schematic for understanding what constitutes a microaggressive encounter. The primary goal of the present study was to attend to some of the concerns microaggression researchers and practitioners have beseeched in the literature: To assemble a systematic, transdisciplinary empirical research program and training initiatives that can help explain and anticipate the different types of costs for discrimination during a social interaction and what reactions perpetrators, targets, and witnesses might have when addressing a problematic situation (Torino et al., 2019). Ultimately, designing intervention strategies that foster non-defensive, empathic responses for many possible types of moments across a variety of settings is ideal for mending severed relationships and for healing trauma.

Structure and Chapter Distinctions

As the title of the present chapter suggests, I organized this dissertation much like the mechanisms of a chess game. My opening chess move was to commingle psychology, linguistics, and mathematics into a holistic composition for the purposes of dissecting microaggressions communicatively. Thus, this dissertation proceeds in four parts.

I begin with a set-up: the chessboard. Chapter two focuses on pragmatics as cardinal for contemplating a non-psychological approach for the study of microaggressions. Pragmatics invites research in the field of linguistics to prompt a return to the interactive conditions that were pivotal for the study of conversational dynamics in the communication discipline before a post-positivistic renovation. Specifically, I examine two theoretical frameworks for comprehending the epistemological bases of microaggressive moments. Chapter two describes relevant literature on speech act theory (Austin, 1962; Searle, 1969) and the theory of implicature (Grice, 1975) for

conceptualizing the syntax-semantics-pragmatics trichotomy of a disability microaggression. It also addresses what conversational repair work (Robinson, 2006; Zahn, 1984) is necessary for remediating subtle ableist offenses. I recognize the limitations in these linguistic approaches and propose an example metatheory for nuancing the ambiguity embedded in microaggressions from a communicative perspective. That is, I offer discussion around ontology, epistemology, axiology, and praxeology as influenced by a microaggression's evolutionary dynamics across social interactions. I conclude chapter two with a tentative, working definition for what constitutes a communicative microaggression.

Chapter three enters the middle game of chess. It introduces game theory as a formal, social-scientific apparatus for explaining and analyzing disability microaggressive encounters. First, I describe how game theory constructs a detailed, mathematical derivation of the commingling of text and context in situated communicative activity (Leyton-Brown & Shoham, 2008; Shoham & Leyton-Brown, 2009). I argue that framing microaggressive communicative exchanges between parties as partial information games better organizes the many situational factors influencing the construction, interpretation, and best response strategies for disability microaggressions—a feat that previous methods such as conversation analysis (Psathas, 1995) and discourse analysis (K. Tracy, 2005) have attempted to do informally. Next, chapter three outlines an intentional method for the data collection of brief, publicly-recorded, everyday conversation segments. I adapted the protocol for this study to conduct this research during the COVID-19 pandemic by using gatherings that were open to the public. Finally, I sketch a game-theoretic analytic framework. I discuss how

communicators obtain pragmatics for the purpose of building textual and contextual content in their messages through layers of concurrent, interlocking games (Parikh, 2001, 2010, 2019). I end chapter three by describing my data analytic procedures and how to apply game theory to conversation segments collected for this study.

Extending the middle game, chapter four analyzes a specific, microaggressive account: "Jeremy is an inspiration." I describe the utterance situation (Parikh, 2010, 2019) and what conversation segment excerpt (and setting) constructs the necessary parameters for understanding this disability microaggression. Next, I hand-calculate the syntactic and semantic lexical games for this disability microaggression. I deconstruct the words, phrases, and sentence of the disability microaggression across various situational constraints of communication (Parikh, 2010). In doing so, I highlight the possible pragmatics (such as implicature) that contribute to the construction of a disability microaggression. Finally, I introduce equilibria and history as conceptual explanations for what is happening when communicators are "solving" a microaggressive encounter. Analysis suggests dynamic interactivity structures partial cooperation and noncooperation between communicators during microaggressive moments—a detail missing from extant theorization. Instructions for deriving specific solution concepts are addressed briefly.

Lastly, chapter five transitions into the endgame of chess. It provides recommendations for dissecting and expanding game-theoretic analysis to prepare researchers, practitioners, and everyday communicators with a toolkit for consciously engaging with microaggressive encounters. I propose some theoretical and practical ideas for extending microaggression (and communication) research. I end this chapter overviewing "limitations," or what I call unfinished gameplays from data analysis. These

invite future trajectories of application for a game-theoretic analysis of disability

microaggressions. Declaring a "checkmate" here insinuates experiencing the discomfort

of ambiguity, recognizing this project is only the beginning of an intricate journey.

CHAPTER 2

DISABILITY MICROAGGRESSIONS AS A COMMUNICATIVE PHENOMENON

Identifying the many pragmatic conditions for knowing what communicative

utterances constitute a microaggression is tricky. The study of *pragmatics*—or the

various contents that influence or are being influenced by multiple language factors such

as grammars, presuppositions, text organization, implicature, turn-taking, and

conversational repair—has long been a cornerstone for examining communicative

phenomena (Habermas, 1998). However, the pragmatics of actual microaggressive

conversations has been neglected in Sue's work (de la Garza, 2019); thus, considering

pragmatics—along with syntax and semantics—can lead to stronger comprehension of

what structures a microaggressive moment.

This second chapter intertwines the foundations of pragmatics with that of

microaggression theory. Or rather, it explicates a robust communicative

conceptualization for the study of disability microaggressions. Extant work on

microaggressions reflects a disciplinary segmentation wherein contemporary theorization

presumes interactants (perpetrators, targets, and bystanders) have predetermined affective

responses when an incident occurs, which may worsen interactive misunderstandings

(Sue, 2010). While vital for identifying multi-layered assumptions in these discomforting

conversational contexts, such responses require nuancing in order to repair emotional or

psychological injuries. This chapter aims to broaden the scope of discursive possibilities

that lend to the constitution of a microaggressive encounter in light of its heightened

interactive challenges. Exploring the periphery of what can become known when a

microaggression emerges invites a revisitation of metatheoretical foundations to discover

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what is really happening during social interactions. Therefore, this chapter: (1) reviews current linguistic approaches for imagining a non-psychological construction of microaggressions; (2) suggests an example metatheory for unifying syntactic, semantic, and pragmatic elements into a communicative lens; and (3) concludes with a tentative definition of a communicative microaggression.

Linguistic Approaches for Comprehending a Microaggressive Moment

This section discusses the theoretical advantages and limitations for using linguistic frameworks for comprehending the epistemological bases of microaggressive moments. Two theories are appropriate for priming pragmatic analysis and a communicative inquiry of microaggressions (di Gennaro & Brewer, 2019). First, I discuss speech act theory. In particular, I outline Austin's (1962) performative utterances in conjunction with Searle's (1969) indirect speech act for describing microaggressions as a communicative unit. Second, I introduce implicature theory. This Gricean (1975) model offers a means for dissecting microaggressions as communicative units and examining their syntactical (having a certain form) and semantic (carrying certain meaning) components. I end this section by reviewing conversational repair work as it relates to these linguistic approaches.

Speech Act Theory

Philosopher J. L. Austin (1962) developed speech act theory with the idea in mind that people not only use language to assert things but also to do things. The theory emphasizes two kinds of utterances—or expressed statements—between speakers and recipients. The first type, *constative utterances*, describes the truthfulness (or falsity) of what is happening in a situation. The second type, however, is the bulk of the theory and

is key for understanding a linguistic underpinning for problematic communication, including microaggressions. *Performative utterances* describe ways language is used not only to convey information but also to enact a message so that it could be successfully understood in an interaction (Austin, 1962). As such, speech act theory has the flavor of "doing by talking" (Shoham & Leyton-Brown, 2009, p. 235). According to Austin, a speaker's utterance unfolds throughout a conversation in three distinct ways, or linguistic acts. For the purposes of explanation, I will use a commonly known disability microaggression, "that's retarded," or rather, "that [is] retarded," (Bell, 2011) to show how speech act theory can explain some components of a microaggressive moment.

First, the locutionary act, is the act of saying something. A speaker utters a *locution*, or a proposition conveying some self-explanatory truth about the intrinsic content of a message (Searle, 1969). A locution carries meaning and creates something supposedly understandable when expressed. For the disability microaggression, "that is retarded," this act includes generating a grammatically coherent sentence to be understood by a recipient. This phrase is made of three words: "that," "is," and "retarded." "That" acts as the subject of the sentence, "is" acts as the verb, and "retarded" acts as an adjective. "That" is a pronoun used to identify a specific object observed by the speaker; "is retarded" is the part of the sentence that acts as a predicate for describing the subject. When expressed, the unconscious generation of grammar in "that's retarded" creates an action of meaning-making and acquires contents. However, much of speech act theory does not consider what would happen if a speaker had chosen different words to express. This restriction is useful to know for developing a holistic mathematical methodology in the next chapter.

Second is the illocutionary act. This act is about saying something as opposed to saying something else. An *illocution* is when a speaker invokes fulfillment of an utterance's intended proposition through action (Searle, 1969, 1998). When expressing, "that's retarded," what does the speaker want to convey? Illocutions convey tones, biases, attitudes, or emotions, to name a few, that explain what communicators are doing with their words. These *illocutionary forces* construct the speaker's intention of doing something when producing an utterance (Parikh, 2001). Illocutionary force yields five types of speech acts: assertives, directives, commissives, expressives, and declarations (Searle, 1969, 1998). In other words, a communicator can (1) assert something to be true, (2) direct a listener to do something, (3) commit the speaker to a future act, (4) express a communicator's psychological state, or (5) declare the existence of something. The utterance, "that's retarded," arguably is an assertion or declaration. It can also be an (obscene) expression. It all depends on the speaker's intention and the context that situates the intention. This means that speaker intention is situated (Parikh, 2019). Illocutions, therefore, may or may not be successful when recipients try to interpret them. Performative utterances, on the other hand, constitute a type of act that is inherently successful at producing a desired effect by the speaker (Austin, 1962; Shoham & Leyton-Brown, 2009). Because illocutions can misfire, largely due to the ambiguity of context informing the illocutions, microaggressions likely occur in this act.

Lastly, the perlocutionary act is the act that creates a sense of consequences on an audience. A *perlocution* brings about an effect on a recipient's behavior as a result of the utterance—whether that be thoughts, imaginations, feelings, or reactions (Austin, 1962). Although illocutions and perlocutions may seem similar, illocutions do something *in*

saying something while perlocutions do something *by* saying something (Shoham & Leyton-Brown, 2009). Because microaggressions can produce severe psychological distress such as anger, depression, and suicidal ideation for recipients (Sue, 2010, 2015), researchers have conducted numerous studies to understand this particular act (Torino et al., 2019). However, particularized perlocutions are not a guarantee since illocutions may or may not be successful. For example, the speaker may intend "that's retarded" to mean "that's uncool" or "that's nonsensical"—wanting to convey humor or bewilderment to a recipient. Recipients may not interpret the utterance in the way the speaker intended and, instead, may interpret "retarded" as an allusion to "dumb," "idiotic," or the stigmatization of mentally disabled people, which has a long history of institutionalization, oppression, discrimination, eradication on the bases of eugenics, and ableist reinforcements (Parry, 2013). The perlocution is the generation of anger, confusion, or disgust for the recipient. Thus, to understand why the range of effects happen in a perlocutionary act, it is perhaps through a deeper dissection of possible misfiring illocutions that microaggressive moments can be theorized.

Of course, microaggressive moments are not as simple as Austin had theorized social interactions to be. John Searle (1969, 1998) worked to consider higher order aspects of speech act theory, noting that performative utterances not only enact messages, but can also propose more action is needed beyond what is explicitly said. Searle suggested the basic unit of communication is the speech act itself, whether that be a tone, word, phrase, or sentence. The relationship between the structure of what is said and how it functions to create meaning for a communicator can be direct or indirect (McLaughlin, 1984). This led Searle (1969, 1998) to conceptualize the *indirect speech act*, an act where

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the illocution proposes more action than what is being uttered. For example, "that's retarded" could be more than an assertion of "uncool-ness." A recipient may interpret the statement as a request to start mocking, putting-down, or dehumanizing whatever the speaker is referring to, whether that be a person, thing, or idea. Indirect speech acts are where communicators can use structures such as microaggressions to generate implicit propositions that engage in otherization processes.

The limitation of speech act theory is that it applies only in purely cooperative situations of conversation (Shoham & Leyton-Brown, 2009). Searle's (1969, 1998) examination of illocutions and indirect speech acts—i.e., how propositions actually function within the ambiguous context in which they are used—would insinuate, perhaps, microaggressions occur through a disruption in conversation when a speaker's intention for an utterance (and its proposition) is mismatched and misinterpreted by a recipient or witness of a message. This means microaggressions can be regarded as potential violations of cooperative social interactions (di Gennaro & Brewer, 2019). Understanding this violation can lead to a complete understanding of microaggressive speech acts.

Implicature Theory

Comprehending a violation between speaker intention and receiver interpretation has long been a puzzle in the study of language pragmatics and communication. One influential contribution for solving this conundrum comes from H. P. Grice (1975), a philosopher who introduced an approach for deriving intention-based semantics of the content in a speaker's utterances. Unlike previous theoretical contributions in this area, Grice's approach used audience-directed intentions to define what a speaker means when expressing an utterance (speaker meaning) and what sort of meaning a word, phrase, or

sentence can obtain (conventional meaning). These two types of meaning are necessary

(albeit not sufficient) components for beginning to examine what is happening between

communicators during a microaggressive moment.

Besides speaker and conventional meanings, one key factor for unpacking

derivations of intention-based semantics in a microaggressive moment is accounting for

what conversational factors occur within social interactions. Grice (1975) theorized that

people generally agree to communicate clearly and efficiently in conversations so that

they may understand and be understood by each other, even when disagreeing or

quarrelling. This conversational dynamic became best known as the *cooperative principle*

(CP), a norm that Grice considered as responsible for regulating all rational behavior

between communicators during social interactions. As such, following the CP prompts

people to engage in meaning-making processes.

Obviously, not all communicators abide by the cooperative principle when

interacting. According to Grice (1975), to maintain cooperation, communicators must

follow some basic principles when conversing known as the *Gricean maxims.* That is,

successful, direct utterances that sustain communicative cooperation and clear, efficient

meaning-making between people comes from adhering to four "rules of conduct":

1. *The maxim of quantity*:
   Speakers should provide recipients with exactly the amount of information
   required for the current conversation and should not give more
   information than is required.
2. *The maxim of quality*:
   Speakers should only provide information they believe to be true. That is,
   speakers should not knowingly say anything false or for which they lack
   adequate evidence.
3. *The maxim of relation*:
   Speakers should only provide information that is relevant to the current
   conversation.

4. *The maxim of manner*:
> Speakers should provide information in a manner that is brief and clear. Or rather, speakers should avoid obscurity, ambiguity, and disorganization.

These maxims of succinctness, truthfulness, relevance, and directness (Pinker et al., 2008) help explain a surprising phenomenon about human communication, one that for the purposes of this chapter gives way for theorizing microaggressions communicatively. Precisely, communicators always convey and interpret information relative to the goals and subgoals of a conversation and as implied by the value of information being conveyed, which may be less than what communicators know about a topic in a conversation (Parikh, 2001, 2010). Hence, when communicators interact through differing preferences and understandings of how to cooperate or conduct themselves in a situation, only then does it become possible to surmise what might encompass miscommunication between people. *Miscommunication*, or a failure to communicate (Parikh, 2001), refers to "any sort of problem that might arise interactionally" due to trouble with speaking (Coupland et al., 1991, p. 1) such as mispronunciations, misrepresentations, or misinterpretations (Robinson, 2006; Schegloff et al., 1977; Zahn, 1984), all of which can lead to emotional tension, reactionary behaviors, and so on. However, unlike many theories in the field of communication that have grappled with this phenomenon (such as expectancy violations theory), the combination of intention-based semantics, the CP, and the maxims each pave way for Grice's theory of implicature to provide a contemporary framework for unifying language and context (Parikh, 2010, 2019) for the purpose of studying the ambiguity and slipperiness of problematic communication such a microaggressions.

Unlike speech act theory, this linguistic approach distinguishes conventional semantics from inferential pragmatics and describes how speaker intention leads to indirect speech acts—the space where microaggressions can become a reified possibility (de la Garza, 2019). In his theory, Grice (1975) coined "implicature" to describe the discrepancy between intent (what is said) and interpretation (what is implicated) of a message, namely that speakers often communicate much more meaning than is contained directly in the words they say. For example, the utterance "that's retarded" could imply ↪ [*that (idea that was just expressed) is uncool*] or something more derogatory such as ↪ [*that (idea that was just expressed) is stupid like a mentally disabled person*]. Like Searle's (1969) indirect speech act, these types of communicative apparatuses, or *conversational implicatures*, construct meaning for an utterance beyond what is said, which can often be derived from a speaker's beliefs, desires, biases, discourses, the context, and the structure of a conversational exchange. In other words, saying "that's retarded" and understanding what the speaker intended to say relies on the assumptions that: (1) communicators are following the CP and the Gricean maxims, and (2) communicators can discern what is being implied based on the numerous situational factors informing the interaction (Shoham & Leyton-Brown, 2009). Unfortunately, the prevalence of ambiguity during an interaction—especially where microaggressions can occur—indicates this is not always the case.

In fact, violations of conversational cooperation resulting from ambiguity may also induce an exchange of problematic communication such as microaggressions (di Gennaro & Brewer, 2019). Conversational implicatures can arise either: (1) when the CP obtains and no maxims are violated, (2) when a Gricean maxim is violated by clashing

with another maxim, or (3) when a maxim is exploited (flouted) for some other underlying reason, such as to convey a figure of speech (Meibauer, 2006). This suggests derivation of the conversational implicatures that deem an utterance as microaggressive is not always a simplistic undertaking. For example, expressing "that's retarded" may violate the maxim of manner and quantity in favor of quality or relation. More so, the utterance could violate the maxim of manner and quantity to act as a substitute for an expression such as "how uncool." Essentially, when speakers supposedly violate a maxim, recipients infer a hypothesis about what the speaker really meant to express while also assuming that the speaker is still following rules of rational interactivity (Grice, 1975). This problematizes what interpretations can be equated with the label of microaggression because not all interactions follow rational (or conscious) rules and behaviors. While the Gricean model is the first to build a systematic and precise rendering of context-sensitive analyses for studying communication beyond what is being communicated, this incongruity begs considerable scrutiny as to what constitutes equating a conversational implicature to a microaggression.

Thankfully, one way to resolve this logical paradox of social interaction is to consider the distinct properties that serve as necessary conditions for a conversational implicature. These attributes of existence, calculability, cancellability (or defeasibility), reinforceability, nondetachability, and variability each commingle a complex discursive platform based in pragmatic inferences that might render the moments of conversational implicature which occur in what can be framed as possible microaggressive utterances. Three observations can be concluded from these attributes (Parikh, 2010) that sustain limitations of a Gricean application for microaggressions and support a move towards

communicative reconceptualization for the purposes of developing and employing a game-theoretic methodology.

The first observation regards the properties of existence and calculability. The property of *existence* indicates that it is possible for implicatures to emerge between communicators when they share a common language; and, given certain assumptions about how that language functions and constructs its many meanings, *calculability* presupposes communicators can reasonably deduce implicatures from utterances (Meibauer, 2006; Parikh, 2001). Following the previous microaggressive example, something unsettling could have happened in the interaction between communicators to prompt the speaker to utter, "that's retarded." This, in turn, signals to a recipient to interpret each word ("that," "is," and "retarded"), phrase, and sentence in the utterance. According to Grice (1975), a recipient can derive implicatures from the utterance in an uncountable number of ways relative to the context of the situation. Regrettably, Grice believed existence and calculability applied only to illocutionary meanings and not to those given by convention (Parikh, 2010). This shortcoming suggests further contemplation is needed for understanding how locutionary meanings may contribute to the materialization of implicatures.

Consequently, this theoretical lacuna invites a second observation about the Gricean model—especially for cancellability and reinforceability. According to the framework, an implicature has the property of *cancellability* (or defeasibility) if it can be withdrawn or negated from the situation of an utterance without any contradiction (Meibauer, 2006; Parikh, 2001). For example, the speaker may follow up "that's retarded" by uttering, "I mean uncool—not stupid or something offensive to mentally

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disabled people" to clarify their intention behind using the disability epithet. Reversely, an implicature obtains *reinforceability* if it can be explicitly conjoined with the utterance that triggered its emergence (Meibauer, 2006). If the speaker expresses, "That's retarded—as in, that's stupid like a mentally disabled person," they affirm that what they remarked was really what they wanted to utter (which also reveals their discriminatory biases). Grice (1975) speculated both properties applied only to implicatures. On the contrary, when ambiguity (i.e., multiple possible meanings) is present in an utterance, cancellability and reinforceability apply to all its locutionary and illocutionary meanings (Parikh, 2010). In essence, because all meanings in communication are context-dependent (even conventional ones), no utterance is ever completely literal—making it difficult to identify implicatures and remediate problematic utterances. Inspecting the role of ambiguity rectifies this analytic troubleshoot.

Finally, both properties of nondetachability and variability highlight the incompleteness of the Gricean sequential framework. Conversational implicatures uniquely possess *nondetachability*, which means they can be triggered by both the original utterance and any alternative sentence formats with the same literal content or syntax (Parikh, 2001). In other words, if a speaker were instead to utter, "that's dumb" or "that's idiotic," either utterance should trigger the same derogatory implicature ↪ [*that (idea that was just expressed) is stupid like a mentally disabled person*] like the one from "that's retarded." Of course, this depends on the situation. Likewise, conversational implicatures possess *variability*, which insinuates that contexts determine whether an implicature arises from an utterance (Meibauer, 2006). For example, a speaker may not trigger a derogatory implicature when uttering, "that's retarded," around other like-

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minded or able-bodied recipients. Communicators with similar beliefs, ideologies, and levels of consciousness may not recognize the disability epithet in the utterance as problematic when expressed in certain contexts; rather, it may trigger an implicature that sustains communicative cooperation. This means conversational implicatures obtain non-uniqueness when the content of utterances is partial, ambiguous, and decontextualized (Parikh, 2001). One reason for this contradiction could lie in how Grice (1975) thought syntax was always deterministically given in communication. Hence, he restricted nondetachability and variability only to implicatures. In doing so, the theory neglected to consider what would happen when communicators could not determine what syntax was being used or what other illocutionary meanings—such as issues related to saturation, concept construction, or free enrichment[3]—may be contributing to an utterance's misfiring in a context of a situation (Parikh, 2010). Extending analysis beyond implicature derivation to include many types of probabilistic communication invites an integrative investigation of the pragmatic properties underlying a microaggression.

       Several post-Gricean linguistic approaches attempted to resolve the theoretical limitations around conversational implicatures (Meibauer, 2006). Linguists such as Horn (1984) worked to reduce the Gricean maxims to two logical principles that maximized content and minimized expression. Later, Levinson (2000) extended much of Gricean theory to include three pragmatic components, arguing how conversational implicatures are "default inferences" of language often generated and dismissed by the bounds of grammar and context (p. 169). Even a competing linguistic theory called relevance theory (see Sperber & Wilson, 1995) informed Carston's (2002) three-step approach for

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[3] For more information about these linguistic terms, see Parikh (2010, 2019) and chapter four of this study.

including pragmatic inferences as bases for implicature derivation and meaning-making.

Still, the linear, sequential perspective these approaches take—where context/pragmatics

is more of an afterthought to syntax and semantics (Parikh, 2010)—evades the necessary

excursion to calibrate for the many concurrent, partial, interactive dynamics embedding a

given situation. In other words, implicature theory and its successors never sketched a

comprehensive means of capturing the elusive way some interpretations (such as

microaggressive ones) misfire between communicators.

Luckily, some clear possibilities of a connection between implicatures and

microaggressions have been described in research literature (di Gennaro & Brewer,

2019)—enough to speculate a better way of exploring this problem communicatively. In

one instance, Tsuda (1983) interwove frameworks from Grice's (1975) implicature

theory, Goffman's (1959) theory of face, P. Brown and Levinson's (1987) theory of

politeness, and Tannen's (1984) theory of conversational style to describe an analysis of

indirectness in conversational discourse. Tsuda explained how an interplay of

indirectness and face-threatening acts inside discourse can unfold into cultural and

contextual misunderstandings between communicators of varying identity markers. In

turn, when differences in cultural communication and power relations threaten self-

preservation, people begin to "employ conversational implicatures and often violate the

cooperative principle of conversation" (Tsuda, 1983, p. 73). To save face and protect

egos, people resort to indirect speech acts and use negative and positive politeness to

sustain cooperation. This same notion of indirectness prompts people to follow what Sue

(2015) calls a "politeness protocol." That is, people avoid, ignore, or talk superficially

about offensive, uncomfortable, or controversial topics such as race, gender, sexual

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orientation, class, or disability status since such matters can "lead to disagreements, heated exchanges, and conflict (Sue, 2005)" (Sue, 2015, p. 59). Such violations can create vague and incomplete overgeneralizations such as stereotypes, leading communicators to choose a "distancing strategy" (p. 141) such as "espousing color blindness" (p. 85) or fortifying "emotional roadblocks" (p. 145) to deny systemic prejudice. This induces microaggressions to emerge. These insights are not commonly pursued in a close examination of an interaction likely due to an interdisciplinary gulf in current research. Yet, evaluating indirectness and how communicators *choose* what to say to each other during social interaction can help model a broad overview of the many (often hidden) pragmatic factors undergirding microaggressive incidents.

Conversational Repair

One niche of research that offers supplementary insight into the interactivity of choice during moments of problematic communication is conversational repair work. Looking at examples of work existing in the area of linguistics and conversation analysis (e.g., Ford et al., 2002; Psathas, 1995; Sacks et al., 1974), I consider that a microaggressive interaction could also possibly be understood by dissecting both successful and failed conversational repair sequences as reactive responses to certain problem types, initiation types, and situational contexts (Zahn, 1984), which permit communicators to handle misunderstandings when they arise.

Central to conversational repair work is discerning turn-taking based preferences between communicators. Scholars in this area have wondered how and why communicators would or would not initiate *self-repair*, where the speaker repairs a troublesome utterance, or *other-repair*, where a recipient or witness does the repairing

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(Schegloff et al., 1977), and whose responsibility it is to initiate the repair (Robinson, 2006). Much of Zahn's (1984) work investigated a tenable communicative organization of repair episodes through the inclusion of content and relational context into analysis. Zahn identified and examined three types of problems that serve as indicators for initiating repair sequences to create and maintain communicator alignment talk: (1) *wording* issues such as verbal slips, mispronunciations, or ungrammatical expressions; (2) speech actions, or *errors*, of a logical or pragmatic nature that suggests a violation of one or more Gricean maxims; and (3) processing and comprehending *ambiguous* interpretations due to incomplete (uninformative) utterances or memory failure. Each type of problem can often be repaired through repeating the troubling utterance and/or specifying, rewording, rephrasing, negating, correcting, or explaining its meaning.

However, microaggressive moments perhaps may be a result of failing to repair a problematic utterance when power differentials are at play. Zahn (1984) suggested low status (minoritized) individuals may hesitate to self-initiate an other-repair when conversing with someone of a higher status who expressed a troubling utterance (i.e., a perpetrator). One reason may be that recipients feel as though they should stay silent out of a desire to save face for the perpetrator (Tsuda, 1983), but therein risk being labeled as sensitive, angry, or confused, which re-instills marginalization (Sue, 2015). Much research in this area has placed the onus on recipients to be the first to initiate other-repair of troubling utterances they misheard or misunderstood even though the fault may instead be due to inherent cultural power asymmetries that prevent successful repair sequences (Robinson, 2006). As such, Zahn (1984) suggested investigating how problem types link to relationship history between communicators to understand power dynamics. He

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speculated that initial interactions with power imbalances more frequently involve utterances with wording issues whereas those between communicators with relational history exhibit more problems of ambiguity or error. Of course, a failure to repair microaggressions may be more complicated than this conjecture presents.

In all, conversational repair work may inform the necessary components for strengthening the frameworks of indirect speech acts and conversational implicature (and vice versa) such that problematic utterances can be studied from a dual-role, holistic perspective. Put differently, commingling speech act theory, implicature theory, and repair phenomena yields a more complete examination of the pragmatics responsible for the turn-taking processes of microaggressive moments. Current conversation analysis and repair research addresses conversational components through a context-free, atheoretical, structural approach for explicating basic processes such as turn-taking systems (e.g., Ford et al., 2002; McLaughlin, 1984; Shimanoff, 1980). This perspective fails to account for "what communicators are doing with their talk, how they are understanding the content of their talk, and the strategies they take toward conversing in light of the social context in which they find themselves" (Zahn, 1984, p. 64). Therefore, developing an interdependent, communicative contemplation of conversation analysis invites strategies for initiating cancellability of the implicatures that are rooted in knowledge of how conversation "works" and not simply (albeit complicatedly) sociopolitical repair. The next section enters the frays of theory and practice to consider such a possibility by detailing a microaggression metatheory.

A Communicative Reconceptualization of Disability Microaggressions

A review of linguistic approaches offers a unique avenue for considering how a metatheory pertaining to pragmatics is needed to articulate a study of microaggressions as an interactive phenomenon. An example of the philosophy underlying microaggressions invites a wider theoretical effort for understanding their intricacies—a dissection that can subsequently help develop new research programs. The scope of literature existing on microaggressions (as shown in chapter one) highlights social scientific inquiry that is both post-positivistic and interpretivist, negating possibility for an interdisciplinary reimagination of this phenomenon through approaches such as speech act theory and implicature research. A move to approximate a communicative reconceptualization through linguistic theories can insinuate new entry points of investigation in the spaces between and in the encompassment of microaggression theory and its paradigms of inquiry. That is, metatheorizing bridges newfound perspectives of the theory with a practice to deter suffering culminating from microaggressions.

Therefore, this section discusses an example of metatheory useful for rethinking disability microaggressions as a communicative phenomenon. I propose this contemplation not only to pinpoint some limiting assumptions in current psychotherapeutic literature, but also to outline pragmatic principles that may encourage an interactive analysis of microaggressions. I argue that, so far, the divisive tendency to assume philosophy along dual spectrums in the communication field—where ontology and epistemology lie on a foundational/reflexive spectrum and axiology and praxeology are fitted to an empirical/analytic spectrum (Anderson & Baym, 2004)—hinders research advancements for this phenomenon by separating text (the messages) from context (the

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microaggressions). Because this phenomenon resides in ambiguity and cultural

historicity, it maintains these dualities while also structuring holistic territory. That is to

say, a communicative framework aims to unify the syntax-semantics-pragmatics

trichotomy of problematic utterances via a non-reductionistic, nonlinear perspective of

interactivity (Parikh, 2010). This move fosters a choice-driven approach for analyzing

microaggression data (Parikh, 2001, 2010, 2019). I offer examples of ontology,

epistemology, axiology, and praxeology to inform the study of (disability)

microaggressions in a communicative manner.

An Ontology

Since inception, microaggressions have been extensively theorized through an

experiential, perceptive reality via its cumulative nature (Pierce, 1970). Limiting

theorization in this way has affixed these verbal, behavioral, or environmental slights to

psychological factors such as varying levels of consciousness (including

subconsciousness and unconsciousness), explicit and implicit biases, and cultural,

political, and ideological assumptions (Sue, 2010, 2015; Torino et al., 2019). Such

framing of microaggressive reality has perpetuated a static representation of the

innerworkings of factors that intersect to inform how a person's identity could be

attacked during a socially loaded interaction such as through disability status and race

(Dávila, 2015) or disability status and sexuality (Conover & Israel, 2019).

However, the inherent ambiguity of natural languages (Nowak, 2006) stretches

conceptualization of the *ontology,* or the nature of reality, for microaggressions to

consider a dynamic interactivity. Ambiguity acts as the affinity that links determinist and

pragmatist paradigms in communication research (see Littlejohn et al., 2016; Miller,

2005) for the constitution of a perspective that recognizes the oscillation between psychological regularities and conversational variabilities. In truth, microaggression data obtain an ontology of contents that are: (1) holistic, (2) morphological, and (3) probabilistic. To dissect each facet, I turn to situation theory as a guiding lens. Postulated by logician Jon Barwise and philosopher John Perry (1983), situation theory offers a mathematical foundation for understanding the state of affairs of the real world. It proposes a framework for the study of syntax, semantics, and pragmatics as they relate to how information is organized and reified by various types of settings. As a lens, it centers ambiguity for a communicative proposition of microaggressive ontology.

First, microaggressions exist *holistically*: They naturally emerge both through a tangible, determined reality and the imaginaries of intuition—or rather, an experiential reality of meaning-making (Sue, 2017). In other words, a microaggression procures an existence on a pragmatic level of natural language through the intermingling of text and context. For example, certainty of a disability microaggression lies not only in whether a speaker expressed a predetermined, sentential arrangement of an utterance such as, "that's retarded," or enacted something like a flexed, crippled hand gesture to implicate discrimination (the real), but also in how a disabled or neurodiverse bodymind (Price, 2015) registers the event as indicative of prejudicial treatment (the imagined). Speaker performativity and audience interpretation commingle to construct a situatedness to microaggressions. Their existence is inexact and depends on the consistencies and variations that occur during an interaction (Deleuze, 1968/1994; Parikh, 2010) and what historical, political, and sociocultural referents and discourses inform the context of what is being said or done. Simply, microaggression data acquire an obscure mixture of fixed

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qualities (properties such as subtlety) and mutable quantities (relations of preference) to function as disruptions of how conversations should "work."

Second, microaggressive events are *morphological* in that they procure a form and structure that is spatiotemporal. Their momentary execution in conversation means microaggressions cycle through both text and context—or rather, "become" into and "disappear" from social interaction, making their existence sometimes imperceptible (Deleuze, 1968/1994). That is, constructing, identifying, and repairing microaggressive moments involve a mutual (but not necessarily balanced) contribution of each communicator's social actions in a situation. The asymmetry may likely be due to conscious, subconscious, and/or unconscious (in)attentiveness to what is happening during a social interaction (de la Garza, 2019). For example, when a speaker communicates the disability microaggression, "that's retarded," they transmit the utterance's syntax unconsciously (which can be deterministically or conditionally given) and they convey a message's semantic and pragmatic factors—illocutions and implicatures—through conscious or subconscious intentions (Parikh, 2019). Concurrently, a recipient interprets the utterance as communicating something depending on what may or may not be spatially discernible at the time the speaker expressed it. Thus, microaggressions organize contextual inferences and degrees of perlocutionary effects into their structure. Yet, as conversation evolves, microaggressive form reorients to fit the interactivity of the situation. In which case, a microaggression's occurrence (and the recognition and remediation thereof) is never a guarantee.

Lastly, microaggression incidents can acquire *probabilistic* communication data. The various ways turn-taking of talk—e.g., turn-size, turn-allocation, turn-order, turn-

length—can unfold unpredictably in conversations (Sacks et al., 1974) suggests a complex, computational blueprint underlying the known and unknown conditions that inform the specific boundaries, discourses, and social actions of a situated communicative activity. To which, the discomforting content of a microaggression can manifest how it wants to be based on what is entering the situation and what can be understood, recognized, and interpreted (differently) between communicators when they interact with each other. Words, phrases, tones, gestures, silences, contextual references, symbols of cultural knowledge, triggers of personal history or relational trauma, or any combination thereof can assemble a microaggressive speech act—each of which can be partially reified, nebulous, and potentially unregistrable by communicators. As an example, when a speaker expresses the disability microaggression, "that's retarded," not only may a recipient infer propositions from the utterance such as "how uncool" or "how idiotic," but they may also glean the probabilities with which the propositions are being communicated (Parikh, 2001, 2010, 2019). Some pragmatic factors are more likely to contribute to a microaggression's cumulative property, which can be measured precisely along probability distributions. In turn, "probabilistic communication [becomes] important in the determination of both literal content and implicature as well as illocutionary force" (Parikh, 2010, p. 25) of problematic utterances. Therefore, probabilistic analysis of conversational disruptions such as microaggressions derives an empirical roadmap of the interdependent ways texts, contexts, and ambiguity manifest their various communicative realities in one unified, balanced composition.

An Epistemology

Current scholarship has widely accepted Sue's (2010) five-step phasic model (i.e., the incident, perceptions, reactions, interpretations, and consequences) for explaining how communicators come to know the interactive, sequential, sporadic, and cumulative properties of a microaggressive moment. Of course, extant literature has attended more to the latter phases of Sue's model, showing that microaggressions can create severe, detrimental psychological stresses for recipients such as anger, depression, exhaustion, humiliation, and posttraumatic stress (Sue, 2010, 2015, 2017; Torino et al., 2019). However, little research has investigated what *causes* the initial incident or how communicators come to know what counts (or does not count) as a microaggression through their perceptive realities.

Discerning what constitutes the necessary and sufficient communicative conditions for knowledge, or the *epistemology* (Anderson & Baym, 2004), of a microaggression is complex. Ambiguity disorients rationality during social interactivity, subverts bodymind sensibilities, and suspends a priori rules and expectations of how communicators should engage with each other. Therefore, registering whether a problematic utterance is a microaggression relies on an amalgamation of both a person's absolute and relative knowledge (Littlejohn et al., 2016; Miller, 2005) of the holistic, morphological, and probabilistic contents naturally emerging in the situation. Reifying these ontological components into communicative consciousness is a dynamic, evolutionary process shaped by natural human language. I turn to formal language theory to explain this. This mathematical approach describes the fundamental aspects of language (e.g., alphabets, sentences, languages, and grammars) and organizes ambiguity

inherent in syntax and semantics for the structuration of pragmatics (Nowak, 2006). That is, a close examination of linguistic structure as it configures situated communicative activity—through multiple individuals, properties, relations, preferences, probabilities, or behaviors—is principal for an epistemological contemplation of how the contents of a microaggression come to be.

Truly knowing a microaggression is happening comes from holistically inferencing, sensing, and experiencing layers of uncountable interactive factors simultaneously and asynchronously. Recognition of these factors can occur at the phonetic, syntactic, semantic, and/or pragmatic level of meaning-making (Parikh, 2019). For example, as a speaker expresses the disability microaggression, "that's retarded," the recipient psycholinguistically interprets the utterance as it unfolds. The recipient unconsciously builds the phonology and syntax through implicit grammar rules that the speaker used while simultaneously choosing (subconsciously) what semantic values and pragmatic factors they recognize as crucial for assembling the microaggression's meaning (Parikh, 2010). When this happens, communicators rewrite the words, phrases, and the sentence of the expressed microaggression into a unique grammatical string—a linguistic apparatus for describing how utterances like microaggressions generate, specify, and preserve various contexts through recursive grammar rules (Gross, 1972; Nowak, 2006; Parikh, 2019). However, modeling this unconscious knowledge-creation process for the purpose of detecting context-sensitive, problematic utterances has been largely underdeveloped.

Concurrently, a communicator's bodymind sensibilities detect (infer) conversational implicatures and other pragmatics by structuring belief systems and

intentions into implicit grammar rules. Recipients can likely detect implicature-based beliefs and speaker biases in messages (and interpret them as microaggressions) by positioning themselves in rational processes of thought (Blecic, 2012). Sources of perception, introspection, reason, memory, and testimony can guide conscious and subconscious knowledge-creation processes of semantics and pragmatics (Blecic, 2012; Satyananda, 1976/2016). Of course, disability and neurodiverse sensibilities do not always align with rational interactivity. Adopting a tentative and labile certainty of what is happening in a situation procures a more holistic understanding of the oppressive logics, cultural historicities, and propositions of truths, half-truths, or falsities (Banaji & Greenwald, 2016) when detecting (inferring) semantics and pragmatics that contribute to microaggressive moments. Essentially, knowing a microaggression is happening comes from the capacity to individualize a hypersensitivity to contexts, articulate bodily reflexivity, and awaken a consciousness of culture, history, power, language rules, and violations of interactive expectations.

Morphologically, integrating speech act theory and implicature theory into an interdependent, choice-based framework organizes a multi-layered entry for the study of knowing a microaggressive moment. Detecting (inferring) a microaggressive occurrence would depend on their emergence and evolution in a social interaction (Nowak, 2006). That is, communicators' differing personalities, histories, life circumstances, behaviors, attitudes, biases, values, and beliefs each assemble partial renderings of speech acts and implicatures for the purpose of explaining how marginal identities make situated choices over time (Parikh, 2010; Pinker et al., 2008). Indeed, from a communicative, choice-based vantage point, individuals can come to recognize microaggressions via three

temporal-spatial layers of knowledge-creation. Microaggressions can occur when communicators either: (1) know nothing about each other's actual epistemic choices or intentions when entering a conversation—a layer of interaction called *ex-ante*; (2) know something about their own epistemic choices or intentions, but not know much about the person they are talking to during the conversation—the *interim* layer; or (3) know "everything," which occurs more often long after the conversation is over or when the topic of discussion has been saturated during the *ex-post* layer (Leyton-Brown & Shoham, 2008). As conversation evolves, knowledge sifts between what is known and unknown; thus, this process occurs (non)linearly and (non)hierarchically. Current theorization in psychiatry, psychology, and social work has primarily considered what is known in the interim and ex-post layers of microaggression interactivity (Sue, 2010, 2015; Thurber & DiAngelo, 2017; Torino et al., 2019). However, scrutinizing how the many unknowns filter through all layers of interactivity (including the ex-ante layer) means a better account for how communicators may register the factors that are occurring throughout a conversation.

Further, a central underpinning for what can be knowable is the degree of extant probabilistic communication during social interaction. Ambiguity implies that microaggression epistemology not only resides in situated layers of epistemic choices and joint decision-making. Included can be: (1) the various ways personalized and shared knowledge become available for each communicator involved; (2) how individuals determine the possible social actions they have available to them when entering, conducting, and leaving a conversation; and (3) what probabilities can be assigned to each communicative choice that occurs when interacting (Leyton-Brown & Shoham,

2008; Parikh, 2010, 2019). Probabilistic logic extends the systematics for the organization of turn-taking—e.g., turn-order, turn-size, turn-allocation, repair, conversation length (Robinson, 2006; Sacks et al., 1974; Zahn, 1984)—to include possible types of pragmatics that contribute to the stabilization or alteration of knowledge-creation processes during microaggressive moments. Simply, all peripheral conversational turn-taking and social actions before and after a microaggressive incident morphs perception around what was intended to be expressed and affixes what can be interpreted. For instance, an unsettling tone or off-putting gesture can disorganize the bodymind's sensibilities and render a partial interpretation for the recipient, affecting their decision-making around how to proceed in the interaction with the speaker. In short, embracing the probabilistic communication embedded in this phenomenon's speech acts and implicatures stretches the bodymind's capacity to embrace the discomfort around sensing, inferencing, and testifying against microaggressions.

An Axiology

Over the years, the paradigm centering microaggression conceptualization has evolved to include political sensibilities. Microaggression work has drawn on frameworks such as CRT, intersectionality theory, and minority stress theory for examining multiple intersections of status differences in daily problematic encounters beyond initial accounts of Black-White strained social interactions (Torino et al., 2019). As such, current literature suggests alignment with a social justice value system—or rather, microaggressive occurrences are insidious, aversive, based in prejudices and false social dynamics, and should cease to exist (Dover, 2016; Torino et al., 2019). This orientation pigeonholes communicators into limiting their conversational discourse along

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opposing political perspectives, often preventing the rise of more nuanced discussions of how all parties assess what is happening in the moment.

Advancing theory in this area implores a revisitation of the values, or *axiology*, communicators use to invest their bodyminds, time, and space in problematic social interactions. The transpiration of ambiguity during microaggressive encounters muddies the thoughts and ethics that dictate what a communicator's "good choices" should be (Anderson & Baym, 2004, p. 608). Scholars frequently have viewed the research process through value-free or value-laden systems (Littlejohn et al., 2016; Miller, 2005), but communicative interactivity rejects this divisive notion and challenges current executions of microaggression inquiry. In general, individuals situate themselves in conversations by either claiming stakes (value-laden), indifference (value-free), or a degree of both preferences (Leyton-Brown & Shoham, 2008; Parikh, 2010). Thus, a communicative contemplation of axiology yields a more robust approach for investigating, identifying, and comprehending the differing values embedded in this theory.

Precisely, a microaggression axiology presses inquiry to evaluate how communicators estimate the many possible truth values, falsities, and interpretations of a problematic utterance (Banaji & Greenwald, 2016; Parikh, 2010). Indeed, when communicators interact, they make *strategic, situated choices*, or "choices based on trying to do the best they can given their preferences, their beliefs about the choice situation they face, and their capacity to reason intelligently" (Parikh, 2010, p. 73). Inspecting how people make situated choices in conjunction with each other sketches a roadmap for understanding how values shift across the subjective and objective realities that construct a microaggressive incident (Parikh, 2001, 2010, 2019). For example, the

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polysemy embedded in the disability microaggression, "that's retarded," may reject all intermediaries linking the real (locutionary) and illusive (illocutionary or implicated) data of a microaggression. Microaggressive perpetrators (and even bystanders) may be unemphatic when a target responds with more sensitivity to what is expressed because they may not register the same data as the recipient, which affects future decision-making around who initiates conversational repair (Sue, 2010; Zahn, 1984). Still yet, at any time roles and empathy can alter and change responses. In essence, communicators constantly negotiate their goals and values when faced with ambiguous issues such as morality, emotionality, irrationality, and another's social actions.

In the same regards, asymmetries of privilege, power, and dominance are far more probabilistic than initially theorized and can morph throughout communicative interactivity. In current microaggression work, context shapes the power dynamics that inform "if and how targets and bystanders of…microaggressions feel agency to respond" (Torino et al., 2019, p. 285). Generally, the feeling of safety to respond critically during microaggressive moments depends on how a marginalized person perceives their power and privileges within the context of the interaction in relation to others (Galinsky, 2016; Torino et al., 2019). However, this narrowed perspective of interactivity invites more biases, deep-seated ideologies, heightened emotions, and under-informed assumptions about culture, politics, and personal histories into conversation and worsens microaggressive moments because of how ever-changing perceptions and ego-involvement affect the way communicators respond to one another (Dover, 2016; Hogeveen et al., 2014; Parsons, 1968). Truthfully, ambiguity affixes and severs power through the intermingling of text (utterances) and context (implicatures), which intersect

through layers of multiple cultural and historical systems of oppression. Conditionalities, thus, bind power.

As such, an axiology where conditionality is at the core of power dynamics dictates how communicators can (un)knowingly choose their level of investment during an interaction based on if and how they want to express, interpret, and respond to problematic messages and behaviors. The availability of a person's social actions in each situation depends on how they perceive the power and privileges of all parties involved. In some cases, individuals may select single, deterministic actions, or *pure communication strategies*, when they perceive power imbalances (Leyton-Brown & Shoham, 2008). For example, when an abled-bodied individual interacts with a disabled person, communicators may stick to one type of communication script, such as a politeness protocol (Sue, 2015) to avoid problematic encounters. In other cases, individuals may estimate probabilities of words, phrases, and sentences they'd like to use for randomizing their social actions, which creates *mixed communication strategies*. That is, communicators might employ multiple types of communication scripts, try new language choices, or engage in code-switching styles (Leyton-Brown & Shoham, 2008). A person likely dismantling their conscious or hidden privileges—which sustain oppressive systems such as ableism—will turn to mixed communication strategies during problematic moments. Of course, how an individual chooses their strategies during a microaggressive moment is based on how many situational factors they can register. A person who does not register subtle forms of power and oppression might choose a social action that renders another party completely unresponsive. This *dominant communication strategy* (Leyton-Brown & Shoham, 2008) can silence a target for all social actions

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available to them. To balance power and create space for microaggressive remediation, a communicator's personal values must engross uncomfortable thoughts and consider the social actions of other parties, which would bring their subconscious prejudices to a conscious level through "bias control" and felt sense (Gendlin, 1996). Negotiating multiple, complex value systems intrapersonally, interpersonally, discursively, and culturally leads communicators to account for variations of power dynamics during ambiguous incidents.

A Praxeology

The social justice orientation of microaggression work has invited readers, practitioners, clinicians, and scholars to develop methods, scripts, hypotheticals, and specific communicative behaviors for understanding and responding to incidents (Pérez Huber & Solórzano, 2018; Thurber & DiAngelo, 2017). The principle method of *counter-storytelling*, where marginalized persons narrate their experiences, has prompted the creation of diversity trainings on implicit bias awareness, systemic-proactive/individual-reactive microaggression removal strategies, and intervention programming for bystanders (Torino et al., 2019) in a variety of educational, organizational, healthcare, and law enforcement contexts. Still, the prescriptive, stepwise approaches (e.g., the R.A.V.E.N. approach[4]) that current anti-microaggression practices employ for social change often neglect the uncertainty of power dynamics in interaction.

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[4] Educational professors Frank Harris and J. Luke Wood created the five-step R.A.V.E.N. approach for responding to microaggressions, which entails (1) Redirecting the conversation or interaction, (2) Asking probing questions, (3) Valuing clarification, (4) Emphasizing thoughts and feelings, and (5) offering Next steps for harm-reduction.

Envisioning an appropriate *praxeology*, or an "economics of the means of knowledge" (Anderson & Baym, 2004, p. 606), for problematic utterances like microaggressions must consider how ambiguity perpetually disrupts prescriptive, descriptive, and emancipatory principles that turn theory into actionable "scripts." Current microaggression research examines whether its quantitative, qualitative, and mixed methods approaches produce work that returns a self-awareness or consciousness-raising component that can be used for effective anti-microaggression training protocols (Torino et al., 2019). However, evolving interactivity and ambiguity does not guarantee communicators will (or can) reflexively engage hidden prejudices since identification and assessment of whether an offense has occurred is difficult (Hebl et al., 2002). Thus, deciding best practices for response and remediation is often disorienting, distressing, and impracticable (Sue, 2010). A communicative stance of microaggression praxeology regards a practice of tentative improvisation as critical for the prevention, intervention, reaction, and ideal eradication of problematic utterances during social situations.

Whereas axiology recognizes distinct communication strategies arise depending on power differentials, praxeology concerns what outcomes (or solutions) continue cooperation between communicators during potentially problematic interactions. During uncertain, partially observable, and probabilistic situations, people choose communication strategies that maximize what they expect to be the best outcomes for a social interaction, or what are known as *optimal communication strategies* (Leyton-Brown & Shoham, 2008). Of course, when multiple, self-interested parties are interacting, communicators engage in joint decision-making, whether it is explicitly known or not. In essence, repairing microaggressive moments comprises of

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communicators accounting for each other's social actions to arrive at the most favorable outcome for everyone involved in the problematic situation—or rather, crafting a *best response strategy* (Leyton-Brown & Shoham, 2008). A recipient choosing silence as a response to a speaker expressing "that's retarded," for example, may be optimal for continued cooperation given the power dynamics between communicators. Ultimately, deriving solutions (and communication strategies) to remediate a microaggression varies across contexts (Parikh, 2001) and insinuates that no unique method exists except those generated momentarily and conditionally.

In fact, repair goes beyond the traditional prescriptive and descriptive procedures of inquiry, reflection, reframing, redirecting, revisiting, and checking-in (Kenney, 2014) often outlined in an anti-microaggression praxis. Remediation as a tentative economics interlaces how communicators obtain knowledge during a conversation, situate their beliefs, biases, attitudes, and values when interacting, and attend to the many invisible factors—such as speaker intentions—informing microaggressive moments (Parikh, 2001, 2010, 2019). When a disability microaggression such as "that's retarded," occurs, successful conversational repair for a problematic message means attending to implicature cancellability (Meibauer, 2006; Robinson, 2006; Zahn, 1984) given that communicators can navigate through the variety of communication strategies (e.g., pure, mixed, dominant, and so on) that influence adherence to or a violation of the Gricean maxims and cooperative principle. Multiple pathways for interacting do not necessitate better prescriptive solutions for microaggressions but do propose a groundwork for surmising a "better problem" for future research practices (Massumi, 2015). Simply, a praxis of remediation stems from recognizing how the impossibilities of situated, partial,

probabilistic, and evolutionary communication data during a social interaction inform and create what should and can be done in microaggressive moments.

That said, theorizing microaggressions and practicing conversational repair necessitates a methodological assemblage around the randomization and conditionality of communicator choices, intentions, possible epistemics, and the pragmatics of interactivity. Praxeology procures an inquiry that can "detect, resonate with, and amplify particular patterns of relations in the excessive and overwhelming fluxes of the real" (Law, 2004, p. 14) embedding a microaggressive moment. Or rather, a tentative economics for the study of microaggressions models a natural emergence of probabilities, embodiments, emotionalities, implicatures, deliberate imprecisions, situated choices, and so on (Law, 2004; Parikh, 2010). Extant scholarship on theory-to-action focuses on reifying microaffirmations—and its derivatives of microvalidations, microcompliments, and microsupports[5]—to supply small, often ephemeral, acts during social interaction that promote success, validate realities, and protect marginalized identities, social positionalities, and experiences from harmful systems of oppression (Rowe, 2008; Torino et al., 2019). Yet, difficulty inserting these communicative plaudits into everyday conversational encounters likely originates from the complex dynamics of differing preferences and understandings that induce frequent patterns of miscommunication. Communicatively entangling method and practice invokes tentative, yet purposeful

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[5] *Microvalidations* are appreciations of the experience, thoughts, abilities, or feelings of an individual who may feel unwelcome or invisible in an environment; *microcompliments* are subtle verbalizations of praise, admiration, or respect for a person's identity or heritage; *microsupports* provide explicit feedback or scaffold resources to support individuals who may feel unwelcome or invisible in an environment (Periyakoil, 2018).

and/or reflexive "scripts" for surmising proactive, interactive, and reactive techniques for a microaggressive incident.

Conclusion

This chapter outlined linguistic approaches that may extend microaggression theory and research into communicative territory for the purpose of analyzing its discomforting content. Both speech act theory (Austin, 1962; Searle, 1969) and implicature theory (Grice, 1975) are unique linguistic apparatuses for framing microaggressions as communicative units with distinct syntactic, semantic, and pragmatic features. Of course, the shortcomings of each approach warrant a reexamination of the inherent ambiguity embedded in microaggressive moments. A metatheoretical contemplation offers an alternative perspective for understanding problematic messages—one that recognizes the holistic, morphological, and probabilistic nature of ever-evolving communication in social interactions. Given such a metatheory example, I offer a tentative, working definition for a *communicative microaggression*:

> An everyday, ambiguous speech act where communicator intentions misalign with interpretations and violate interactive cooperation by communicating bias, hostility, denigration, historical oppression, or negativity toward a marginalized identity marker.

This definition acknowledges how multiple communicative choices play an integral role in the emergence of a microaggression. Unlike current theory, which focuses solely on how a target (or bystander) surmises a microaggression, I argue that examination of what is happening during a problematic encounter must consider how the dynamics between communicators constitute ambiguity in a shared social interaction. Thus, the next chapter proposes a game-theoretic methodology that attends to the various communicative factors

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underlying a microaggressive moment. Additionally, chapter three describes data collection procedures for gathering an array of disability microaggressive moments. It ends by outlining how Parikh's (2010, 2019) model can be applied for analysis of the pragmatic conditions undergirding disability microaggressions.

CHAPTER 3

A GAME-THEORETIC METHODOLOGY

Discussion so far on speech act theory and implicature theory has been advantageous for building a broad, multifaceted basis for better understanding the pragmatics that could lead to microaggressions (di Gennaro & Brewer, 2019). However, both theories in their application are limited in their capacity to interrogate and account for the interdependent roles of syntax, politicized contexts, power asymmetries, illocutionary meanings, and various strategic inferences (e.g., speaker intention) that often render misinterpretations between communicators (Parikh, 1991, 2001, 2010, 2019; Shoham & Leyton-Brown, 2009). Instead, moving away from a perpetrator-victim framework (Yep & Lescure, 2019) toward viewing communicators through ever-changing roles as speakers, recipients, and/or witnesses in conversations can offer a way to decipher ambiguity that is often rife in natural language (Nowak, 2006; Shoham & Leyton-Brown, 2009). This interactive lens centers pragmatics as a critical foundation for the study of microaggressions.

It has been suggested that techniques in game theory may invite a more empirical, explanatory framework that unifies and generalizes previous theorizations of natural language, which may advance a social science for the study of communicative microaggressions (Parikh, 2001, 2010). *Game theory* (GT), or multi-person choice theory, is the mathematical study of strategic interaction between independent, self-interested individuals (Leyton-Brown & Shoham, 2008). That is, GT is used to analyze a communicator's choice of social action based on how it is influenced by the actions of other communicators during a situation. In an informal blog essay, linguist Taylor Jones

(2016) suggested that microaggressions are unique conversational implicatures that stem from strategic, ambiguous, structurally-encoded utterances layered with meanings embedded in history and oppressive ideology. With tools from GT, Jones suggested such ambiguous, problematic utterances can be classified as microaggressions. Of course, GT has not been used yet to derive the interplay of pragmatic factors in communication research. This suggests it is not enough to theorize primarily based on sociopolitical, cultural or historical roots of microaggressions; analyses of possible microaggressions must also consider the dynamic choices that occur during situated communication.

This third chapter outlines a game-theoretic methodology that appends Jones's (2016) recommendation for classifying problematic utterances as microaggressions. I turn to Parikh's (2010, 2019) model for building a holistic, communicative understanding for what could lead a communicator to perceive some messages as microaggressive. Specifically, to study disability microaggressions as a communicative phenomenon, methodology should attend to the probabilistic and morphological nature of its interactive data. Or rather, a methodology should approach inventiveness, spontaneity, and flexibility (Gale, 2018; Lury & Wakeford, 2012) while also attending to empirically tractable analyses of game theory (Jones, 2016; Leyton-Brown & Shoham, 2008; Parikh, 2001, 2010, 2019; Shoham & Leyton-Brown, 2009). This chapter outlines: (1) a methodology rationale, (2) an exploration of data sources, (3) a method for data collection, (4) a game-theoretic framework, and (5) procedures for data analysis.

Methodology Rationale

One common dilemma for the study of microaggressions is how to account for the way these ambiguous, problematic utterances draw on context to subtly invalidate

personal cultural identities and sociopolitical experiences (Sue, 2010; Torino et al., 2019). *Context* encompasses the circumstances that form a setting necessary for creating messages such as microaggressions; more so, it assesses what meaning(s) emerge from and are attached to these messages. The boundaries of what constitutes context are seldomly specifiable. As such, communicators often draw on multiple pieces of context to construct message meanings, which can include described situations, multiple resource situations (referents or symbols), and discourse situations made of smaller sequences of conversations and their respective situations (Parikh, 2010, 2019). This generates a complex scientific challenge for empirically analyzing microaggressive dynamics inside interactions (Sue, 2017) because communicators may not always agree on what context is informing a conversation where microaggressions occur.

Because context is messy and unruly, microaggression researchers have implored a more precise approach to account for the emergence of these ambiguous, problematic utterances (Torino et al., 2019). *Text*, or the tangible sentences that underlie messages and their contents, offers an exact means to examine how language functions in everyday situations. Text acts as well-behaved, rule-governed objects for the transference of intent (a speaker's belief, desire, or motive), information (the relation of aboutness between language and the world), and communication (the flow of intended information) from person to person (Parikh, 2001). Because communication transpires from situated language, scholars have resisted studying text because it is difficult to develop a mathematical apparatus that accommodates these (often poorly misunderstood) morphological concepts while also fully capturing the interaction between communicators when they can draw on information from these situations in explicit

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(conversational) and implicit (mental) ways (Parikh, 2010). As such, most social interaction analyses (Lamb et al., 1979) and mathematical models of natural language (Gross, 1972) center a context-free approach to the study of text and context in conversations. The inexactness of context as applied to text explains the rifeness of ambiguity in the meaning-making process of communication.

Fortunately, game theory formalizes what is happening in situated communication, making it possible to disambiguate text and context together. In GT, games are well-defined mathematical objects—finite ordered lists consisting of distinct elements, or components (Leyton-Brown & Shoham, 2008). I define a *situated game* as a type of speech act or communicative activity that includes the following six elements (Kreps & Wilson, 1982):

1. The *number of communicators* present, including their respective turns.
2. The many strategies, or *actions*, communicators can use when interacting, such as how long to speak, what questions to ask, and so on.
3. The *possible situations* that communicators believe they have entered. This includes what (and how many) actions communicators think they can use when making a decision. Depending on power dynamics, this can vary per communicator.
4. The *initial probabilities* of making communicative choices to ascertain various textual and contextual meanings from words, phrases, and sentences (the actions). Situated information means a choice can have multiple probability distributions.
5. A communicator's *information set*, or "knowledge bank." This includes any individual and common background knowledge and context used to inform communicators how to make choices in a situation. This can include personal histories, cultural understandings, and implicit rules about interacting.
6. The outcomes, or *payoffs*, of a situation, which include the many possible interpretations resulting from a communicator's actions[6].

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[6] What interpretation a communicator ultimately chooses depends on their underlying preference to maintain the Gricean (1975) maxims of succinctness, truthfulness, directness, and relevance as much as possible. Payoffs have both costs and benefits, which result from how much communicators want unambiguous, cooperative communication while also, simultaneously, minimizing their effort to follow the maxims (Parikh, 2010).

To create and analyze a situated game of data using GT, these six elements must be accounted for in some manner when collecting (and scrutinizing) interactive data.

Most situated games (including microaggressive interactions) are *noncooperative*, where individual communicators act in self-interested ways and affect each other's actions and payoffs (Leyton-Brown & Shoham, 2008). Noncooperative does not exclusively apply to situations where conflict occurs between different communicators and their interests. Rather, it could mean a misalignment between a speaker's intent and a receiver's interpretation of a message. *Cooperative* games occur between groups of communicators (or coalitions). Similarly, cooperative does not only apply in situations where communicators' interests align with each other. This could mean an alignment between a speaker's intent and a receiver's interpretation of a message, and still communicators can choose actions that escalate conflict. I discuss these in chapter four.

Determining whether an ambiguous, problematic utterance is a microaggression likely equates to what is called a Bayesian game classification problem, or a strategic game of incomplete information (Jones, 2016). During a *game of incomplete information*, communicators do not share a common knowledge about the activity (game) that is happening between them (such as playing blitz vs. lightning chess); so, the possible payoffs, or outcomes, of a game will differ. Communicators still share the same amount of strategies (such as how players share the same 16 chess pieces) and share a common prior on how to interact (know the rules of chess, regardless of experience having played it). In other words, according to Jones, during microaggressive incidents, communicators could easily misunderstand the type of situation they are in (#3), yet still know how to

work through an interaction, if necessary, because they have common knowledge of how they should engage with each other (#5).

Parikh (2010), on the other hand, suggested problematic utterances are more complex than Bayesian games. He speculated that communicators likely engage with each other using *partial* information, which generalizes games of incomplete information to include noncooperation, irrationality, and ambiguity. This means that classification of a problematic utterance as a microaggression must also consider the interdependence of individualized *and* common knowledge about conversations and discourses. For Parikh, communicators might enter a situation and play entirely different games with each other (chess vs. checkers), use different sets of available strategies (one person might have 16 chess pieces while the other has 12), and draw on multiple types of background knowledges to inform their choices (i.e., communicators from differing cultures might use resources and personal experiences to improvise during an interaction where they do not know how to interact with each).

This implies that a methodology for game theory analysis (and its data collection procedures) must account for the six elements of a situated game and the various, partial knowledges individuals bring into an interaction. Simply put, for microaggressions, Jones (2016) would suggest only situations (#3), initial probabilities of choices (#4), and payoffs (#6) would differ between communicators. Parikh (2010), on the other hand, would suggest including differing strategies (#2) and information sets (#5) to support Jones's conjecture. Only the number of communicators (#1) would ever be considered shared, common knowledge during social interactions. This makes sense since

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communicators are always known to each other but can use an assortment of alphabets, languages, dialects, and grammar/cultural rules for interacting (Shimanoff, 1980).

Many in the field of communication studies in the 1970s explored these partial renderings of social interaction with methodologies that welcomed the field of general semantics as a primer for understanding what people can know in the world (S. A. de la Garza, personal communication, August 3, 2021). In general semantics, a field broader than semantics, human knowledge can extend only through the bodymind's nervous system and human language; thus, no communicator has direct access to reality, except that which is filtered through the nervous system's responses (Korzybski, 1995). To consider partial understandings of social interaction is the most that communicators can ever achieve; thus, this invites an intentional methodology for the study and practice of problematic communication in social interactions (S. A. de la Garza, personal communication, August 3, 2021). The closest methodologies that explore the naturally occurring data of social interactions—and work to understand the many possible textual and contextual sociocultural, political, and historical meanings that may manifest from what is said and done in conversations in an individualized and interdependent way—are conversation analysis (CA; Psathas, 1995) and discourse analysis (DA; Rau et al., 2018). Of course, both are limited in their capacity to analyze partial renderings of interactive data in a holistic way. As such, I employed the data collection methods of these methodologies while designing a foundation that primes a GT framework for analysis— opening space for assembling a new methodological template.

First, the shortcoming of using only CA is that, while it does outline a detailed systematics for the organization of turn-taking (Sacks et al., 1974), it draws incomplete

conclusions about the relationship between content and social aspects during communication (Zahn, 1984). CA makes no assumptions of participants' motivations, intentions, moods, thoughts, or feelings and it may be collected with or without the researcher's involvement in natural settings (Psathas, 1995). Research has attempted to correct this limitation by coupling CA with other methods. For example, ethnomethodology and discursive psychology enhanced a CA of participants' cultural understanding of infertility (de Kok, 2008); an ethnography of speaking approach augmented CA to dissect conversational joking (Boxer & Cortés-Conde, 1997); and focus groups strengthened a CA of kinship caretakers' "complaint sequences" of third parties as possible microaggressions in interaction (Wilkes & Speer, 2021, p. 307). However, such analyses capture only an informal, subjective, and restricted understanding of contextual content during communicators' actions.

Second, DA attends to the various knowledges communicators use for shaping language, interpreting messages (e.g., the information sets and payoffs), and in what contexts (Rau et al., 2018). Some DA research works to connect the particulars of text with context; others, such as action-implicative discourse analysis (AIDA), have made strides to reconstruct a speech act for exploring the possible implicit assumptions underlying a communicator's strategies and their situated ideals (K. Tracy, 2005). The limitations of DA, like that in CA, include only an informal conjecture of the nature behind why and how communicators choose to interpret messages in a certain way based on contextual content. DA omits data pertaining to possible alternative explanations as to why people choose to achieve or avoid certain outcomes (K. Tracy, 2005). In short, describing counterfactual scenarios of intent might account for distinct, often unnoticed

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pragmatic factors and their unique probability distributions—all of which can change the way situated choices in a social interaction are understood.

GT unifies these two procedures for an objective study: analyses capture both the tangible, systematic turn-taking choices of interaction (e.g., turn-order, turn-size, turn-allocation, length, phonetics, and so on) and the many micro, meso, and macrolevel representations of discourses that emerge when communicators enter their respective interpretive (illocutionary) speech acts to make sense of conversational messages (Parikh, 2010). GT connects both empirical and experiential realities of a situation into a multi-layered, mathematical schematic of choices between communicators. Thus, to propose a stronger, more robust analysis for microaggressions through GT, I drew from CA and DA to procure data collection procedures that worked to capture the emergent data from social interactions in individualized and interdependent ways. Then, using data gathered, I formalized an empirically tractable, holistic model by employing game-theoretic analysis. Unfortunately, data collection of microaggressions is a difficult endeavor. The next section outlines a brief account of how I explored and constructed data collection procedures that would be appropriate for this study.

"Gone Fishing": Establishing Data Sampling

During the early stages of data collection, and during the height of the Black Lives Matter protests over George Floyd's death in June 2020, I worked to establish contextual familiarity of the type of data (and sites) that would work for this dissertation project. While theorization has made copious strides to identify themes and examples of microaggressive messages, the most challenging aspect of understanding this phenomenon (and for this dissertation project) is encountering and recording

microaggressions during naturally occurring public interactions while capturing as many contextual factors as possible. In other words, encountering disability microaggressions felt a lot like hunting for a rare fish—not knowing what the fish looked like, not knowing where the fish lived, and not knowing what bait would be good for snagging the fish.

I started my fishing expedition by choosing fieldwork as a preliminary method for generating understanding and knowledge around the interactive structure of microaggressive moments; I followed much of Spradley's (1980) suggestions for making ethnographic records through participant observation. I began reviewing recordings of public town hall meetings where disability issues were discussed on online video platforms such as YouTube. I also attended two public school board meetings (both virtually and in-person while following social-distancing protocols) where I thought disability issues would be discussed (e.g., schools deliberating whether mask-wearing and remote-learning classroom formats would be the primary protocols to create accessibility for educational spaces during the Fall 2020 semester). I audio recorded and crafted raw records of fieldnotes, or jottings and scratch notes, from my observations as a participant-observer (Spradley, 1980; see also Creswell, 2013; S. Tracy, 2020). I then wrote condensed accounts of my raw records immediately following my observations (see Appendix A). After failing to recognize a disability microaggression from these public interactions, I deleted any audio files in my possession and returned to the drawing board by journaling in a fieldwork journal (see Appendix A) as suggested by Spradley (1980). In this journal, I reflected on my biases, assumptions, frustrations, uncertainties, and doubts (Spradley, 1980). I asked myself questions such as, what does microaggression data look like? How do I capture a naturally occurring microaggression?

What factors are important for increasing the likelihood of encountering a microaggression? During my journaling, I considered reality television shows where disability issues (such as Deaf culture) would be discussed. However, video editing/splicing made this idea an impossibility for capturing the many factors that contribute to naturally occurring, uninterrupted conversations where microaggressions may occur. "Fishing" for disability microaggressions was daunting.

Then, during late July 2020, I attended six publicly-recorded videoconferencing meetings held by a large Southwestern university where disability and accessibility issues were discussed. The format of these meetings was largely lecture-style, followed by short question-and-answer (Q&A) periods where participants could interact with speakers. Again, using Spradley's (1980) Developmental Research Sequence for recording social situations and crafting fieldnotes, I observed the meetings and hand-recorded on a notepad any messages I encountered that I thought were potentially problematic and needed further scrutiny. I noted any interactive factors (e.g., tone, gestures, turn-taking, interruptions) I recognized that might have contributed to problematic moments. Following the live meetings, I requested any shareable audio and video recordings from the speakers to reexamine. In sum, fieldnotes and recordings suggested that these types of publicly-recorded videoconferencing meetings had the potential to produce critical conversational segments for the study of microaggressive moments. Essentially, I had found my possible fishing spots. I further explored this setup and method of data collection formally with the Institutional Review Board (IRB), which is outlined in the next section. Any recorded data and notes from these meetings were deleted and erased.

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Method

In this study, I sought to identify whether microaggressions occurred in public gatherings where disability issues might be discussed. Oftentimes, during public interactions, a microaggression can occur when there is uncertainty around what people are saying and doing, especially when discussing disability issues. Previous research has observed and recorded public interactions to render microanalyses of communicative properties, such as paralinguistics (Psathas, 1995; Zahn, 1984). However, for microaggressions that did occur in public gatherings, the interactive factors that contributed to their emergence must be scrutinized. Therefore, this study engaged with data collection procedures outlined by researchers using CA (Psathas, 1995) and DA (Rau et al., 2018) to capture micro, meso, and macrolevel interactive data.

In short, the data from this study came from brief, publicly-recorded, everyday conversation segments. Such conversation segments, or extracts, have been used previously with CA for the study of turn-taking patterns in specific situations that might inform possible microaggressive moments (Wilkes & Speer, 2021). The conversation segments for this study were used to conduct game-theoretic analyses of the context and pragmatic factors informing people's choices in everyday talk. The protocol for this study was adapted to conduct this research during the COVID-19 pandemic by using gatherings that were open to the public. As such, these meetings were already being publicly viewed and observed. Research was conducted remotely using transcript data from meetings observed on publicly available online platforms, such as Zoom or YouTube, or in other public settings. This section covers the method of data collection in detail.

Data Collection Procedures

After receiving an exemption from a complete human subjects review and approval to proceed with my research from the IRB (exempt project #12498), I resolved to audio record and take observational fieldnotes at various public Zoom meetings and any in-person everyday conversations in open public spaces (with social-distancing protocols in place) based on what I found to be the most promising research contexts from my "fishing trip." I sought any type of Zoom meeting that was publicly advertised, sent through invitation, or was announced in newsletters; this included workshops, seminars, forums, Q&As, or town halls. I did not seek a particular subject matter (topic area) to be covered in either in-person public interactions or Zoom meetings; I hoped that some sort of problematic communication related to disability issues or COVID-19 would emerge from these spaces regardless of topic areas.

I started by attending these public meetings and conversations to increase contextual understanding around the types of messages that could produce microaggressions (much like how I had done initially during my fishing expedition). I selected public Zoom meetings and public conversations to attend based on the following criteria:

- If the host(s) did not state the interactions would be recorded, I verbally asked the host(s) if the interactions could be recorded to retrieve after the end of the interactions.
- If the host(s) were not recording, I asked to record with the verbal/implied consent of attendees in the interactions.
- For anyone who did not verbally consent to being recorded, I erased their communicative data from the final report.
- For the public interactions where no microaggressions occurred, I deleted the recordings for these interactions immediately.

Because the study involved confidential, one-time, anonymous data, I included a cover

letter to be read/distributed before the public interactions (see Appendix B). In the letter, I

described the procedures for consent and how I would ensure confidentiality by removing

actual names of people, locations, and other recognizable features from the research data.

I also explained that audio recordings and fieldnotes would be used to recount nonverbal

elements of the interactions. Lastly, in the cover letter, I stated that all research data

would be locked away in a secure location and would be kept for three years, after which

time data will be erased (see Appendix B). Ultimately, I aimed to minimize collecting

verbal consent as much as possible by attending and observing public interactions where

it was known beforehand that the host(s) would be recording (the first listed option). No

participants (nor personal data) were recruited/collected for this study[7].

Data Sources and Research Contexts

Data collection procedures between September and November 2020 resulted in

my attendance at 12 faculty training meetings at a large Southwestern university. These

30- to 60-minute faculty training meetings were all held over Zoom, discussed disability

issues and resources, and followed a lecture-style format with short Q&A periods. During

this time, I also attended and viewed one 93-minute publicly-recorded Q&A panel

covering an American with Disabilities Act 30-year celebration (available at

https://youtu.be/fMKz5wrkxKc), one 176-minute publicly-recorded faculty senate

meeting held at a large Midwestern university where various topic areas were discussed

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[7] This study excluded minors, adults unable to provide verbal or written consent, pregnant women, prisoners, Native Americans, and undocumented individuals in the final report.

(available at https://youtu.be/de54qfFBu_Y), and one 87-minute socially-distanced, in-person public forum that occurred in a small Midwestern town.

In addition to attending and/or observing these meetings, I hand-wrote extensive fieldnotes using suggested noting-taking protocols presented by Spradley (1980). After the meetings, I wrote about relevant contexts of the Zoom meetings and the in-person everyday conversations using condensed accounts and my fieldwork journal (Spradley, 1980), similar to how I engaged in note-taking when establishing data sampling (see Appendix A). I then sorted through the recordings and notes. I deemed a moment to be microaggressive based on reviewing relevant literature and by observing interactional structures such as turn-taking (Peräkylä & Ruusuvuorii, 2018) during live meetings, in-person interactions, and the YouTube videos. I summarized these contexts into brief descriptions of the interactions. I included any notable nonverbal elements (tones, pauses, accents, facial expressions, body movement, etc.) from fieldnotes in the contextual descriptions. This combination helps to build an epistemological awareness of the conversational implicatures (Blecic, 2012) and illocutionary forces contributing to potentially problematic communication patterns. Of the aforementioned public interactions, four produced microaggressive moments: two faculty training meetings, the 30-year ADA celebration, and the faculty senate meeting. I deleted and erased recordings, fieldnotes, and contextual descriptions of all interactions that did not produce a microaggressive moment.

Extrication of Conversation Segments

After deleting data from all meetings except the four public interactions with microaggressive moments, I reviewed recordings to narrow down conversation into

segments to be used for analysis. I extracted segments by selecting stretches of conversation that included problematic messages and discourses that contextualize a setting for the messages (K. Tracy, 2005). I noted start times and end times for the stretches of conversation I selected from the recordings. I designated a start time as any conversational turning-points (such as interruptions) where discussion switched to subject matter that included problematic messages. Similarly, I designated an end time as any conversational turning-points that moved away from problematic messages, either into new subject matter or the original topic of discussion (before interruptions).

Together, both conversation segments and brief contextual descriptions constructed an account for understanding *observed* microaggressions (where I assumed the role of a bystander). Such accounts narrate the interpersonal factors of microanalysis (e.g., power asymmetries) and the contextual factors of meso/macroanalysis (e.g., discursive interpretations) informing what naturally occurred during conversations. The implication of studying such accounts is theoretical and practical advancement for failed conversational repair sequences (Zahn, 1984) when power differentials and ambiguity are present.

The data collection procedures outlined here from both CA and DA methodologies were important for capturing morphological data of this phenomenon. The shortcoming, however, is that interactive data are only partially captured and understood when either method is used separately or mutually. Fortunately, partial, situated data are sufficient for building an explanatory, "postdiction" game-theoretic analysis (Parikh, 2010, p. 80). That is, rather than acting as a predictive framework, GT algebraically explains what communicators did and what communicators could have done in (and

could do in later instances of) choice situations based on what pragmatic factors were readily available and recognizable even when the context was incomplete (Parikh, 2010). This is something many other established approaches of social interaction analyses have formally failed to resolve (Lamb et al., 1979). Thus, the next section advances both CA and DA methods by outlining an apparatus that overhauls their analytic limitations.

A Game-Theoretic Analytic Framework

The benefit of using game theory for explaining the underpinning communicative conditions of a microaggression is that it attends to many of the shortcomings in current theorization. For example, Parikh (2001) argued that the Gricean maxims—which have been quintessential for describing effective communication during social interactions— become superfluous once a game-theoretic apparatus is used for analysis. This is because expected payoff maximizations in games adequately capture and generalize the work that is done informally by the maxims (Parikh, 2010). GT extends wider than speech act theory and implicature theory to apply to all locutionary and illocutionary meanings of utterances even when ambiguity is present.

More so, Grice's (1975) cooperative principle does not turn out to be fully generalizable. Grice built most of his pragmatic model around epistemic reasoning—i.e., he knows what she knows what he knows and so on—and the rational interactivity that goes into decision-making (Parikh, 2019). Grice's adherence to a speaker-driven, belief-desire model meant that implicatures stemmed from single actions rather than a range of choices (or any possible available alternative actions). In other words, the Gricean model for understanding the pragmatic factors contributing to a speech act did not account for two-sided communicator *practicality*, or the conditionality of choices between people

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(i.e., given what a speaker knows, if a speaker does this, the recipient could do that, and so the speaker should do something else instead). Focusing only on speaker-meaning derivations of conversational implicatures rather than on how both speaker and recipients interact and influence each other's preferences is one key reason why theorization has slowed. GT broadens the theoretical and analytic scope of interaction.

Regarding microaggressions, these problematic moments can obtain two pragmatic properties that render an incomplete analysis of what is happening under a Gricean model. First is *irrationality*, where communicators' messages are driven by implicit biases and unconscious intentions, which are also situated and momentary (Parikh, 2010). The second is *indeterminacy*, where the meaning of a conversation's content may not always be fully intended, be deterministically given, or be the same between communicators as they make sense of what is happening. Both properties make it possible for a social interaction to be completely noncooperative, upending a Gricean application. That is, if a communicator's choices arise situationally in noncooperative ways, game theory can explain the structures that yield the payoffs of such choices, especially when partial information of irrationality and indeterminacy is present (Parikh, 2010). This means that GT can empirically account for how a message's locutionary content influences *and* is influenced by ambiguous illocutionary meanings. Text and context act in internally interdependent ways when creating interpretations. This creates a cyclic framework for the inquiry of communicative microaggressions, one that remained incomplete during the development of Grice's (1975) sequential framework. Grice had no means of accounting for manifestations of implicatures other than through a speaker's

abductive reasoning despite there being many sources of ambiguity influencing alternative explanations for an implicature's derivation (Parikh, 2010, 2019).

Therefore, to develop a study of microaggressions that considers a cyclicality of actions, I employed Parikh's (2010, 2019) equilibrium linguistics model for understanding disability microaggressions communicatively. This model contains two layers of analysis, both of which I outlined here as applied to microaggressions. The first layer examines the many interpersonal or small group communication exchanges that occur during social interactions, known as *micro-semantics*. The second layer includes societal, public, and discursive communication consisting of many interlocking smaller conversations, also known as *macro-semantics* (Parikh, 2019). This closely aligns with Conley and O'Barr's (1998) and Gee's (1999) references to little-d, microdiscourse (the particulars of talk and text) and big-D, macrodiscourse (the larger institutional practices and social ideologies). However, unlike conversation and discourse analysis (and any other methodological variations), this model coalesces these two layers together (rather than as separate from each other) to inform how communicators convey and interpret meanings in their messages at any given moment in any given space.

Analysis of Micro-semantics

The first layer of the game-theoretic framework analyzes the particulars of talk and text, and how it functions to obtain context and other pragmatic factors. Much like speech act theory, Parikh (2019) explained how communication occurs across four large interlocking parts: (1) the Setting Game, (2) the Content Selection Game, (3) the Generation Game, and (4) the Interpretation Game. These four games construct the Communication Game, which informs the micro-semantics, or little-d, microdiscourse of

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an interaction and conversation between communicators. A microaggressive moment also evolves across these four interdependent games. The layers of the Communication Game are illustrated in Figure 1.
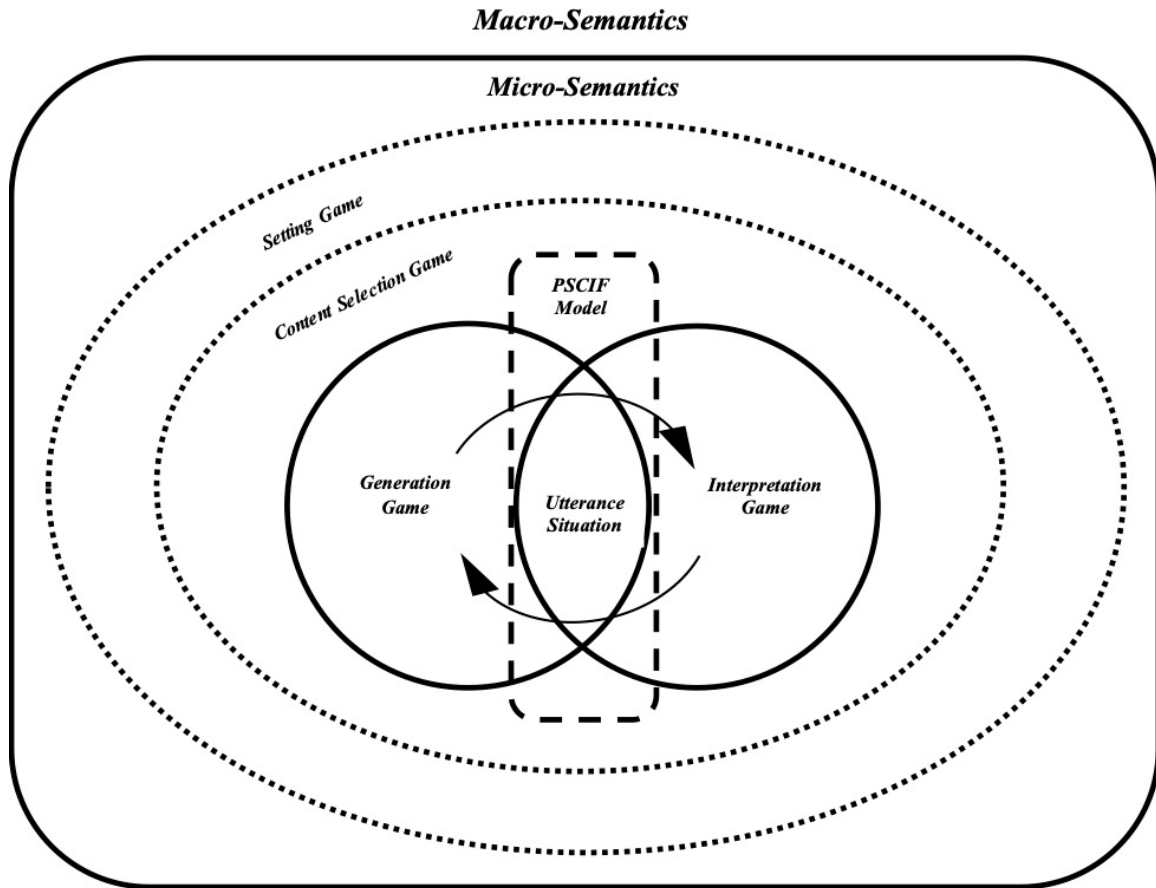
Figure 1 Communication Game layered in micro-semantics and macro-semantics

First, communication begins with the Setting Game. This is where multiple communicators (speakers, recipients, and witnesses) are involved in some domain—either an environment, ecology, space, location, or even a historical event. The setting induces communicators to affect each other in some way, whether to convey messages to trigger corresponding beliefs to be exchanged or to elicit some unknown communicative

actions or responses. Similar concepts in organizational communication, such as sociomaterality (see Orlikowski, 2007) and imbrication (see Leonardi, 2012), suggest how communicators relate to and are influenced by their surroundings. For Parikh (2019), the setting acts as a decision problem of some kind, much like the constituent of exigency (or an existing worldly problem) in Bitzer's (1968) model of the rhetorical situation. The setting informs the explicit/implicit goals and subgoals of communicators and whether they want to be cooperative or conflictual in their social interaction. To which, the Setting Game both constrains and explains the interplay between communicators and what their future actions may be like. Microaggressive moments begin when communicators enter a similar space with each other, and a setting materializes.

Second, once communicators wish to elicit some response from each other, they enter what is called a Content Selection Game. This is where communicators draw on various contents from the setting (that are not yet utterances) to affect each other. They can choose from among many types of signals, referents, discourses, ideologies, backgrounds, illocutionary forces, presuppositions/assumptions, and so on to inform their information sets (knowledge banks). Those who wish to speak play an intrapersonal thinking game to determine how different combinations of words come together to construct a message that fulfills their intentions. This is where the conscious and unconscious biases of communicators can prime microaggressions (Allport, 1954). Of course, this game is tricky because speakers cannot fully anticipate how recipients or witnesses will respond until a message is reified into existence (nor do recipients or witnesses know what speakers are intending to convey until something is expressed). Hence, speaker biases and intentions, even those that percolate into microaggressive

messages, are situated and probable. While a speaker's goal may be to lessen the chances for ambiguity in a message, conscious (and unconscious) biases and emotions complicate the decision-making in their thinking game (Parikh, 2019). Because communicators are unaware of the shared knowledge that is informing the situation, they rely instead on their individual, personalized knowledge (and their assumptions about the rules pertaining to everyday, public interactions) to engage with each other.

Next, communicators reify their thinking into utterances and responses through an interplay of the Generation and Interpretation Games. In these two games, communicators draw on a supposed shared language, called $\mathcal{L}$, to communicate with each other (Parikh, 2019). $\mathcal{L}$ can be a natural, spoken language such as English or Spanish where communicators rely on phonetics, syntax, and conventional meanings of words to build complex messages. While phonetics and syntax are smaller factors, they are crucial for building multiple denotations and connotations for words in $\mathcal{L}$. More so, these are key for understanding the derivation of possible conversational implicatures that align closely with microaggressive interpretations. These games occur sequentially and simultaneously and contribute most to how a microaggressive moment happens.

Once a speaker selects the optimal content they want to convey, they enter the Generation Game. In this game, speakers convert their content into a reified utterance for the given situation. Speakers think about alternative utterance possibilities and imagine how recipients or witnesses may respond to and interpret each utterance (Parikh, 2019). For example, the speaker may think about how the message, "that's retarded," comes across to a (mentally disabled or able-bodied) person to either mean "uncool" or something more denigrating (Bell, 2011, p. 145). Speakers develop multiple cognitive

games so that they can figure out how to utter the one best sentence from their possible choices (Parikh, 2019). Recipients or witnesses, on the other hand, develop only one cognitive game because they have no idea what other utterances a speaker turns over in their mind, such as "that's uncool" or "that's nonsensical." Hence, game-theoretic analysis is important during a microaggressive moment since it can account for these alternative sentence structures.

The single cognitive game recipients or witnesses must solve is known as an Interpretation Game. This game pertains to understanding how sound, structure, and meaning fit into the social interaction (Parikh, 2019). Once a speaker utters their optimal sentence, recipients or witnesses attempt to infer what content a speaker is conveying. For the "that's retarded" microaggression example, recipients may think the speaker intends to invalidate someone's lived bodily experience around a mental disability. Or, alternatively, recipients may think the speaker is intending to joke about something in the situation as "uncool." Considering these counterfactual intentions is important for (non)cooperation in a social interaction. Recipients or witnesses must identify what content the sentence provides and what information is influencing the situation. After inferring an interpretation, a recipient or witness will select the best response from their own Content Selection Game. Both communicators return to the Setting Game and repeat the process to further their interaction with each other.

These four interlocking games build a structure for analyzing the particulars of talk and text while regarding context. However, these games remain abstract in their conceptualization and execution. Parikh (2010) outlined a procedure for analyzing the Communication Game (precisely, the Generation and Interpretation Games).

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The PSCIF Model

At the heart of analyzing problematic communication such as microaggressions lies four fundamental ideas in micro-semantics: (1) reference, or context; (2) use, or text; (3) indeterminacy, or unknowability; and (4) equilibrium, or interdependence. *Equilibrium* occurs when there is a balance between multiple interacting elements (Parikh, 2010). It is dynamic, evolves over time, and arrives through choice: how a speaker chooses what to say during their Generation Game and how a recipient chooses a meaning from their Interpretation Game must be in balance with each other (Parikh, 2010, 2019). Together, the four features of reference, use, indeterminacy, and equilibrium naturally *inhere* in meaning and are not imposed on it by a game-theoretic framework. In other words, they can empirically account for a *social* science of microaggressive communication by recognizing the interplay of contextual factors encompassing speaker, recipient, and witnesses of oppressive discourses, such as ableism.

Underpinning these four features is the idea that communicative utterances carry information about one situation to another. This means that expressed messages carry ableist biases, values, background knowledge, and sociocultural, historical, and politicized ideas into communicators' immediate social interactions. Communication, according to Parikh (2010), acts as a kind of link, or a *constraint*, that builds the essence of meaning (much like the concept of intentionality from phenomenology). Interpretations act as the intended flow of information (Parikh, 2019), or rather, refer to the content (or the ontology) of a spoken utterance. In other words, messages and their interpretations act both as an intended flow of information from one situation to another (like from a societal discourse into immediate conversations) and as the information that

flows. This cyclic, holistic conceptualization is needed for a uniform understanding of the ambiguous-laden language rules underlying what could become a disability microaggression. Parikh (2001, 2010) explained how *situated games of partial information*—or an analysis of noncooperative situations with varying degrees of individualized and contextualized knowledge—are key for capturing all four features of language in a unified framework.

To construct a specific analysis of the four large interlocking games for the use of deconstructing a potential microaggressive interaction, Parikh (2010) discussed viewing communication (and its many uses and meanings) as a system of five situational constraints. These include phonology, syntax, convention, information (referents), and flow, or **PSCIF**[8]. Combined, these constraints form the model of equilibrium linguistics—a system that is needed to convert strings of words in a communicative utterance into situated games of partial information. These games can then be used to infer with probabilistic accuracy the meaning obtained by an utterance's words and phrase structure (Parikh, 2010). Put simply, understanding a disability microaggression requires examining its underlying grammar rules, its many possible meanings, and what a speaker's intentions could be. Studying these components interactively leads to an understanding of how communicators choose their messages and responses. Analysis through the **PSCIF** system can show how a recipient perceives a message in conversation as a disability microaggression based on the way a particular combination of that

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[8] In earlier iterations of this model (Parikh, 2010), the phonological/phonetic constraint, **P**, was parenthesized as **(P)**. This is because speech waves lie somewhere between locutionary and illocutionary meanings, making their roles with expressed utterances indirect. This happens sometimes with the conventional constraint, **C**, especially with free enrichments and modulations (figures of speech) since they do not have conventional (denotative) counterparts. In these cases, the constraint would be noted as **(C)**.

message's syntax, meaning, and situatedness in an interaction can create a historical, oppressive, and denigrating interpretation. In what follows, I describe the latter four constraints, **SCIF,** in detail. I discuss the phonological constraint, **P**[9], in chapter five because this constraint requires more complex tools of mathematical analysis beyond the scope of this study.

The first constraint, **S**, means to account for the syntax of the language being considered for analysis (Parikh, 2010, 2019). For example, consider that the potential microaggressive utterance "that's retarded" can possess many locutionary meanings (Bell, 2011). Each word ("that," "is," and "retarded") can have numerous definitions as can each phrase in the sentence (including the full sentence itself). "That" acts as the subject of the sentence, "is" acts as the verb, and "retarded" acts as an adjective. "That" is a pronoun used to identify a specific object the speaker observes; "is retarded" is the part of the sentence that acts as a predicate for describing the subject. This builds a basis for identifying how syntax interacts with and is influenced by other constraints, which attend more to the semantic meaning of a message. Syntax plays a critical role in the derivation of a message's content, which has been a key piece missing in current microaggression theorization.

Second, **C** stands for the set of conventional constraints used to map every word into its many possible semantic meanings. This constraint focuses on how utterances

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[9] The phonological, or phonetic, constraint, **P**, is understudied in equilibrium linguistics. It considers the tone involved when uttering an expression, which has a semantic value that is generally indeterminate. Sound waves can generate a potentially ambiguous utterance like "that's retarded" into "that departed" (or some other derivation). This constraint would be used to add the phonetic games of partial information (around these two utterances) to the flow constraint (Parikh, 2019). Because tone lies somewhere in between textual and contextual meanings, communicators may not be able to specify a tone's content (Parikh, 2010), making phonetic analysis difficult when applied to microaggressive moments.

create and obtain contextualized meanings, which can be largely extracted from a dictionary, except for a relatively small class of syncategorematic words like determiners and conjunctions (Parikh, 2010). For example, "that" has multiple conventional meanings informed by its many referential uses (depending on what else is said during conversations). "That" is influenced by and obtains implicit statements that may arise from its utterance. "Is" has one conventional meaning in this statement, a predicative use (it can also have a membership use and an auxiliary use). "Retarded" has many conventional meanings informed by its predicative use. "Retarded" could allude to uncool, nonsensical, or to the long history of stigmatizing mentally disabled people (Bell, 2011; Parry, 2013). Like "that," "retarded" is influenced by and obtains implicit meanings. For example, the whole utterance "that's retarded" could imply (→) [*your (idea that was just expressed) is uncool*] as well as many other unspoken, and even more derogatory, statements (Bell, 2011). These implicatures further inform the array of possible conventional meanings that a receiver can use to interpret and perceive a message as microaggressive.

Third, **I**, or the informational/referential constraint, maps the meanings obtained from the conventional constraint into situation-theoretic objects, or referents. Each word and phrase in "that's retarded" has a unique situational ontology—a distinct set of textual and contextual properties and relations such as time, space, uniqueness, history, and power—that determines how the overall utterance *should be* interpreted (Parikh, 2010, 2019). However, communicators choose how to interpret and respond to messages based on what properties they can consciously account for during a conversation. A recipient of a disability microaggression cognitively turns the strings of words and phrases into a

representational "chess piece" to be used for the Interpretation Game. Communicators then use their chosen interpretation to decide what the best strategy will be for responding to a perceived ableist message. A more formal mathematical derivation is elaborated in the next chapter to explain how communicators choose interpretations and responses.

Fourth, flow, **F**, is the main constraint: it embodies much of the framework of equilibrium linguistics. It assembles the aforementioned constraints together into a cyclic and holistic understanding of how text, context, and indeterminacy function to make the inherent content of utterances (Parikh, 2010). Essentially, the flow constraint is where the Generation and Interpretation Games are played. A system of situated games provides a means of understanding a social interaction comprehensively. The combination of syntax and semantics happening during a conversation—including the many possible contextual components such as power, time, histories, beliefs, attitudes, biases, knowledges, and so on—can be used to hypothesize what the intent and meaning could be behind a disability microaggression. A recipient may interpret a message based only on a partial understanding of the situation. If recipients choose an interpretation embedded in oppressive ableist history and ideology (Jones, 2016), they likely perceived a message to be a microaggression.

In sum, this study explored how the constraints of the **PSCIF** model shape an understanding of the interactive data of a microaggression.

Analysis of Macro-semantics

Macro-semantics, or big-D, macrodiscourse, involves multiple exchanges either between the same communicators over time or within a whole community. This includes the discourses surrounding everyday social interactions. Here, conventional meanings are

not fixed, but rather are consistent across users (Parikh, 2019). In other words, there is an assumption that communicators will use the same conventional meanings not only in their interpersonal exchanges, but also in all their communicative interactions. Analytically, the iteration and repetition of conventional meanings across many interactions set a boundary on how many conventional meanings a word can acquire in a given speech act, making it possible to derive more precise referential contents for a word from its Content Selection and Setting Game (Parikh, 2010, 2019). Syntax also slots words in ways that automatically preclude uncountable, yet finite possibilities for conventional and referential meanings. Coupled with micro-semantics, macro-semantics constructs a circular and multi-leveled communicative process, which makes modeling of language difficult except through "the special resources of game theory" and not the tools philosophers or linguists normally use: logic and semi-technical English (Parikh, 2019, p. 40). In other words, GT constructs a complete and probabilistic approach for analyzing communication such as problematic microaggressive moments in a way that has not been fully developed by scholars in the field of communication studies.

The game theory that is inherently part of this analytic framework can be used for assessing micro, meso, and macrolevel scales of communication, of all types (Parikh, 2010, 2019). That is, GT can be used either to solve the problem of content in situated communication or it can be used to solve how various structures (e.g., conventional meanings, semantical rules, linguistic variations) emerge to enable problematic communication in all areas of life. Perceiving a microaggression is happening in a conversation may be due to the immediate situation between communicators or due to larger discursive/contextual factors (and even previous social interactions) influencing

what communicators think, say, and do. As such, the current study expands Parikh's

(2010, 2019) framework to explore how a communicator's choices affect how others

choose to interpret problematic utterances (Leyton-Brown & Shoham, 2008; Pinker et al.,

2008; Shoham & Leyton-Brown, 2009) as microaggressions. With conversation

segments, I outline several principles for understanding the micro, meso, and macrolevel

pragmatic components in a social interaction and how they can produce a

microaggressive moment for communicators, especially for problematic messages that

are more complex, extensive, and ambiguous than "that's retarded." Simply, I aimed to

complicate what it means to label a disability microaggression as "microaggressive," and

I enact this through my analytic procedures, which are outlined in the next section.

Analytic Procedures

Before analysis, I transcribed recordings—and conversation segments—verbatim

using a simplified version of the Jefferson transcription system (Atkinson & Heritage,

1984). Each transcript of conversation segment used for analysis was in English and did

not include anyone under 18 years of age. Further, because speakers and their features (or

other information) might have been identifiable to some readers of the research report

who would recognize the context and utterances of the conversation segments, I used

code names (pseudonyms) in place of actual names in the transcripts of conversational

segments used for the study of interaction to protect the identity of speakers. I read and

reread the transcripts of conversation segments while listening to the audio recordings

and reviewing fieldnotes to ensure all actual names of people, locations, and other

recognizable features were removed from the research data.

Following transcription, I employed game-theoretic analyses. I applied the four interlocking micro-semantic games (Parikh, 2019) to contextual descriptions and conversation segments. I then used the constraints of **PSCIF** system of equilibrium linguistics (Parikh, 2001, 2010, 2019) on the problematic messages I deemed as disability microaggressions. The unit of analysis here is the entire speech act (i.e., the setting, conversation, problematic utterance, and any responses). I used this to formulate the situated games of a microaggression—this includes the many possible syntactic, semantic, and pragmatic choices used to render an understanding around how a conversational implicature can equate to a microaggression.

In addition, for identifying exact moments when microaggression data emerged, I supplemented Parikh's (2010, 2019) analytic framework with stochastic modeling techniques to examine some conversation segment transcripts for what turn-taking choices (e.g., turn-order, turn-size, turn-allocation) might have contributed to a microaggressive moment. Stochastic modeling, another branch of applied mathematics that uses many game-theoretic principles, has been used previously for describing strategy sequences during integrative and distributive negotiating, but this has been analytically underdeveloped on a content level (Smith et al., 2005). By treating the unit of analysis as the speech act (in this sense, the communication strategy), I analyzed antecedent factors in a conversation and how they might have contributed to a microaggression. This mathematically formalizes the entire conversation of a transcript (not just conversation segments) by considering elements of meso/macroanalysis that inform the discursive content of a microaggression, something that Parikh's framework alludes to but does not explicate fully. This builds theorization around what could be said

or done in future moments of the same conversation, or in different unrelated situations (Lanchier, 2017; Nowak, 2006).

Following analysis, I conducted peer review and external audits (Creswell, 2013; Lincoln & Guba, 1985) as validation strategies for modeling and solving the games. For peer review, I had several sessions with an individual outside the research project, who asked me questions about the accuracy of my derivations of meanings and interpretations from contextual descriptions when using the **PSCIF** model. This peer reviewer also listened to my struggles with analysis. For external auditing, I had another individual examine my analytic process and my calculations of a microaggressive moment. This auditor inspected my findings and conclusions to determine whether they supported the data. These two strategies, often used in triangulation of qualitative methods (Creswell, 2013), are critical elements when developing a new methodology that coalesces subjective and objective realities into one.

Conclusion

This chapter outlined a rationale for an intentional, game-theoretic methodology, its data collection methods, and an analytic framework and its procedures. Analyzing transcripts of conversation segments through both the Communication Game— specifically, the constraints of the **PSCIF** system of equilibrium linguistics—and stochastic modeling techniques builds a broader, holistic understanding of how communicators negotiate emotionally heightened and/or irrational, indeterminate speech tactics (e.g., Smith et al., 2005) contributing to microaggressive moments. Simply, this methodology explicates the regularities and patterns in communicator choices that dictate what produces a microaggression. Including CA and DA data collection methods into

Parikh's (2010, 2019) framework—with stochastic modeling as an addendum for some conversation segment analyses (Lanchier, 2017)—builds a richer understanding of what is happening communicatively on micro, meso, and macrolevels of a microaggression during social interaction. Thus, I call this intentional methodology *game-theoretic discourse analysis*, or GDTA. The next chapter provides a disability microaggression that I analyzed as a Communication Game. Specifically, it illustrates how I deconstructed a particular microaggressive message using game theory.

CHAPTER 4

A GAME-THEORETIC ANALYSIS OF A DISABILITY MICROAGGRESSION

This chapter outlines a game-theoretic analysis of a disability microaggression that occurred between communicators. It unpacks how a social interaction might unfurl a specific disability microaggressive message during a communicative exchange. First, I briefly discuss the Setting Game. Then, I detail a specific conversation excerpt that acts as the Content Selection Game necessary for understanding the current utterance situation where a possible disability microaggression emerged. The *utterance situation* is also known as the context that contains all ambient information and content communicators can draw on when deciding what to say and what to infer by what has been communicated (Parikh, 2010, 2019). Finally, I describe a specific utterance I analyzed through the Generation and Interpretation Games, using the **PSCIF** system of equilibrium linguistics as a guide for explaining how communicators might interpret an expressed utterance as a microaggression during an utterance situation.

The Setting Game

As part of a year-long celebration of the 30th anniversary of the Americans with Disabilities Act (ADA), I chose to analyze a virtual panel discussion from a large Southwestern university. The panel aimed to share information about the types of services provided by the university to ensure accessibility for disabled students. Audience members included students, faculty, staff, and any members of the public who wanted to attend the virtual panel discussion. Topics throughout the discussion included the history of the ADA, the impact of the ADA on higher education, and an overview of strategies and tips to be more inclusive in higher education spaces. The panel discussion also

included Q&A opportunities throughout the virtual event; attendees could ask questions and add commentary through the event's Zoom chat box function. Sign language interpreters and real-time captioning were also provided during the event.

At one point, the host Conway[10], asked panelists about some of the biggest barriers they have faced when they were students going through higher education. One particular panelist, named Jeremy B, shared their story as an answer to the question. While Jeremy shared their story, questions, answers, and comments were also expressed (simultaneously) in the Zoom chat box. Notable participants exchanging messages in the chat box include Avery, Bailey, Conway, and Dallas.

Content Selection: Excerpts of the Current Utterance Situation

[1:18:11] Conway: So as many of our panelists mentioned, they are—have been students, they're alumni. Um, they are…experienced receiving accommodations as a student. And so, a question for them is, "what was one of the biggest challenges that you faced as a student? (pause) Or maybe barrier? You could—you could replace that with "[what was] one of the biggest barriers in your experience as a student?"

[1:18:40] Jeremy B: May I start?

[1:18:41] Conway: (Nonverbal nod)

[1:18:43] Jeremy B: Okay. So, I would like to preface what I'm about to say that none of this was experienced at Southwestern University. It actually was all a very, very positive experience at Southwestern University. But, uh, my educational journey has been fraught with a lot of barriers and that barrier comes back to when I was in K-12. I was basically told that I was "not college material" and that I was "not going to be successful", um, and that irrespective of my fortitude and follow through and whatever grit I had to make it in college I was not going to be…I was just not going to be college material. So, and I was told this by a K-12 special ed director of my high school (chuckles) saying that because of the nature of my physical disabilities and my learning disabilities, she just really didn't think it was a good idea that I entertain the idea of going to college. And she wanted

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[10] Names have been changed to pseudonyms for the purposes of confidentiality and anonymity.

me to settle for a vocational certificate of completion and attendance and go into (redacted). So, um, I then kind of took that in and immediately—and I've shared this story with the staff members that are on the call now—but immediately as a tenth grade student, I knew something in me was to…I was going to dedicate my life to making sure that students that had similar access issues as I have had we're not going to experience them. And I was going to help to mitigate those barriers. So, I knew immediately, and in that—in that meeting, um, that I was going to do that, um, and serve students in that way. I was going to get my doctorate so that I could, um, prove a point (chuckles) prove a point in a healthy respect. So, I have not only been successful once in college; I have been successful six different times. So, you know, I mean, it-it…don't ever judge a book by its cover. And I—and I feel like when I came to Southwestern University and I really, wanted to (mumbles) this that when I came to Southwestern University I-I chose the university because of its comprehensiveness of services. And I felt for the out of all of the educational experience I ever had, it was—it was the most meaningful. It was the most meaningfully inclusive experience. Um, and I felt that I could be a successful learner irrespective of my disability. So, um, uh, but anyway I-I…I connect with that experience—in my K-12 experience—every day in servicing students. So, I have made sure that those kinds of experiences never happen again. And, um, as an alumni [*sic*] to base your—I'll just reiterate again that…that to me there was the inclusivity built into the charter. The inclusivity is built to the spirit of the staff and faculty. Um, the inclusivity is built into the nature of what we do and how we do it. We don't just provide you accommodations, like feel we provide you a way through, a way of accessing, um, a course, either whether it be access barriers, physical, or there's an intellectual access we work to mitigate that. And again, um…And I feel we do so with a "servant's heart." We want to make sure that students have a meaningful educational experience as a result of interaction with our office.

[1:23:06] Conway: Thanks again.

Zoom Chat Box Excerpts

[1:19:00][11] Dallas: I was told the same thing in high school.

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[11] Time stamps for conversation in the Zoom Chat Box are estimated based on asynchronous timing.

| [1:22:00] Conway: | Sorry, that was your experience. We are glad you are here at Southwestern University and showing the world you can do it and working on changing the world. |
| [1:22:00] Avery: | I remember as a former special education teacher hearing teachers say some of those same things that Jeremy mentioned, and the only thing I can say is that it is just the wrong thing to do. |

[Later/Concurrently…]

[1:21:00] Bailey:	Jeremy's experience is so much like mine.
[1:23:00] Conway:	We are glad you are here at Southwestern University! Glad you are proving people wrong.
[1:22:00] Bailey:	Barriers get broken past the nah sayers [*sic*] when we prove them wrong. Great job for you Jeremy.
[1:23:00] Avery:	And you will break those barriers and earn your degree as well. Jeremy is an inspiration.

The Current Utterance Situation

I pause here to digest what happened. For most readers, this may seem like a regular communicative exchange between attendees. This moment aligns with many hypothetical cases circulated widely in psychology literature (see, e.g., Pérez Huber & Solórzano, 2018; Sue, 2015). However, the use of real-time data created a relatively simplistic and naturally-occurring interactive account of context happening in a short timeframe. In particular, the last Zoom chat box exchange between Bailey and Avery may not necessarily warrant further dissection for most readers.

However, for some readers, this scenario may be all too familiar to that of a microaggressive event. The last phrase Avery uttered/expressed, "Jeremy is an inspiration," falls under the sixth theme in Keller and Galgay's (2010) disability microaggression taxonomy: praising a PWD as inspirational. In particular, Keller and Galgay unpacked the problematic nature of using "inspiration" to describe disabled individuals by explaining the theme:

A very different expression of patronization is the false admiration of a PWD. This most often happens when a PWD is praised for almost anything simply because the disability exists such as in the following example: "I get, 'Oh, you're such an inspiration.' I'm like, 'For what? Because I get up in the morning?'" The underlying message described by participants related to false admiration is that a PWD should be praised or admired for enduring the torturous experience of living with a disability. Targets of this microaggression construed perpetrators' intent to be helpful and positive, however misguided. Participants discussed appreciation for praise when well-deserved but not simply for living with a disability. (pp. 255-256).

It is important to note that (much like the current utterance situation above) most discursive accounts of recalled microaggressions in extant psychotherapeutic literature do not focus on the interplay of pragmatic factors such as phrasing, intonation, motivations, background knowledges, moods, and so on. And while some research in conversation and discourse analysis has worked to account for the relationship between conversational content and social aspects of communication (e.g., Boxer & Cortés-Conde, 1997; de Kok, 2008; K. Tracy, 2005), it does so informally. Further, microaggressions have yet to be researched through the organization of turn-taking in conversations (Sacks et al., 1974; Torino et al., 2019) except in one study that explored discursive elements of microaggressions with conversation analysis (Wilkes & Speer, 2021). By analyzing the utterance, "Jeremy is an inspiration," the current context not only expands an understanding of how pragmatic factors influence communicative choices between speakers, receivers, and witnesses, it also suggests how to reframe a possible disability microaggression from a communicative, turn-taking vantage point. Therefore, the following section unpacks how context plays an interdependent role in the shaping of microaggressive interpretations. Each constraint of the **PSCIF** system of equilibrium linguistics extrapolates a formal game-theoretic explanation for how the utterance,

"Jeremy is an inspiration," may be interpreted as a disability microaggression from the current utterance situation. I supplement this analysis with a chess analogy.

Analysis of "Jeremy is an Inspiration"

Before diving into analysis with each constraint of the **PSCIF** system of equilibrium linguistics, it is important to bring up that the phonological (phonetic) constraint is used only if a certain verbal slip or tone happened during the uttering or expressing of a message. This typically creates a layer of meaning that lands somewhere between locutionary and illocutionary meaning (Parikh, 2010). If verbal slips or tone were part of this situation, the utterance, "Jeremy is an inspiration," would need to be split into multiple constructions (Parikh, 2019). These multiple constructions could then become their own phonetic games. Luckily, this is not the case for the current utterance situation. Therefore, I confined analysis in this chapter to the other four constraints: syntax, convention, information, and flow.

The Syntactic Constraint

Ambiguous language, including disability microaggressions, has both locutionary, intrinsic content and an array of illocutionary meanings, depending on what a speaker wanted to invoke (Searle, 1969). The first constraint, **S,** accounts for the syntax of the language being considered for analysis—the parts of speech (Parikh, 2010). For example, "Jeremy is an inspiration" is made of multiple words and phrases, each arranged to produce a sentential, denotative meaning for the microaggression. Each word ("Jeremy," "is," "an," and "inspiration") can have numerous definitions; so, too, can each phrase in a sentence (and the full sentence itself) have numerous definitions. These definitions—

which will be addressed in the next constraint—are based on how each word operates in a

sentence. The syntactic functions of each word in the utterance are listed below.

1. "Jeremy" functions as the subject of the sentence (an also as a proper noun).
2. "Is" functions as the (linking) verb.
3. "An" functions as a determiner (and also an indefinite article).
4. "Inspiration" functions as a (predicate) noun.

Identifying the underlying grammar builds a basis for understanding how syntax interacts

with and is influenced by other constraints that attend more to the semantic meaning and

pragmatic factors undergirding a message. Think of this constraint as a chessboard

holding all the chess pieces: understanding what grammar is present or absent in a

sentence determines the type of chessboard holding the pieces (i.e., marble, wood, small,

large, black/white squares, and so on). Syntax acts as the boardgame where many

possible rules and meanings of language can emerge. Syntax plays a critical role in the

derivation of a message's content, which has been primarily missing in current

microaggression theorization.

  To formalize the microaggression, it is first helpful to diagram utterances, much

like how grammarians and linguists show the derivation of sentences through syntax

parse trees (Clark, 2012; Gross, 1972; Parikh, 2010). *Syntax parse trees* are useful for

representing the syntactic structure of a string of words according to some context-free

grammar (CFG). The syntactic constraint uses the elementary trees in an algebraic

system, called $(\mathcal{T}', \bullet)$, to derive "possible parses of each word, phrase, and the whole

sentence" (Parikh, 2019, p. 95). In other words, let t symbolize a syntactic parse of a

word, such as the four described above. Also, let $\bullet$ be an operator that "chains" together

the syntactic parses of words into a full syntax parse tree for a sentence. That is, the

symbol • is an operator that "multiplies" parses of words together to form a string, such as $t_i • t_j = t_it_j$ where i and j are indexes for the order of a word in a sentence (Parikh, 2019). The goal is turn words into symbolic mathematical expressions.

These syntax parse tree diagrams always begin with the sentence, symbolized by S. From here, S is replaced by other symbols, depending on the parts of the sentence—typically a noun phrase, NP, and a verb phrase, VP. The root of the tree, S, begins at the top and grows downward. So, the tree for "Jeremy is an inspiration" is illustrated in Figure 2.
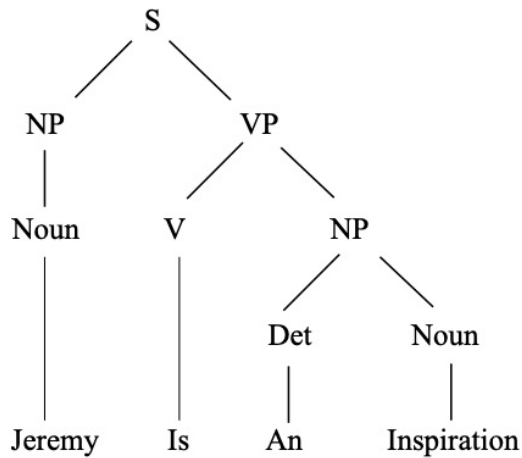
Figure 2 Syntax Parse Tree for "Jeremy is an inspiration"

Here, the verb phrase, VP, is broken down further into a (linking) verb, V, and another noun phrase, NP. The second noun phrase includes both a determiner, *Det*, and a (predicate) noun, *Noun*.

The next step is to use algebraic notation to formalize the parse tree. This is because mathematization can rewrite complex and ambiguous pragmatic factors of communication phenomena into simpler, coherent logic systems for analysis.

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Mathematical symbols, more or less, function as transparent presentations of communication (Reyes, 2014). Using a symbolic form for the syntax parse tree encourages regularities and patterns to emerge from seemingly varied, inexact talk and text that has long been postulated by conversation analysts (Sacks et al., 1974). This means that mathematics unifies taken-for-granted assumptions, unconnected relationships, and seemingly disassociated meanings inside everyday messages. Game theory, deemed as a subjective-based algebra, employs mathematization for finding repetitions in the decision-making of a communicator's choices (Clark, 2012; Parikh, 2010). It layers subjective preferences into an objective, explanatory lens.

Let φ denote the entire spoken utterance, "Jeremy is an inspiration," which stems from natural language, called $\mathcal{L}$. Each individual word can also be represented uniquely as a string of words such as $\varphi_1 \circ \varphi_2 \circ \varphi_3 \circ \varphi_4$. In algebra, the symbol $\circ$ denotes a special *grammatical concatenation* operation: it is used to generate the content of the utterance, "Jeremy is an inspiration," so that it also contains all of its building blocks—words, phrases, and so on (Parikh, 2010, 2019). This operation is used because meaning-making, in real time, unfolds sequentially and simultaneously. The mind gleans information from the first word, "Jeremy," in order to decode the second word, "is," while simultaneously reinforcing an interpretation for "Jeremy." Then, the brain uses information derived from the first and second words to interpret the third word, "an," while also reinforcing (and confirming) the meanings of the first two words. This pattern repeats for the final word, "inspiration," while also reinforcing (and confirming) the meanings of the first three words—forming a cyclic generation of the content for "Jeremy is an inspiration" (Parikh, 2010). Each word influences and is influenced by every other

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word in a message; hence, mathematical notation helps tie these relationships together and makes it easier to distinguish emerging patterns in talk. The symbolic presentation of the syntax parse tree is illustrated in Figure 3.
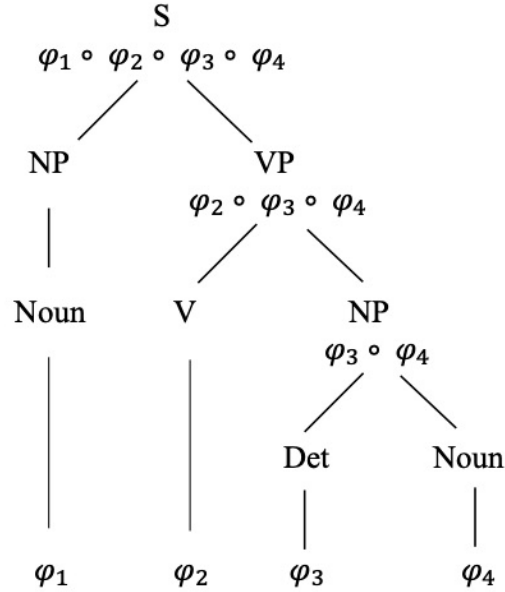
Figure 3 Symbolic presentation of Syntax Parse Tree for "Jeremy is an inspiration"

The tree "Jeremy is an inspiration" can be rewritten as a string:

$$\varphi = [_S [_{NP} [_{Noun} \text{JEREMY}]] \circ [_{VP} [_V \text{IS}] \circ [_{NP} [_{Det} \text{AN}] \circ [_{Noun} \text{INSPIRATION}]]]].$$

More so, it can be rewritten symbolically as the expression:

$$\varphi = [_S [_{NP} [_{Noun} \varphi_1]] \circ [_{VP} [_V \varphi_2] \circ [_{NP} [_{Det} \varphi_3] \circ [_{Noun} \varphi_4]]]].$$

The previous expression can be derived using the $(\mathcal{T}, \bullet)$ algebraic system (see Parikh, 2019). The syntactic constraint, **S,** uses a *syntactic map* (denoted by $\rightarrow$) to transform every word into its possible speech function.

1. $\varphi_1 = \text{JEREMY} \rightarrow [_{NP} [_{Noun} \text{JEREMY}]] = [_{NP} [_{Noun} \varphi_1]] = t_1$
2. $\varphi_2 = \text{IS} \rightarrow [_{VP} [_V \text{IS}]] = [_{VP} [_V \varphi_2]] = t_2$
3. $\varphi_3 = \text{AN} \rightarrow [_{NP} [_{Det} \text{AN}]] = [_{NP} [_{Det} \varphi_3]] = t_3$

4. $\varphi_4 = \text{INSPIRATION} \rightarrow [_{Noun} \text{INSPIRATION}] = [_{Noun} \varphi_4] = t_4$

So, the spoken utterance under inspection becomes:

$\varphi = \text{JEREMY IS AN INSPIRATION}$
$\rightarrow [_S [_{NP} [_{Noun} \text{JEREMY}]] \circ [_{VP} [_V \text{IS}] \circ [_{NP} [_{Det} \text{AN}] \circ [_{Noun} \text{INSPIRATION}]]]]$
$= [_S [_{NP} [_{Noun} \varphi_1]] \circ [_{VP} [_V \varphi_2] \circ [_{NP} [_{Det} \varphi_3] \circ [_{Noun} \varphi_4]]]]$
$= t_1 \bullet t_2 \bullet t_3 \bullet t_4$
$= t_{1234}$

It is important to know the syntax for words because they can influence semantics (and eventually the way certain parts of a message obtain context). This utterance is syntactically-unambiguous, which makes it easier to craft Interpretation Games later on. However, if syntax were not clear—such as in the sentence "Jeremy saw her duck" where "duck" can be a noun or a verb—it would make for far more complicated, multi-layered games (I address this in chapter five). The next step is to build the content of each word.

The Conventional Constraint

This constraint is the first of two constraints that deals with semantics (Parikh, 2019). The locutionary content is the primary focus of this constraint. The next step following identification of the syntax is to assume every word in the utterance, $\varphi = $ JEREMY IS AN INSPIRATION, is associated with one or more *conventional meanings*, either being a property, P, or a relation, R, of natural language, $\mathcal{L}$, that is independent of context (Parikh, 2010). The second constraint, **C,** thus acts as a *conventional map* (denoted by $\rightarrow$) from every word into its many possible dictionary definitions, or denotations (Parikh, 2010). In other words, this constraint is concerned with the usage of words and phrases in utterances. Returning to the chessboard analogy, this constraint is similar to all the chess pieces that go on to the chessboard: the pawn, rook, bishop, knight, king, and queen. I dissect each word's conventional maps in the following ways: (1) by describing each of

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its possible conventional meanings, (2) by formalizing each conventional meaning

mathematically, and (3) by giving a reading guide for each mathematical expression.

Conventional Map for "Jeremy"

The first word, φ_1 = JEREMY, has at least one conventional meaning dependent on

how it is used in the construction of an utterance. Because a name is used here, the

conventionally-associated property is the special property of *being named* (Parikh, 2010).

This can be more formally written as:

$$\text{"Being Named" use: } \varphi_1 = \text{JEREMY} \rightarrow P^{\varphi_1} = P^{JEREMY}$$

- Read as: The first word "Jeremy" is transformed into one conventional property, which is "the property of being named Jeremy."

Conventional Map for "Is"

The second word, φ_2 = IS, has at least three conventional meanings (Parikh,

2010), which are listed below (with examples included):

1. Predicative use: "Jeremy is a person."
2. Membership use: "Jeremy is young."
3. Auxiliary use: "Jeremy is speaking."

Is it important to note that "is" (as a verb) creates relationality, or a glue between

different parts of speech (Parikh, 2019). The word "is" connects words in the noun phrase

to words in the verbal phrase. Therefore, not only does "is" possess three conventional

properties (noted by the numbered subscripts), but also three relations, which can be

formally written as:

$$1. \text{ Predicative use: } \varphi_2 = \text{IS} \rightarrow P_1^{\varphi_2} = P_1^{IS} = R^=$$

- Read #1 as: The second word "is" can be transformed into its first conventional meaning, which is "the property of equating the subject to something" or "the relation of equality (=)."

$$2. \text{ Membership use: } \varphi_2 = \text{IS} \rightarrow P_2{}^{\varphi_2} = P_2{}^{IS} = R^{\in}$$

- Read #2 as: The second word "is" can be transformed into its second conventional property, which is "the property of describing the subject belonging to something" or "the relation of membership ($\in$)."

$$3. \text{ Auxiliary use: } \varphi_2 = \text{IS} \rightarrow P_3{}^{\varphi_2} = P_3{}^{IS} = R^{aux}$$

- Read #3 as: The second word "is" can be transformed into its third conventional property, which is "the property of helping another verb show what the subject is doing" or "the relation of helping (*aux*)."

While it is important to know the many possible conventional associations for the word "is" to build a comprehensive game analysis, the first conventional meaning aligns closest with the syntax of the utterance under inspection. So, I restrict this analysis to the predicative use ($\varphi_2 = \text{IS} \rightarrow P_1{}^{\varphi_2} = P_1{}^{IS} = R^{=}$) for simplicity.

Conventional Map for "An"

The third word, $\varphi_3 = \text{AN}$, is a tricky word to formalize. This is because "an" is an *indefinite article*. Unlike its definite article counterpart "the," which is used to refer to a specific someone or something (a noun) during conversation, "an" is used for more general references (one or more someones and somethings). However, this constraint does not consider situational references. Both "the" and "an" are used syntactically in an utterance in the same way: they decide the unique existence of something and how much that something exists. The conventional maps for "the" and "an" are similar in that both have "no particular utterance situation or resource situation [that] can be specified at the level of conventional meaning" (Parikh, 2010, p. 247), but do decide that a situation does exist and can be accessed contextually for its resources and discourses. So, the primary difference between "the" and "a/an" is not in the contents expressed, but in their epistemic presuppositions of *how much context* is being drawn upon to particularize an

utterance's content, whether in an absolute or relative sense (Parikh, 2010). The words

"the" and "an" therefore have the same conventional map but differ via their referential

meanings—outlined in the next constraint. Thus, "an" can be more formally written as:

$$\text{"Existence" use: } \varphi_3 = \text{AN} \rightarrow P^{\varphi_3} = P^{AN}$$

- Read as: The third word "an" is transformed into one special conventional property, which is "the property of deciding how much something/someone uniquely exists."

The mathematical expression that accompanies this map is a bit more complex and is not

talked about in detail for this analysis (see Parikh, 2010, pp. 246–253).

Conventional Map for "Inspiration"

The final word, $\varphi_4 = \text{INSPIRATION}$, has a least two conventional meanings rooted

in its use as a predicate noun[12], which is listed below (with an example included):

1. Predicative use 1: "A person who influences."
2. Predicative use 2: "A model for motivation or creativity."

The conventional property for "inspiration" can be formally written as:

$$\text{1. Predicative use 1: } \varphi_4 = \text{INSPIRATION} \rightarrow P_1{}^{\varphi_4} = P_1{}^{INSPIRATION}$$

- Read #1 as: The fourth word "inspiration" can be transformed into its first conventional meaning, which is "the property that reidentifies the subject as a person who influences."

$$\text{2. Predicative use 2: } \varphi_4 = \text{INSPIRATION} \rightarrow P_2{}^{\varphi_4} = P_2{}^{INSPIRATION}$$

- Read #2 as: The fourth word "inspiration" can be transformed into its second conventional meaning, which is "the property that reidentifies the subject as a model for motivation."

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[12] Inspiration can also be defined as "the drawing in of breath; inhalation." However, because inspiration is being used as a predicate noun here, this conventional meaning is eliminated because it does not fit the syntactical usage. Hence, syntax is important.

There is not much difference between the possible conventional associations for the word "inspiration" (let alone their connotative meanings, both positive in nature, which are defined in the next constraint). However, it is important to note the nature of agency in each definition: the first has a more active agency to inspire whereas the second is more passive. I cannot restrict analysis to only one predicative use because both are useful later for understanding decision-making (i.e., how communicators decide to access context and create interpretations).

Ultimately, conventional maps tell half the story because they outline only literal meanings for words and not sentences and phrases (Parikh, 2010). Each word in the utterance, "Jeremy is an inspiration," has a *lexical ambiguity* either at the conventional (denotative) or informational (connotative) level. Both "is" and "inspiration," for example, are conventionally ambiguous because they have multiple meanings at the denotative level (given their syntactic functions). On the other hand, "Jeremy" and "an" are informationally/referentially ambiguous because they have multiple meanings at the connotative level (which is covered in the next section). This creates a problem, one at the heart of microaggressions: multiple conventional and informational meanings for words (lexical ambiguities) can complicate the overall content for utterances by creating contextual polysemy, or what is called *structural ambiguity.* Communicators depend on well-defined conventional meanings to invoke speaker intentions and to clarify ambiguity around referential meanings for all words, phrases, and sentences they utter—but certain permutations of words can in fact do the exact opposite of what speakers intend by perpetuating ambiguity through the utterances that are expressed. This forms a complex cycle of ambiguity, which can be unfurled only by examining how implicit statements

arise and influence utterances. Thus, the next constraint supplements conventional maps and their informational/referential meanings.

The Informational Constraint

Also known as the referential constraint, this constraint is the second of two constraints that deals with semantics (Parikh, 2019). Using the properties established previously, the third constraint, **I**, transforms the conventional maps of each word into situation-theoretic *informational maps* (denoted by $\rightarrow_u$). The "u" next to the arrow represents how each word and phrase in "Jeremy is an inspiration" is contextually-bounded by the situation where a message was expressed, or an utterance situation. In this case, the utterance situation is the conversation between Avery and Bailey about Jeremy B. So, the words and phrases that craft "Jeremy is an inspiration" each have a unique situational ontology. Or rather, each word and phrase has a distinct set of contextual properties and relations (e.g., time, space, uniqueness, history, and power) that determine how the overall utterance *should be* interpreted (Parikh, 2010). Back to the chess analogy, this constraint is similar to how all chess pieces act: the pawn can move only one space forward at a time and attack diagonally, the rook can move any number of squares, but only horizontally or vertically, and so on. The informational/referential constraint determines how words and phrases acquire and enact connotative meanings based on the many possible contextual and situational factors at play. This is similar to crafting the implicit cultural rules for interpreting what is happening in conversation.

Before building informational maps, note that communicators need to be able to draw upon numerous pragmatic factors in order to make sense of what is happening during an interaction. However, communicators can only choose interpretations and

responses to messages based on what factors they can consciously account for and what resource situations (the contexts or discourses) they can access (Parikh, 2019). This means communicators consider a number of processes in order to recover both locutionary and illocutionary content for utterances such as microaggressions. These include the following (Parikh, 2010, pp. 124–125):

1. Clarifying lexical or structural ambiguities ("Jeremy is an *influential person*.")
2. Saturating (completing) utterances ("*The speaker Jeremy B* is an inspiration.")
3. Engaging in concept construction or interpreting vague terms ("Jeremy is *successful*.")
4. Expanding utterances through free enrichment ("Jeremy is an inspiration [*for overcoming barriers*] or "Jeremy is an inspiration [*for disabled students*].")
5. Infer implicatures ("Jeremy is an inspiration." ↪ [*He deserves praise for enduring the torturous experience of living with a disability*])
6. Derive direct and indirect illocutionary forces ("Jeremy is an inspiration." ⇢ [statement] and [*He deserves praise for enduring the torturous experience of living with a disability*] ⇢ [false admiration])[13].

Ultimately, communicators use *strategic inferences*, or circumstantial reasoning (if they can consciously access the utterance situation), to determine which process is best for making sense of utterances such as microaggressions.

Informational Map for "Jeremy"

With these processes in mind, I then constructed the informational map for the first word, φ_1 = JEREMY. Although "Jeremy" is naming a noun, that noun could be referring to two possibilities. Avery could be referring to the person named Jeremy who spoke earlier in the current situation, Jeremy B. This is most likely. Of course, this is not a guarantee. Receivers of the utterance may not connect the name "Jeremy" to the current situation. Instead, Avery could be referring to a person or thing named Jeremy outside of the current situation, say Jeremy Z. This creates two potential situational ontologies for

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[13] Clearly, it is better to recover content in a way that does not reinforce the use of a disability epithet.

the receiver Bailey (or any witness) to use to craft an interpretation. So, through

saturation, this produced the following referential meaning for $\varphi_1 = $ JEREMY, composed

of two strings—the conventional and information maps:

1. Referential use 1: $\varphi_1 \rightarrow P^{\varphi_1} \rightarrow_u$ *Jeremy B* $= \sigma_1$

- Read #1 as: The first word "Jeremy" refers to "Jeremy B" (i.e., naming the speaker in the current situation as "Jeremy"— "Jeremy B is an inspiration").

2. Referential use 2: $\varphi_1 \rightarrow P^{\varphi_1} \rightarrow_u$ *Jeremy Z* $= \sigma_1'$

- Read #2 as: The first word "Jeremy" refers to "Jeremy Z" (i.e., naming someone or something outside of the current situation as "Jeremy"—"Jeremy Z is an inspiration").

The symbols, σ_1 and σ_1', denote the possible referential meanings for $\varphi_1 = $ JEREMY in the

current setting (either Jeremy B or Jeremy Z). Essentially, receivers or witnesses of a

disability microaggression, like Bailey (or you, the reader), cognitively turn strings of

words and phrases into "the rules of interpretation." For example, the rook in chess can

move any number of squares horizontally or vertically. It can also, at times, switch with

the king—a move called "castling." This, of course, can happen only under special

circumstances and parameters. "Castling" is also a move that is more well-known to

skilled chess players than beginners. Similarly, there is uncertainty around how a person

might interpret a word. It is likely that most people will think "Jeremy" is a referent to

Jeremy B in the situation mentioned above. However, it is also possible that "Jeremy"

may be a reference to something or someone outside the current utterance situation. This

calls for an account of as many maneuvers (as many interpretations) as possible given the

parameters of the chess piece (the context that situates a word or phrase). Communicators

then choose interpretations to decide their eventual responses.

Informational Map for "Is"

The second word, $\varphi_2 = \text{IS}$, has three conventional meanings (noted above); however, the first conventional property—the predicative use—is the focus of this analysis for the purpose of simplicity. In order to construct the informational map for the predicative use of "is," analysis must consider what unique pragmatic factors are at play at the time the utterance is expressed during the current situation. This means that the referential meaning for "is" is temporally-bounded: its meaning overlaps with the time when the utterance, "Jeremy is an inspiration," came into existence in conversation.

The best way to build this informational map is to consider the Spanish equivalent for "is." In Spanish, "is" (or "to be") has two forms: "ser" and "estar." *Ser* is a verb that is used to talk about what something is. The state of "being" is permanent. Ser could be used when talking about a calendar date, occupation, characteristic/property, time, origin, or relation. For example, to describe height, a permanent characteristic, "Jeremy is tall" would translate into "Jeremy es alto." *Estar*, on the other hand, is a verb used to talk about how something is. The state of "being" here is temporary. Estar could be used when talking about a position, location, action, condition, or emotion. For example, to describe a temporary feeling, "Jeremy is sad" would translate into "Jeremy está triste." Because English has only one form of "to be" (the word "is"), the informational map for the predicative use must consider the permanence or temporariness of something.

Because the utterance "Jeremy is an inspiration"—at the time it is expressed—is referencing a characteristic/property and relation of equality (and in the present tense), the word "is" has a unique situational ontology that indicates a state of permanence for

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the speech act. Thus, through lexical clarity, this produced the following referential

meaning for $\varphi_2 = $ IS, composed of a string of its conventional and informational maps:

$$\text{Predicative use: } \varphi_2 \rightarrow P_1{}^{\varphi_2} = R^{=} \rightarrow_u Equals = \sigma_2$$

- Read as: The second word "is" means "equals" (i.e., "Jeremy equals an inspiration" for a permanent duration at the time the utterance is expressed).

The symbols, σ_2, denotes one possible connotative meaning for $\varphi_2 = $ IS in the current

setting between communicators ("equals"). This is true based on the Spanish

interpretation for the disability microaggression, which is, "Jeremy es una inspiración."

Receivers or witnesses know to equate Jeremy to being inspirational. The simplicity of

the word's informational map is similar to a pawn in chess, where the moves of a pawn

are strictly limited (going forward and attack one square diagonally).

Informational Map for "An"

The third word, $\varphi_3 = $ AN, has one conventional meaning defined around the

existence of someone/something in a current utterance situation. As stated previously,

both "the" and "an" have the same conventional map but differ via their referential

meanings, depending on whether the existence of something (or someone) is determinate

or not. Both "the" and "an" have four possible uses at a contextual level: a predicative

use, a generic use, a referential use, or an attributive use (Parikh, 2010). The difference

between "the" and "an" at a contextual level of meaning depends on how many

situational factors (e.g., tones, discourses, cultural meanings, personalized ideologies) a

communicator has direct access to in order to craft a more particularized interpretation of

the contents of a spoken utterance. The less access a communicator has, the more obscure

(i.e., indefinite) an interpretation is. Access can mean any direct retrieval of past, present,

or future pragmatic factors, responses, discourses, and so on. Much like how chess players plan out several future courses of action with their pieces in order to determine what to play in their present situation, hypothesizing future responses can be used to construct meaning in the present moment.

Imagine the conversation between Avery and Bailey (or perhaps another conversationalist who decides to chime in) continued in the chat after the utterance of "Jeremy is an inspiration" so as to clarify its meaning. Say that someone asked Avery, "What do you mean by 'an inspiration?'" Avery could respond in the following ways:

1. Predicative use: "This is an inspiration" [and shows a picture of Jeremy].
2. Generic use: "An inspiration is a type of influential person, like Jeremy is."
3. Referential use: "An inspiration is uplifting, much like how Jeremy's story is."
4. Attributive use: "An inspiration is a motivation, like Jeremy is for students."

Here, hypothesizing possible future responses can help contextualize "an" and determine which of its four uses is being used in the current utterance situation. Communicators can use lexical/structural clarification and concept construction to refine the meaning of determiners, such as "an." This produced the following contextual meanings for $\varphi_3 = $ AN, composed of a string of its conventional and informational maps:

1. Predicative use: $\varphi_3 \rightarrow P^{\varphi_3} \rightarrow_u An,$ "one of many" $= \sigma_3$

- Read #1 as: The third word "an" means "one of many" (i.e., "Jeremy is one of many inspirations").

2. Generic use: $\varphi_3 \rightarrow P^{\varphi_3} \rightarrow_u An,$ "in general" $= \sigma_3'$

- Read #2 as: The third word "an" means "in general" (i.e., "Jeremy is a general inspiration").

3. Referential use: $\varphi_3 \rightarrow P^{\varphi_3} \rightarrow_u An,$ "any" $= \sigma_3''$

- Read #3 as: The third word "an" refers to "any" (i.e., "Jeremy is any inspiration").

4. Attributive use: $\varphi_3 \to P^{\varphi_3} \to_u An,$ *"whatever the condition"* $= \sigma_3'''$

- Read #4 as: The third word "an" means "whatever the condition" (i.e., "Jeremy is an inspiration, whatever the condition").

While it is important to know the many possible informational associations for "an" to build a comprehensive game analysis, the first informational meaning aligns closest to the utterance under inspection. To make gaming and decision-making more manageable, I chose the generic use since this use selects a type (object) rather than an individual (I picked this over the other two uses to show how determiners may contribute to objectification when communicators engage in meaning-making). Thus, I restricted this analysis to the predicative use ($\varphi_3 \to P^{\varphi_3} \to_u An,$ *"one of many"* $= \sigma_3$) and generic use ($\varphi_3 \to P^{\varphi_3} \to_u An,$ *"in general"* $= \sigma_3'$) for simplicity.

Informational Map for "Inspiration"

Finally, the word, $\varphi_4 = $ INSPIRATION, has an information map for each of its conventional meanings rooted in predicative uses. First, if "inspiration" denotes "a person who influences," then the word's situational ontology assumes an active agency. That is, "inspiration" draws on pragmatic factors in the immediate situation where Jeremy is doing the influencing. For this case, to craft meaning for the word "inspiration," Avery selects content from Jeremy B's story about the K-12 special education director who didn't think it was a good idea for Jeremy B to go to college. Those who receive this word would (hopefully) know to also access the same point of context for interpretation. Further, Avery selects content from Bailey's statement, "Barriers get broken past the nah sayers [*sic*] when we prove them wrong. Great job for you, Jeremy"— which refers to the question that the panelists were asked. Avery responds with the utterance, "Jeremy is an

inspiration," to indicate an active agency. Thus, through clarity and concept construction, "inspiration" predicates Jeremy's "successfulness" enduring such barriers and proving naysayers wrong (i.e., Avery was building a connotation with a positive-valence).

However, if "inspiration" denotes "a model of motivation or creativity," then the word's situational ontology draws on pragmatic factors that assume a passive agency, where creativity and motivation come as a result of being exposed to Jeremy's story (or existence). This situational ontology may draw on the immediate situation or it may draw on larger discourses (such as a cultural discourse narrating how artists, musicians, or inventors provide motivation and innovation through their works). This connotation of "inspiration" predicates Jeremy's "creativity"—the idea or existence of Jeremy is enough to motivate or inspire others. Again, another connotation with a positive-valence is constructed. Inspiration, while denotatively-ambiguous, maintains a well-defined connotative sensibility (i.e., positivity).

This produced the following two contextual meanings for φ_4 = INSPIRATION, composed of a string of its conventional and informational maps:

1. Predicative use 1: $\varphi_4 \to P_1{}^{\varphi_4} \to_u$ *Successful individual* = σ_4

- Read #1 as: The fourth word "inspiration" predicates "successfulness" (i.e., "Jeremy is an individual of success").

2. Predicative use 2: $\varphi_4 \to P_2{}^{\varphi_4} \to_u$ *Creative example* = σ_4'

- Read #2 as: The fourth word "inspiration" predicates "creativity" (i.e., "Jeremy is an example of creativity").

The symbols, σ_4 and σ_4', denote two possible connotative meanings for φ_4 = INSPIRATION in the current utterance setting between communicators (either "successfulness" or "creativity").

Each of the contextual meanings derived so far (σ_1, σ_1', σ_2, σ_3, σ_3', σ_4, and σ_4') work together to show a formalized way of accounting for the many possible realistic and hypothetical interpretations that a recipient (Bailey) or witness (you, the reader) can choose to make sense of an utterance that could be problematic in nature (such as a disability microaggression).

Informational Map for Enrichment

The informational maps outlined so far aimed to address lexical ambiguity. There is still a need to address the structural ambiguity for the phrases and sentence in the utterance, "Jeremy is an inspiration." In particular, the combination of words in the last noun phrase, "an inspiration" (and verbal phrase, "is an inspiration") invites contextual enrichment to be used as a technique to derive relevant illocutionary meanings occurring in the speech act. Based on Keller and Galgay (2010), receivers of a disability microaggression (that includes the noun phrase "an inspiration") often question the speaker's intent. The onus is often on the speaker to clarify the microaggression by adding more content to the spoken message; however, the speaker rarely ever cooperates in this way (Parikh, 2010). Instead, it becomes the job of the receiver to situate the utterance in relation to the embedded context (including any prior discourse).

One way communicators can engage free enrichment of utterance is through information gathering, especially of the pragmatic factors at play. In the current utterance situation, asking the five Ws and H (Who? What? When? Where? Why? How?) can help build completion phrases. The sentence, "Jeremy is an inspiration," by itself does not resolve the pragmatic issues of space-time-mattering such as audience (who), existence (what), time/occasion (when), location/setting (where), purpose (why), function (how),

and so on. The current utterance situation can dictate several possible completions based on both: (1) the possible relevant issues needing resolution, and (2) how the issues are resolved by the context. Some examples are:

1. Audience
   a. … to everyone
   b. … for disabled students
   c. … for accessibility workers
2. Existence
   a. … for being disabled
   b. … for being successful
3. Function
   a. … for overcoming barriers
   b. … for addressing access problems
   ⋮

The list can go on and on because there is an infinite number of ways for communicators to contextualize the utterance in a situation. This indeterminacy of space-time-mattering issues is a key problem needing resolution: the illocutionary meanings that can be drawn by the phrase "(is) an inspiration" is one reason why a microaggressive interpretation is possible. There is a lack of clarity about how to contextualize a message's ambiguity.

Using information-gathering techniques, it is possible to narrow the issues needing resolution to a finite list. In this case, the issues needing resolution are audience and function (given the relevant context). However, "it is not at all obvious that these issues are in fact always absolutely clear and determinate even when a context is supplied" (Parikh, 2010, p. 154). This means that identifying the issues may not always be possible since communicators (speakers, receivers, and witnesses) may differ in what they think is relevant or contextually explicit. In which case, how to resolve the issues takes precedence. Ultimately, what needs resolving is whether the message, "Jeremy is an inspiration," constructs a positive or false admiration as an illocution. Using enrichment,

the message may possibly indicate a positive sense of admiration (in the next subsection with implicature, the message may possibly be interpreted as a sense of false admiration, patronization, or inspiration porn—indicating a microaggression).

Based on Jeremy's answer to the question proposed by Conway (and what is being said in the chat conversations), there are two ways to resolve the illocutionary issue that can come from the utterance, "Jeremy is an inspiration," by using enrichment, which are as follows:

1. Enrichment 1: *for overcoming barriers*
2. Enrichment 2: *for disabled students*

The first completion phrase listed attends to the issue of function (based on the former half of Avery's first response to Bailey: "And you will break those barriers…"). The second completion phrase attends to the issue of audience (based on the latter half of Avery's first response to Bailey: "…and earn your degree as well"). Receivers (Bailey) and witnesses (you, the reader, or Jeremy) could derive different completion phrases depending on which part of the first response is deemed more relevant for resolution. This produced the following informational maps:

Enrichment 1 with respect to resolving the issue of function:

$$\varphi_5 = \varphi_3\varphi_4 \rightarrow_u \sigma_3\sigma_4 \rightarrow_u \sigma_5$$

- Read #1 as: The phrase "an inspiration" transforms its locutionary phrasal contents (one of many successful people) into enriched contents [*for overcoming barriers*].

Enrichment 2 with respect to resolving the issue of audience:

$$\varphi_5 = \varphi_3\varphi_4 \rightarrow_u \sigma_3\sigma_4 \rightarrow_u \sigma_5'$$

- Read #2 as: The phrase "an inspiration" transforms its locutionary phrasal contents (one of many successful people) into enriched contents [*for disabled students*].

The symbols, σ_5 and σ_5', denote two ways of resolving the pragmatic issue from the phrase $\varphi_5 = \varphi_3 \varphi_4 = $ AN INSPIRATION: either $\sigma_5 = $ *for overcoming barriers* or $\sigma_5' = $ *for disabled students.* The phrase $\varphi_5 = \varphi_3 \varphi_4 = $ AN INSPIRATION is called the *support* for the completion because it is the shortest expression in the utterance to which enrichment can be appended (Parikh, 2010). Note that the two enrichments are added to the content of the linguistic expression and not the linguistic expression itself. So, the content looks like $\sigma_3 \sigma_4 \sigma_5$ ("…one of many successful people for overcoming barriers") or $\sigma_3 \sigma_4 \sigma_5'$ ("…one of many successful people for disabled students"). It is because of these contents that "deserving praise and appreciation" is one major interpretative takeaway (i.e., conversational implicature) that could be derived from the phrase "(is) an inspiration." However, when these contents are considered in tandem with the full utterance, there is a very different kind of conversational implicature that is possible—a microaggressive one. The next subsection outlines such an implicature.

Informational Map for the Implicature

Before taking the possible interpretations outlined here and mapping them into games in the next constraint, it is important to note there is one more issue that needs resolving: an "implicature issue." That is, the structural ambiguity underlying the entire utterance, "Jeremy is an inspiration," produces implicit, conversational implicatures. Knowing that the utterance situation has highlighted Jeremy's disability (and the history around the disability), the utterance can imply many benign or derogatory meanings (depending on what Avery intended to utter). Because of ambiguity in the utterance

situation, it is possible one denigrating implicature could result: a disability

microaggression such as "Jeremy is an inspiration" ↪ [*He deserves praise for enduring*

the torturous experience of living with a disability] (Keller & Galgay, 2010). This, of

course, is not an exact consequence of the utterance. The indeterminacy of rendering

implicatures has been a primary setback in Grice's (1975) speaker-driven theorization

(i.e., it not always possible to tell what a speaker is intending by an utterance nor how

communicators will interpret such utterances). The game theory analysis techniques

outlined so far make much of Grice's (1975) theory superfluous for analyzing

microaggressions, however. This is because game theory focuses on accounting for the

indeterminacy of *received* pragmatic factors (Parikh, 2010). That is, game theory

considers the probability of how a receiver derives an implicature (such as a

microaggression) based on what pragmatic factors they have access to while constructing

an interpretation. The intent of gaming is to show that a microaggressive interpretation

can have a probability distribution (i.e., can show up for some communicators based on

what they access in a situation).

In particular, there are at least two ways of resolving the conversational

"implicature issue" that can come from the utterance, "Jeremy is an inspiration," as

follows:

3. Implicature 1: *He deserves praise for enduring the torturous experience of living with a disability.*
4. Implicature 2: {empty}

The second implicature listed {empty} indicates the case that a receiver (Bailey) or

witness (you, the reader) does not cognitively derive a microaggressive interpretation

from the utterance's structural ambiguity (another implicature derivation could be one

that suggests Jeremy B deserves praise and admiration, similar to the content enrichment outlined previously). Receivers and witnesses can derive many different renderings that can range from being interpreted as harmless to harmful. I focus analysis on these two cases given the content of the utterance under inspection. This produced the following informational maps:

Implicature 1 with respect to resolving "implicature issue":

$$\varphi_6 = \varphi = \varphi_1\varphi_2\varphi_3\varphi_4 \rightarrow_u \sigma_1\sigma_2\sigma_3\sigma_4 \rightarrow_u \sigma_6$$

- Read #1 as: The utterance, "Jeremy is an inspiration," transforms its contents (Jeremy B equals one of many successful people) into the microaggressive implicature [*He deserves praise for enduring the torturous experience of living with a disability*].

Implicature 2 with respect to resolving "implicature issue":

$$\varphi_6 = \varphi = \varphi_1\varphi_2\varphi_3\varphi_4 \rightarrow_u \sigma_1\sigma_2\sigma_3\sigma_4 \rightarrow_u \sigma_6'$$

- Read #2 as: The utterance, "Jeremy is an inspiration," transforms its contents (Jeremy B equals one of many successful people) into no microaggressive implicature.

The symbols, σ_6 and σ_6', denote two implicatures for the utterance $\varphi_6 = \varphi = \varphi_1\varphi_2\varphi_3\varphi_4 =$ JEREMY IS AN INSPIRATION: either $\sigma_6 = $ *He deserves praise for enduring the torturous experience of living with a disability* or $\sigma_6' = \{empty\}$.

With the "chess pieces" ready, next comes the game.

The Flow Constraint

It is now time to set up situated games of partial information. The last constraint, **F**, is the main constraint: it embodies much of the framework of equilibrium linguistics. It combines the aforementioned constraints of syntax, semantics, and pragmatics to form a vehicle for holistically understanding how text, context, and indeterminacy in meaning fit

together to make the inherent content of utterances. In other words, the flow constraint

shows a mathematical map of how people engage their realistic and imagined decision-

making during interactions. Communicators take turns sending, interpreting, and

responding to messages based on this model.

To begin, define G as the global game of possible actions that Avery and Bailey

(or a receiver/witness) could take in order to send, interpret, and respond to messages in

their current utterance situation, u, especially as it pertains to "Jeremy is an inspiration."

Next, define g_u as a mathematical function of G that transforms each word, phrase, and

implicature in "Jeremy is an inspiration" into a semantic game of partial information (it is

also possible to define g'_u as a mathematical function of G that transforms each word in

"Jeremy is an inspiration" into a syntactic game of partial information—this is discussed

only in Appendix C). Think of g_u and g'_u as containers for the syntax (t), the text (φ),

and context (σ). Another way to think of g_u (or g'_u) is "a map of possible strategies" for

a chess piece. For example, on my chessboard (t), I have my rook (φ). I know the rook's

movements: moving horizontally and vertically n squares at a time, and castling (σ).

What g_u tells me is when and how to move the rook during the chess game depending on

other conditions (such as where other pieces for myself and my opponent are).

This produced the following games:

1. $g_u(\text{"JEREMY"}) = g_u(\varphi_1) = g_1$

- Read #1 as: The function g_u transforms the first word "Jeremy" into its algebraic
  lexical game called "game 1."

2. $g_u(\text{"IS"}) = g_u(\varphi_2) = g_2$

- Read #2 as: The function g_u transforms the second word "is" into its algebraic
  lexical game called "game 2."

3. $g_u(\text{"AN"}) = g_u(\varphi_3) = g_3$

- Read #3 as: The function g_u transforms the third word "an" into its algebraic lexical game called "game 3."

4. $g_u(\text{"INSPIRATION"}) = g_u(\varphi_4) = g_4$

- Read #4 as: The function g_u transforms the fourth word "inspiration" into its algebraic lexical game called "game 4."

5. $g_u(\text{"AN INSPIRATION"}) = g_u(\varphi_5) = g_5$

- Read #5 as: The function g_u transforms the enriched contents of "an inspiration" into its algebraic phrasal game to resolve a pragmatic issue, called "game 5."

6. $g_u([\text{Implicature of "JEREMY IS AN INSPIRATION. "}]) = g_u(\varphi_6) = g_6$

- Read #6 as: The function g_u transforms the implicature [*He deserves praise for enduring the torturous experience of living with a disability*] into its algebraic implicature game called to resolve the implicature issue, called "game 6."

Outlining the locutionary and illocutionary contents of an utterance so far permits the possibility for reimagining the original syntax parse tree now complete with a *context-sensitive grammar* (CSG). That is, using these "game transformations," it is now possible to add enriched content and implicatures of the utterance to its grammar to create a more holistic representative setup.

The first modification to the original parse tree comes from the enriched content. Because the enriched content is supported by the noun phrase "an inspiration," the enriched content gets directly added to the node *NP* through game 5, g_5 (and therefore added to the node *VP* because the word "is" has no referential/informational ambiguity). The second modification to the original parse tree comes from the implicature. Because the implicature is supported by the entire utterance, "Jeremy is an inspiration," the implicature now is directly attached to the top of the parse tree *S* through game 6, g_6.

This creates a new *parse tree of games* that accounts for how context influences an uttered message (in particular, how illocutionary meaning and conversational implicatures influence a message to be read as a microaggression). The symbolic presentation of the parse tree of games is illustrated in Figure 4.
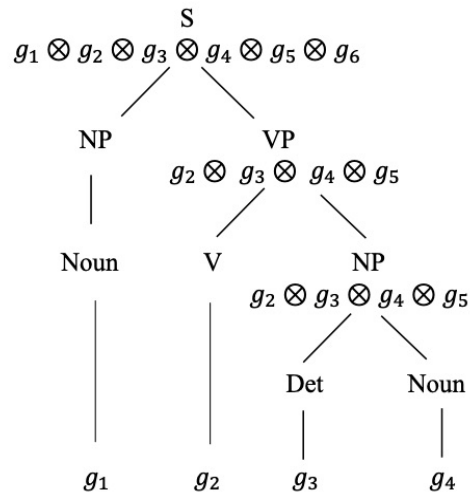
$$S$$
$$g_1 \otimes g_2 \otimes g_3 \otimes g_4 \otimes g_5 \otimes g_6$$

NP

VP
$$g_2 \otimes g_3 \otimes g_4 \otimes g_5$$

Noun

V

NP
$$g_2 \otimes g_3 \otimes g_4 \otimes g_5$$

Det

Noun

$$g_1$$

$$g_2$$

$$g_3$$

$$g_4$$

Figure 4 Symbolic presentation of Parse Tree of Games for "Jeremy is an inspiration"

Much like how the algebraic symbol ∘ denotes a grammatical concatenation operation for generating utterance content, the symbol $\otimes$ denotes a *game multiplication* operation. This operation multiplies together the many possible lexical, phrasal, and sentential games for "Jeremy is an inspiration" (see Parikh, 2010, pp. 138-145, for more information). Specifically, it pulls together the many possible words, phrases, illocutionary forces, implicatures, and their respective conventional maps (φ) and informational maps (σ) to derive an array of combinations a communicator can use to send, interpret, and respond to an utterance. Thus, "Jeremy is an inspiration" can now be rewritten more succinctly:

$$\varphi = [_S \, [_{NP} \, [_{Noun} \, \text{JEREMY}]] \circ [_{VP} \, [_V \, \text{IS}] \circ [_{NP} \, [_{Det} \, \text{AN}] \circ [_{Noun} \, \text{INSPIRATION}]]]].$$

$$\downarrow$$

$$\varphi = [_S \, [_{NP} \, [_{Noun} \, \varphi_1]] \circ [_{VP} \, [_V \, \varphi_2] \circ [_{NP} \, [_{Det} \, \varphi_3] \circ [_{Noun} \, \varphi_4]]]].$$

$$\downarrow$$

$$\varphi = [_S \, [_{NP} \, [_{Noun} \, g_1]] \otimes [_{VP} \, [_V \, g_2] \otimes [_{NP} \, [_{Det} \, g_3] \otimes [_{Noun} \, g_4]] \otimes g_5] \otimes g_6].$$

The goal now is to use games as the "go-between" tools for understanding how a receiver like Bailey (or a witness) can choose to interpret the content of Avery's message as a possible disability microaggression. Each word undergoes its own syntactic and semantic lexical game; however, for the purposes of simplicity, I focus this analysis on the implicature game illustrated in Figure 5 and 6, or $g_u(\varphi_6) = g_6$[14] (see Appendix C for all syntactic and semantic game derivations).

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[14] The top figure includes the algebraic version of the implicature game; the bottom includes the written-out utterance and its respective possible implicatures. I use the latter for this analysis.
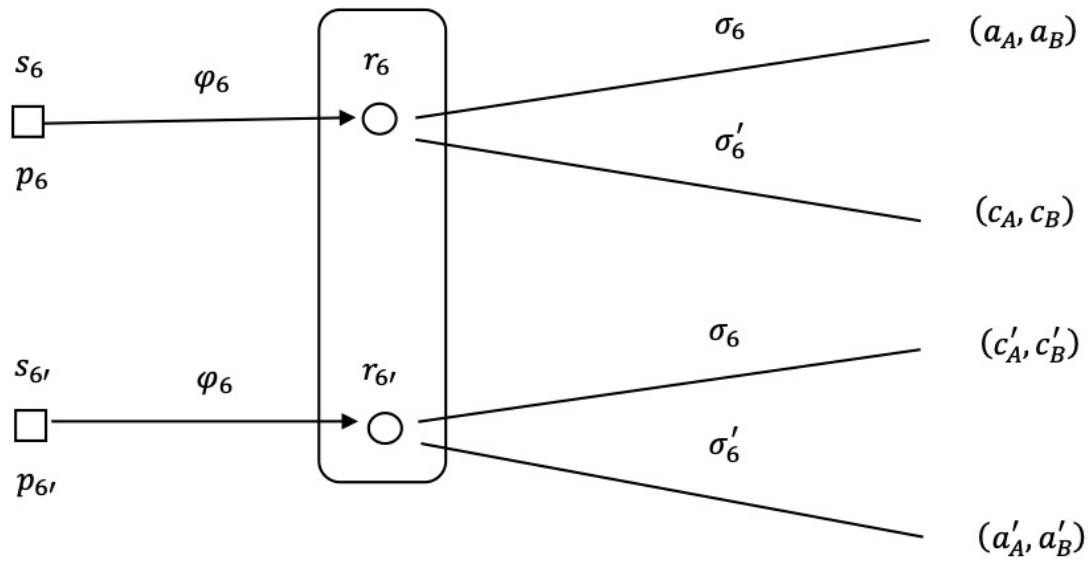
Figure 5 Symbolic presentation of Resolving the Implicature Issue with Semantic Implicature Game g_6
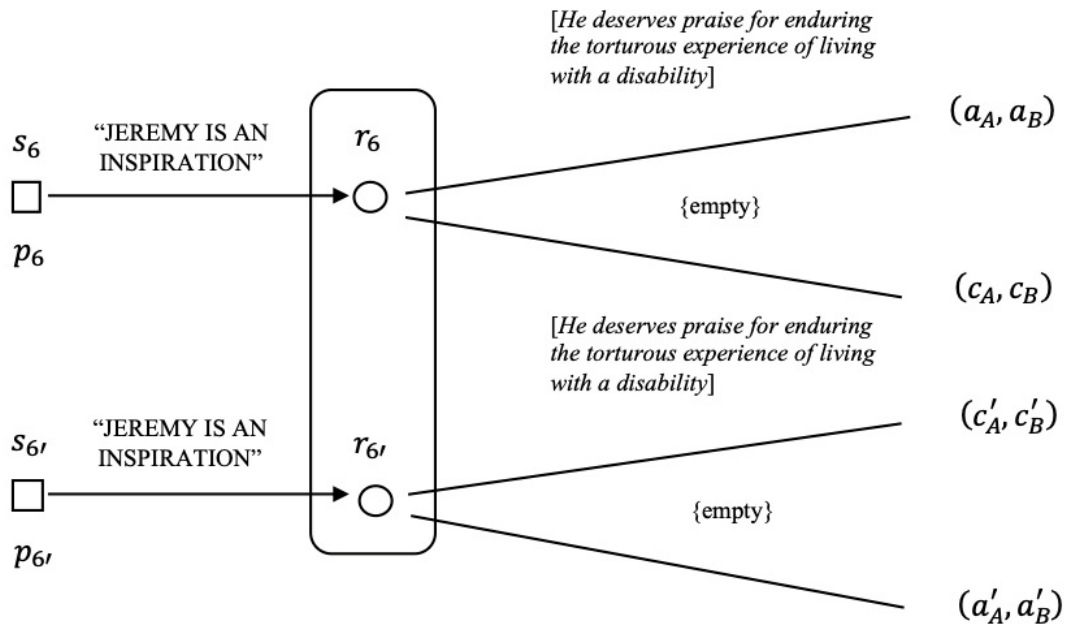
Figure 6 Verbal presentation of Resolving the Implicature Issue with Semantic

Implicature Game g_6

Playing the Implicature Game

The game is split into two halves. The top half represents one communicative exchange, typically the situation that aligns closest to reality (or closest to what actually happened, although this is not always the case). Most current research analyses that attend to conversational turn-taking consider this piece only (de Kok, 2008; Stone et al., 2000; K. Tracy, 2005). Counterfactual cases and situations also need to be investigated. Because a receiver does not know a speaker's intention in advance, a speaker considers (sometimes consciously and sometimes subconsciously) the possibility that a receiver may think about alternative speaker intentions (Parikh, 2019). Formal game-theoretic analysis attends to how Bailey employs their information sets (i.e., knowledge banks) to

decipher Avery's intent (represented by the ovular shape in Figure 5 and 6). The bottom half represents that alternative communicative exchange, typically the situation that may be more imagined, hypothetical, or based in a perceptual reality.

  Playing the Top Half. Initially is an examination of the top half (a more abbreviated version of this process is outlined in Appendix C). The game begins with Avery, represented by a square. The square is labeled in two ways. First, s_6 represents the initial utterance situation where Avery intends to convey the harmful implicature $\sigma_6 =$ [*He deserves praise for enduring the torturous experience of living with a disability*]. Second, p_6 represents the conditional probability that Avery conveys the harmful implicature $\sigma_6 =$ [*He deserves praise for enduring the torturous experience of living with a disability*] given all the other meanings and parse trees of the rest of the sentence (all the other lexical and phrasal games being played) in the current utterance situation or context (Parikh, 2019). It is the prior probability that indicates Avery's view of what chances Bailey (or any receiver) would assign meaning to both the top and bottom situations (Parikh, 2019). Avery makes the first move and expresses the full message φ_6 $= \varphi =$ JEREMY IS AN INSPIRATION, represented by the arrow.

  Now that the message is uttered, this leads to Bailey's turn (or any other receiver or witness). This turn is represented by a circle labeled r_4, which is the resulting situation where Bailey now gets to interpret Avery's message, $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION. There are two possible outcomes: either Bailey interprets the message as the intended harmful implicature $\sigma_6 =$ [*He deserves praise for enduring the torturous experience of living with a disability*], or Bailey interprets the message as something completely different (possibly nothing at all), labeled as σ_6'. Both lead to their respective

payoffs (a_A, a_B) and (c_A, c_B)[15]—one likely being more rewarding in terms of cooperation for Avery and Bailey than the other. If Avery and Bailey match intention with interpretation and arrive at (a_A, a_B), they cooperate and create clear communication (albeit pretty explicitly harmful and abusive, similar to a microassault). If Avery and Bailey do not match intention with interpretation and arrive at (c_A, c_B), they violate cooperation and create miscommunication that needs more clarity to resolve. In this case, Avery has ill-intentions, but Bailey may not consciously register that ill-intention and instead may think Avery is being polite when they are actually disingenuous. Clearly $a_A > c_A$ and $a_B > c_B$ because clear communication is optimal (even if it does mean identifying Avery as a contemptible person).

Since $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION is structurally ambiguous, it is not clear what Avery truly had intended to express. Since Avery's intention is not available to Bailey or any other receivers and witnesses, this means that there is more chance for ambiguity to occur in a communicative exchange and a less-likely opportunity to distinguish between what could be a microaggression and one that is not. This is represented by the oval enclosing the top and bottom half; this is the information set, or amount of knowledge available in a given utterance situation (Parikh, 2019). To account for partial information (knowledge that has yet to be accessed), a counterfactual or alternative situation must be considered, too. Many chess players do this before ever making the first move by running through many possible simulation strategies.

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[15] These could have numerical values such as (5, 3) and (10, -3). These are arbitrary at best; I discuss computations later.

Playing the Bottom Half. Next is an examination of the bottom half. The game

begins with Avery. This time, in the alternative utterance situation $s_{6'}$, Avery intends to

convey no ill-intention through $\sigma_6' = \{empty\}$ (which is most likely the case given the

utterance situation outlined earlier). The conditional probability $p_{6'}$ represents Avery

conveying a "well-meaning" implicature given all the other meanings and parse trees of

the rest of the sentence (all the other lexical and phrasal games being played) in the

utterance situation (Parikh, 2019). Avery makes the first move and expresses the full

message $\varphi_6 = \varphi = $ JEREMY IS AN INSPIRATION, represented by the arrow.

Now, it is Bailey's turn. Again, in $r_{6'}$, Bailey can either interpret the message φ_6

$= \varphi = $ JEREMY IS AN INSPIRATION as the harmful implicature $\sigma_6 = $ [*He deserves praise*

for enduring the torturous experience of living with a disability], or as the intended "well-

meaning" implicature σ_6'. Both lead to similar payoffs like that in the top half of the

game, (a_A', a_B') and (c_A', c_B'). If Avery and Bailey match intention with interpretation and

arrive at (a_A', a_B'), they cooperate and create clear communication (this time with the

agreement that what is expressed is mutually amicable). If Avery and Bailey do not

match intention with interpretation and arrive at (c_A', c_B'), they violate cooperation and

create miscommunication that needs more clarity to resolve. In this case, Avery has good

intentions, but Bailey may not consciously register that "well-meaning" intention and

instead may think Avery is uttering something harmful when they are actually sincere.

Clearly $a_A' > c_A'$ and $a_B' > c_B'$ because, again, clear communication is optimal (and this

identifies Avery as a sincere person).

However, when Avery and Bailey do not match intention with interpretation and

arrive at (c_A', c_B') as a payoff, it is possible to surmise a mathematical explanation for how

(and why) communicators enter a potential disability microaggressive moment (the same can be said for the payoff (c_A, c_B) from the top half of the game). When a mismatch occurs, some communicators might default to misinterpreting a structurally-ambiguous utterance as microaggressive and end up with a worse payoff for both communicators in the situation. In other words, both payoffs (c_A, c_B) and (c'_A, c'_B) are not optimal for either communicator when interacting—leading to possible microaggressive outcomes.

Solving the Implicature Game

To formally show which paths are most likely to occur between Avery and Bailey (or someone else), calculating the initial probabilities comes in handy—represented by p_6 and $p_{6'}$ underneath the squares. One requirement is that $p_6 + p_{6'} = 1$. However, the exact values are a bit tricky to compute because their probability distributions are conditionally determined by the parses and content of each word in "Jeremy is an inspiration." That is, the initial probability p_6 in s_6, used to determine $\sigma_6 = [$*He deserves praise for enduring the torturous experience of living with a disability*$]$, depends on the contents $\sigma_1, \sigma'_1, \sigma_2,$ $\sigma_3, \sigma'_3, \sigma_4,$ and σ'_4 from the four semantic lexical games and on the parses $t_1, t_2, t_3,$ and t_4 from the four syntactic lexical games. Likewise, the initial probability $p_{6'}$ in $s_{6'}$, used to determine $\sigma'_6 = \{$empty$\}$, also depends on the contents $\sigma_1, \sigma'_1, \sigma_2, \sigma_3, \sigma'_3, \sigma_4,$ and σ'_4 and the parses $t_1, t_2, t_3,$ and t_4. It ends up that p_6 and $p_{6'}$ each have eight possible probability distributions (see Appendix D for distributions). What this ultimately means is that each communicator could be playing multiple versions of the implicature game (up to 8 x 8 = 64 versions!) depending on how they choose to send and receive a message. One approach to establish exact values for the probabilities p_6 and $p_{6'}$ (and to eliminate trivial probability distributions) is to use the original setting context. This makes initial

probabilities and payoffs less arbitrary; however, this has no guarantee of smooth

calculations (Parikh, 2010).

To find a solution for the implicature game, define f_u as a mathematical function.

This function transforms each game of partial information into its solution contents (σ)[16].

In other words, for the implicature game, the goal is to solve $f_u(g_6) = \sigma_6$. This results in

the *equilibrium strategy*, or Nash equilibrium, that considers how both communicators

jointly transformed the content of "Jeremy is an inspiration" into the content for the

harmful implicature $\sigma_6 = [$*He deserves praise for enduring the torturous experience of*

living with a disability$]$ (Parikh, 2019). The *Nash equilibrium*, or the solution to

implicature game g_6, is when each communicator has chosen a strategy that optimizes

their outcomes (while considering other parties) and can surmise that no one has anything

to gain by changing from their chosen strategy (Leyton-Brown & Shoham, 2008).

Discussion so far considers payoffs of the implicature game. This can be

formalized. Three things must be considered for solvency: the equilibrium utterance, the

equilibrium interpretation, and the equilibrium probability distribution. To find *equilibria*

in the game, it is important to distinguish choices both communicators can jointly make

together as their best responses such that neither has any incentive to deviate unilaterally

to some other choice (Parikh, 2010, 2019). In other words, once Avery utters a message,

and once Bailey decides to interpret, every other possible speech act is eliminated except

for the speech act that both communicators can jointly default to, if they both choose to

do so. For the implicature game, there are two possible equilibriums, or solutions.

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[16] A larger discussion about this mathematical function as a tool to solve for the full locutionary and illocutionary meaning of the entire utterance is addressed beyond this study (Parikh, 2010, pp. 168–176).

The first solution would be for Avery to utter $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION in the situation, s_6, and for Bailey to interpret the utterance with the harmful implicature $\sigma_6 = [$*He deserves praise for enduring the torturous experience of living with a disability*$]$. This means both communicators cooperate and match intention with interpretation (which makes Avery quite an ableist individual). This also means one choice of equilibrium in g_6 is $(\sigma_1, \sigma_2, \sigma_3, \sigma_4, \sigma_6)$—or uttering, "Jeremy is an inspiration," and having its contents *Jeremy B equals one of many successful people* be interpreted as microaggressive.

The second solution would be for Avery to utter $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION in the alternative situation, $s_{6'}$, and for Bailey to interpret the utterance with the empty implicature σ_6'. Both communicators cooperate and match intention with interpretation here too (however, ableism does not show up in any speech act for either Avery or Bailey). This also means the second choice of equilibrium in g_6 is $(\sigma_1, \sigma_2, \sigma_3, \sigma_4, \sigma_6')$—or uttering, "Jeremy is an inspiration," and having its contents *Jeremy B equals one of many successful people* be interpreted as harmless.

Of course, this one is superior; based on the setting, this second solution is optimal. The context suggests Avery intended to convey good intentions by saying "Jeremy is an inspiration" as a response to Bailey's remark. This means $p_6 < p_{6'}$ for the initial probabilities, which eliminates the unwanted first solution (and rationalizes that Avery never intended to convey a message based in ableism). However, this is uncertain. Why then might individuals interpret this message as microaggressive even though good intentions are highly likely in the current situation's context?

One reason may be explained by the cumulative nature of microaggressions. If a receiver has heard the phrase "an inspiration" prior to this current situation and knows that the intent to convey such a message is microaggressive, then the receiver may be more likely to interpret "Jeremy is an inspiration" as microaggressive. This is because the message is similar in its phrasal construction to that of previously-received microaggressions—even though interpreting this as a microaggression is a worse-off payoff for communicators. This is also explained through the phrasal game for enrichment, g_5, where receivers like Bailey have two options of interpreting "an inspiration" regardless of the speaker's intent (either $\sigma_5 = $ *for overcoming barriers* or $\sigma_5' = $ *for disabled students*). These enrichments are constructed by knowing how a receiver has played previous discursive Interpretation Games in social interactions, a concept called history. *History*, in a game theory sense, is defined as a sequence of communicative choices—since the first ever microaggressive experience—that has led a communicator to believe "an inspiration" in the current situation may also derive a possible microaggressive implicature when spoken (Leyton-Brown & Shoham, 2008). This implies that the enrichments and the implicatures constructed in the current situation are *descendants*, or communicative choices that stem from the information sets of previous interactions where a microaggression was interpreted from a speaker uttering "an inspiration" (Leyton-Brown & Shoham, 2008). In other words, the choice to interpret "Jeremy is an inspiration" as a microaggression and arrive at the worse-off payoffs (c_A, c_B) or (c_A', c_B') for both communicators can be due to a receiver having experienced previous interactions similar to this one where "an inspiration" was interpreted as microaggressive regardless of a speaker's intent.

Conclusion

To be clear, the pragmatic, descriptive analysis shown throughout this chapter is a condensed summary of full game-theoretic analyses that Parikh (2010, 2019) provided. In truth, each of the six games $g_u(\varphi_i) = g_i$ (for $i = 1, 2, 3, 4, 5, 6$) and their initial probability distributions (see Appendix D) can be used to solve for specific locutionary and illocutionary content in the utterance, "Jeremy is an inspiration." The mathematical function, f_u, discussed earlier can map each game, g_u, into its own unique solution, which gives the exact content of the message based on the situation (and leaves out guesswork). The two functions together take the original utterance, "Jeremy is an inspiration," and maps it into a solution with a compact and elegant vector fixed point equation (Parikh, 2010) as follows:

$$f_u[g_u(\varphi, P(x|u))] = x$$

In this equation x is a vector containing all the contents laid out through this chapter's analysis of the possible disability microaggression, "Jeremy is an inspiration." In other words, $x = (x_1, x_2, x_3, x_4, x_{34}, x_{234}, x_{1234}, x_5, x_6)$, which includes possible sets of locutionary and illocutionary content for the utterance. Fully spelled out, this equation is:

$$
\begin{bmatrix}
f_u[g_u(\varphi_1, P_1(x_1|x_2, x_3, x_4, x_5, x_6, u))] \\
f_u[g_u(\varphi_2, P_2(x_2|x_1, x_3, x_4, x_5, x_6, u))] \\
f_u[g_u(\varphi_3, P_3(x_3|x_1, x_2, x_4, x_5, x_6, u))] \\
f_u[g_u(\varphi_4, P_4(x_4|x_1, x_2, x_3, x_5, x_6, u))] \\
f_u[g_u(\varphi_{34}, P_{34}(x_3, x_4|x_1, x_2, x_5, x_6, u))] \\
f_u[g_u(\varphi_{234}, P_{234}(x_2, x_3, x_4|x_1, x_5, x_6, u))] \\
f_u[g_u(\varphi_{1234}, P_{1234}(x_1, x_2, x_3, x_4|x_5, x_6, u))] \\
f_u[g_u(\varphi_5, P_5(x_5|x_1, x_2, x_3, x_4, x_6, u))] \\
f_u[g_u(\varphi_6, P_6(x_6|x_1, x_2, x_3, x_4, x_6, u))]
\end{bmatrix}
=
\begin{bmatrix}
x_1 \\
x_2 \\
x_3 \\
x_4 \\
x_3 \odot_u x_4 \\
x_2 \odot_u (x_3 \odot_u x_4) \\
x_1 \odot_u (x_2 \odot_u (x_3 \odot_u x_4)) \\
x_5 \\
x_6
\end{bmatrix}
$$

The symbol $\odot_u$ is an operator that captures the unification of semantic and pragmatic meanings and their initial probability distributions (see Appendix D) relative to some utterance situation u (Parikh, 2010). The equation dictates an equilibrium of the many possible partial renderings of content that can emerge in a social interaction where a microaggression is likely. This equation has been expanded and generalized to include possible solutions for parses as well—an equation best known as the Fundamental Equation of Equilibrium Linguistics with Payoffs (see Parikh, 2019, p. 143).

Several theorems about locutionary games accompany this equation as well. For example, the Fundamental Theorem of Semantics (Parikh, 2010, p. 186) shows how strings of language are equivalent to contextual games built to model communication[17]. Ultimately, the equations and theorems of the equilibrium linguistics framework are key for explaining how communicative messages obtain specific semantic and pragmatic content based on layers of ambiguous context and discourse. However, they may not be conducive for identifying the core issue of this dissertation, which is to establish how communicators choose to interpret (or repair) a message they perceive as microaggressive given the contents that were obtained.

As such, future work aiming to identify (i.e., solve for) microaggressions and repair responses during interactions may benefit from redefining how to arithmetize *preferences* in a Communication Game (Clark, 2012) so as to study how people optimize their speech tactics-in-use. A game theory analytic point of view aims to quantify

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[17] Specifically, the Fundamental Theorem of Semantics shows how the function g_u is an algebraic isomorphism and that $\mathcal{L} \cong G$. A discussion about this theorem's mathematical proof extends beyond the scope of this project (see Parikh, 2010, 2019).

communicators' preferences across sets of available alternatives when they are faced with uncertainty about which alternative they will receive (Shoham & Leyton-Brown, 2009). However, this particular perspective currently couches "preferences" in a belief-desire model, which refers to the psychological dispositions and motives of communicators (Malle & Knobe, 1997). On the contrary, a conversation analytic point of view describes "preferences" as the organizational principles that guide how communicators best construct their talk in a given context (Levinson, 1983). Mathematizing *communicative* preferences has consequences for the study of microaggressions and repair.

For example, consider this chapter's implicature game. According to preference structure (Levinson, 1983), when a speaker like Avery conveys a message such as, "Jeremy is an inspiration," recipients like Bailey can produce a next-turn response that either aligns or misaligns with what was said and done. Alignment talk would resemble a structurally, culturally-appropriate, expected response such as acceptance or agreement ("Yes, he's an inspiration!") composed of simple sentences (Shoham & Leyton-Brown, 2009). This is a *preferred response* (Levinson, 1983). On the other hand, talk that does not align would include unexpected or face-threatening responses to Avery's message such as disagreement ("I don't think so"), interrogation ("What do you mean by that?"), or silence. Thus, when Avery utters, "Jeremy is an inspiration," and Bailey chooses not to respond, it could be signaling to Avery that Bailey is not in a position to provide a preferred response (because it may be too risky) and, therefore, cannot engage in other-repair. A study of *dispreferred responses* (Levinson, 1983) may provide insight into how communicators construct, choose, and optimize their speech tactics-in-use when faced with partial situated information (Parikh, 2010, 2019).

In sum, rather than inferring speaker intentions to arrive at possible outcomes of an implicature game, integrating a CA perspective of preferences can shift game theory analysis from a study of what may be going on in the mind of a communicator to that of what is being displayed in their talk and interaction, and how they use certain responses in given contexts (Maynard, 2010). Using tree-like graphs, it becomes possible to study how specific moments of microaggressions and repair responses are largely shaped by what happened previously during a social interaction (and might explain why and predict how communicators structure certain responses in turn-taking). Mathematical modeling processes such as binary trees, backward induction (Shoham & Leyton-Brown, 2009), or Galam models for decision-making (Galam, 2008) are some useful tools to consider for beginning a mathematical analysis of microaggressions from the initial work done here. That is, the use of trees can examine the range of preferred and dispreferred response possibilities from a conversation analytic point of view. This extension surmises the prospect of a hands-on practicum where crafting tactics and practices focus less on sensitivity to word choices and more on the timing and tailoring of responses as they relate to what is naturally occurring during an interaction (Maynard, 2010).

Before moving into the final chapter, or endgame of this project, a few other items need to be explored further: (1) computed initial probabilities; (2) formal mathematical derivations for the two equilibriums (see Appendix D); and (3) computed payoffs, which can only be achieved through particularized solution concepts such as with the vector fixed point equation above. These items are discussed in detail elsewhere (see Clark, 2012; Nowak, 2006; Parikh, 2010, 2019; Shoham & Leyton-Brown, 2009) and touched on briefly in the next chapter. Typically, mathematical analyses of communication

problems stop here. However, the final chapter asks the question, so what? Essentially, what can readers do with this information to *respond* in situations where possible problems might arise? I extend the pragmatic, descriptive analysis outlined here to a discussion pertaining a toolkit that communicators can use to reduce the daily pervasiveness of microaggressions.

CHAPTER 5

ENDGAME

Game-theoretic analysis supplies comprehensive insight into the pragmatic factors

and communicator choices that assemble a disability microaggressive moment. A

recipient's decision whether to interpret an implicature of a speaker's message as

microaggressive can depend on personal history, historical or discursive referents,

heightened emotions, and numerous other conditions. Analysis from this dissertation

suggests that dynamic interactivity dictates whether cooperation or noncooperation will

continue between communicators after a microaggressive incident—a detail that has been

simplified in extant theorization. As such, a postdiction explanation of this

communicative phenomenon presents a sketch of an endgame: it asks how to apply game

theory for solving problematic communicative situations. Like in chess where only a

few pieces remain on the board with the king, this current study scrutinizes the residue of

microaggression data analysis and hypothesizes several tentative trajectories for

extending an empirical framework into a territory for communicative application.

Simply, this chapter discusses ways to use the intentional, game-theoretic

methodology proposed in this project for future scholarship. It provides recommendations

for dissection and expansion of microaggressive data, ultimately with the purpose to

prepare researchers, practitioners, and everyday communicators with the tools needed to

consciously engage in conversational repair of problematic interactive encounters. Parikh

(2001, 2010, 2019) described several contributions of the equilibrium linguistic

framework that guide the ideas emphasized in this chapter. Mathematical models often

stay in abstraction after their assemblage; I intend for this research to be used by

communities outside the academy who might benefit from a transformative approach for navigating potentially harmful social interactions. Thus, this chapter describes a breadth of game-theoretic pathways for understanding, remediating, and preventing disability microaggressive moments, and for forging a robust, holistic apparatus of social science for the field of communication. This chapter: (1) proposes some theoretical and practical ideas for extending current microaggression research; and (2) discusses a few "limitations," or unfinished thoughts and processes, from the present study's exploratory analysis that might require closer scrutiny. I end with a "checkmate"; or rather, I invite readers to journey towards the discomfort that comes with experiencing ambiguity.

Implications for Research and Practice

This project's communicative exploration of microaggressions garners several implications (and applications) for research and practice. Precisely, approaching analysis of interdependent communication factors undergirding this phenomenon's ambiguity with a game-theoretic methodology generates theoretical and practical endgames (or attainable possibilities)—much like in chess. In other words, solutions/remediations of microaggressive interactions (and other problematic communication phenomenon) can only stem from well-analyzed, calculated techniques as well as their likely execution under real-world circumstances. I surmise such techniques for extending the MRP (and communication scholarship in general) by: (1) suggesting what I propose are possible research avenues, and (2) previewing approaches for changing and broadening microaggression training and practice.

Ideas for Research

Initially, I discuss some research lines the communication field (and other disciplines) can do to extend investigation in the MRP and for social science. I outline three domains that scientists can choose to explore on their own. These include: (1) contemplating a new holistic paradigm, (2) constructing new theoretical frameworks, or (3) speculating new lines of inquiry.

Paradigmatic Contemplation

One idea for extending research begins at a metatheoretical level. The COVID-19 pandemic highlighted a salient lesson for modern-day science: the need to shift theory and methodology for the construction of effective prevention, intervention, and curatives in light of the ambiguous, evolutionary, and deadly novel coronavirus. In similar fashion, the current study emphasizes the need for a conceptual reframing in the social sciences for the study of microaggressions (and other dynamic communication phenomena). Current communication research recognizes postpositivist, interpretivist, rhetorical, critical, and postmodern/poststructural orientations for the study of communicative messages, behavior, and performance (Anderson & Baym, 2004; Littlejohn et al., 2016)—all of which starkly contrast the initial perspective used for the investigation of organized conversational turn-taking in the 1970s (see Schegloff et al., 1977). This, arguably, places the communication discipline in a segmented, preparadigmatic state lacking agreement on a holistic, overarching theory for studying communication (Kuhn, 1970)—unlike biology, for example, where the Watson-Crick paradigm of molecular DNA structure replaced Mendelian and Suttonian paradigms of genetic inheritance (Moore, 1980). The advancement of one broad paradigm (versus several) can help the

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communication field fend off accusations as a "soft" science. This study's commingling of psychology, linguistics, and mathematics presses communication research toward a territory where cohesive paradigmatic thinking is possible and can bridge all existing orientations by offering a fresh way of observing communication data as interactive and organic (Moore, 1980). Precisely, conceptualizing microaggressions in this study as situated, power-laden data with holistic, morphological, and probabilistic properties introduces communication researchers with an opportunity to propose a unifying lens that catalyzes a social scientific revolution for the field (Kuhn, 1970).

Of course, this is easier said than done. Perhaps one struggle in developing a core theory of communication has been about extrapolating an explanatory *and* predictive approach for studying the imaginaries of communicative interactivity (such as speaker intentions, meaning-making, emotionality, and so on), which are not directly measured well (in an empirical sense) by current modes of inquiry. In a way, communication scholars find themselves in a predicament alongside physicists studying quarks (a subatomic particle that is not directly observable but has been existentially confirmed through novel accelerator experimentation). This dilemma surmises the question: how can communication research grapple with data that transcends varying domains of reality, perceptions, and that which can only be inferred? Indeed, people communicate by interacting through one, underlying reality that is then individuated into multiple ontologies of what is perceived as real (Parikh, 2019), creating a dynamic problem that makes the study of social science uniquely challenging. Luckily, the example metatheory in this project offers a choice-driven musing of how to research the unobservable and unknowable data of microaggressions (and other phenomena) by treating them much like

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how epidemiologists studied the novel coronavirus: as "thought-viruses," or communicative automatons, needing perpetual investigating, tinkering, and reimagining. In short, I provide one viable starting point for researchers to consider the layers of ambiguity in context-sensitive communication as a means of formulating a paradigm for the field.

For readers needing a tangible starting line, I suggest turning to the equilibrium linguistics framework discussed in this project. One consequence of using this as a guiding lens for methodological development is that it acts "as a theory that enables the computation of meaning, as an overarching framework that permits the construction of variant theories, and as a paradigm embodying the central idea and image of balance and equilibrium" (Parikh, 2010, p. 283). That is, I chose this apparatus because it extends beyond simply providing a model to analyze interactive, communicative data. According to Parikh (2010, 2019), it can be generalized to a space that contemplates *equilibrium metaphysics*. In which case, syntax, semantics, and pragmatics interplay to act as solutions to a system of simultaneous equations and inequalities that arise when communicators interact and find themselves in varying, intersecting contexts. In this broadened scope, equilibrium linguistics offers a tentative approach for exploring and mathematizing many communicative/rhetorical concepts not addressed in this project. For example, this can include: (1) evaluating *relevancy*, or contextually-appropriate information; (2) calculating the extent to which communicators access such relevant information to surmise implicatures and other illocutionary meanings, a concept called *distance*; (3) computing figures of speech such as metaphor, metonymy, synecdoche, hyperbole, jokes, and irony through the latter three constraints of the **PSCIF** system,

known as *modulation*; and (4) diagramming affective implicatures, memory pathways, and parapraxis (i.e., Freudian slips) in speech (Parikh, 2001, 2019). Of course, more complex mathematics such as *evolutionary game theory*, or game theory that does not rely on rationality and instead focuses more on the changing dynamics of strategies (Nowak, 2006; Parikh, 2010, 2019), may be needed for investigating such concepts. However, if scholars are up to the task and desire advancement for the field, I propose this as a steppingstone toward a robust, scientific paradigm of communication.

Theoretical Construction

Another consequence of using the equilibrium linguistics framework for analysis is the development of a more robust theoretical lens for conversational repair phenomenon in communication. Most current research examines repair phenomenon from the schematics developed by Schegloff et al.'s (1977) *organization of repair*, a set of systematically organized, party-administered practices that communicators use to manage trouble talk and problematic behaviors. Conversation analysis has been the default tool for studying the organization of repair (Hayashi et al., 2013), including when investigating disability status as a primary identity marker during repair (Church et al., 2017). Some studies have employed experimental design for studying how autistic people navigate repair (e.g., Volden, 2004) while others turned to interviewing for understanding how aphasic individuals initiate repair (e.g., Barnes, 2016). This atheoretical, structural lens to conversational repair, in essence, lacks a holistic, dynamic approach for the study of pragmatics undergirding the particulars of talk and text in relation to situated context (Zahn, 1984). The communicative, interdependent, game-theoretic approach outlined in this study may be an appropriate tool for not only explaining microaggressions, but also

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for repairing (remediating) these problematic moments. Communication research should attend to the spaces in this explanatory framework that permit the exploration of repair sequences (including failed sequences) so as to recognize what strategies communicators use for addressing problematic communication during social interactions.

I want to point out a trickiness that scholars might face when crafting a theoretical apparatus for conversational repair. Much of the literature suggests that detecting context-sensitive, implicature-based beliefs and biases in problematic utterances depends on a recipient's capacity to access sources of perception, introspection, reason, memory, and testimony in the bodymind (Blecic, 2012; Satyananda, 1976/2016). This is similar to the problem highlighted in the field of general semantics (Korzybski, 1995). However, detection assumes an able-bodied logic system for its conceptual definition. What happens if, for example, detection of indirect/illocutionary meanings and hidden intentions relies on a communicator's capacity to access deep felt memory, a space outside of memory, or fragmented, prosthetic, or incomplete memory? Neurodiversity and disability status offer a conceptual detour for navigating this question (McRuer, 2006; Puar, 2017; Yergeau, 2018) and for retooling what it means to detect, register, and/or infer what is not necessarily observable or knowable to the bodymind.

Precisely, the equilibrium linguistics framework is equipped to assist researchers wanting to reconceptualize "detection" of microaggression pragmatics so as to account for why and how communicators may or may not engage in repair sequences. Because communicators can have different thresholds for how they access locutionary and illocutionary content during a social interaction, Parikh (2019) suggested some sub-constraints for extending the **PSCIF** model: relevance, distance, and modulation. As

previously mentioned, these concepts attend to how communicators navigate and process ambiguous content that may be more figurative, emotive, or symbolic in nature. Parikh drew upon another branch of mathematics called topology for describing these concepts in computationally-tractable ways. He explained that when a recipient goes to access information for their locutionary content during a Content Selection Game, they search either consciously or unconsciously for indirect meanings—implicatures or other illocutions such as free enrichment or modulations (figures of speech)—that may be sufficiently relevant to the context in which they find themselves[18]. However, communicators can access only information that occurs within the (permeable) boundaries of their knowledge creation and processing—similar to a mathematical concept called a neighborhood (see J. W. Brown & Churchill, 1996). This *neighborhood*, or what I call the "boundary of accessible information," is a region containing many possible illocutionary meanings, each set some amount of distance away from the locutionary content of messages a recipient is trying to interpret by using their information sets (knowledge banks). This then informs the Generation and Interpretation Games, where a recipient responds appropriately (i.e., repairs a microaggression) according to the information that they could access. Figure 7 below shows what this neighborhood would look like graphically.

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[18] This is why the implicature under analysis in chapter four was not simply arbitrary.
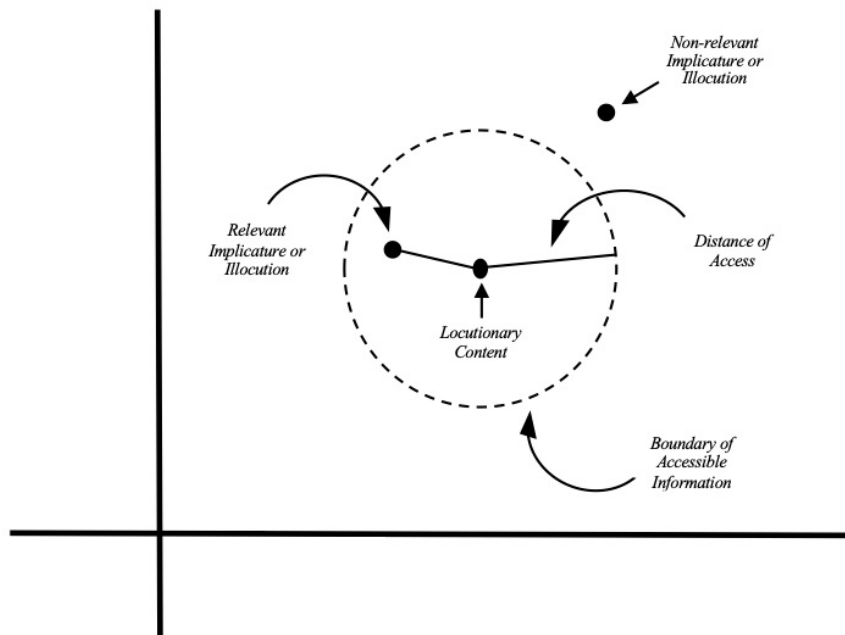
Figure 7 Neighborhood where information such as implicatures and illocutions is accessible to communicators

All other information beyond this neighborhood is deemed as non-relevant information because it either: (1) does not fit into the context of the utterance situation or (2) the communicator does not know yet how to access such information for the bodymind to use for crafting a repair response. In other words, when approaching problematic communication through a lens of neurodiversity or disability status, it is possible to surmise that communicators may have to entertain and construct entirely new repair strategies that have never before been contemplated so as to remediate microaggressive moments. This builds a "theory of accessibility" undergirding the equilibrium linguistics framework (Parikh, 2019, p. 244) necessary for researchers to examine how different types of bodyminds interact across various situational contexts to repair disability

microaggressions. As scholars begin to build a more robust framework for conversational repair, accessibility becomes a crucial component for explaining what is happening during repair sequences and for predicting what is possible when practicing repair.

Lastly, I imagine that the work in this project extends application to communication phenomena beyond microaggressions and conversational repair. Approaching communication as situated choice deepens an investigation of many micro, meso, or macrolevel concepts and theories (across varying contexts). For example, work pertaining to interpersonal or organizational communication concepts such as relational transgressions, conflict, bullying, teasing, joking, passive aggression, interactional injustices, and everyday slights—including racial slips and gaffes (Burford-Rice & Augoustinos, 2018)—may benefit from a game-theoretic approach, similar to that which was employed in this dissertation project for the study of microaggressions. Likewise, the ideas outlined here regarding conversational repair can be extended to apologies, requests, compassionate responses, approaches-to-healing, or even for examining when a communicator might experience the feeling of "falling in love" in a relationship or emotional overwhelm during workplace management-to-employee exchanges. In other words, by theorizing communication across the discipline more interactively and performatively, where meaning is obtained holistically through a communicator's choices during decision-making processes, phenomena can be examined through the innerworkings of the syntax, semantics, and pragmatics embedded in the equilibrium linguistics framework. In general, including partial, probabilistic, and evolutionary conceptualizations for understanding communication phenomena may advance research

in the field to a point where there is agreement around what communication is and what can be done to end with good communication when practicing.

Inquiry Speculation

A final idea for research includes speculating new lines of inquiry for the study of microaggressions and other communication phenomenon. Since the GDTA methodology presented throughout this project acts primarily as an explanatory, postdiction analysis (Parikh, 2010), the first step for researchers is to consider the mechanisms or addendums needed to advance the predictive component of this intentional methodology—which, in turn, establishes a complete apparatus for substantiating the empirical reality of microaggression theory (Lilienfeld, 2017; Sue, 2017; Torino et al., 2019). This avenue proposes a few creative possibilities for scholars to explore.

One way to extend the predictive function is by retooling the way researchers construct experimental designs. Even though game theory acts as a social scientific approach (Parikh, 2010) to account for what is happening during microaggressive moments, employing experimental design methodologies can extend the explanatory power of game theory as applied to microaggressive interactions by providing a pathway towards theoretical falsifiability (Lilienfeld, 2017; Torino et al., 2019). However, current experimental designs may need tweaking to accommodate for the evolutionary and partial data that constructs microaggressive interactions. Garfinkel (1963, 1967) once employed *breaching experiments* for studying interactive data—a design that maintained efficient data collection protocol while embracing flexible parameters of analysis. This ethnomethodological practice encourages researchers to engage with other communicators by using persistent questioning to "clarify the sense of commonplace [or

microaggressive] remarks" they make (Garfinkel, 1963, p. 221). This results in a better understanding of the pragmatic factors that destabilize conversational organization in everyday interactions. Of course, the rapidity (and hostility) of responses that sometimes occurred between communicators when Garfinkel used this method brought with it pitfalls, challenges, and a larger ethical consideration (Hayashi et al., 2013)—one that, for microaggressive interactions, could escalate the emotional turbidity between perpetrators and targets or prevent effective bystander intervention and other-initiated repair from occurring (Schegloff, 1997). That said, a dynamic approach to experimental design that incorporates Garfinkel's ideas with game-theoretic analysis may be one way to advance the necessary hypotheses needed to guide research towards a more robust way of dissecting organization patterns of interaction that precipitate the nuances of microaggressive moments.

Besides experiments, a game-theoretic analysis of microaggressive moments as outlined in the current study insinuates the expansion of research opportunities for algorithmic methods frequently used in artificial intelligence (AI) programming and data science. Most algorithmic methods are often applied in areas of economics, voting, social choice, technology, or risk assessment, to name a few (Leyton-Brown & Shoham, 2008); yet, communication remains one of the few underapplied spaces for algorithmic methods (Shoham & Leyton-Brown, 2009).[19] Currently, computer science and artificial intelligence research examines locutionary and illocutionary content in natural language by using conversational structures (rather than messages) as the basic unit of

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[19] This is why this dissertation project employs hand-calculated game-theoretic analysis. Besides SPSS software for quantitative communication data or NVivo for qualitative communication data, for example, little software has been developed to assess communication in a dynamic, interactive manner.

communication. To which, many workflow software designs and applications, for example, employ an information processing framework to model social interactions in workplaces and organizational settings either as assertions or queries. However, this perspective lacks "an explicit understanding and representation of the pragmatic structure of human communication" (Shoham & Leyton-Brown, 2009, p. 249). This means that most integrated (AI) dialog systems such as the Rochester Interactive Planner System (TRIPS), or its predecessor TRAINS, do not capture well the richness of communication when tracking, managing, and problem-solving complex social interactions (Ferguson & Allen, 1998). Speech act theory, on the other hand, has been successful for *agent-oriented programming* (AOP)—a method that embraces speech acts as both communicative form and meaning for the study of what is happening between people (Shoham, 1993). Unfortunately, AOP focuses more on communicators' mental states (such as beliefs and commitments) to define, implement, and understand a conversation's dynamics (Shoham & Leyton-Brown, 2009). The equilibrium linguistics framework— which recognizes irrationality and indeterminacy as fundamental principles for examining ambiguity in human communication (Parikh, 2010, 2019)—may present a stronger, evolutionary foundation for programming artificial intelligence. Ultimately, a holistic, morphological, and probabilistic perspective of communication data paves way for the development of algorithmic methods better equipped to capture the partial complexities of social interactivity (such as microaggressions) without negating important pragmatic factors that may not have been assessed when speech act theory or information processing were guiding AI programming in data sciences. Such advancements could offer technologically-informed mechanisms (e.g., "scripts" that are

conscious of bias-based implicature renderings) for reducing microaggressions and initiating conversational repair.

Investing in new experimental designs and algorithmic methods has one final applied, methodological consequence: stronger negotiation research. Extant research analyzes communicators' post-experiment, self-satisfaction responses to understand the interplay between objective outcomes and subjective evaluations during negotiations (Galinsky et al., 2002). However, this approach grounds investigation of negotiator behavior in rudimentary applications of game-theoretic concepts for explaining Best Alternatives to Negotiated Agreements, or BATNAs—a concept similar to *Pareto-efficient equilibrium strategies*, where no person is worse off, but at least one is better off (Galinsky et al., 2002; Leyton-Brown & Shoham, 2008; Parikh, 2001, 2010). The game-theoretic ideas outlined in the current study offer a modification that advances the study of formal negotiated interactivity. Precisely, by switching the unit of analysis often used in psychological applications of experimental design from the individual to that of a communication tactic, or speech act, negotiation research can employ what is called *Markov chain analysis* (Smith et al., 2005). This type of analysis looks at moment-to-moment, dynamic patterns of action and reaction, often with the aim to study how antecedent conditions (such as power) shape negotiation processes to arrive at certain desired consequences for both objective outcomes and subjective evaluations (Smith et al., 2005). Coupled with the equilibrium linguistics framework applied to the microaggression phenomenon in the present study (Parikh, 2010, 2019), negotiation research in communication can expand its investigation to include a theoretical, mathematically-tractable examination of relational and social aspects of content for

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explaining how communicators negotiate emotionally heightened and/or irrational tactics during integrative and distributive bargaining (Galinsky et al., 2002; Smith et al., 2005). Indeed, integrating other stochastic modeling principles such as martingales (see Lanchier, 2017) or evolutionary game theory (Nowak, 2006) introduces possibility for algorithmic back-tracking of what is happening in conversations and for predicting future communication strategies (Shoham & Leyton-Brown, 2009)—an application that extends social interaction analysis to broader contexts, spaces, and settings. In sum, retooling negotiation methodology presents a unique opportunity for scholars to shift how they conduct applied communication research.

Ideas for Training and Practice

One of the largely underexplored topics in microaggression research concerns preventing microaggressions from happening (Torino et al., 2019). While game-theoretic analysis of microaggressions offers an array of new postulations for how to theorize the phenomenon, this research beseeches a critical practice of what to actually *do* when encountering a microaggression. Again, I outline three domains that practitioners can choose to explore on their own. These include: (1) developing a pedagogical framework that guides teaching about microaggressive interactions, (2) building new anti-oppression and de-escalation training programs for interpersonal (or group) exchanges, or (3) constructing new practices that mathematize the bodymind's sensibilities.

Teaching about Microaggressions

In their essay, "Models in Algebra and Rhetoric," Heckelman and Dunn (2003) described a curriculum they implemented at Montgomery College in Conroe, Texas designed to enhance educational enrichment and critical thinking skills for students

taking college-level math and English courses. Considered experimental, the curriculum paralleled "Writing Across Curricular Cultures," a type of learning-community approach that focused on how model-building might be a vital starting point for translating math and rhetoric across disciplines (pp. 74-75). By using models to represent everyday communication problems (such as at-home family dynamics), students recognized how models could translate their writing of persuasive arguments into algebraic expressions and notations. Consequently, students "increased awareness of their daily reliance on models of all kinds. Even more important, they came to see themselves not as passive users but active builders of models" (p. 87). The ideas outlined in this essay resolve some of the obstacles that polarize rhetoric and math from conceptual imbrication in the communication discipline (Reyes, 2014). In which case, "yoking" the grammars of algebra and rhetoric (Heckelman & Dunn, 2003, p. 74) catalyzes what practitioners must begin to do to develop an integrative understanding of the connection between game theory principles outlined in this project's GTDA methodology with that of underlying grammar rules in natural language.

Precisely, I suggest starting with a practical framework that is an offshoot of critical communication pedagogy and that aims to answer the question, if courses and training programs on microaggressions were to be taught, how would they be instructed and who would it speak to? Current critical communication pedagogy (CCP) analyzes how to teach communication when it is constitutive of social injustices such as microaggressions (Fassett & Warren, 2007). As an instructional apparatus and teaching philosophy, CCP centers an understanding and evaluation of the way educational spaces might extend oppressive power dynamics to disrupt learning processes (Rudick et al.,

2018), especially for anyone with a minoritized identity marker like disability status (Erevelles, 2000; Hao, 2011; Schultz, 2009). I propose inviting disability and neurodiversity as central tenets for a playful and critical teaching (or training) practice where anyone can come to learn the discomforting content of conflict-ridden communication. This is similar to "cripping" the classroom, where accessibility becomes a primary guiding principle (McKinney, 2016) for surmising what can be done to teach microaggressions. Thus, with disability and neurodiversity as guiding criteria, I propose a CCP that explores and devises educational techniques commingling game theory with communication for the purposes of co-learning what might inform interactive ambiguity, situational variability, and contextual multiplicities during microaggressive encounters. I coin this framework as a "game-theoretic critical communication pedagogy," (GTCCP), and I consider it as a foundational philosophy for teaching about microaggressions and training conversational repair. For pedagogues, GTCCP might include envisioning an empathy-, care-, and accessibility-based form of teaching that embraces various known and unknown processes of knowledge-creation. Ideally, it should encourage teachers and learners alike to disrupt habituated mental frames that unconsciously work to separate communication from its mathematical capabilities. I imagine that GTCCP can also advance theorization around what types of learning styles are optimal for bodyminds to sustain the equilibrium of pragmatic factors during microaggressive interactions.

GTCCP might prompt an inventive, organic, and tentative educational space that encourages learners to interact towards social justice, intersectionality, and accessibility in their communication. In this space, learning objectives evolve with microaggressive data, guiding bodyminds to consider more multi-party, situated choices. Game theory

sensibilities might ground learners in a paradoxical and holistic way of thinking, knowing, feeling, and practicing communication during indeterministic and irrational moments of social interaction. This might look like teachers/trainers and learners co-generating possible macrodiscursive cultural assumptions that speak to and/or against the microdiscursive irrationalities embedded in the particulars of talk and text (Conley & O'Barr, 1998; Gee, 1999). One way to instruct this could be to guide communicators through how to ask intentional, well-crafted questions when gathering private information from others so that they may understand how a person's biases and assumptions align with macrolevel ideologies and previous microlevel expectancies. Well-crafted questions could calculably disrupt emerging power dynamics from words, phrases, sentences, or actions that obtain interactive ambiguity and destabilize communicative cooperation. Teaching communicators to maintain this paradoxical thinking when seeking information allows them to work through (and/or remediate) any variabilities in interactions that lead to microaggressive possibility.

I also assert that the practical framework of GTCCP discussed here should not be limited to the academy or higher education classrooms. In K-12 education, curriculum should focus on guiding students to think about their decision-making skills as an imbrication of rudimentary game theory concepts and language rules via gaming and play. This might help some younger students develop a desirable awareness of how to choose cooperative communicative responses when problematic communication like bullying occurs during their social interactions. Instead of teaching English, history, science, art, theater, and mathematics separately, curriculum should encourage the interdependency of all core courses for advancing intentional decision-making skills.

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That way, during adulthood, communicators can attend more to interactive textual and contextual factors. This might also necessitate community-oriented transformative learning, which can encourage attitudinal, behavioral, and conative shifts during moments where cooperative intercultural communication disintegrates into a microaggressive event. Mezirow (1991) described *transformative learning* as enhancing awareness around the ways personal beliefs and feelings are contextualized. This initiates a critique of habituated assumptions, which could lead to a decision whether to negate outmoded perspectives in favor of new ones that "do more" with communication behavior. Essentially, transformative learning embraces a move to entertain what is beyond originally held mental frames. Such education potentially teaches adults how to grapple with self-empowerment, engage in critical self-reflexivity of social and cultural histories, and generate more functional strategies and resources for the bodymind to *take action* (instigate remediation) in microaggression encounters (Mezirow, 1991). In sum, GTCCP "crips" (makes accessible) everyday interactive spaces by turning them into moments for learning hands-on communication skills.

The GTCCP framework I propose here is a tool to ground teaching and training. That means it can direct communicators to embrace discomfort and ambiguity in everyday situations. It opens pathways for exploring two possible practical applications.

Anti-Oppression and De-Escalation Trainings

Current anti-oppression and de-escalation programs center their trainings in hypothetical scenarios, which often examine how static roles of perpetrators, targets, and witnesses respond to messages in conflict-ridden situations such as microaggressions (Thurber & DiAngelo, 2017). While technology (such as language-translation tools) and

preconstructed scripts are available to a range of training attendees including, for example, faculty, staff, students, police officers, or community members, most programs might lack accessible spaces to practice communication strategies safely or might offer only non-participatory, online formats. In a personal correspondence with my brother, a police sergeant, he noted how de-escalation programs can lack information pertaining to the historical, political, and social factors necessary for participants to identify appropriate intercultural communication and negotiation strategies for engaging with anyone who might be experiencing heightened emotions in a conflict situation (C. Reutlinger, personal communication, September 2, 2021). During my own workplace, anti-racism training, I noticed how colleagues were hesitant to express a communication strategy for remediating a microaggressive situation (therefore, remaining silent) out of fear that they might choose a response that was inappropriate, ineffective, or violating conversational cooperation.

This dissertation's GTDA methodology (and the previously mentioned GTCCP framework) recalibrates what is possible in anti-oppression and de-escalation programs. It begs such questions as, how might mathematizing communicative choices alter the way people interact during microaggressive events? Or rather, how might using game theory transform the way people approach their conversations in family spaces, work settings, junctures with strangers, and so on? One consequence of game theory is how it can show silence as a type of situated choice implying inaction or complicity in some contexts (while previously it may have been thought as an inconsequential move that reflects "doing nothing"). Thus, game theory principles bridge an access-conscious approach for understanding the finer nuances of communication and how to create context-sensitive

communicator alignment talk in social interactions (Parikh, 2019; Zahn, 1984). Since

most ensuing social interactions can become hostile when the ego guides one or more

communicators' exchanges of messages and responses (Allport, 1954), seating interactive

ambiguity as a central principle in these programs might inform more productive,

accessible training practices. For example, encouraging attendees to embrace unknown

power asymmetries, knowledge banks, hidden biases, and personal histories as possible

situational factors that influence communicator choices might allow the release of

stubbornness, pride, and fear towards uncertainty when navigating problematic

communication moments (Satyananda, 1976/2016). This might grant trainees the

opportunity to assess how the ego can wrongly perceive what is happening during partial

microaggressive encounters and how it can stifle the many types of communication

strategies participants could create to de-escalate a conflict (Allport, 1954; Parsons,

1968). In other words, situational ambiguity urges training attendees practicing

remediation to consider tentativeness, reflexivity, and creativity when identifying and

disrupting relational variability that often triggers harmful communication patterns.

The chess metaphor in this current study indicates how play and gaming can also

be integrated into designing accessible training practices for remediating microaggressive

encounters. Another familiar game, Dungeons & Dragons (D&D), offers one pathway for

participants/learners to role-play discomforting situations. In essence, D&D allows

players to craft characters with varying attributes. These characters then act as extensions

of a player's personality, biases, and identity. Under this premise, training attendees can

role-play as their own characters during microaggressive interactions without necessarily

personalizing the encounters. This provides an opportunity for mindful engagement with

Generation and Interpretation Games (Parikh, 2019). Such games like D&D simulate the world-making communicators must adapt to when the empirical and experiential realities of microaggressive moments frequently evolve. That is, gaming not only permits communicators access to how partial, situated microaggressive data inform their choices; it also provides communicators a means to assess how their own bodyminds influence interactive data in calculable ways. Role-playing games have been used for understanding the intercultural communication experiences of immigrants and refugees—games such as DiGlossia (de la Garza, 2017). Even individuals who opt-out of role-playing games can observe and contribute resources, simulating how bystanders might navigate real-life situations between perpetrators and targets (Brody & Vangelisti, 2016; Darley & Latané, 1968; de la Garza, 2017). I propose combining role-playing with the GTDA methodology (and GTCCP framework) in this project to foster a praxis that reduces the need for communicators to attach heightened emotions to problems inherent in microaggressions while simultaneously allowing space for them to think through how they want to craft "mathematically solid, and computationally tractable" response choices (Parikh, 2010, p. 283). Ultimately, anti-oppression and de-escalation training programs should guide people to exercise communication practices informed by hidden intentions, probabilities, joint payoffs, preferred and dispreferred responses, and other unknowable pragmatic factors naturally emerging during conflict-ridden moments.

Another way to consider probabilistic play for remediation is via a workshop I have coined as "Create Your Own Adventure." Unlike its Choose Your Own Adventure cousin, this gaming format—adaptable for both online platforms, like Zoom, or face-to-face interactions—provides training attendees a practicum for exploring how to talk

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about and resolve all kinds of problematic, conflict-ridden communication from microaggressions to bullying, teasing, joking, everyday slights, or even difficult topics pertaining to race, gender, class, disability, and so on. Using gaming techniques, learners have the opportunity to co-construct simulated scenarios with trainers. Then, instead of having trainers prescribe preconstructed message options (e.g., "Do you choose A or B?"), participants craft their own messages as responses to the ambiguity of the simulations (e.g., "What do you do?"). The increase in agency here aims to support learners as they develop attentiveness around their word choices, their timing, and their tailoring of responses in relation to preference structure (Levinson, 1983). Similar to D&D, attendees can have discussions about their message generations, survey others about word meanings, talk through possible intentions and interpretations, role-play their choices, respond to any hurtful messages that might emerge, and reflect on outcomes by taking accountability for their actions and correcting mistakes. Such techniques can train individuals to make distinctions between their personal, affective preferences and that of the pragmatic, conversational preferences that enable interaction to proceed smoothly as a turn-taking process (rather than in a desire to maintain social or relational dynamics). In other words, I intend for this workshop to produce a space where people can build empathy around their *commonalities*—or the complex connections of sameness and difference that people encounter during troublesome communication like microaggressions (Keating, 2013)—while navigating the discomforting communication that happens during interactivity. This enables communicators to reflect on what contextual factors and preference structures might be influencing their epistemic reasoning, logics, and decision-making choices.

Likewise, trainers can guide communicators through simulated practices of remediation by using didactic teaching methods such as "stop-and-go." With stop-and-go, trainers interrupt communicators in their simulated interactions to provide input about pragmatic factors that may be unconscious to interactants during remediation. The stop-and-go performance technique includes specifying, rewording, rephrasing, negating, correcting, or explaining troublesome utterances often done in conversational repair sequences (Zahn, 1984). Ideally, the Create Your Own Adventure training ends by debriefing with attendees about the kinds of emotions, concerns, questions, and implications that might have resulted from simulated problematic communication. This can include feedback around moderating conversations, repairing hurtful messages, responding to heightened emotions, or timing silences appropriately. Ultimately, the goal is for attendees to develop an access-consciousness perspective of their moment-to-moment communicative choices rather than presuming prescriptive, habituated insights of "doing" and "talking." This means to recognize how their own bodyminds might enter and navigate an interaction differently (even irrationally) from others *and* how to "go with the flow" when many known and unknown communication patterns emerge. I designed this workshop as a tentative toolkit for people to build empathic messages, to communicate cooperatively without defaulting to politeness, and to choose remediation if and when conflict does happen in their everyday encounters while also encouraging them to find comfort inside interactive ambiguity. It provides a deeper understanding of what needs to be accessed in order to construct communicative spaces where people can say what they want to say when they want to say it while thinking about the implications of their choices on others. Since training for affording accommodations is grossly

underdeveloped and unused in educational settings for disabled students (M. Law et al., 2007), I imagine practitioners could extend the ideas outlined here for anti-oppression and de-escalation workplace programs that aim to mitigate disability (and other kinds of) microaggressions.

Mathematizing Bodymind Sensibilities

While strides can be made for how training programs are formatted and conducted, a critical practice for remediating microaggressions and other types of problematic communication must start intrapersonally with the bodymind. It is clear now that the irrationality and indeterminacy inherent in situations begs the question, how do communicators approach social interactions differently, and what does this mean for how the bodymind could experience problematic communication? When the bodymind adopts game theory sensibilities, it is possible for pragmatic inferencing to switch from speaker-driven, belief-desire, epistemic reasoning to multi-person, choice-based, decision-making practicality (Parikh, 2019). This means that an access-conscious approach considers a contingent, partially-situated orientation to social interactions. This includes surmising the bodymind as an organic source of interactive ambiguity (González, 2000) that both contributes to the emergence of and obtains holistic, morphological, and probabilistic microaggression data. As an organic site, interactive ambiguity implies that the bodymind experiences varying manifestations of debility, capacity, disability (Puar, 2017), neurodiversity (Yergeau, 2018), emotionality (Ahmed, 2014), detection, inferencing (Blecic, 2012), truths, half-truths, falsities (Banaji & Greenwald, 2016), perception, introspection, reasoning, memory, and testimony (Satyananda, 1976/2016). Game theory principles train communicators to embody these multiplicities for broadening their

knowledge banks. What proceeds can include an unraveling of habituated and prescriptive assumptions about natural language, a hypersensitivity to contextual factors, critical self-reflexivity, consciousness-raising around known and unknown pragmatics that initiate knowledge-creation, and a calculability around what communication strategies (and their respective probability distribution) can be accessed during social interactions. The sensibilities guiding game theory turn the bodymind into its own Communication Game needing game-theoretic analysis, too.

Yogic approaches, for example, may be suitable for preparing the spiritual, emotional, mental, creative, social, sensory, and physical dimensions of the bodymind for microaggressive moments. Since communication is inherently ambiguous (Nowak, 2006), the goal of yogic approaches would be to train the bodymind to decipher the truth of what is really happening in a social interaction from that of possible experiential half-truths and falsities (Banaji & Greenwald, 2016). This can include listening to and witnessing conversations attentively to account for as much of what is happening as possible, cycling through feeling different types of heightened emotions when they surface, and/or responding to problematic messages as informed by the conditions of a situation in order to de-escalate hostility and keep the ego's defensive mechanisms at bay (Allport, 1954; Satyananda, 1976/2016). These techniques bring the bodymind closer to a clearer (but not perfected) sensibility of what hidden biases and logics might inform a speaker's intentions. According to Satyananda (1976/2016), developing such a high-degree awareness of situational truthfulness allows the bodymind to weigh each word generated in communication with the evolutionary pragmatics of an interaction. In other words, yogic approaches imbued with game theory principles can train some

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communicators to regulate their utterances during the Generation Game until they have calculated how the messages might be understood in a recipient's Interpretation Game (Parikh, 2019). Pre-calculating how intentions morph into utterances that then obtain so many meanings is necessary for sustaining cooperative communication patterns void of politeness, complicity, and microaggressive possibility, a concept known as *psychic speech* (Satyananda, 1976/2016). I imagine that embodied calculability could result in simplified, semantic lexical games (i.e., fewer situated choices) between speakers and recipients (Parikh, 2010, 2019) and more receptivity toward using communication patterns that return interactions back to cooperative spaces when misinterpretations emerge. Without this embodiment, I suspect *grim triggers* could escalate in everyday microaggressive interactions, which are outcomes that destroy any future chances communicators have of continuing a relationship with each other (Leyton-Brown & Shoham, 2008).

A final approach practitioners can consider is integrating game theory concepts with focus-oriented psychotherapy (Gendlin, 1996; Parikh, 2019). Such an experiential approach may invite communicators to excavate how their own bodymind data influence and are influenced by situational factors that inform the pre-action, interaction, and reaction to conflictive behavior in microaggressive events. Typically, focus-oriented psychotherapy guides the bodymind to recognize its ongoing relationship with the environment through *felt-sense,* which is an internal bodymind awareness or "gut feeling" often more than an emotion, first sensed somatically, and cannot always be fully articulated consciously (Gendlin, 1996). Felt-sense, like a yawn or tearfulness: (1) forms in the space between conscious and unconscious, (2) arrives as a holistic, complex, and

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ambiguous sensation in the bodymind that (3) gradually grows into consciousness, but (4)

can be explained and "devised only retrospectively" after a moment has passed (Gendlin,

1996, p. 24). Engaging in what I call a "felt-sensed, probabilistic analysis" (FSPA) of

knowledge-creation during ex-ante and interim layers of a social interaction may help

communicators choose their messages and actions as responses to each other and the

partial realities, discourses, beliefs, and histories of a situation (Jones, 2016; Leyton-

Brown & Shoham, 2008; Parikh, 2001, 2010, 2019). In practice, this may resemble

applying the equilibrium linguistics framework to the bodymind as an organic site of

microaggression inquiry. Moving the bodymind through focus-oriented psychotherapy

while analyzing its intrapersonal communication data with the **PSCIF** model may

precipitate a postdiction empirical analysis of the embedded, historical power relations

that have been (un)consciously planted inside a communicator. I speculate this

combination can explain why communicators might unintentionally choose particular

power relations during microaggressive encounters, something methods such as de-

colonial autoethnography (Kamboureli, 2008) or systematic self-observation (Rodriguez

& Ryave, 2002) have informally described. For example, when a perpetrator makes an

unconscious microaggressive utterance, FSPA could trigger the communicator to reflect

on why they generated a message that calculably implies a microaggression so that they

may self-repair more often. If not, this experiential approach could encourage recipients

who hesitate to other-repair to instead create new communication strategies out of a

desire to cooperate (Zahn, 1984) since a response of silence often makes recipients feel as

though they have to risk a label of "overly-sensitive," "angry," or "confused" in order to

save face for perpetrators (Sue, 2015; Tsuda, 1983). FSPA can offer calculable (and

critically self-reflexive) understandings of how centuries of power relations inform contemporary, tentative manifestations of microaggressive behavior in interactions.

"Limitations": The Unfinished Gameplays

Before ending this chapter, I address some "limitations" of this study. I do not imagine this space as the study's weaknesses, per se. Rather, I inspect where the analytic calibrations of this study stopped short and, therefore, could extend as more research in this area is conducted. Much like how grandmasters imagine and conjecture the unfinished gameplays of their chess pieces after the king has fallen, this section speculates where a game-theoretic analysis of disability microaggressions presents a discontinuation in the overall understanding the phenomenon. It suggests some trajectories for tinkering and cultivating more knowledge. I discuss: (1) exploring new data collection methods, (2) diving deeper into irrationality by using evolutionary games, and (3) revisiting microaggression problems that may be more closely associated with nonverbal ambiguity.

Exploring New Data Collection Methods

A vital space in this project that warrants examination for possible reimagination is data collection. A main struggle I faced conducting this research was relying on a hodgepodge of conversation and discourse analytic data collection procedures to procure naturally emergent data from social interactions. These procedures, while feasible, did not fully answer the questions that initially guided my data collection (What does microaggression data look like? How do I capture a naturally occurring microaggression? What factors are important for increasing the likelihood of encountering a microaggression?). While fieldwork was helpful for observing online videoconferencing

platforms (such as Zoom) and face-to-face interactions, I found it difficult to know when and how to capture holistically an emergent microaggression, even with audio and video recordings. At times, it felt as if I lucked out procuring data. This is to say that the bane of doing this research lies in registering and gathering data of microaggressive encounters (i.e., being in the right place at the right time) so that any subsequent analytic examination extends beyond theorization and actually does something for the communities that would best benefit from its practical applications.

Most extent research turns to retrospective sensemaking for narrating hypothetical scenarios of what had happened in a microaggressive moment (Thurber & DiAngelo, 2017). Unfortunately, these accounts are often partial, incomplete, and one-sided since memory filters and selects what data were key for the retelling (i.e., these scenarios neglect data that describe pragmatic entry-points vital for understanding the entirety of an interaction). Thus, researchers should explore new data collection procedures that conjoin with game-theoretic analytic procedures for experiencing (and preferably preventing) naturally emergent microaggressive encounters. Such procedures should capture prospective textual and contextual factors (e.g., high and low structural power, proself and prosocial motivational orientation, or present and absent tacit knowledge), varying moments of interaction (ex-ante, interim, or ex-post layers) and retrospective variables including distributive, suboptimal, optimal, or impasse outcomes (Smith et al., 2005). Ideally, these procedures would then be integrated into experimental designs aimed at capturing the morphological and probabilistic components of microaggressive data.

One suggestion for advancing game-theoretic data collection procedures is via public video recording technology that can act as a "microaggressive barometer." In

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recent years, public video recordings have made racist, sexist, heterosexist, and ableist microaggressive acts more transparent to the public so that perpetrators can be held accountable for their words and actions (Treisman, 2021). Some video recording methods connected to social media platforms (such as TikTok) might do well to capture overt microaggressive encounters—such as when assailants cough on others during the COVID-19 pandemic and invalidate immunocompromised people's experiences by uttering, "I don't need to have [a mask] on, I'm not sick and neither are you" (Rehman, 2021). However, it is far more difficult to procure covert microaggressions (microinsults or microinvalidations) since registering these types of messages is subconscious to witnesses and recipients (Sue, 2010). Scientists could invest in developing context-sensitive instruments that begin recording public interactions when possible intrapersonal, interpersonal, and environmental pragmatic factors indicate the likelihood of a microaggressive moment. Of course, there is no guarantee such technology can record realistic scenarios (instead of premeditated public acting performances) or can fully capture context leading up to a microaggressive moment. Further, while video recording public interactions would be ideal, such technology can be highly volatile, infeasible, and an extreme violation of privacy and law-breaking. As such, this method of data collection may propose new ethical considerations for the way IRBs account for how researchers study people in natural settings.

Investigating Irrationality with Evolutionary Games

A second point needing deeper examination is how irrational communicative behavior affects analysis of microaggressive encounters. In general, most communicators don't need to solve games every time they interact with each other because they follow

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rational communicative behaviors (Parikh, 2019). Previous experiences generate stored

sets of solutions in a communicator's knowledge banks for them to access when they

interact with others. Hence, a person may only need to approximate what they should do

when interacting with others who randomize their own communication strategies (i.e.,

use mixed communication strategies) by turning to already established rules and scripts

of how to organize conversation (Leyton-Brown & Shoham, 2008; McLaughlin, 1984;

Parikh, 2019; Shimanoff, 1980). Rationality, essentially, reduces the number of games

communicators have to figure out and thereby reduces the complexity of inferences

involved (Parikh, 2019). The intentional, game-theoretic methodology proposed

throughout this project presumes rationality as a primary guiding principle for analysis

(with a nod to some irrationality). However, how might communicators solve games

when they encounter people who, for example, unapologetically display overt, antisocial

behaviors that cannot be explained by assumptions of rationality? Disability and

neurodiversity[20] pave a trajectory for considering new ways to solve games when

irrationality is fundamental to the construction of the social interaction where a

microaggression can naturally emerge (McRuer, 2006; Parikh, 2019; Puar, 2017).

Interacting with irrational-behaving communicators garners a set of curious obstacles.

      For starters, irrationality affects how to assess the *values*, or calculated probability

distributions and payoffs, for semantic (and syntactic) elements of problematic utterances

like "Jeremy is an inspiration." This is because the actual value of a probability

distribution or payoff relies on what pragmatic factors each communicator can access at

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[20] This can include any number of disabilities, varying capacities or debilities when perceiving, remember, or inferring communicative factors, or partial understandings of how to calculate and connect each element in a communicative sequence to other elements such as contexts, discourses, and histories.

any given moment of an interaction. Further, the word "value" here assumes that communicators are interacting in perfectly rational ways (Parikh, 2019), which is rarely the case in microaggressive incidents where heightened emotions might dictate what is being said and done (Sue, 2010, 2015, 2017). What then should be used to evaluate how communicators access contextually-appropriate information when interacting in irrational ways during a situation? Parikh (2019) speculated investigating how communicators frame messages composed of partial information. *Framing* is typically defined as a cognitive process; in communication scholarship, it is a way of organizing or structuring mental images to be communicated through a speech act (Fairhurst, 2011). In other words, calculating the value of probability distributions and payoffs for microaggressions would require examining what drives communicators to couch their messages in ways that reflect unreasonable, illogical, or unconscious behavior. One option for scrutiny might be to evaluate probability distributions and payoffs by expanding the equilibrium linguistics framework to include the two new previously mentioned sub-constraints of relevance and distance (Parikh, 2019). Nonetheless, social scientists should begin inspecting how communicators weigh each other's imperfections, disabilities, abnormalities, irrationalities, and/or egocentricities when interacting in order to accurately calculate values in microaggressive incidents.

Additionally, irrationality affects the way communicators access the properties, *P*, and relations, *R*, of the conventional constraint, **C**, when interacting with microaggressions. Many conventional (denotative) meanings that communicators use often equate to contextually fixed properties (Parikh, 2010, 2019), which are then used to acquire referential (connotative) meanings. The **PSCIF** model of micro-semantics—the

same model used for this project's game-theoretic methodology—assumes communicator rationality, grammar, language, and a situational ontology of the interaction (Parikh, 2019). However, the presence of irrational communicative behavior could lead to an inaccurate description of words and phrases in an expressed utterance, which can complicate an understanding of what types of meanings conjoin to assemble a possible microaggression. Usually when communicators interact, they recall fewer conventional meanings when contemplating and enumerating alternative dictionary definitions for a word, making games readily solvable in real time (Parikh, 2019). However, subtle shifts in discursive or historical contexts, combined with irrationality, can cultivate an interactional space where conventional meanings differ from communicator to communicator based on how their personal experiences relate to large-scale cultural changes. This morphs the properties and relations that build the content of a potential microaggressive message, making both recognition and analysis of these moments at a micro-semantic level far more complex. Parikh (2010) suggested examining etymological roots of words and constructing an explicit model of the society-wide, macro-semantics game for analyzing how subtle shifts in textual meanings connect to broad discourses when interactive irrationality is present during microaggressive encounters.

One comprehensive possibility for examining irrationality in microaggressive encounters and other problematic communication is a move towards evolutionary game theory analysis. Behavioral choice theory, or *evolutionary game theory*, considers how communicators act randomly (rather than rationally) when interacting with each other (Nowak, 2006). In evolutionary games, cooperation rises from the behavioral economics of an interaction; thus, communicators work with *framed, partial information*, which

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presumes irrationality (or partial rationality) as a guiding principle for content selection, utterance construction, and message interpretation—a nuance Grice had missed in his original theorization (Parikh, 2019). A specific tool useful for building a model that examines textual-discursive connections and enumerates probabilities for communicators is called a connected graph. Mathematicians often use stochastic models called *connected graphs* to represent social interactions as networks of communication (Nowak, 2006). For example, consider a disability microaggressive interaction where irrational communication is highly present, illustrated in Figure 8. The vertices (dots) of a connected graph represent communicators in a microaggressive moment and the edges (double arrows) depict the evolution of various types of cooperative and competitive communication strategies used over time.
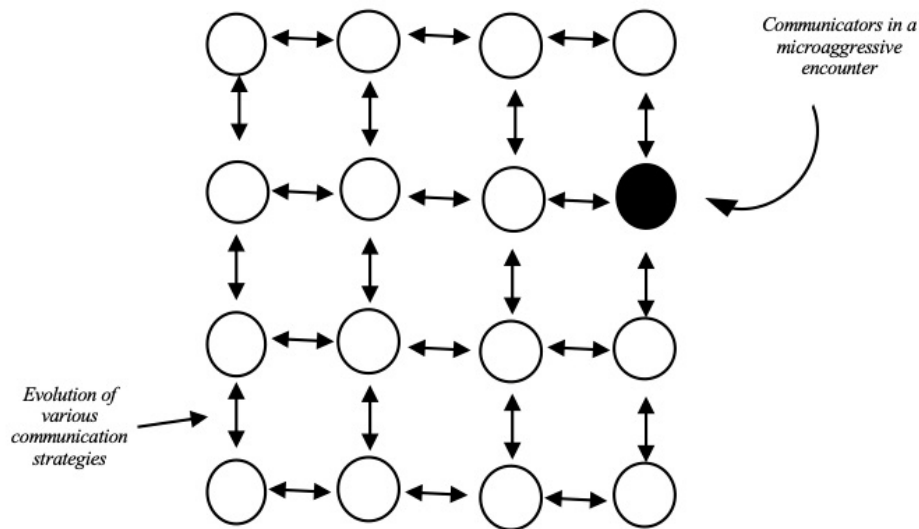
Figure 8 Evolutionary Game in the form of a Connected Graph to show the evolution of various (partially rational) communication strategies

Connected graphs can be useful for explaining (and predicting) how communicators interact in irrational ways over time and spread microaggressive communication. Specifically, these kinds of games show how framed, partial information circulates from vertex to vertex (person to person) and can influence shifts in conventional meanings defined by discursive and cultural changes (Nowak, 2006). By drawing on situation theory (Barwise & Perry, 1983), evolutionary games can then be used to compute precise values that differentiate what referential meanings a communicator knows (e.g., the implicature σ_6 = *He deserves praise for enduring the torturous experience of living with a disability*) or doesn't know but could (e.g., the empty implicature $\sigma_6' = \{empty\}$) depending on ever-shifting conventional meanings. Any enumerated values of payoffs and probability distributions from evolutionary games would determine which communication strategies reproduce faster and eventually outperform worse strategies (Lanchier, 2017; Nowak, 2006), showing how a microaggression emerges and evolves under assumptions of irrationality. This may be a stronger measure than the **PSCIF** model used as part of the current study's analysis for predicting a communicator's interactive behavior when they generate and interpret utterances. Of course, this might not yield accurate results or even a holistic view of how communicators decide what information is relevant since calculations might still come from normative Setting and Content Selection Games (Parikh, 2019). Communication scholars and other researchers can explore this trajectory further.

Revisiting and Extending Game Theory to Nonverbal Analysis

A final aspect that deserves scholarly attention is revisiting the methodology used throughout this study and extending it to include a nonverbal analysis of

microaggressions and other problematic communication. I discuss three places in the current methodology that scientists can examine closer: (1) syntactic ambiguity, (2) phonetic ambiguity, and (3) environmental ambiguity.

Syntactic Ambiguity of Microaggressions

First, this study did not explore analysis that pertains to what happens when a microaggression has syntactic ambiguity. Some ableist epithets and words can act as nouns, verbs, or adjectives when spoken (e.g., retard, blind, handicap, to name a few). Take the utterance, "I saw her spaz!" as an example. As a verb, the word, "spaz," in this utterance can act as a contraction for the full phrase "spaz out," which means to lose physical or emotional control ("I saw her spaz [out]"). As a noun, the word, "spaz," can be a shortened version of the word, "spastic," which refers to either a muscle spasm or to "an incompetent, uncoordinated person" ("I saw her [spastic relative]"). Either way, the word "spaz" is syntactically ambiguous and acts to perpetuate the stigmatization of a person with cerebral palsy. Unlike the utterance, "Jeremy is an inspiration," in chapter four, "I saw her spaz!" would require a deeper consideration of counterfactual situations in its few syntactic lexical games for understanding how layers of semantic meanings codetermine and circularly obtain syntax (Parikh, 2010). In theory, the **S** constraint can supposedly generate many possible parse trees in isolation (unconsciously) and evict unwanted ones; however, in practice, communicators do not always seem capable of discarding extras during the Generation or Interpretation Game since the task is unconscious and would be too costly to the interaction (Parikh, 2010). While the equilibrium linguistics framework can analyze syntactic ambiguity alongside other constraints for optimizing which parse trees to use (Parikh, 2019), what remains to be

examined closely is how syntactic ambiguity in microaggressive encounters influences: (1) how semantic and pragmatic games are solved and (2) how that might affect conversational repair responses.

Phonetic Ambiguity of Microaggressions

Second, this study did not attend to the phonetic/phonological constraint, **P**, in detail. This constraint analyzes utterance situations where ambiguous speech waves are possible, as might be the case when a D/deaf person receives the disability microaggression, "Oh, you're deaf?" but interprets it as "Oh, your death," leaving the recipient unsettled. Phonetic ambiguity could easily be placed into a game-theoretic analysis of a disability microaggression prior to examining syntactic lexical games (Parikh, 2019). Nonetheless, this constraint might require a deeper inspection of its complexities in relation to the other constraints in the **PSCIF** model of micro-semantics, especially if game theory were to be extended for understanding translation work during problematic inter/cultural communication exchanges. Suppose an English-speaking communicator wanted to translate an utterance φ from their source language $\mathcal{L}$ into an utterance φ' of a target language $\mathcal{L}'$, such as Spanish. Parikh (2019) described how the equilibrium linguistics framework can precisely calculate this process, noting how the distance sub-constraint can be used to approximate a set of possible semantic meanings that extend from one language to another. However, some words and meanings do not (and sometimes cannot) translate well to another language. For example, the past perfective (preterit) tense for the Spanish word *poder* ("can," or "be able to") can trigger multiple ambiguous implicatures in an utterance unlike its French, Hindi, or Greek counterparts which might produce fewer implicatures in the past perfective tense

(Vallejo, 2017). Depending on the remaining words and phrases, *poder* can produce layers of ambiguity in a Spanish utterance. For example, Vallejo (2017) noted how expressing, "Juan pudo coger el bus pero no quiso" can translate to "Juan can [could] take the bus but not want to" or "Juan was able to take the bus but he didn't want to" (p. 45). A game-theoretic analysis can certainly extend to microaggressions in intercultural communication exchanges; however, the mathematical apparatus has analytic "holes" when examining how some translated meanings tie to words in another language and how phonetic mispronunciations may lead to difficulties solving a Communication Game (Parikh, 2019). This is an essential area to expand for explaining what happens during microaggressive moments where language barriers dictate the various pragmatic possibilities that could emerge.

Environmental Ambiguity of Microaggressions

Lastly, one type of microaggression that has been understudied in extant literature and could be scrutinized further with game theory is the environmental microaggression (Torino et al., 2019). *Environmental microaggressions* refer to "the numerous demeaning and threatening social, educational, political, or economic cues that are communicated individually, institutionally, or societally to marginalized groups" (Sue, 2010, p. 25). These systemic, everyday types of microaggressions are layered, cumulative, unconscious, and often far more temporal-spatial, visual, or nonverbal than verbalized microaggressions (Pérez Huber & Solórzano, 2015b). For example, they can emerge as tokenized representations of disabled people in the workplace or academy (Block et al., 2016; Hutcheon & Wolbring, 2012), philosophies such as "level the playing field" or "one-size-fits-all" (Hibbs & Pothier, 2006; Townsend, 2006), mascots or

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international symbols of access (Ben-Moshe & Powell, 2007; Torino et al., 2019),

inaccessible settings, spaces, and places (Keller & Galgay, 2010; McRuer, 2006),

inaccurate or stereotypical media portrayals in film, television, radio, or books (Johanssen

& Garrisi, 2020; Pierce et al., 1978), or as a lack of assistive technologies such as

listening devices or screen readers (Greenemeier, 2015; Kim et al., 2016; Pereira, 2011).

One conversational excerpt I collected of a publicly-recorded, faculty senate meeting held

at a Midwestern university illustrates the natural emergence of an environmental

microaggression assailing disabled attendees who could not access closed-captioning or

Zoom polling with their screen readers. At one point, notetaker Finn[21] interrupted the

host Eastyn from their primary talking points to explain the screen reader issue many

attendees were discussing in the Zoom meeting chat box. Eastyn, Finn, Gentry, and

Harley commenced the following conversation:

[1:33:55] Finn:	Okay, Eastyn, I need to interrupt here. We have, um, a motion to suspend the meeting until accessibility issues have been addressed. Um, there is a screen reader that is not, um, working, um, for some of our members, um, so this is—this is the motion, um, that is being presented at this time…I think—I think it's…it's an important enough issue, um, where I felt it was okay to interrupt during, um, this particular, um, discussion. I just waited until you didn't have someone who had the floor.
[1:34:30] Eastyn:	Yep, I understand. Um, so, we need to take a look at this motion. Finn, I'll ask you to read what the motion is and then Harley will put forth a ballot as to whether two-thirds of the people who are voting believe we should take on a vote on this motion.
[1:35:14] Gentry:	—So, so, somebody is asking whether—whether there is another way to capture those votes.
[1:35:26] Eastyn:	And we need a motion, we need a second, and we'll need to discuss it.
[1:35:32] Finn:	All motions from the floor actually require a two-thirds—two-thirds vote from our—based on our rules.
[1:35:40] Eastyn:	Right. Before we even discuss it.

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[21] Names have been changed to pseudonyms for the purposes of confidentiality and anonymity.

[1:35:52] Gentry:	There is one [motion I see in the chat], "I move to close this meeting until accessibility issues have been addressed."
[1:35:57] Finn:	Okay.
[1:36:00] Eastyn:	I'm only hesitating because I want to make sure I understand what the accessibility issues are, but I guess we bring forth the motion, uh, two-thirds—if two-thirds believe we should discuss it then we will, uh, put the motion forth, so…. Harley, go ahead and put forth—the decision that you're [all] voting on now is whether or not we should stop now to vote on a motion regarding suspending the meeting due to accessibility issues.
[1:36:30] Harley:	Okay.
[*Long pause…]*	
[1:38:17] Gentry:	While their voting, maybe a question to the IT: so, is there a way to capture the votes of people who have, uh, screen readers?
[1:38: 27] Finn:	I don't think there should be conversation while the votes are taking place.
[*Long pause…]*	
[1:40:14] Harley:	Alright, the, um, motion to suspend the meeting has 816 votes in favor, 928 against, and 291 abstentions. Uh, so, it does not pass.
[1:40:22] Eastyn:	Thank you, Harley. We will return to motion number five…

As this excerpt shows, no overt microaggression was stated, yet it is clear that communicators interacted through organizational procedures in a way that discriminated against disabled people. In most cases with verbal microaggressions, equilibrium linguistics can be used to clearly identify syntax, semantics, and pragmatics in words, phrases, and utterance sentences (Parikh, 2019). However, this is not the case with environmental microaggressions, or other continuous symbol systems such as images or gestures, where syntax is absent and semantic meanings are rife. "The main challenge here is how to either handle a continuous space directly or to convert the continuous space into a discrete one. Of course, the counterparts of illocutionary meanings also need to be considered." (Parikh, 2010, p. 301). In other words, without syntax, how do researchers calculate alternative intentions, their messages, and any possible visual, aural, or gestural implicatures that might emerge and imply the presence of an environmental

microaggression (Parikh, 2001)? Scientists should consider applying the equilibrium

linguistics framework to other symbol systems or actions (Parikh, 2019) or bridge the

framework with *coalitional game theory*, which examines group communicative actions

in light of individual preferences (Leyton-Brown & Shoham, 2008), for advancing

understanding of the ambiguity inherent in environmental microaggressions.

Checkmate: A Conclusion and Invitation to Being in Ambiguity

The use of a conclusion here suggests finality and solvency toward this problem.

Yet, this is a transitory space. Like the morphological and probabilistic data of a

microaggression, the knowledge and understanding that comes from investigating this

phenomenon is both beginningless and endless (Satyananda, 1976/2016). I do not know

where microaggression or communication research can or should go based on the

musings outlined in this study. It is my desire that the intentional, game-theoretic

methodology of this dissertation—along with its implications, applications, and

"limitations"—generates a speculative steppingstone towards the kind of practical

wisdom that is needed for transforming the way people perceive, talk, and do

communication in everyday spaces so that there can finally be better interactions with

both good beginnings and endings. This research intends for more attentive, access-

conscious approaches for navigating interactions that propagate psychological or mental

distress (or even macroaggressions) from these slights (Sue, 2010, 2015, 2017; Torino et

al., 2019). The goal is to untangle and stretch perspectives around the power relations that

occur in daily interactions so that communicators can move towards repair, build

empathy, and choose forgiveness if and when conflict does arise.

I invite scholars, practitioners, and everyday communicators to experience the discomfort that comes with being in, interacting with, and tumbling through the ambiguity of microaggressive communication. I realize this difficulty. However, letting the bodymind experience discomfort when communicating can eventually permit a starting point for processing the types of solutions needed for navigating interactive ambiguity in more tangible ways. This study suggests some tools for encouraging a cognizant experience of discomfort for communities needing a problem-solution approach to disambiguate multiple meanings in harmful communicative talk. I encourage readers to embrace vulnerability, compassion, and critical self-reflexivity when journeying through this project. An open heart, perspective, and bodymind sensibility can lead to a transformative orientation. Perhaps this includes avoiding destructive self-judgments when wrongly perceiving communicative behavior as microaggressive, expressing responses of empowerment during uncomfortable confrontations, or accepting vulnerable feedback when unconscious communication patterns leave offensive emotional residue on others (Thurber & DiAngelo, 2017). Being attentive to one's own fallibility during these encounters is a necessity for diminishing microaggressions. Navigating positions of power should feel uncomfortable because it can provide more accountability of what is happening and how to instigate remediation. It is okay to mess up; it paves a way to become a better communicator in all facets of life.

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APPENDIX A

FIELD WORK NOTES AND ACCOUNTS

Figure A.1: Page 1 of a condensed account of fieldnotes

July 13th, 2020 - Field Notes - School Board Meeting

50:54   TM - <pointed to LB wearing a face shield> disgruntled?
pointed? Condescending tone? "We have these as an
option"

57:00   Dr. H → spoke to → A (blond hair) — "Holiday Inn Exp[...]

✱ 1:06:49 [NT] → "My son has cerebral   Why was this
-1:08:56   palsy and cannot breathe behind a   addresse[...]
                   mask. What is he supposed to do?"

How to   ⤷ Definitely addressing barriers and
tell if its   accommodation of mask w/ the disabled
the cold/covid   body → what discourse or structure
related symptoms?   does this refer to? Another microaggress[...]
w/ CP and seizures?   perhaps?
Will they make everyone
          quarantine?
"We keep him healthy"   1:10:18 - [SS]   Brings up how everyone is
                        1:11:16   touching their face masks — how
                                         is that to prevent spread of
what's   germs??? "special needs"
the
relationship 1:23 -1:33 - School board members   derogatory
to illness/   term
wellness?   Chime/tune in A ←→ Dr. H go back   brought
who gets to   and forth about the mask mandate.   again
diagnose or decide? "mask/shields don't cure the virus" — cure politics
who is quarantining?   again
              1:44:30 - 1:45   "Social, emotional toll" ← brings in emotion
              1:47:50+   "Back to normal isn't happening" diversions of
                                                            disability
                        ⤷ spoken by vice principal MR. SW

              1:55:50 — RR - school board member - smiles, chuckles

SS and   → "We are doing the mandate regardless. We've made
wife "shocked" expressions   the decision before tonight" ← why voice
                                                               opinions?
           → 1:56:33 - TM — "Nothing about this is normal"   then
How does this
speak to normality/abnormality?

              2:00:00 +   Transition into other items on the school board agenda
                        < crowded hall and other opinionated people leave >
                        < A few shouting, others throw hands in the air, others
                        leave in silence >

                        ②

Figure A.2: Page 2 of a condensed account of fieldnotes

July 14th, 2020   7/4/2020

A few days before the school board
meeting ~~[redacted]~~ posted to Facebook saying
how they opposed the mask mandate. The
letter they posted was full of disinformation.
"We would like to make a case today that
the choice for mandatory masks to be worn
by all students is neither supported by
statistical evidence nor competing scientific
literature." Except most of the sources
he used in his creation of the letter include
information that supports mask wearing if you
were to closely read the contexts of the study.
The only line I really saw that alluded
to disabilities was "Universal face
covering use is not always possible in school
settings for many reasons. Some students, or
staff, may be unable to safely wear a
cloth face covering because of certain
medical conditions (eg., developmental,
respiratory, tactile aversion, or other conditions)
or may be uncomfortable, making the
consistent use of cloth face coverings
throughout the day challenging." The
use of disabilities and the word "challenging"
are key to understand how barriers are
connected with disability and accessibility.
His post was liked 98 times, shared 173
times, and commented on 39 times, all by those
who agree with this idea. I felt angry
because it hinted at ableism.

①

Figure A.3: Page 1 of a fieldwork journal entry

199

The school board meeting was set for two hours. It lasted for 3 hours. The eight school board members heard the opinions of teachers and bus drivers and doctors/physicians. I remember how adament they argued their points. Especially ~~[crossed out]~~ who had an underlying condition as a band teacher. ~~[crossed out]~~ argued his points in a room of 40-50 people (some standing in the crowded, narrow hall). ~~[crossed out]~~ was hesitant, made the remark, "I'm clearly in the minorited opinion category tonight" or something of that degree and I just screamed inside. How much me did not understand his anti-mask, white privilege. He spoke for a bit. He mentioned that the masks would "take away my rights from me." I wonder how this can be coded as a microaggression where psychiatric disabled people had their rights taken from them.

A lot of back and forth arguing happened. Some shouting. Some with "polite" or civil dialog (calm tones, "welcoming" gestures, smiles). I heard "no cure" for the COVID-19 virus and disease and that reminded me of the cure politics of Eli Clare. ~~[crossed out]~~ was the one that re-ignited the conversation after ~~[crossed out]~~ comments. She had spoken about her son with cerebral palsy (who has seizures). A microaggression was definitely occurring here. "We keep him healthy!" How do they distinguish

③

Figure A.4: Page 2 of a fieldwork journal entry

between flu/cold/COVID-19 symptoms? Who gets to quarantine? Who gets to decide? How will they do contact-tracing? All of this is so new and unusual for us. I hear that the "new normal" is being expressed by both parties for and against the mask. There tones and expressions worrisome. Both trying to solve for the issue. ~~RP~~ makes the comment that masks mandates for the school district have already been decided. Everyone leaves soon after either angry, discouraged, bitter, or quiet. It's clear no one is really happy.

I ask ~~XXX~~ what was said to her at the meeting that got her upset and frazzled. She felt that over the years the school has not considered her son's needs and that the mask mandate was making things worse. That it didnot matter if anyone spoke up since the school board already made their decision two weeks ago. She felt her rights as a parent were being taken away (and she did not know how to protect her child while also considering his disability and his seizures). He's experienced 7 years of sickness.

There is a microaggression here. But it is not as visible or knowable. Perhaps it is disease or environmental. Am I looking in the right place? What led to this moment? What contributed to this? This is a good place to start.

③

Figure A.5: Page 3 of a fieldwork journal entry

APPENDIX B

COVER LETTER

Hello,

My name is Corey Reutlinger, and I am a doctoral student in the Hugh Downs School of Human Communication working under the direction of Dr. Sarah Amira de la Garza (delagarza@asu.edu). I am conducting a research study to understand how segments of public everyday conversations may contribute to the creation of disability microaggressions.

I am seeking your verbal consent to audio record and take notes on my observations of the interactions in this meeting, which may include interactions in which you are involved (you must be 18 and older to consent). My notes will be used to help me remember nonverbal elements of the interaction that I might use in my analysis. I will be looking for examples of interactions useable for my research. At no time will I use the actual names, locations, recognizable features, or other identifying information that could tie you to the samples of interaction I might choose for my analysis. If you do not verbally consent to being recorded, any portions of the recording in which you are involved will be erased. Many of recorded interactions will not include samples I can use in my research, and in that case, the recordings will be deleted immediately.

The recordings that include the samples I choose for analysis will be kept in a locked storage space in a secure location and will be kept for three (3) years or until the study is complete, whichever is earliest. At that time, the recordings will be erased. Written transcriptions of short segments of the interaction may be used in written publications and presentations.

There is no monetary benefit or other type of compensation for this study. Risks associated with this project are minimal. Potential benefits may include increased awareness of your interaction.

If you have any questions concerning the study, please contact me at creutlin@asu.edu.

Thank you,
Corey Reutlinger
creutlin@asu.edu

APPENDIX C

LEXICAL GAMES FOR "JEREMY IS AN INSPIRATION"

s_1' φ_1 r_1' t_1

□————φ_1———→○——————t_1——————— (b_A, b_B)

$p_1' = 1$

s_1' "JEREMY" r_1' $[_{NP} [_{Noun} \text{JEREMY}]]$

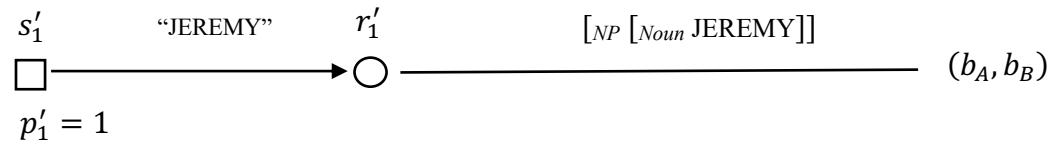□————"JEREMY"———→○——————$[_{NP} [_{Noun} \text{JEREMY}]]$—————— (b_A, b_B)

$p_1' = 1$

Figure C.1.syn: Syntactic lexical game g_1'

Read C.1.syn. as:
Real situation s_1':
- Step 1: Game begins, Avery's turn (square □).
  - s_1' : initial utterance situation where Avery transmits "Jeremy" as a noun.
  - p_1' : conditional probability that Avery transmits "Jeremy" as a noun, which is 1.
  - $\varphi_1 \rightarrow$: Avery utters $\varphi_1 = $ JEREMY.
- Step 2: Bailey's turn, (circle ○).
  - r_1' : resulting situation where Bailey interprets "Jeremy" as a noun.
  - $t_1 \rightarrow$: Bailey interprets $\varphi_1 = $ JEREMY as parse $t_1 = [_{NP} [_{Noun} \text{JEREMY}]]$.
  - (b_A, b_B) : payoffs for clear communication (transmission = interpretation).

NOTE 1: $s_1 + s_{1'} = s_1'$ (from Figure C.1.sem).
NOTE 2: $r_1 + r_{1'} = r_1'$ (from Figure C.1.sem).
NOTE 3: $p_1 + p_{1'} = p_1' = 1$ (from Figure C.1.sem).
NOTE 4: Transmission: unconscious construction of information.
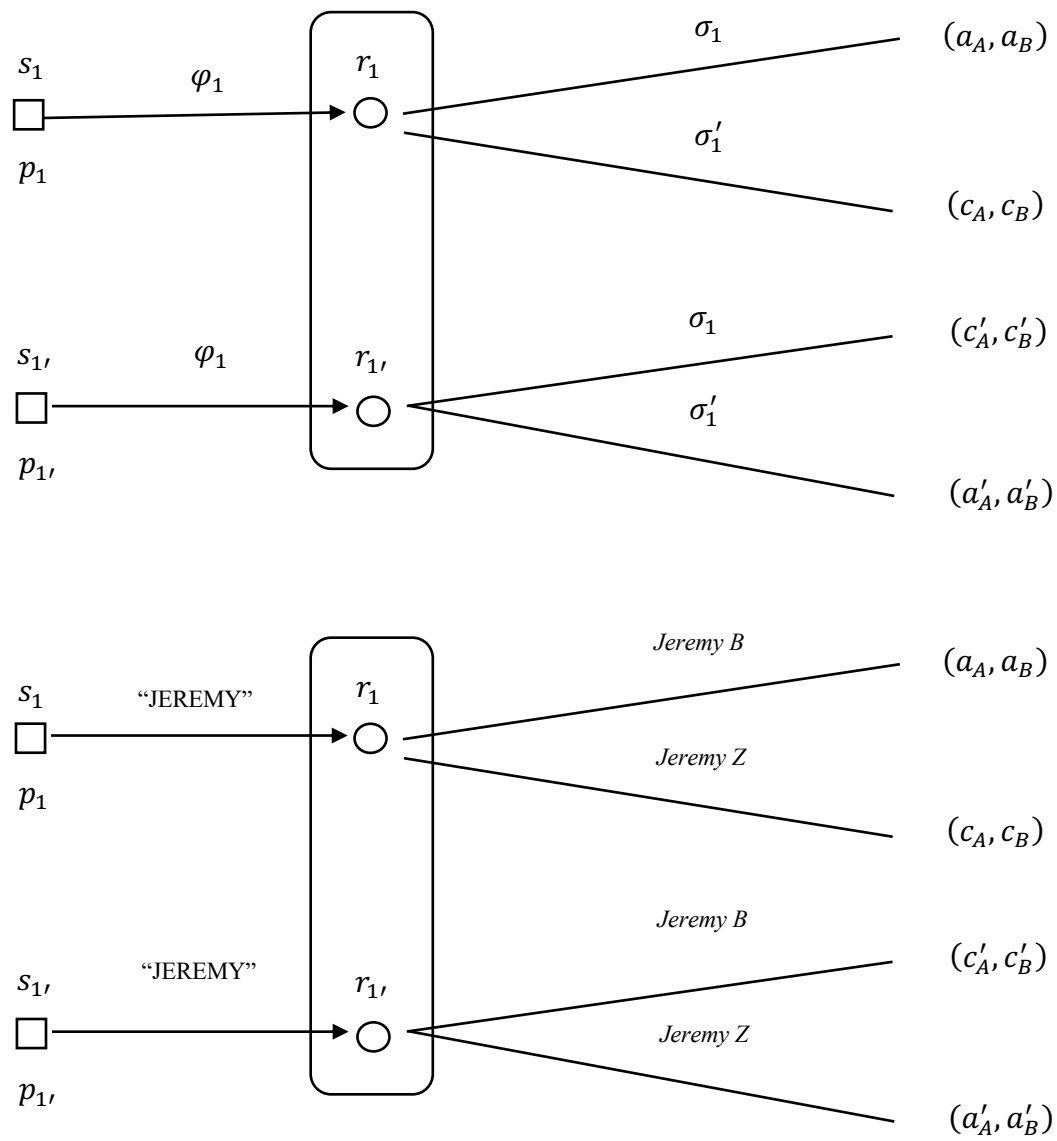
Figure C.1.sem: Semantic lexical game g_1

Read C.1.sem. as:

1. **Real situation s_1 (top)**:
    - Step 1: Game begins, Avery's turn (square □).
        - s_1 : initial utterance situation where Avery intends to convey σ_1 = *Jeremy B*.
        - p_1 : conditional probability that Avery conveys σ_1 = *Jeremy B*.
        - $\varphi_1 \rightarrow$: Avery utters φ_1 = JEREMY.
    - Step 2: Bailey's turn, (circle ○).
        - r_1 : resulting situation where Bailey interprets φ_1 = JEREMY.
        - $\sigma_1 \rightarrow$: Bailey interprets φ_1 = JEREMY as σ_1 = *Jeremy B*.
        - $\sigma_1' \rightarrow$: Bailey interprets φ_1 = JEREMY as σ_1' = *Jeremy Z*.
        - (a_A, a_B) : payoffs for clear communication (intention = interpretation).
        - (c_A, c_B) : payoffs for miscommunication (intention ≠ interpretation).
            - $a_A > c_A$ and $a_B > c_B$

2. **Alternative situation $s_{1'}$ (bottom)**:
    - Step 1: Game begins, Avery's turn (square □).
        - $s_{1'}$: initial utterance situation where Avery intends to convey σ_1' = *Jeremy Z*.
        - $p_{1'}$: conditional probability that Avery conveys σ_1' = *Jeremy Z*.
        - $\varphi_1 \rightarrow$: Avery utters φ_1 = JEREMY.
    - Step 2: Bailey's turn, (circle ○).
        - $r_{1'}$: resulting situation where Bailey interprets φ_1 = JEREMY.
        - $\sigma_1 \rightarrow$: Bailey interprets φ_1 = JEREMY as σ_1 = *Jeremy B*.
        - $\sigma_1' \rightarrow$: Bailey interprets φ_1 = JEREMY as σ_1' = *Jeremy Z*.
        - (c_A', c_B') : payoffs for miscommunication (intention ≠ interpretation).
        - (a_A', a_B') : payoffs for clear communication (intention = interpretation).
            - $a_A' > c_A'$ and $a_B' > c_B'$

NOTE 1: $p_1 + p_{1'} = 1$.
NOTE 2: oval ⬭ : information/knowledge set.
NOTE 3: Intention: conscious or subconscious construction of information.

s_2' φ_2 r_2' t_2

$\square$———————→$\bigcirc$———————————— (b_A, b_B)

$p_2' = 1$

s_2' "IS" r_2' $[_{VP} [_V \text{IS}]]$

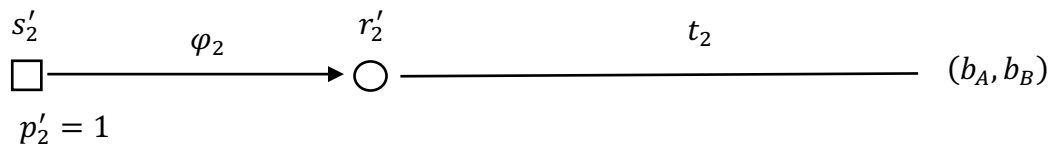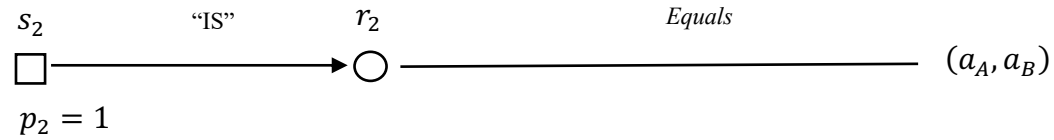$\square$———————→$\bigcirc$———————————— (b_A, b_B)

$p_2' = 1$

Figure C.2.syn: Syntactic lexical game g_2'

Read C.2.syn. as:
Real situation s_2':
- Step 1: Game begins, Avery's turn (square $\square$).
  - s_2' : initial utterance situation where Avery transmits "is" as a verb.
  - p_2' : conditional probability that Avery transmits "is" as a verb, which is 1.
  - $\varphi_2 \rightarrow$: Avery utters φ_2 = IS.
- Step 2: Bailey's turn, (circle $\bigcirc$).
  - r_2' : resulting situation where Bailey interprets "is" as a verb.
  - $t_2 \rightarrow$: Bailey interprets φ_2 = IS as parse $t_2 = [_{VP} [_V \text{IS}]]$.
  - (b_A, b_B) : payoffs for clear communication (transmission = interpretation).
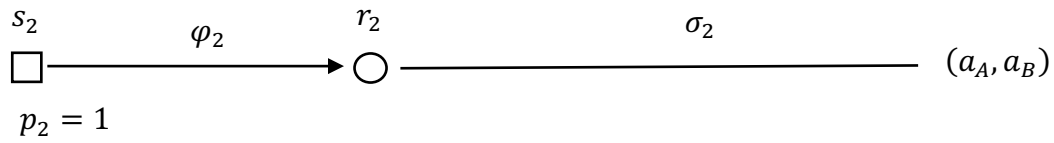**NOTE 1:** Transmission: unconscious construction of information.

s_2 φ_2 r_2 σ_2 (a_A, a_B)

$p_2 = 1$

s_2 "IS" r_2 *Equals* (a_A, a_B)

$p_2 = 1$

Figure C.2.sem: Semantic lexical game g_2

Read C.2.sem. as:

Real situation s_2:
- Step 1: Game begins, Avery's turn (square □).
  - s_2 : initial utterance situation where Avery intends to convey σ_2 = *Equals*.
  - p_2 : conditional probability that Avery conveys σ_2 = *Equals*, which is 1.
  - $\varphi_2 \rightarrow$: Avery utters φ_2 = IS.
- Step 2: Bailey's turn, (circle ○).
  - r_2: resulting situation where Bailey interprets φ_2 = "is."
  - $\sigma_2 \rightarrow$: Bailey interprets φ_2 = IS as σ_2 = *Equals*.
  - (a_A, a_B) : payoffs for clear communication (intention = interpretation).

NOTE 1: Intention: conscious or subconscious construction of information.
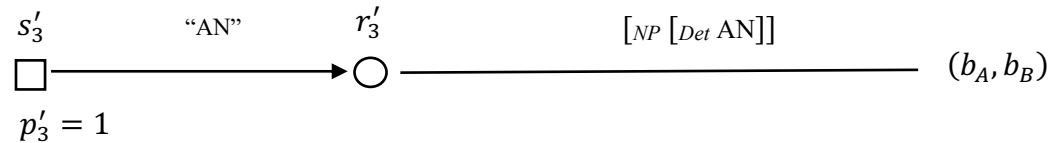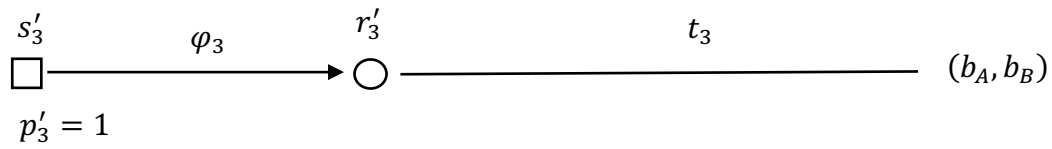
$$s_3' \qquad \varphi_3 \qquad r_3' \qquad t_3$$

□————————————→○ ——————————————— (b_A, b_B)

$$p_3' = 1$$

$$s_3' \qquad \text{"AN"} \qquad r_3' \qquad [_{NP}\,[_{Det}\ \text{AN}]]$$

□————————————→○ ——————————————— (b_A, b_B)

$$p_3' = 1$$

Figure C.3.syn: Syntactic lexical game g_3'

Read C.3.syn. as:

Real situation s_3':
- Step 1: Game begins, Avery's turn (square □).
  - s_3' : initial utterance situation where Avery transmits "an" as a determiner.
  - p_3' : conditional probability that Avery transmits "an" as a determiner, which is 1.
  - $\varphi_3 \rightarrow$: Avery utters $\varphi_3 = $ AN.
- Step 2: Bailey's turn, (circle ○).
  - r_3' : resulting situation where Bailey interprets "an" as a determiner.
  - $t_3 \rightarrow$: Bailey interprets $\varphi_3 = $ AN as parse $t_3 = [_{NP}\,[_{Det}\ \text{AN}]]$.
  - (b_A, b_B) : payoffs for clear communication (transmission = interpretation).

NOTE 1: $s_3 + s_{3'} = s_3'$ (from Figure C.3.sem).
NOTE 2: $r_3 + r_{3'} = r_3'$ (from Figure C.3.sem).
NOTE 3: $p_3 + p_{3'} = p_3' = 1$ (from Figure C.3.sem).
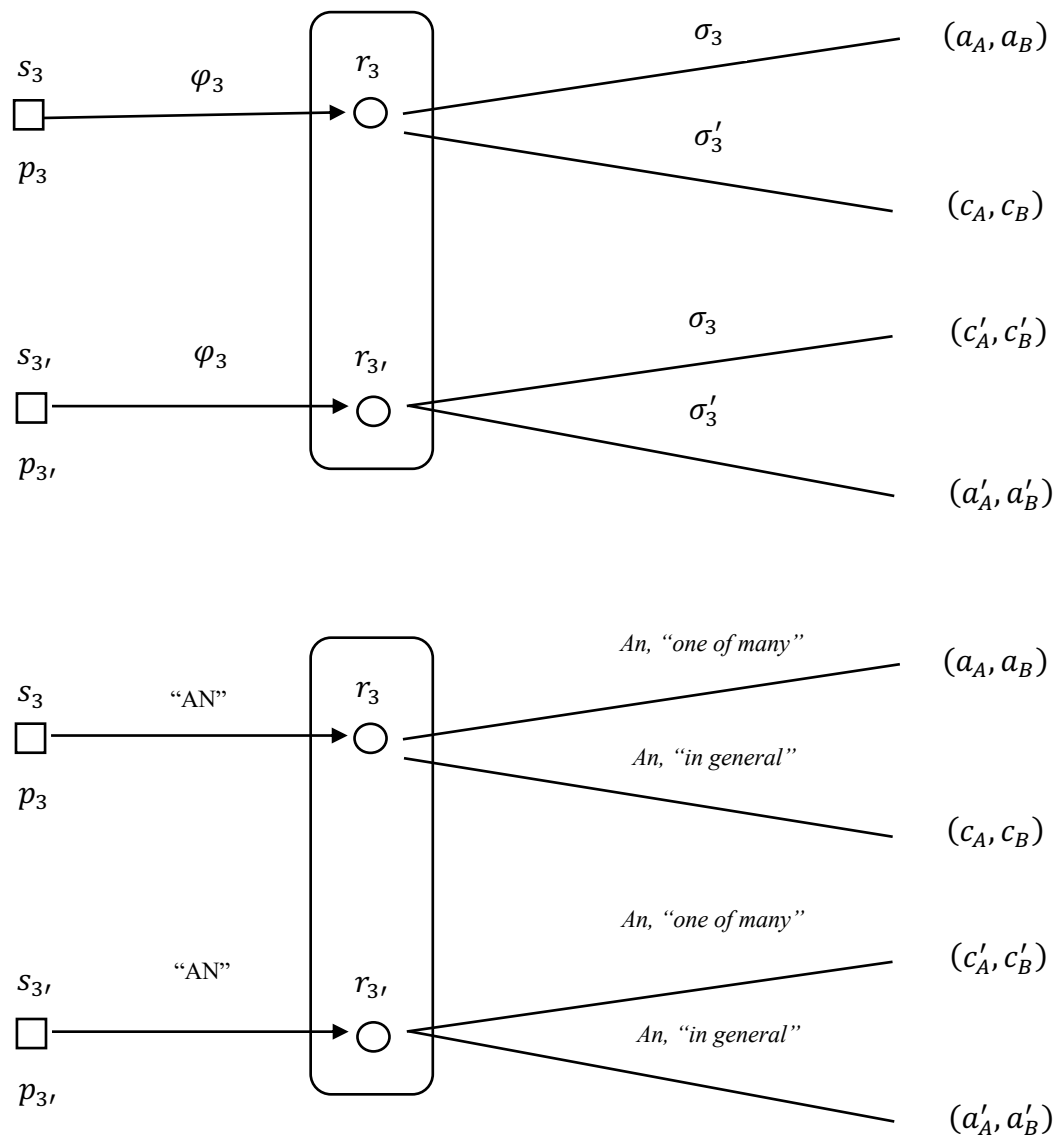**NOTE 4:** Transmission: unconscious construction of information.

Figure C.3.sem: Semantic lexical game g_3

Read C.3.sem. as:

1. **Real situation s_3 (top)**:
   - Step 1: Game begins, Avery's turn (square □).
     - s_3 : initial utterance situation where Avery intends to convey $\sigma_3 = An$, *"one of many."*
     - p_3 : conditional probability that Avery conveys $\sigma_3 = An$, *"one of many."*
     - $\varphi_3 \rightarrow$: Avery utters $\varphi_3 = $ AN.
   - Step 2: Bailey's turn, (circle ○).
     - r_3 : resulting situation where Bailey interprets $\varphi_3 = $ AN.
     - $\sigma_3 \rightarrow$: Bailey interprets $\varphi_3 = $ AN as $\sigma_3 = An$, *"one of many."*
     - $\sigma_3' \rightarrow$: Bailey interprets $\varphi_3 = $ AN as $\sigma_3' = An$, *"in general."*
     - (a_A, a_B) : payoffs for clear communication (intention = interpretation).
     - (c_A, c_B) : payoffs for miscommunication (intention ≠ interpretation).
       - $a_A > c_A$ and $a_B > c_B$
2. **Alternative situation $s_{3'}$ (bottom)**:
   - Step 1: Game begins, Avery's turn (square □).
     - $s_{3'}$: initial utterance situation where Avery intends to convey $\sigma_3' = An$, *"in general."*
     - $p_{3'}$: conditional probability that Avery conveys $\sigma_3' = An$, *"in general."*
     - $\varphi_3 \rightarrow$: Avery utters $\varphi_3 = $ AN.
   - Step 2: Bailey's turn, (circle ○).
     - $r_{3'}$: resulting situation where Bailey interprets $\varphi_3 = $ AN.
     - $\sigma_3 \rightarrow$: Bailey interprets $\varphi_3 = $ AN as $\sigma_3 = An$, *"one of many."*
     - $\sigma_3' \rightarrow$: Bailey interprets $\varphi_3 = $ AN as $\sigma_3' = An$, *"in general."*
     - (c_A', c_B') : payoffs for miscommunication (intention ≠ interpretation).
     - (a_A', a_B') : payoffs for clear communication (intention = interpretation).
       - $a_A' > c_A'$ and $a_B' > c_B'$

NOTE 1: $p_3 + p_{3'} = 1$.
NOTE 2: oval ⬭ : information/knowledge set.
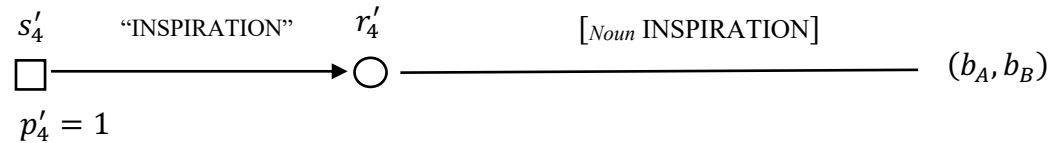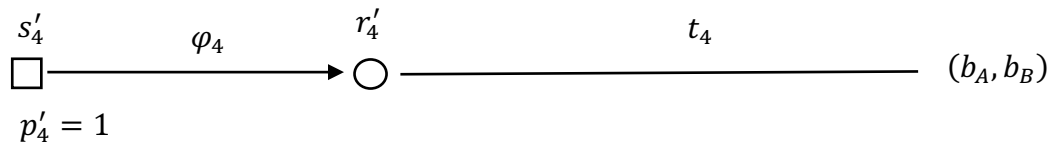**NOTE 3:** Intention: conscious or subconscious construction of information.

$$s_4'$$ φ_4 r_4' t_4

□———————→○ ———————————— (b_A, b_B)

$$p_4' = 1$$

$$s_4'$$ "INSPIRATION" r_4' $[_{Noun} \text{ INSPIRATION}]$

□———————→○ ———————————— (b_A, b_B)

$$p_4' = 1$$

Figure C.4.syn: Syntactic lexical game g_4'

Read C.4.syn. as:
Real situation s_4':

- Step 1: Game begins, Avery's turn (square □).
  - s_4' : initial utterance situation where Avery transmits "inspiration" as a noun.
  - p_4' : conditional probability that Avery transmits "inspiration" as a noun, which is 1.
  - $\varphi_4 \rightarrow$: Avery utters $\varphi_4 = \text{INSPIRATION}$.
- Step 2: Bailey's turn, (circle ○).
  - r_4' : resulting situation where Bailey interprets "inspiration" as a noun.
  - $t_4 \rightarrow$: Bailey interprets $\varphi_4 = \text{INSPIRATION}$ as parse $t_4 = [_{Noun}$ INSPIRATION]].
  - (b_A, b_B) : payoffs for clear communication (transmission = interpretation).

NOTE 1: $s_4 + s_{4'} = s_4'$ (from Figure C.4.sem).
NOTE 2: $r_4 + r_{4'} = r_4'$ (from Figure C.4.sem).
NOTE 3: $p_4 + p_{4'} = p_4' = 1$ (from Figure C.4.sem).
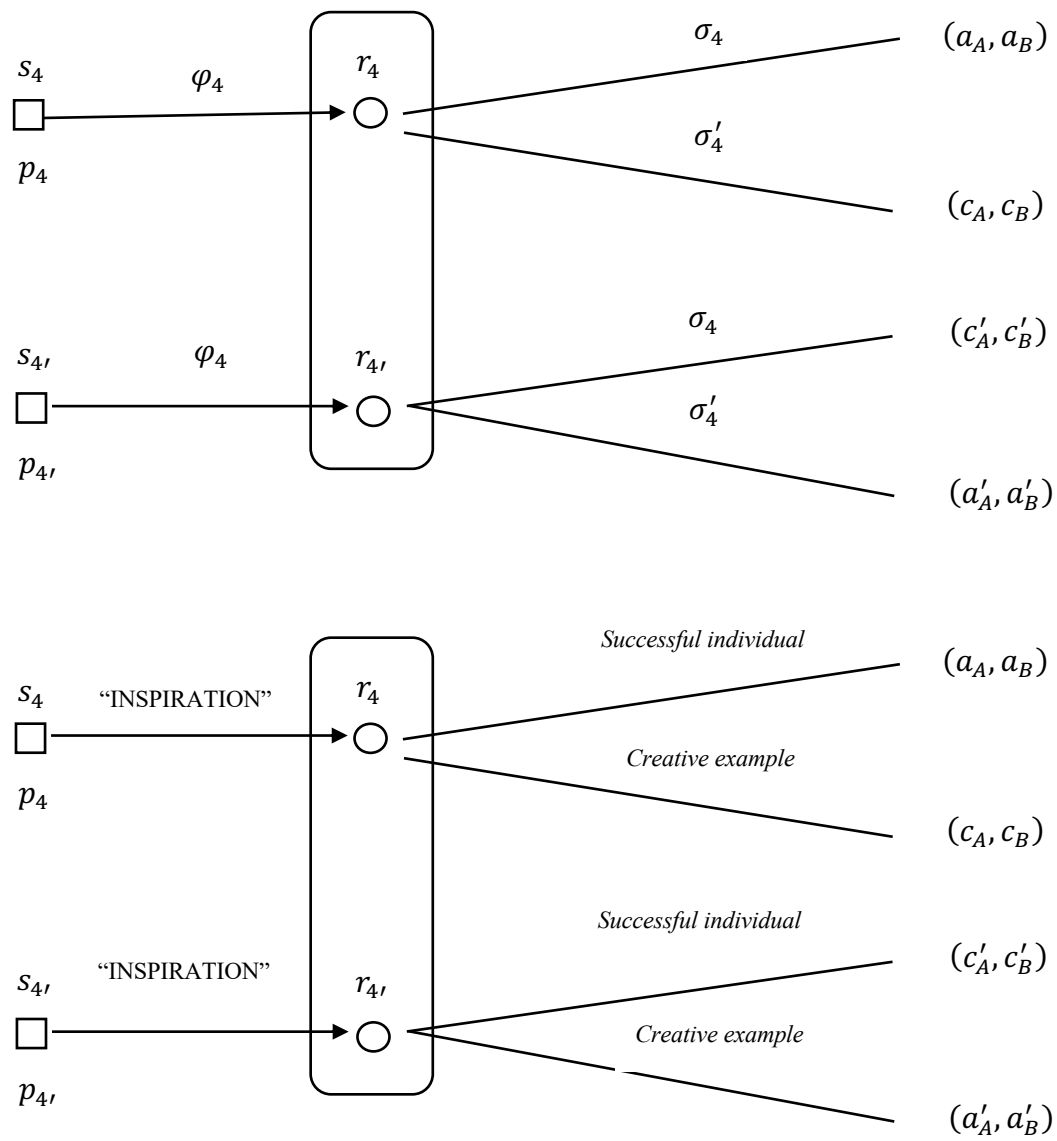**NOTE 4:** Transmission: unconscious construction of information.

Figure C.4.sem: Semantic lexical game g_4

Read C.4.sem. as:

1. **Real situation s_4 (top)**:
   - Step 1: Game begins, Avery's turn (square □).
     - ○ s_4 : initial utterance situation where Avery intends to convey $\sigma_4 =$ *Successful individual*.
     - ○ p_4 : conditional probability that Avery conveys $\sigma_4 =$ *Successful individual*.
     - ○ $\varphi_4 \rightarrow$: Avery utters $\varphi_4 =$ INSPIRATION.
   - Step 2: Bailey's turn, (circle ○).
     - ○ r_4 : resulting situation where Bailey interprets $\varphi_4 =$ INSPIRATION.
     - ○ $\sigma_4 \rightarrow$: Bailey interprets $\varphi_4 =$ INSPIRATION as $\sigma_4 =$ *Successful individual*.
     - ○ $\sigma_4' \rightarrow$: Bailey interprets $\varphi_4 =$ INSPIRATION as $\sigma_4' =$ *Creative example*.
     - ○ (a_A, a_B) : payoffs for clear communication (intention = interpretation).
     - ○ (c_A, c_B) : payoffs for miscommunication (intention ≠ interpretation).
       - ▪ $a_A > c_A$ and $a_B > c_B$
2. **Alternative situation $s_{4'}$ (bottom)**:
   - Step 1: Game begins, Avery's turn (square □).
     - ○ $s_{4'}$: initial utterance situation where Avery intends to convey $\sigma_4' =$ *Creative example*.
     - ○ $p_{4'}$: conditional probability that Avery conveys $\sigma_4' =$ *Creative example*.
     - ○ $\varphi_4 \rightarrow$: Avery utters $\varphi_4 =$ INSPIRATION.
   - Step 2: Bailey's turn, (circle ○).
     - ○ $r_{4'}$: resulting situation where Bailey interprets $\varphi_4 =$ INSPIRATION.
     - ○ $\sigma_4 \rightarrow$: Bailey interprets $\varphi_4 =$ INSPIRATION as $\sigma_4 =$ *Successful individual*.
     - ○ $\sigma_4' \rightarrow$: Bailey interprets $\varphi_4 =$ INSPIRATION as $\sigma_4' =$ *Creative example*.
     - ○ (c_A', c_B') : payoffs for miscommunication (intention ≠ interpretation).
     - ○ (a_A', a_B') : payoffs for clear communication (intention = interpretation).
       - ▪ $a_A' > c_A'$ and $a_B' > c_B'$

NOTE 1: $p_4 + p_{4'} = 1$.
NOTE 2: oval ▭ : information/knowledge set.
NOTE 3: Intention: conscious or subconscious construction of information.
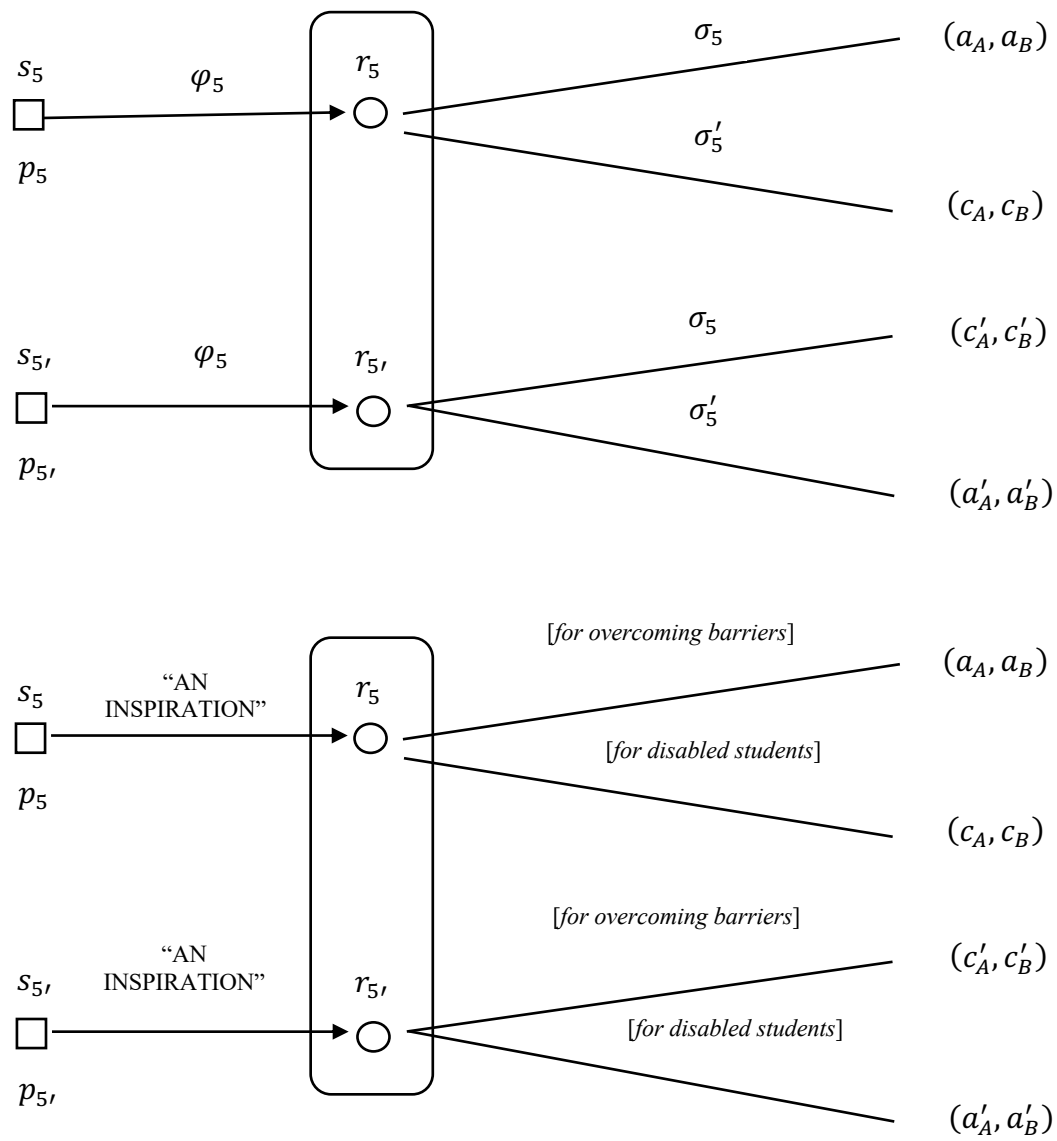
Figure C.5.sem: Resolving the pragmatic issue with semantic phrasal game g_5

Read C.5.sem. as:

1. **Real situation s_5 (top)**:
   - Step 1: Game begins, Avery's turn (square □).
     - s_5 : initial utterance situation where Avery intends to convey $\sigma_5 = [for\ overcoming\ barriers]$.
     - p_5 : conditional probability that Avery conveys $\sigma_5 = [for\ overcoming\ barriers]$.
     - $\varphi_5 \rightarrow$: Avery utters $\varphi_5 =$ AN INSPIRATION.
   - Step 2: Bailey's turn, (circle ○).
     - r_5 : resulting situation where Bailey interprets $\varphi_5 =$ AN INSPIRATION.
     - $\sigma_5 \rightarrow$: Bailey interprets $\varphi_5 =$ AN INSPIRATION as $\sigma_5 = [for\ overcoming\ barriers]$.
     - $\sigma_5' \rightarrow$: Bailey interprets $\varphi_5 =$ AN INSPIRATION as $\sigma_5' = [for\ disabled\ students]$.
     - (a_A, a_B) : payoffs for clear communication (intention = interpretation).
     - (c_A, c_B) : payoffs for miscommunication (intention ≠ interpretation).
       - $a_A > c_A$ and $a_B > c_B$

2. **Alternative situation $s_{5'}$ (bottom)**:
   - Step 1: Game begins, Avery's turn (square □).
     - $s_{5'}$: initial utterance situation where Avery intends to convey $\sigma_5' = [for\ disabled\ students]$.
     - $p_{5'}$: conditional probability that Avery conveys $\sigma_5' = [for\ disabled\ students]$.
     - $\varphi_5 \rightarrow$: Avery utters $\varphi_5 =$ AN INSPIRATION.
   - Step 2: Bailey's turn, (circle ○).
     - $r_{5'}$: resulting situation where Bailey interprets $\varphi_5 =$ AN INSPIRATION.
     - $\sigma_5 \rightarrow$: Bailey interprets $\varphi_5 =$ AN INSPIRATION as $\sigma_5 = [for\ overcoming\ barriers]$.
     - $\sigma_5' \rightarrow$: Bailey interprets $\varphi_5 =$ AN INSPIRATION as $\sigma_5' = [for\ disabled\ students]$.
     - (c_A', c_B') : payoffs for miscommunication (intention ≠ interpretation).
     - (a_A', a_B') : payoffs for clear communication (intention = interpretation).
       - $a_A' > c_A'$ and $a_B' > c_B'$

NOTE 1: $p_5 + p_{5'} = 1$.
NOTE 2: $p_5 \approx p_{5'}$ if no information about function or audience is given.
NOTE 3: oval ⬭ : information/knowledge set.
NOTE 4: Intention: conscious or subconscious construction of information.
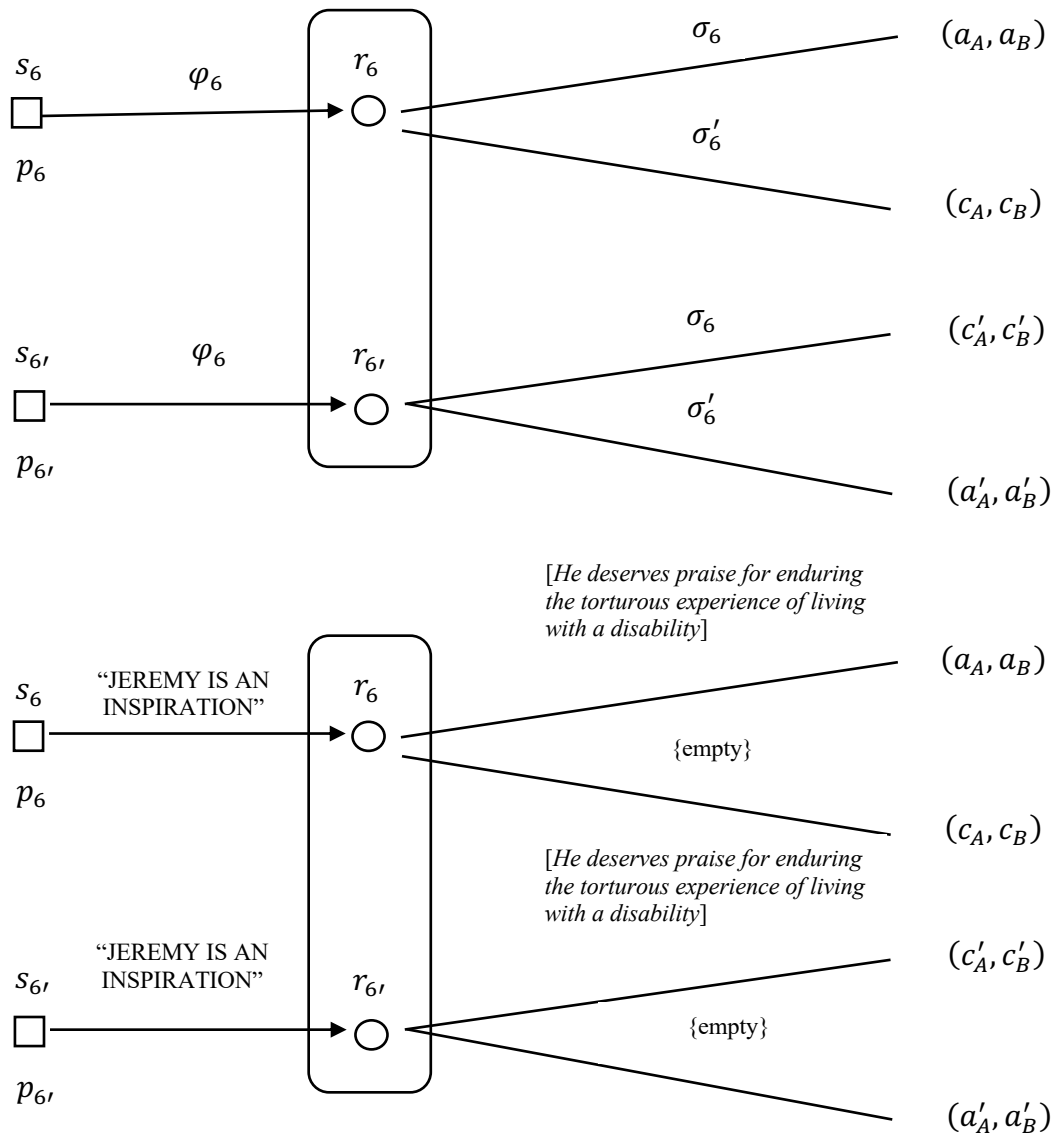
Figure C.6.sem: Resolving the implicature issue with semantic implicature game g_6

Read C.6.sem. as:

1. **Real situation s_6 (top)**:
   - Step 1: Game begins, Avery's turn (square ☐).
     - s_6 : initial utterance situation where Avery intends to convey $\sigma_6 = [He\ deserves\ praise\ for\ enduring\ the\ torturous\ experience\ of\ living\ with\ a\ disability]$.
     - p_6 : conditional probability that Avery conveys $\sigma_6 = [He\ deserves\ praise\ for\ enduring\ the\ torturous\ experience\ of\ living\ with\ a\ disability]$.
     - $\varphi_6\rightarrow$: Avery utters $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION.
   - Step 2: Bailey's turn, (circle ○).
     - r_6 : resulting situation where Bailey interprets $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION.
     - $\sigma_6\rightarrow$: Bailey interprets $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION as $\sigma_6 = [He\ deserves\ praise\ for\ enduring\ the\ torturous\ experience\ of\ living\ with\ a\ disability]$.
     - $\sigma_6'\rightarrow$: Bailey interprets $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION as $\sigma_6' = \{empty\}$.
     - (a_A, a_B) : payoffs for clear communication (intention = interpretation).
     - (c_A, c_B) : payoffs for miscommunication (intention $\neq$ interpretation).
       - $a_A > c_A$ and $a_B > c_B$

2. **Alternative situation $s_{6'}$ (bottom)**:
   - Step 1: Game begins, Avery's turn (square ☐).
     - $s_{6'}$: initial utterance situation where Avery intends to convey $\sigma_6' = \{empty\}$.
     - $p_{6'}$: conditional probability that Avery conveys $\sigma_6' = \{empty\}$.
     - $\varphi_6\rightarrow$: Avery utters $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION.
   - Step 2: Bailey's turn, (circle ○).
     - $r_{6'}$: resulting situation where Bailey interprets $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION.
     - $\sigma_6\rightarrow$: Bailey interprets $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION as $\sigma_6 = [He\ deserves\ praise\ for\ enduring\ the\ torturous\ experience\ of\ living\ with\ a\ disability$.
     - $\sigma_6'\rightarrow$: Bailey interprets $\varphi_6 = \varphi =$ JEREMY IS AN INSPIRATION as $\sigma_6' = \{empty\}$.
     - (c_A', c_B') : payoffs for miscommunication (intention $\neq$ interpretation).
     - (a_A', a_B') : payoffs for clear communication (intention = interpretation).
       - $a_A' > c_A'$ and $a_B' > c_B'$

NOTE 1: $p_6 + p_{6'} = 1$.
NOTE 2: oval ☐ : information/knowledge set.
NOTE 3: Intention: conscious or subconscious construction of information.

APPENDIX D

INITIAL PROBABILITY DISTRIBUTIONS FOR SEMANTIC GAMES

When Avery utters a message (represented by the square), initial probabilities for both syntactic and semantic games are determined by how all utterance contents and parses affect what is expressed. This creates a (semantic game) *conditional probability* for when Avery utters a message, which is defined as the following (Parikh, 2010, 2019):

$$p_i = P(\sigma_i | x_{-i}, y_{-i}; u)$$

- p_i : the initial conditional probabilities: $p_1, p_{1\prime}, p_2, p_{2\prime}, p_3, p_{3\prime}, p_4, p_{4\prime}, p_5, p_{5\prime}, p_6$, and $p_{6\prime}$.
- σ_i : the content interpretations: $\sigma_1, \sigma_1', \sigma_2, \sigma_3, \sigma_3', \sigma_4, \sigma_4', \sigma_5, \sigma_5', \sigma_6$, and σ_6'.
- x_{-i}: ranging across all other possible corresponding content interpretations.
- y_{-i}: ranging across all possible corresponding parses: t_1, t_2, t_3, and t_4.
- u : the utterance situation, defined by the realistic and counterfactual situations.

For example, for $g_u(\text{"JEREMY"}) = g_u(\varphi_1) = g_1$, the initial probability distributions are:

1. *Jeremy B*

$$p_1 = \begin{cases} P(\sigma_1 | \sigma_2, \sigma_3, \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_1 | \sigma_2, \sigma_3', \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_1 | \sigma_2, \sigma_3, \sigma_4', t_1, t_2, t_3, t_4; u) \\ P(\sigma_1 | \sigma_2, \sigma_3', \sigma_4', t_1, t_2, t_3, t_4; u) \end{cases}$$

- Read #1 as: The initial probability, $p_{1\prime}$, that Avery is conveying "Jeremy B" when uttering the first word "Jeremy" depends on all other meanings (*equals; an, "one of many"; an, "in general"; successful people*; and *creative example*) and parse trees (noun, verb, determiner, and predicate noun) in the rest of the sentence in the current utterance situation u, which includes 4 possible combinations for probability distributions.

2. *Jeremy Z*

$$p_{1\prime} = \begin{cases} P(\sigma_1' | \sigma_2, \sigma_3, \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_1' | \sigma_2, \sigma_3', \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_1' | \sigma_2, \sigma_3, \sigma_4', t_1, t_2, t_3, t_4; u) \\ P(\sigma_1' | \sigma_2, \sigma_3', \sigma_4', t_1, t_2, t_3, t_4; u) \end{cases}$$

where $p_1 + p_{1\prime} = 1$.

- Read #2 as: The initial probability, p_1, that Avery is conveying "Jeremy Z" when uttering the first word "Jeremy" depends on all other meanings (*equals; an, "one of many"; an, "in general"; successful people*; and *creative example*) and parse trees (noun, verb, determiner, and predicate noun) in the rest of the sentence in the

current utterance situation u, which includes 4 possible combinations for probability distributions.

The same process can be used to deduce the initial probability distributions for the other semantic lexical games, the phrasal game, and the implicature game. Each of the semantic lexical games would have 4 possible combinations for probability distributions (except for the semantic lexical game for "is," which will have 8 possible combinations). Of course, there would be more combinations of conditioning variables if the other two conventional meanings for "is" were also considered here. More information regarding the derivation of probability distributions is examined beyond the scope of this study (Parikh, 2010, pp. 131–145).

The implicature game derives its illocutionary content based on semantic meanings σ_1, σ_1', σ_2, σ_3, σ_3', σ_4, and σ_4' and parses t_1, t_2, t_3, and t_4. So, the initial probability distributions for $g_u([\text{Implicature of "JEREMY IS AN INSPIRATION. "}]) = g_u(\varphi_6) = g_6$ are:

1. [*He deserves praise for enduring the torturous experience of living with a disability*]

$$
p_6 = \begin{cases}
P(\sigma_6|\,\sigma_1,\sigma_2,\sigma_3,\sigma_4,t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1',\sigma_2,\sigma_3,\sigma_4,t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1,\sigma_2,\sigma_3',\sigma_4,t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1,\sigma_2,\sigma_3,\sigma_4',t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1',\sigma_2,\sigma_3',\sigma_4,t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1',\sigma_2,\sigma_3,\sigma_4',t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1,\sigma_2,\sigma_3',\sigma_4',t_1,t_2,t_3,t_4;u) \\
P(\sigma_6|\,\sigma_1',\sigma_2,\sigma_3',\sigma_4',t_1,t_2,t_3,t_4;u)
\end{cases}
$$

- Read #1 as: The initial probability, p_6, that Avery is conveying the microaggressive implicature [*He deserves praise for enduring the torturous experience of living with a disability*] when uttering the full utterance "Jeremy is an inspiration" depends on all other meanings (*equals; "one of many"; successful people*, and so on) and parse trees (noun, verb, determiner, and predicate noun) in the rest of the sentence in the current utterance situation u, which includes 8 possible combinations for probability distributions.

2. {empty}

$$p_{6'} = \begin{cases} P(\sigma_6'| \sigma_1, \sigma_2, \sigma_3, \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1', \sigma_2, \sigma_3, \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1, \sigma_2, \sigma_3', \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1, \sigma_2, \sigma_3, \sigma_4', t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1', \sigma_2, \sigma_3', \sigma_4, t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1', \sigma_2, \sigma_3, \sigma_4', t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1, \sigma_2, \sigma_3', \sigma_4', t_1, t_2, t_3, t_4; u) \\ P(\sigma_6'| \sigma_1', \sigma_2, \sigma_3', \sigma_4', t_1, t_2, t_3, t_4; u) \end{cases}$$

where $p_6 + p_{6'} = 1$.

- Read #2 as: The initial probability, $p_{6'}$, that Avery is conveying no microaggressive implicature when uttering the full utterance "Jeremy is an inspiration" depends on all other meanings (*equals; "one of many"; successful people*, and so on) and parse trees (noun, verb, determiner, and predicate noun) in the rest of the sentence in the current utterance situation u, which includes 8 possible combinations for probability distributions.

For the full utterance "Jeremy is an inspiration," or the sentential game $g_u(["JEREMY\ IS\ AN\ INSPIRATION."]) = g_u(\varphi) = g_{123456}$, the probability distributions include the entire range of conditioning variables (including enrichment and implicature issues) and parses available. They are:

1. $p_{123456} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4, \sigma_5, \sigma_6, t_1, t_2, t_3, t_4| u)$

2. $p_{123'456} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4, \sigma_5, \sigma_6, t_1, t_2, t_3, t_4| u)$

3. $p_{1234'56} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4', \sigma_5, \sigma_6, t_1, t_2, t_3, t_4| u)$

4. $p_{12345'6} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4, \sigma_5', \sigma_6, t_1, t_2, t_3, t_4| u)$

5. $p_{123456'} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4, \sigma_5, \sigma_6', t_1, t_2, t_3, t_4| u)$

6. $p_{123'4'56} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4', \sigma_5, \sigma_6, t_1, t_2, t_3, t_4| u)$

7. $p_{123'45'6} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4, \sigma_5', \sigma_6, t_1, t_2, t_3, t_4| u)$

8. $p_{123'456'} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4, \sigma_5, \sigma_6', t_1, t_2, t_3, t_4| u)$

9. $p_{1234'5'6} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4', \sigma_5', \sigma_6, t_1, t_2, t_3, t_4| u)$

10. $p_{1234'56'} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4', \sigma_5, \sigma_6', t_1, t_2, t_3, t_4| u)$

11. $p_{12345'6'} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4, \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

12. $p_{123'4'5'6} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4', \sigma_5', \sigma_6, t_1, t_2, t_3, t_4 | u)$

13. $p_{123'4'56'} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4', \sigma_5, \sigma_6', t_1, t_2, t_3, t_4 | u)$

14. $p_{123'45'6'} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4, \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

15. $p_{1234'5'6'} = P(\sigma_1, \sigma_2, \sigma_3, \sigma_4', \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

16. $p_{123'4'5'6'} = P(\sigma_1, \sigma_2, \sigma_3', \sigma_4', \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

17. $p_{1'23456} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4, \sigma_5, \sigma_6, t_1, t_2, t_3, t_4 | u)$

18. $p_{1'23'456} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4, \sigma_5, \sigma_6, t_1, t_2, t_3, t_4 | u)$

19. $p_{1'234'56} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4', \sigma_5, \sigma_6, t_1, t_2, t_3, t_4 | u)$

20. $p_{1'2345'6} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4, \sigma_5', \sigma_6, t_1, t_2, t_3, t_4 | u)$

21. $p_{1'23456'} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4, \sigma_5, \sigma_6', t_1, t_2, t_3, t_4 | u)$

22. $p_{1'23'4'56} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4', \sigma_5, \sigma_6, t_1, t_2, t_3, t_4 | u)$

23. $p_{1'23'45'6} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4, \sigma_5', \sigma_6, t_1, t_2, t_3, t_4 | u)$

24. $p_{1'23'456'} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4, \sigma_5, \sigma_6', t_1, t_2, t_3, t_4 | u)$

25. $p_{1'234'5'6} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4', \sigma_5', \sigma_6, t_1, t_2, t_3, t_4 | u)$

26. $p_{1'234'56'} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4', \sigma_5, \sigma_6', t_1, t_2, t_3, t_4 | u)$

27. $p_{1'2345'6'} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4, \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

28. $p_{1'23'4'5'6} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4', \sigma_5', \sigma_6, t_1, t_2, t_3, t_4 | u)$

29. $p_{1'23'4'56'} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4', \sigma_5, \sigma_6', t_1, t_2, t_3, t_4 | u)$

30. $p_{1'23'45'6'} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4, \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

31. $p_{1'234'5'6'} = P(\sigma_1', \sigma_2, \sigma_3, \sigma_4', \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

32. $p_{1'23'4'5'6'} = P(\sigma_1', \sigma_2, \sigma_3', \sigma_4', \sigma_5', \sigma_6', t_1, t_2, t_3, t_4 | u)$

where $p_{123456} + p_{123'456} + \ldots + p_{1'234'5'6'} + p_{1'23'4'5'6'} = 1$.

- Read as: Avery conveying full meaning (literal meaning and illocutionary meanings) when uttering the full utterance "Jeremy is an inspiration" depends on the current utterance situation u, which includes 32 possible initial probability distribution combinations, which all must add up to one.