Indexing Gay Identities in American Sign Language

Abstract

A sociolinguistic style consists of a set of linguistic resources that carry specific meaning within a social context (Campbell-Kibler 2011). One such resource is the use of phonetic variants that do not change the denotative meaning of a word, but are different enough to be recognized as unique. This type of socially constrained phonetic variation has frequently been dismissed as being outside the realm of phonology. In this study, I examine the feasibility of using social variation to inform phonological theory. I present a study of sociophonetic variation in men who identify as members of the Deaf and gay communities in the San Francisco Bay Area. I propose that a linguistic style employed by some Deaf gay men includes frequent use of distal joints in the articulation of signs. I show how analysis of this style can both enhance our understanding of the phonological structure of sign language and also demonstrate how models of phonology can accommodate sociolinguistic variation. By recasting social variation as a meaningful and informative aspect of phonology, we may better understand how we perceive, acquire, and use phonological structure.

One of the central tasks of phonology is to determine how the sublexical components of language are conceptualized, organized, and accessed. Since it is (at this time) impossible to directly access mental activity, phonologists must extrapolate from the observable data. In pursuit of this goal, current research in phonetics and phonology tends to focus on systematic variation. For example, phonology typically focuses on language-specific variation (e.g., allophonic alternation of

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aspirated and unaspirated voiceless stops in English) exhibited by native users. These rule-governed patterns can provide insight into how our brains perceive and categorize phonetic information.

While this type of variation is central to phonological studies, other sorts of variation have received less attention. Most notably, socially constrained variation has frequently been dismissed as being outside the realm of phonology. In fact, variation is “one of the defining characteristics of human speech. No two voices are identical, no two utterances the same” (Foulkes and Docherty 2006, 409). By recasting social variation as a meaningful and informative aspect of phonology, we may better understand how we perceive, acquire, and use phonological structure (ibid.).

Although studies of social variation have focused largely on spoken languages, the inclusion of sign languages has the potential to inform both sociolinguistics and phonological studies. To this end, I here present a study of sociophonetic variation in men who identify as members of the Deaf and gay communities in the San Francisco Bay Area. I propose that a linguistic style employed by some Deaf gay men includes more frequent use of distal joints than seen in variants of ASL used by non–gay-identified men. I show how analysis of this style can both enhance our understanding of the phonological structure of sign language and also demonstrate how models of phonology can accommodate sociolinguistic variation in general.

The need for a data-driven approach to phonological theory is particularly relevant to studies of sign languages. Current models of sign language structure diverge significantly in their conceptualization of contrastive parameters, the internal structure of phonemes, and even which phonetic details are relevant to the study of phonology (e.g., Brentari 1999; Johnson and Liddell 2010, 2011a, 2011b; Sandler 1989). I review the way in which sign language phonology has been addressed from a theoretical perspective and some of the challenges of these endeavors. I then draw on data from the variation study to show how these data might indicate which sublexical components of sign language are contrastive phonological elements. Ultimately, this type of approach could lead to more refined models of phonology for both signed and spoken languages.
Background

Variation in American Sign Language

Deaf individuals and scholars have long since identified that the American Deaf community has its own cultural norms; those who identify as members of the Deaf community generally share certain beliefs and have specific expectations of appropriate behavior and attitudes (Padden and Humphries 1990). These values include the recognition of American Sign Language (ASL) as a valid language and promotion of its use in Deaf environments. From these central values, other aspects of culture have developed, including attitudes regarding speech, social connections, and membership in the culture (Padden and Humphries 1990; Johnson and Erting 1989).

Sign languages vary according to users, situations and communities, just as spoken languages do. Sign language researchers acknowledged variation even in the earliest research endeavors in the 1960s and 1970s (Lucas et al. 2001). Subsequently, small qualitative studies revealed differences between signers based on external social factors (e.g., race, geographic region) and internal linguistic factors (e.g., grammatical function, the form of the preceding sign). These foundational studies were based on limited samples and examined a wide range of features. Although the studies were informative and important to the development of the field, they did not provide a comprehensive quantitative analysis of sociolinguistic variation (ibid.). In 2001 Lucas and colleagues conducted an in-depth, quantitative study of sociolinguistic variation in American Sign Language. They aimed to provide an overview of internal and external constraints on variation in ASL and to determine whether the same types of constraints found in spoken language studies applied also to sign languages. They analyzed in excess of ten thousand tokens from more than two hundred signers around the country and found that social factors (e.g., region, socioeconomic status, race, age) define and constrain variation. They also found linguistic constraints such as grammatical function, phonological features of preceding and following signs, and type of discourse.

Since the work of Lucas and associates (ibid.), numerous studies have examined variation in different sign languages, including British
Sign Language (Fenlon et al. 2013; Stamp et al. 2014), Australian Sign Language and New Zealand Sign Language (Schembri et al. 2009), and Italian Sign Language (Geraci et al. 2011). This body of work affirms that sign language variation is found in different levels of language use, from phonological variants through discourse practices, and includes the same range of social constraints as those identified in studies of spoken language. In addition to the social factors that are common to Deaf and hearing communities, variation is also due to unique characteristics of the Deaf community experience, such as language policies in deaf education, parental hearing status and sign language fluency, and access to language and cultural models (Lucas and Bayley 2011).

One study that exemplifies a broad range of internal and external constraints, including those unique to sign language, is the Black ASL project conducted by McCaskill, Lucas, Bayley, and Hill (2011). Their research responded to widespread anecdotal claims that black individuals signed differently from white individuals. In order to design the study and understand their findings, the researchers needed to consider the historical context of black Deaf communities. The social experience of individuals based on their racial identity is found in studies of Deaf and hearing communities alike. The unique educational experience of black Deaf individuals added another layer of complexity to the question. In seventeen Southern states, education for deaf children was racially segregated until the 1960s and 1970s. The separate schools provided an environment that allowed for the development of different linguistic variants. Failure to consider this context could have obscured critical elements of the language differences.

McCaskill et al. (ibid.) investigated Black ASL by collecting language samples from ninety-six black Deaf signers in six Southern states that had segregated schools. The data indeed showed quantifiable evidence of a unique variation of ASL particular to black signers in these regions. Variation encompassed phonetic, lexical, syntactic, and discourse differences. The researchers also found that, due to changing social conditions such as integration, mainstreaming, and language attitudes, the Black ASL variety is evolving and is reflected in systematic
differences between older and younger signers. This landmark study illustrates the unique characteristics of variation studies within Deaf communities and the types of considerations that need to be included when investigating social factors.

Few sociolinguistic investigations have examined gender identity in sign languages. Limited studies conducted in the 1980s and 1990s revealed no significant difference between men and women in conversational strategies (Nowell 1989; McMurtrie 1993) or lexical choices (Mansfield 1993). Mulrooney (2002) conducted a small-scale preliminary study on the use of citation forms in fingerspelling and compared the production of men and women. Her data suggest that men tend to slightly favor noncitation forms and that women slightly favor citation forms, but she acknowledges limitations in the interpretation of her results due to sample size and additional uncontrolled social factors.

Studies have found lexical variation related to gender in cases in which the schools for deaf children were separated by gender. For example, Irish Sign Language has developed notably different lexicons due to separate residential schools for boys and girls. Although this variation has lessened over time, researchers report continuing notable differences in men’s and women’s signing (Schembri and Johnston 2013). In addition, Langue des signes québécoise (LSQ), the sign language used in Quebec, shows a similar pattern of gender differences due to separate schooling systems for boys and girls. Boys were taught by users of French Sign Language (LSF), whereas girls were taught by nuns who knew American Sign Language. Consequently, the variants used by men and women exhibit significant lexical differences, though both variants are now commonly understood by any gender (Parisot et al. 2015).

Another relevant social factor for this particular project is sexual identity. A few older studies comparing gay and straight users of ASL reported lexical variation for terms directly related to sexual identity (Rudner and Butowsky 1981; Kleinfeld and Warner 1996). Beyond these works, little has been published on sexual identity as expressed through variation in sign languages. Taken together, these various studies of gender and sexuality indicate that these social factors do in fact lead to noticeable differences in linguistic expression.
Variationist sociolinguistics, pioneered by Labov in the 1960s, used sociophonetic variation as an entry point to the examination of linguistic change and social stratification. Sociophonetic variation refers to variable aspects of phonetic structure that relate to social identity and therefore carry social meaning (Foulkes and Docherty 2006). In the research conducted by Labov and his contemporaries, variation was conceived of as reflecting membership in a specific linguistic community. From this perspective, social categories were viewed as relatively homogeneous and fixed entities. The meanings of specific variants were directly linked to membership in the associated community, and variables were considered to be categorical; they were either present or not present in each utterance (Pierrehumbert 2006).

The quantitative variationist studies focused on large-scale language change, which was viewed as a vast system employed by all users of a language. These studies have contributed enormously to our understanding of variation and social aspects of language, but, in the process, language variation came to be viewed as something belonging to specific demographic categories.

One study suggests that, rather than considering variants as a fixed characteristic of a given social category, one can view them as linguistic resources that indicate social identity via shared associations with specific qualities (Eckert 2008). When individuals communicate, they present encoded information that goes beyond the surface meaning of their words. Characteristics of language used within a particular community or subgroup become associated with that segment of the population, and the use of those variants comes to index, or mark, social meaning related to the societal perceptions of the associated group (ibid.). In other words, these socially meaningful features can be used to indicate or project a specific, culturally recognizable identity or attribute. These individual variables are used to construct an “indexical field” (ibid.), a network of ideological meanings that can be accessed and modified by using these variables in particular contexts. A single difference in and of itself does not index an individual’s identity; however, in conjunction with social context, ideological beliefs, and other linguistic features, it can evoke a meaning that projects a certain aspect of the user’s identity to the interlocutors.
These linguistic resources change as language itself evolves. When a new community adopts a certain feature, the social meaning of that feature changes. Due to shared perceptions of socially constrained linguistic variables, individuals can convey information about culture, identity, status, and social class through their linguistic style. From this perspective, linguistic behaviors can be seen as “the tools that speakers/hearers use to build the social structures they inhabit” (Campbell-Kibler 2010, 385). A linguistic style, then, comprises a set of linguistic features that collectively index social meaning (Eckert 2008).

**Indexing a Gay Identity**

With many socially constrained variations, speakers can modify how strongly they use given characteristics. The same individual may be perceived as a member of a subgroup in one situation but may not show those characteristics at all in another. This sort of social code-switching often occurs when a style is stigmatized due to the societal perception of a particular community or subgroup (Podesva, Roberts, and Campbell-Kibler 2002). Prejudices against a certain set of linguistic features can be deeply rooted and pervasive. Matched-guise studies of language varieties have repeatedly shown that negative characteristics are attributed to individuals who use stigmatized or less prestigious varieties, whereas positive characteristics correlate strongly with higher-prestige varieties (Campbell-Kibler 2010). Consequently, the study of potentially stigmatized linguistic variables needs to be approached with a degree of caution.

In a discussion of the language used by gay individuals, gender perceptions and assumptions quickly become part of the conversation. Many linguists refer to men’s speech as a normative or an unmarked variety, using a presumed common understanding of how men speak as a reference point for the speech of other groups (Gaudio 1994). Not only does this approach marginalize the language varieties used by women, but it also mistakenly assumes that all men speak alike.

Studies of gender differences typically characterize women’s linguistic varieties as having more varied intonational contours than those of men, more expressive adjective use, and an overall tendency toward more cooperative linguistic behaviors. These studies tend to classify speech as “feminine” or “masculine” and assume that the
nonconforming man or woman is using the linguistic characteristics of the other gender (ibid.). Consequently, gay men’s speech is often characterized as being effeminate or using characteristics of women’s speech. Gaudio proposes that, instead of viewing the characteristics of gay male speech as imitative of women, it can be cast as “particular ways of speaking which challenge conventional notions of what constitutes proper male and female behavior” (32).

As per Eckert’s concept of indexical field, a single linguistic feature is a resource that may be used in conjunction with other resources to project a specific social meaning. Therefore, although certain characteristics may be perceived as part of a gay style, an individual feature should not be viewed as carrying that meaning alone. In addition, when discussing a stylistic trend of the gay community, it is important to recognize that the community of those who identify as gay exhibits great diversity. Proposing that the members of a community all use language in the same way and that a specific feature “belongs” to a particular community are both overgeneralizations that flatten the diversity of linguistic style and ignore the usage of the same feature in different contexts in a variety of styles (Podesva, Roberts, and Campbell-Kibler 2002).

**Sociophonetic Variation in Deaf Gay Men**

In the data presented here, the primary variable examined is joint(s) of articulation. I identified this feature as a possible point of sociophonetic variation due to comments made during a previous study. A videotape that I was showing evoked several unelicited comments from Deaf participants on the fact that the individual had a gay signing style. When I inquired what caused them to perceive the signer as gay, they were unable to explain exactly what features indicated that identity, but some performed a brief example of how they perceived gay men to sign. In these spontaneous productions, the signers tended to use more articulation at the wrist than in their normal signing style. Of course, exaggerated wrist articulation is a stereotyped feature of gay identity in the hearing community, and it is certainly possible that these performances were based on internalized assumptions about gay men. Nonetheless, some consensus remained that the use of certain joints to articulate signs was potentially different. Based on these ob-
servations and other anecdotal evidence, I hypothesize that one feature of a style particular to gay men might be variation in which joints are used to articulate their signs.

Through this examination of one characteristic that may be indexical of a gay identity, I am proposing neither that only gay signers use this feature nor that all gay signers use this feature. Instead, I am simply looking at the use of an individual linguistic feature with full awareness that this characteristic is only one aspect of a language style. I use this feature to motivate my proposal that sociophonetic variation needs to be accounted for in phonological models and that careful analysis of variation can reveal insights as to the underlying representation of phonological features.

**Phonological Theory**

In the field of spoken language phonology, the various models propose different representations of phonology and phonological constraints but are generally in agreement about which sublexical units are considered phonemes. In the range of sign language models, different theories have very dissimilar perspectives on how the phoneme should be conceived. Movement, for example, is a particularly contentious element of sign language phonology. The Johnson and Liddell models (Liddell and Johnson 1989; Johnson and Liddell 2010, 2011a, 2011b) and the hand-tier model (Sandler 1989) propose that movement is a sequential segment of all signs. Other theories have suggested that movement is not specified at all in underlying forms but is inferred during production based on location (Stack 1988). On the other end of the spectrum, Brentari (1999) proposes that movement is a core phonological category. In her prosodic model, movement is not framed as a sequentially realized timing unit but as a simultaneous, autosegmental feature of a sign.

The models briefly presented here are not comprehensive, but they do encompass the broad scope of proposals on the structure of sign language. Perhaps the controversy regarding linguistic elements in sign languages stems from the number of available contrasts. Given the large articulatory space, the use of two articulators, and the multitude of perceivable handshapes and movements, signed languages do not use even a fraction of the possible feature combinations. Very few
true minimal pairs are found in sign languages (Johnson and Liddell 2010), and without clear evidence of contrastive features, it has proven difficult to home in on the relevant structures. The range of theoretical models illustrates the complexity of representation in sign language phonology.

I suggest that, rather than try to force a theoretical model to fit sign languages, the theory needs come from linguistic and psycholinguistic evidence (Johnson and Liddell 2011a). Another analysis examines the distribution of social variation and uses data from observations to motivate a theory (Foulkes and Docherty 2006). These researchers suggest that exemplar theory best accounts for the integration of social and linguistic phonological variation that is seen in different communities of users.

Exemplar theory claims that phonological information is stored as examples of experienced input, not as abstract features (Pierrehumbert 2006). As individuals move through their environment, they encounter a range of linguistic information. Each instance of linguistic experience is stored and becomes part of a mental distribution of representations. On a phonetic level, every encounter with a specific phonetic structure is stored as an exemplar of that feature. When a feature is encountered multiple times, the mental representation of that feature is strengthened. As a distribution becomes denser, certain patterns become entrenched, and these dense populations form categories, including phonological categories. Variation is perceived and encoded using the same process regardless of whether the variant is a systematic allophonic feature, such as aspiration in American English, or a socially conditioned stylistic feature, such as the use or lack of postvocalic /ɹ/ in Boston dialects.

Critics of exemplar theory raise the concern that it would be highly inefficient for the brain to store massive amounts of individual examples for every possible phoneme. In fact, current proponents of exemplar theory are not claiming that every experience is stored in its raw form. Pierrehumbert (2006) suggests that exemplars are processed as patterns of neural activity. The more a neural pathway is used, the stronger that pathway becomes. Entrenched neural pathways serve as a sort of filter for incoming data. Once we have established categories and expectations, our attention to any exemplar will affect the way
we process it. If we have repeatedly encountered a certain range of variation, we will reach a point of saturation, where that variation is no longer salient and becomes backgrounded. If something is novel (even if infrequent), it will capture our attention and have more of an impact on our processing. Therefore, exemplar theory does not claim that language and linguistic categories are acquired purely via frequency but instead via social experience that directs our attention to various factors of the linguistic and social landscape.

One additional component of the exemplar approach involves the tenet that social interaction is the process by which phonological systems become regular. Language is a complex adaptive system that has formed “within the affordances of physics, biology, and society” (Pierrehumbert 2006, 516). We have certain predispositions for information that suits the physical constraints of our anatomy, and we have a biological drive to socialize. People who speak the same language tend to group together, and people who group together start to share features of their language. In this way, social interaction and language are fundamentally interdependent systems that form a stable feedback loop. Phonological systems therefore are built-up categories of phonetic exemplars that have reached a point of equilibrium within a community. “The cognitive and social systems are tied to each other because the phonological system indirectly reflects the cumulative linguistic experience with the social network” (ibid., 527). This perception of linguistic variation as inherently social suggests that variation does not need to be segregated into socially conditioned versus purely linguistic types.

To the best of my knowledge, no phonological theory for sign languages has yet addressed the question of social variation or how such data might assist in the construction of a theoretical framework. I now present data on sociolinguistic variation among Deaf gay men in the San Francisco Bay Area and discuss how exemplar theory might inform models of sign language phonology. In order to truly understand the expression of identity via phonological differences, future research must include a much broader pool for comparison and consideration of multiple factors of identity. This project is intended to serve as a test case for the consideration of phonological theory in light of socially conditioned variation.
The Current Study

The research presented here was designed as a pilot project to investigate methodology for the study of sociophonetic variation in sign languages. Consequently, early in the process I made a number of decisions that I will approach differently in the next iteration of this research. I explain these points in the following description. Since the interpretation and application of these data are necessarily constrained by size, scope, and approach, I use this study to analyze the ways in which social variation studies can inform phonological theory. I also share aspects of the approach and methodology that are relevant to the study of socially constrained variation, particularly as applied to Deaf communities. For the greater purpose of developing a data-driven approach to phonological models of sign languages, the study presented here can function as a test case.

Participants

In this study I focused on gay men in the San Francisco Bay Area. The geographic limitation was imposed to avoid assuming that local language varieties are used in other areas. Additionally, the Deaf gay population in San Francisco is particularly robust, which makes it likely that social interaction is sufficient for the emergence of a specific Deaf gay identity with its own linguistic and stylistic resources. I recruited four participants who self-identified as Deaf and gay and were between 35 and 55 years of age. All used ASL as a first language. Three of the four participants were either local to the Bay Area or had lived there for more than twenty years. The data from one participant who had lived in the area only six years were considered separately. In addition to the data collected from the interviews, I also drew on videos from previous research. From these videos, I included data from an individual who fit the same demographic criteria as the research participants in this study. I also incorporated a video of a man from a similar demographic in terms of age and region but who identified as straight. I used his video as a basis of comparison for the frequency of the linguistic variable.

Considerations for Data Collection

One challenge of collecting data on a socially constrained variable is that of eliciting natural language in an unnatural situation, such as a re-
corded interview (Observer’s Paradox; see Labov 1972a, 1972b). In the case of sign languages, the need for video recording is quite intrusive and can significantly affect the language used (Lucas and Bayley 2011). In addition, the features that are used to index and project certain identities vary with the context. For instance, an individual may use a linguistic style that strongly indexes a gay identity when out with friends, but those same features may be completely absent in a work environment (Podesva 2011). Therefore, the presence and identity of the researcher inherently affect the outcome. In this instance, aspects of my own identity as a hearing, queer³ individual are salient to the results of the interviews, so I briefly explain my connection to both Deaf and queer communities.

I have been involved with the Deaf community for most my adult life—as a student of sign language, a teacher’s aide, an interpreter, and a graduate student at Gallaudet University. As a hearing individual, I am an outsider to the core Deaf community. Because I have made an effort to be involved in the culture, and I use sign language in Deaf environments, I have been privileged to develop connections with many members of the Deaf community. My status as a hearing person may make certain aspects of the participants’ identity more salient. For example, my presence as a hearing person may have affected the language the participants produced because many Deaf people, as fluent bilinguals, code-switch to include more English features in their signing when interacting with hearing signers (Lucas and Valli 1992).

I have identified as queer for approximately the same length of time as I have been involved in the Deaf community (my involvement with both communities began when I entered college at age 18). Again, my identity might bring certain aspects of the participants’ identity to the surface, while others might be less relevant in this context. My queer identity may have been influential in the interviews simply because we shared that aspect of our identity on some level and could relate through shared experiences and cultural norms.

Data-Collection Procedure

Due to the tight-knit nature of the Deaf gay community in this area, it was very unlikely that I would find participants with whom I had had no previous contact. Indeed, I knew each of the individuals involved in my research on a casual basis, so my connection to them...
included shared cultural affiliations and social networks. Nonetheless, before I began the interview, I introduced myself and briefly disclosed my own identity.

In order to elicit styles that might index gay identity, I created a variety of interview questions with different points of focus. I started with simple questions that one might ask when interacting with an acquaintance (e.g., where did you go to school? how was your week?); the intent was to establish a level of comfort before asking more personal questions. On the assumption that the variable of interest might be more prominent in informal conversation, I also casually asked the participants to relate funny anecdotes or jokes and to describe social events they had attended. Later questions pertained specifically to their experiences as both gay men and Deaf individuals, as well as to their sense of identity. During the actual interviews, the conversations diverged from the set questions, and the most natural data emerged in spontaneous conversation that occurred during the recording.

Variable: Joints of Articulation

Napoli, Sanders, and Wright (2014) identify six joints that may be used to articulate a manual sign. They range from the shoulder joint, which is the most proximal to the torso, to the interphalangeal joints, which are the most distal (see figure 1). These frame the selection of joints

![Figure 1. Joints of articulation in the arm, distal to proximal.](image-url)
used to produce a sign as a balance between ease of articulation and ease of perception. A sign articulated at the shoulder entails moving the entire arm, which requires more effort than articulation from a more distal joint but also results in a more easily perceived movement. The shoulder is also a highly versatile joint capable of multiple types of movement (e.g., abduction/adduction, flexion/extension, rotation) and consequently allows for very accurate path movement. Therefore a sign articulated at the shoulder requires the signer to move more mass but also allows for greater accuracy and control of the movement and provides increased perceptual salience. Conversely, a sign articulated at the wrist requires very little mass to be displaced but reduces accuracy and perceptual ease.

Signs may be proximalized or distalized from the citation form. A proximalized sign is articulated using a joint or joints closer to the torso than in the citation form, whereas a distalized sign uses more distal joints (see figure 2).

In some cases, proximalization may be perceived as a production error. For example, new signers are prone to proximalizing signs, which leads to a perception of the language produced as awkward or unnatural in appearance (Chen Pichler 2010; Mirus, Rathmann, and Meier 2001). Mirus, Rathmann, and Meier (ibid.) studied joint usage patterns in adult learners using an imitation task with ASL and DGS (German Sign Language, Deutsche Gebärdensprache). They found that (a) hearing adults without prior sign language experience

![Figure 2. Direction of joint shifts in proximalization and distalization.](image)
made proximalization errors in approximately 20 percent of signs, (b) ASL signers proximalized around 3 percent, and (c) DGS signers proximalized 8.75 percent when producing unknown ASL signs. Very few distalization errors appeared in the entire dataset (ibid., 111). The researchers propose that proximalization reflects the challenges of acquiring a new motor skill.

Changes in selected joints, however, do not necessarily indicate an error. The selected joints for a sign can vary even within standard acceptable production (Cull 2014). Although changes in the joint or joints of articulation do not generally alter the fundamental meaning of a sign, they do affect the articulation of the moving segment of the sign. As a sign is proximalized, it uses a larger signing space (imagine waving your hand from the shoulder as compared to waving from the wrist). In addition to the size of the signing space, orientation and position of the hand may be affected since joints are aligned differently. For example, Napoli, Sanders, and Wright (2014) give an example of proximalization that makes the articulation of a sign easier. In citation form, hour is produced with a radioulnar movement (leading to forearm rotation) and wrist flexion and extension (see figure 3). In this version of the sign, the radioulnar movement causes a change in palm orientation. Because this articulation is somewhat awkward, many signers proximalize and produce the sign with movement from the shoulder and elbow, which eliminates the orientation change (see figures 3 and 4).

**Figure 3.** Citation form of hour (images of signer retrieved from www.lifeprint.com).
As with many other sign language features, theories about the status of proximalization and distalization vary from model to model. Outside of developmental production errors, relatively little attention has been given to the details of joint usage and their effect on meaning. Due to the increased size of proximalized signs, proximalization may be used to communicate from a distance (Sandler and Lillo-Martin 2006). Proximalized signs may also be used to convey anger or excitement. Distalization can lead to a smaller signing space and may be used to communicate private or intimate information (similar to whispering) (Brentari 1999). In addition, Brentari (ibid.) considers selected joints to be related to sonorance; a sign becomes more sonorous as it becomes more proximal. Sandler and Lillo-Martin (2006) dispute this perspective and claim that proximalization and distalization are used for affectual “loudness,” which should not be conflated with sonority. Neither approach considers the selection of joints to be a meaningful or systematic point of variation, nor do they discuss where or how a change in the selected joints occurs.

A more significant issue is that it is currently unclear whether signs are specified for joint of articulation. In fact, determining the citation form of a sign in general is difficult due to the lack of consensus as to which features are included in the mental representation of a sign phoneme. This question relates to the overall point of this article; in order to determine which types of variation are meaningful, we need to work from the data.

Figure 4. Proximalized form of hour (images of signer retrieved from www.lifeprint.com).
Coding Considerations

The interviews produced a great deal of data to analyze, but coding sign language research presents quite a few inherent challenges. Simply identifying and coding joint selection is more complex than one might at first think. In any given production, a signer might change the joint of articulation in any of several different ways. Napoli, Sanders, and Wright (2014) propose two overarching types of joint changes: (a) transfer of movement from one joint to another and (b) subtraction or addition of a joint. They define proximalization and distalization as transfer processes. They also identify the freezing and grafting of joints. Freezing is a subtractive process whereby a joint that is used in the citation form is not moved. Grafting is the opposite: A joint that is inactive in the citation form is added. They further propose that espaliation, the freezing of a more proximal joint, should be more common than pruning (the freezing of a more distal joint). Mirus, Rathmann, and Meier (2001) refer to all of these processes as types of proximalization and distalization and categorize different types based on whether joints are added to the articulation, are eliminated, or occur simultaneously (see table 1; illustrations of each type appear in table 2, shown later). In other words, what Napoli, Sanders, and Wright (2014) refer to as “transfer,” Mirus, Rathmann, and Meier (2001) consider to be the simultaneous addition and subtraction of joints.

I initially planned to pull out a subset of all of the signs potentially susceptible to proximalization or distalization and code them for the joints that were used in the target form and the produced form. However, that approach turned out to be problematic for a number of reasons. First of all, if I looked only for signs that I felt could be proximalized or distalized in production, I was likely biasing the token selection by inflating the degree of change. In other words, if I selected

<table>
<thead>
<tr>
<th>Type 1</th>
<th>Target joint plus more proximal joint(s)</th>
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<tbody>
<tr>
<td>Type 2</td>
<td>Target joint less more distal joint(s)</td>
</tr>
<tr>
<td>Type 3</td>
<td>Addition of proximal joint(s) and elimination of distal joint(s)</td>
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only signs that I assumed were subject to change in joint production, my results might show a very high frequency of distalization, when, in fact, the explanation might simply be that I had selected only those signs for which I anticipated this result. Second, many signs can be articulated with different configurations of active joints. Even native signers exhibit great variation in joint use. Therefore, determining the target joints based on an idealized form is difficult. Finally, and most important, the data showed not one simple type of change, as I had initially assumed, but a number of different processes. I found examples of the processes identified by Napoli, Sanders, and Wright (2014) and by Mirus, Rathmann, and Meier (2001), including signs where joints were added or removed, as well as signs where joints were shifted to more proximal or more distal articulators. In addition, I found significant use of increased or decreased wrist flexion, which had a similar effect on the final production of the sign but was not technically an addition, a subtraction, or a shift. Many of these changes could occur simultaneously within a single sign. After several different approaches, I settled on a method that seemed to work for coding the data in a relatively balanced and neutral manner.

Coding Procedure

I began annotating the video data at the five-minute mark, at which point the interviews had settled into more natural rhythms than during the first few minutes. After transcribing a section of each interview, I marked the first fifty tokens that were available for analysis (the criteria for exclusion are given later). I used an online sign language resource (www.lifeprint.com) for the citation forms of the signs. The website is a dictionary and resource for students learning ASL. I chose this particular website because it is comprehensive, relatively well known, and widely used; in addition, the signs are carefully produced because they are intended to be accessible to novices. For any signs that were not found on the website, I consulted with fluent Deaf signers and asked for the citation form of the signs. This does not imply that these signs are the accepted citation form for all ASL users, but, by being consistent with the citation form throughout the data, this approach still allows for the comparison of phonological variables.
Annotations. For each token, I recorded the following data:

1. Citation form: joint(s) of articulation
2. Produced form: joint(s) of articulation
3. Body contact (yes or no)
4. Emphatic or nonemphatic production
5. Maximal sign space
6. Wrist flexion

Joints of articulation were coded from more proximal to more distal. Body contact and emphasis were coded in case those aspects regularly affected the data in a way that would influence the overall results. Body contact can limit the degree of movement that a signer can produce. Since proximalization may be used for emphasis, a sign might be proximalized in an emphatic context but produced in a more distal form in a nonemphatic context. Maximal sign space was included to help determine whether changes in joint usage affected overall size of the signing. To code this feature, I used a simplified grid system, roughly based on the location divisions used in Liddell and Johnson’s 1989 Sign Language Phonetic Annotation (Johnson and Liddell, 2010, 2011a, 2011b; see figure 5). Wrist flexion was coded according to the most extreme position of the dominant hand during the production of a sign.

Exclusions. For this analysis, I excluded the following signs:

a) Indexing pronouns: Personal pronouns in ASL are produced by pointing with the index finger, similar to a gestural point. Research
on personal pronouns indicates that they are subject to a great deal of reduction and assimilation in production (Bayley, Lucas, and Rose 2002). Consequently, including these signs in my data might inflate the number of instances of distalization.

b) Spatially/morphologically inflected: In some signs, the space around a signer is used meaningfully. Specific locations can show verbal agreement, relative location, or contrastive structures. For example, TELL begins at the mouth but then moves toward the object of the sentence, either a physically present individual or a point in the sign space that represents the object. In figure 6, note the significant differences in joint position in the various forms. These differences occur not only in the final position of the sign but also in the starting position. The wrist is slightly flexed in the starting position of TELL-YOU, more flexed in TELL-HER, and not flexed in TELL-ME.

Since these signs are subject to morphological processes that may influence the joints of articulation, they were excluded from this particular analysis.

Figure 6. Different inflections of TELL showing how spatially inflected signs may affect joints of articulation (images of signer retrieved from www.lifeprint.com).
c) Fingerspelling: Fingerspelling involves a series of handshapes produced in rapid succession. All letters require some articulation at the interphalangeal joints, and transitioning from letter to letter requires wrist articulation. Therefore, these signs are already maximally distalized.

d) Signs that are subject to significant modification due to other phonological processes: In some cases, signs may be so phonologically reduced that movement either is not visible or is subsumed under an adjacent sign. If I was unable to clearly delineate the boundary of a sign, it was excluded from this analysis.

e) Signs for which articulation at different joints is physically improbable: To determine which signs were not likely to be altered, I looked those that were anatomically limited in their production (i.e., the joints could not easily be altered). For example, some signs are produced with the hands in contact with the body throughout the sign. These are difficult to alter because of the physical constraints imposed by the continual contact. As figure 7 illustrates, enjoy is not a likely candidate for changing joints of articulation because the physically possible joint movements are limited by the body contact.

f) If one lexical item was repeated more than three times, only the first three occurrences were included. In the annotation process, I discovered that the signers were fairly consistent in how they

![Figure 7](image-retrieved-from-www.lifeprint.com)
produced a given lexical item. In order to avoid falsely inflating results by repeatedly counting the same token as distalization, and in order to get a maximally representative sample of each signer’s production, I analyzed only the first three productions of any specific item.

Results

Once the data were coded, I tallied the tokens of variation. Out of the total 250 tokens, 173 signs showed relevant variants, and 77 were unchanged from their citation form. After identifying instances of variation, I compared the citation form and the produced form to see what types of change were present. I used the categorization system developed by Mirus, Rathmann, and Meier (2001) for these data. For both proximalization and distalization, there could be a Type 1 change (addition of a joint), a Type 2 change (subtraction of a joint), or a Type 3 change (shift/both addition and subtraction). Examples of each type of distillation are shown in figures 8–10.

Wrist flexion and extension were tallied separately. Flexion and extension are related to joint articulation, but, in this case, they refer to instances in which wrist articulation occurs in both the citation

![Type 1: Addition of distal joint](image)

**Figure 8.** Distalization Type 1 example (Addition of a distal joint in the sign **hurt**).
Figure 9. Distalization Type 2 example (Subtraction of a proximal joint in the sign healthy).

Figure 10. Distalization Type 3 example (Shifted joints of articulation in the sign true).
form and the produced form, but the degree of flexion is different. The degree of flexion was translated to a numeric value in terms of absolute value—from neutral (full extend = 2, partial extend = 1, neutral = 0, partial flex = 1, full flex = 2). The extent of change from citation form to produced form was calculated from these numbers. The full flexion and extension categories were determined according to whether the wrist was maximally bent (see figure 11). Any position that was not maximal but also not neutral was tallied as partial flexion or extension. Note that in the tables and charts, this feature is labeled as “flex,” but it refers to either flexion or extension. Movement away from neutral was recorded as positive movement, and movement toward neutral was negative. For example, a sign that was produced with neutral flexion in the citation form and full flexion in the data received a change value of +2. A sign that was produced with partial extension in the citation form and neutral flexion in the data received a change value of −1. If the citation form of a sign was partially flexed and the data showed partial extension, that change value was recorded as zero because, although a change took place, it did not affect the overall distance from neutral. In future endeavors, this category of change should be applied to other joints as well.

To illustrate the various changes that occurred within a single token, figures 12 and 13 show both the citation and the produced form of protest. In the citation form, the elbow is extended and the
shoulder is flexed, and there is a very slight wrist extension in addition to radioulnar rotation. In the produced form, neither shoulder nor elbow moves, the radioulnar movement remains, and the wrist extension is much more extreme. Two joints are subtracted, one is retained, and one is increased. This change was coded as a subtraction process (Type 2) with increased flexion. In some instances, it was difficult to determine whether the citation form had a slight articulation at the wrist (and should therefore be tallied as a change in the amount of flexion) or whether it was an additional joint of articulation in the produced sign. A more detailed or technical analysis of joint position could resolve this ambiguity. In this case, the ultimate goal was to determine whether the sign was being produced as more distal or more proximal, and thus which type of distalization occurred is less critical for the analysis than whether or not a change took place.

Figure 12. Citation form of protest, articulated with movement at the elbow and shoulder.

Figure 13. Distalized form of protest, articulated with no elbow or shoulder movement.
The process of simple distalization or proximalization as I originally conceived it (i.e., Type 3, joints of articulation shifted) was relatively rare in the data. Of the 173 tokens of change, 24 were examples of distalization shift, and 13 were tokens of proximalization shift. Joint addition occurred more frequently than the citation form (Type 1). The data contained 53 tokens of addition. Joint deletion (Type 2) was seen in 34 tokens. Increased wrist flexion/extension appeared in 70 tokens, and decreased flexion/extension appeared in 46 tokens.

After tallying the results, I discovered that, although many of the individual signs appeared more distal, the type of distalization varied. One participant frequently showed Type 2 changes (deletion of a proximal joint), leading to a smaller signing space. Another tended to sign while using a large signing space and retaining the proximal joints, but he showed Type 1 changes (addition of a proximal joint) and increased wrist flexion, still resulting in an overall distal effect. For this reason, I grouped addition of a distal joint, subtraction of a proximal joint, and both addition and subtraction as distal change. The opposite changes were grouped as proximal change. Wrist flexion was analyzed separately and then grouped with distal and proximal changes. These groupings allowed me to examine the overall trends more accurately.

Table 2 shows the number of changes for each category and the average change for the three representative consultants. The top three rows are the three consultants who were analyzed as representative of this language variety. The row labeled WT is the straight-identified consultant, and row PB is the consultant who had not lived in the Bay Area for very long.

<table>
<thead>
<tr>
<th>Participant</th>
<th>Distal</th>
<th>Proximal</th>
<th>More flex</th>
<th>Less flex</th>
<th>No change</th>
</tr>
</thead>
<tbody>
<tr>
<td>JR</td>
<td>17</td>
<td>4</td>
<td>17</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>GH</td>
<td>20</td>
<td>7</td>
<td>21</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>LP</td>
<td>25</td>
<td>4</td>
<td>13</td>
<td>7</td>
<td>17</td>
</tr>
<tr>
<td>Mean</td>
<td>20.7</td>
<td>5</td>
<td>17</td>
<td>7.7</td>
<td>14</td>
</tr>
<tr>
<td>WT</td>
<td>8</td>
<td>11</td>
<td>9</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>PB</td>
<td>11</td>
<td>10</td>
<td>10</td>
<td>11</td>
<td>18</td>
</tr>
</tbody>
</table>
Table 3 shows percentages of change and mean values for individual participants. The three representative participants showed distalized features in 40 percent of the sign tokens on average and increased flexion in 30 percent. The same three showed proximalization in 10 percent of their sign tokens and decreased flexion in 20 percent. These tallies are noticeably different for the other two participants. The straight-identified participant (WT) had more changes toward proximal features than toward distal features in both proximalization/distalization and flexion. The nonlocal participant (PB) fell in between the gay-identified local participants and the straight participant.

With regard to the additional factors that I coded, tokens of emphatic signs were very infrequent in the data and consequently were not tallied. I originally suspected that signs with body contact might be less prone to changes in joint of articulation, but the data did not support that theory. Although some signs may be constrained by being anchored to a specific location on the body, this factor did not appear to be an issue in the tokens I collected.

Analysis

The conclusions that can be drawn from these data are constrained by the small sample size, but even in this preliminary study some interesting patterns emerge. In figure 14, the three primary participants (gay-identified and local to the Bay Area) are compared for amount of grouped proximalization, distalization, and wrist flexion. The three individuals show similar patterns of change, with some individual variation. In all three, the degree of distalization is consid-
erably greater than that of proximalization, and the extent of increased wrist flexion/extension is greater than that of decreased wrist flexion/extension.

Figure 15 shows the frequency of changes for all five participants. The distribution of change in the straight control (WT) contrasts with that of the first three participants. Note that he shows some change in all categories, which supports the idea that individual fea-
tures of language are resources available to the entire speech community; they are not limited to one style. In contrast to the other signers, WT’s frequency of both proximalization and decreased flexion is greater than the corresponding distalization and increased flexion values. These data suggest that some varieties of ASL might use proximalization as a component feature, but more analysis is needed to determine the use and extent of this variable. Interestingly, PB, who identifies as gay but has not been involved in the San Francisco community for as long as the other gay individuals, shows a pattern much more similar to WT than to the first three participants. In the case of WT and PB, the distribution of changes is fairly even, although WT has more proximalized features overall. Rates of signs with no change were similar for all of the individuals except for GH, who showed change in 82 percent of his sign tokens (compared to an average of 67 percent change for the other signers).

Because of the appearance of a common pattern for the first three subjects, I averaged their values and used this mean value to compare to the data from the control subject (figure 16). The comparison shows trends that correspond to the identity of the participants. The three gay signers show a much higher rate of signs with distal features and more wrist flexion than appears in the relatively low values for WT.

Figure 16. Mean values for primary participants compared to control.
Indexing Gay Identities

Discussion

This dataset shows a clear pattern of socially conditioned variation. The Bay Area men who identified as gay used distalization features more frequently than proximalization features, in contrast to the participants who did not identify with that community. Within the limitations of this small-scale study, it seems likely that distalization is one component of a regional linguistic style indexical of gay identity. The fact that this process carries social meaning suggests that alternation in selected joints may have more linguistic significance than previously assumed. If it is being differentially applied based on identity and community affiliation, it is sufficiently salient to mark social identity.

How is it that this complex feature, which is realized in several different conformations, has come to be internalized and used as an indexing feature? As discussed here, exemplar theory proposes that phonological categories arise via experience with a wide range of possible variants. One implication of this approach is that variants (and the categories they constitute) are considered to be acquired in fundamentally the same manner regardless of whether they are social or phonetic characteristics. The same mental process that allows us to store, encode, and categorize phonetic detail also allows us to represent social categories based on perceived commonalities and clustering of features.

Sociophonetic differences are pervasive and perceptible; we use phonetic information to convey aspects of our social identity, and we are highly attuned to the implications of phonetic information presented by others. “Indeed, the interweaving of sociophonetic and linguistic information in speech is so complete that no natural human utterance can offer linguistic information without simultaneously indexing one or more social factors” (Foulkes and Docherty 2006, 419). Consequently, every instance of language that is stored may encode not only the phonetic details but also the indexical information that was presented (ibid.). In fact, since language is a fundamentally social endeavor, we have little reason to distinguish social variation from any other sort of variation.

Returning to the question of sign languages, since the exemplar theory proposes that individuals actively construct and adjust
categories in response to perceived input, we can first examine the phonetic details of the exemplars in order to determine what a signed phoneme consists of. Indeed, this approach parallels that of Johnson and Liddell (2010), who insist that a detailed phonetic representation is required prior to making any assumptions about what a phoneme might be. Exemplar theory adds to this foundation by suggesting that social variation is also an important factor in how individuals acquire and process phonetic information. If we build phonological categories from social experience, then meaningful perceptual differences form the foundation of these categories. Individuals who are exposed to a sign language will apply whatever biological preferences the human brain has developed to their perception of visual language. Variation between signers will gradually accrue points of overlap until sufficient similarity exists to form plausible categories. Continued social experience will shape and modify those categories. From the perspective of the exemplar model, any salient phonetic details may form meaningful distinctions, whether they be contrastive linguistic differences that lead to different phonemes or socially laden differences that index a certain identity. For sign languages, one particularly appealing feature of this theory is that it does not need to accommodate or explain modality differences. The brain does not need to attune to the same types of phonetic features as those used in spoken language; it just needs to be able to perceive and encode salient differences.

In the case presented here, we see tentative evidence that distalization is a component of a particular linguistic style. However, we also see that, even in this very small sample, a range of distalization is produced. In other words, it is not the specific joint of articulation but the overall distalized production that is the indexical feature. Since exemplars are based on perception, the theory suggests a possible reason for multiple iterations of the performance of distalization. When we are experiencing language, we can encode only those details that we can perceive, and even this perception is influenced by attention and salience. Signs may be produced in several different ways with the same ultimate result of a more distal or a more proximal production. Each signer who attends to this feature and integrates it into expressive language may accommodate the variant based on personal differences in how it was perceived and encoded, as well as other factors
of personal style. Perhaps joints of articulation are not even specified in the mental representation of phonological form but instead are determined by the perceptually driven intended form of the sign, leaving the joints subject to constrained variation.

Conclusion

In this study I have presented a dataset of observable data that inform our understanding of phonological theory. These data reinforce the proposal that social variation—rather than departing from the rules governing phonological patterns—can enhance the development of robust models of phonology. I suggest that this approach may be especially important in the field of sign language linguistics since little consensus currently exists on how sign language phonology should be conceptualized. In the footsteps of Foulkes and Docherty, I present an analysis of social variation in American Sign Language to test whether exemplar theory may offer some insight into how variation in all its manifestations may be accommodated within a phonological theory. In the process of this investigation, I explore issues of identity and indexicality and the place of these concepts within the growing study of sociophonetic variation in sign languages.

Exemplar theory has proven to be an appealing model for researchers who want to consider social variation. Many phonological models have emphasized the “ideal speaker,” which generally excludes the study of variation. Proponents of the exemplar theory suggest that theoretical models might be strengthened if they are informed by variation since it is a pervasive and often systematic aspect of all human languages. This model may be particularly useful for a study of sign language and variation because it circumvents some of the underlying issues of other phonological theories, which may require an innate understanding of phonological categories. If we base our phonological understanding on experience, and if that experience is constrained and directed by our social connections, then the precise details of what constitutes a phoneme become less problematic in all modalities. As long as the data provided are still within the biological, perceptual, and productive needs of our neural apparatus, there is no inherent requirement that the building blocks of a phoneme be the same in both visual and spoken languages. And by the same logic,
shared regularities that we find in the structures of both visual and spoken languages may provide valuable insight into what structures are innately preferred as linguistic primes.

Notes

1. Capitalized “Deaf” is used to refer to individuals who identify themselves as members of a minority culture with regard to common values and language.

2. I had been given permission to reuse the video data in future projects.

3. I use the term “queer” to denote the identity of those who do not consider themselves straight, who are members of a related minority culture, and who consequently have a shared cultural experience. Gay men may or may not use this term as part of their identity, but the experience of identifying outside the majority in terms of sexual identity is relevant regardless of terminology. The men that I interviewed primarily referred to themselves as gay, so I use that term in this article.

References


