New Trends in ASL Variation Documentation

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REPORT ON ONGOING RESEARCH

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Sign Language Studies is introducing a new section titled "Reports on Ongoing Research." These short research briefs are intended to provide a format for researchers to report on projects for which research is ongoing but for which a timely research brief would be of interest to the *Sign Language Studies* (SLS) community. Research reports include relevant background information, including the impetus for the work, methodologies, past progress, state of ongoing work, dissemination efforts, and future plans.

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In this first research report, we are pleased to provide an overview of the progress made on three ongoing sociolinguistic documentation projects focused on American Sign Language (ASL). These projects are being carried out by three separate research teams based at the University of Pennsylvania, Gallaudet University, and the Rochester Institute of Technology (RIT)–National Technical Institute for the Deaf (NTID). The structure of the report will describe each project in turn, concluding with a description of future directions for a new sociolinguistic documentation project involving an exciting collaboration of the three research teams.

Sociolinguistic Variation in ASL

Recognition of sociolinguistic variation in ASL has been an important part of the documentation and description efforts since the beginning of linguistic research on the language (Lucas and Bayley 2001). As ASL is the language of diverse communities of Deaf (and hearing) people across the United States and Canada, far from being homogeneous, ASL comprises several unique ASL varieties (e.g., Black ASL [McCaskill, Lucas, Bayley, and Hill 2011; Hill 2017] or Philadelphia ASL [Fisher, Tamminga, and Hochgesang 2018]). While sociolinguists have focused considerable time and effort on documenting ASL variations, limited resources in the form of time, money, equipment, technology, and personnel have constrained documentation efforts. As such, our knowledge of ASL variations varies greatly from state to state, community to community, context to context both in terms of breadth and depth of knowledge. Furthermore, with a few exceptions (Hill 2012, Bayley et al. 2017), our understanding of ASL communities' beliefs and attitudes about nonprestige or minoritized varieties of ASL is still also largely lacking.

Here, we report on three current efforts to increase the breadth and depth of documentation of ASL varieties across diverse groups of signers, namely, the Philadelphia Signs Project (Fisher, Tamminga, and Hochgesang), the Gallaudet University Documentation of ASL project (GUDA) (Hochgesang and Shaw), and Documenting Individual Signs in ASL (DIVA) (Hill and Occhino). Each project focuses on solutions to different limitations of past documentation efforts while sharing similar goals, that is, to increase representation of underrepresented

varieties in the documentation of ASL, to raise awareness of varieties used in these communities, and to create sustainable and accessible language repositories for future generations of ASL signers to appreciate the signs of a diverse language community.

Philadelphia Signs Project (Fisher, Tamminga, and Hochgesang)

Philadelphia Signs Project: Background

The Philadelphia Signs Project is a collaborative effort between the Philadelphia Deaf community and researchers at the University of Pennsylvania and Gallaudet University. It centers on the collection, annotation, and analysis of video-recorded conversations of regular users of ASL, who were raised in and acquired ASL in the Philadelphia area. The impetus for this project came from various members of the Philadelphia Deaf community, who wished to document the variety of their signing, used mostly by the older signers in the Philadelphia area.

As a lifelong member of the Philadelphia Deaf community and faculty in the University of Pennsylvania's Department of Linguistics, Dr. Jami Fisher realized there was an opportunity to meet the community's demand for documentation and preservation of its variety.[1] Using her extensive connections within the Philadelphia Deaf community, Fisher was able to recruit both interviewers and participants to launch this extensive project. She turned to her Penn linguistics faculty colleague Dr. Meredith Tamminga to consult on sociolinguistic methods; Tamminga subsequently joined the project, bringing expertise in sociolinguistic theory plus familiarity with research on language variation and change in Philadelphia English.[2] Rounding out the team, Dr. Julie Hochgesang (Gallaudet University) became a consultant and collaborator in 2015, adding her extensive experience in language documentation, description, and sign language corpus management. With all the pieces in place, the team applied for and received a research grant from the University of Pennsylvania's School of Arts and Sciences in 2015 to begin data collection and annotation.

Conversational interviews were conducted by three Deaf Philadelphians—Randy Fisher, Janessa Carter, and Domonic Gordine—who are all regular users of ASL. Each interviewer was

selected for their lifelong presence in the Philadelphia Deaf community, their ability to recruit appropriate participants, and their ability to sustain reasonably lengthy conversations with participants. Furthermore, to facilitate naturalistic conversation and mitigate the effects of convergence across interlocutors, interviewers recruited those participants with whom they shared similar demographics, including age and race. The interviewers led semistructured conversations with one Philadelphia-area participant at a time, using strategies modeled after Labov's (1984) sociolinguistic interview methodology and in the style of past sociolinguistic work done in ASL (Lucas et al. 2001; McCaskill et al. 2011). The questions centered on themes that reflect common Philadelphia Deaf community experiences and were intended to elicit conversational signing with opportunities for historical and cultural information sharing and documentation.

The recruiting process generally centered on the inclusion criteria of being Deaf, acquiring ASL before the age of ten years, and spending the formative years in the Philadelphia area. Because Deaf schools are typically the locus for sign language transmission for Deaf people, the initial assumption was that attendance at Pennsylvania School for the Deaf (PSD) should also be an inclusion criterion. It was quickly discovered, however, that this criterion (and, to some extent, the criterion for acquiring ASL before the age of ten years) was too restrictive, as it had the effect of excluding many people who attended day school programs at the Martin School and Archbishop Ryan School for the Deaf. Furthermore, few people of color attended PSD before the 1970s and 1980s. In particular, most Black Deaf people in Philadelphia older than forty years of age attended one of the aforementioned day school programs; therefore, the inclusion criteria were expanded and, since 2018, efforts were made to recruit people of color—especially those who may not have attended PSD.

At current count, the corpus contains thirty-seven individual interviews, which were recorded from two camera angles. The primary video data are being minimally annotated using ELAN (Wittenburg et al. 2006) and the SLAASh data annotation protocols (Hochgesang 2020a) by a team of linguists and students at Gallaudet University, supervised by Hochgesang. The annotation files are directly linked to the ASL Signbank (Hochgesang, Lillo-Martin, and Crasborn 2020b)

Figure 1. Philadelphia Signs Project annotation with ELAN ID gloss in Signbank.

by way of an external controlled vocabulary in ELAN, linking ID glosses for signs produced on the right and left hands to the same ID gloss entries in the ASL Signbank (figure 1). Seventeen of the thirty-seven interviews have been partially annotated, with an average of 11.5 minutes of annotation per partly annotated interview.

Philadelphia Signs Project: Progress and Output

Because the project was undertaken as a collaboration between the Deaf community and researchers at the University of Pennsylvania, the research output has been designed to engage both academic and layperson audiences. On the academic side, much of the project output so far has focused on high-level contextualization of the project. In 2016, a poster was presented at the Seventh Workshop on the Representation and Processing of Sign Languages at the Language Resources and Evaluation Conference (LREC) (Fisher, Hochgesang and Tamminga 2016),[3] situating the regionally specific project against a backdrop of ASL lacking a comprehensive pan-regional corpus. In

2018, the Philadelphia Signs Project published an article in *Sign Language Studies* (Fisher et al. 2018) discussing the social, historical, and educational contexts in which Philadelphia ASL developed, with particular focus on the role of PSD as an institutional mechanism for language transmission and cultural development of Deaf Philadelphians, albeit in a context that was not necessarily inclusive of all Deaf people who lived in the region. A follow-up publication further unpacks this sociohistorical perspective in a chapter for a volume edited by Asli Goksel, Jana Hosemann, and Roland Pfau for De Gruyter Mouton's Sign Language and Deaf Communities series (Fisher, Tamminga, Hochgesang and Miller, 2021).

Preliminary investigations of the variable features of conversational ASL have been carried out, with an eye to detecting possible sociolinguistic or dialectal sensitivities in the future. The first study of quantitative variation in Philadelphia ASL looked at alternations between one-handed and two-handed forms of signs, as well as gradient hand height variation within those signs. This work was presented at the conference New Ways of Analyzing Variation in 2018 (NWAV47) (Tamminga, Fisher, and Hochgesang 2018) and was published in the *Penn Working Papers in Linguistics* (Tamminga, Fisher, and Hochgesang 2020). Additional work has been carried out on the recognition of Philadelphia-area signs by Philadelphian and non-Philadelphian signers (Hamilton and Hochgesang 2017).

On the community side, the Philadelphia Signs Project has put forth several projects and initiatives intended for a layperson audience. The first major public presentation, "American Sign Language, Philly Style," was held in the summer of 2016, at the University of Pennsylvania Science Cafe, a public forum for science outreach. This event contextualized the history and language of the Philadelphia Deaf community and highlighted some local divergences from panregional ASL. Notably, this event had a large Deaf community turnout, where members shared stories, memories, and personal experiences and asked questions on the future plans for documentation and preservation of the Philadelphia variety. In 2017, Tamminga gave a second lecture titled "60-Second Lecture" (https://vimeo.com/235773199) on Penn's campus, which showcased some lexical features of Philadelphia ASL (figures 2a, 2b).

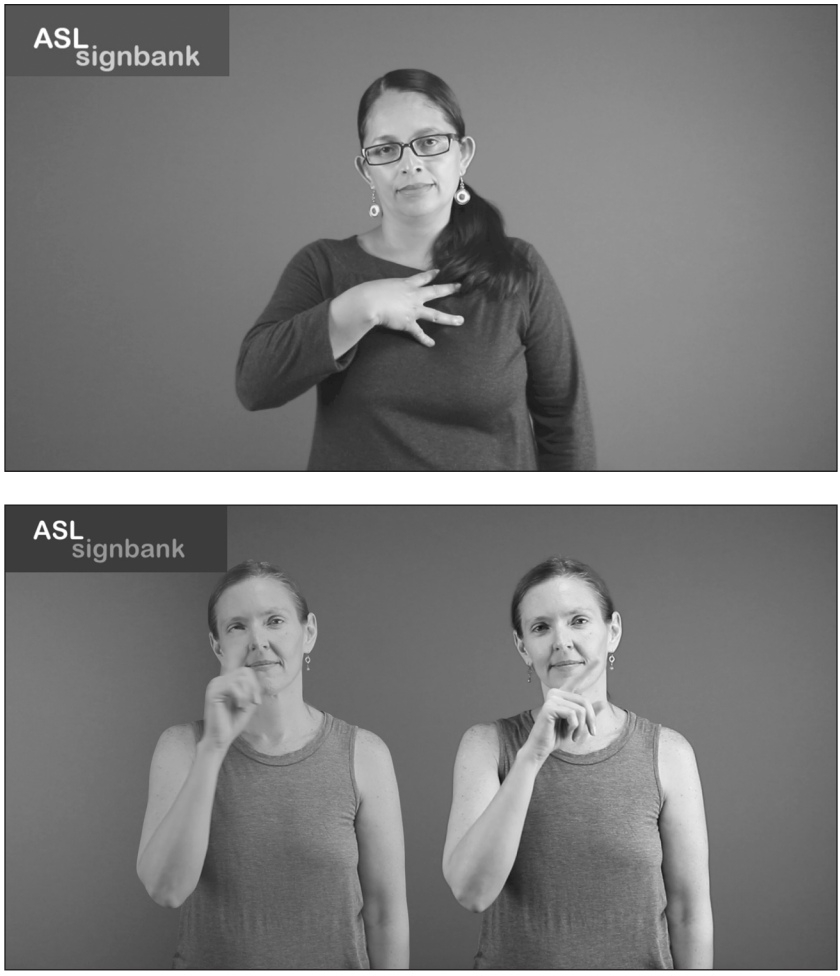

Figure 2. possess (top) and female (bottom) (ASL Signbank 2020).

In March 2020, a workshop was held at the University of Pennsylvania for the local community to meet the visiting ASL researchers and ask questions about their research. Many of the project participants attended. At that event, the Philadelphia Signs Project website (http://pennds.org/phillysigns/) was also launched. The website allows the general public to access video clips from interviews and information on our efforts. Because the collections of lexical variants from

Philadelphia are of particular interest to the local Deaf community, this content is prominently featured on the site. The site also features a contribution page, where Philadelphia ASL users can contribute their stories and signs to the site.

Philadelphia Signs Project: Future Plans

Moving forward, the project will continue data collection, analysis, and community outreach efforts. As initial efforts to target PSD alumni fell short of adequately representing the diverse population of signers in Philadelphia, ongoing efforts work to actively recruit community members who did not attend PSD.[4] In addition, while initial efforts focused on documenting as many older signers as possible before their signs were lost to the community, recent efforts deliberately recruit younger signers and signers of color to ensure a corpus that is more representative of the Philadelphia Deaf community population.

In March 2020, the Philadelphia Signs Project hosted a workshop, "Building Connections with ASL Corpora," sponsored by the University of Pennsylvania's Integrated Language Sciences & Technology Initiative through MindCORE. The six authors of this paper came together to present our most recent research and future plans to both academic and layperson audiences. At this event, Fisher and Tamminga presented preliminary quantitative and qualitative explorations of hand dominance reversal (Fisher and Tamminga 2020), a topic that is now actively being pursued in summer/fall 2020. The team is interested in the complex pragmatic functions of dominance reversal, as well as in the question of the sociolinguistic factors that might play a role in who uses dominance reversal and when.

With respect to community outreach, the team plans to expand the website to include more video clips from our corpus and to crowdsource community contributions of short stories about the Philadelphia Deaf experience and to gather lexical contributions that are presumed to be distinctively Philadelphia ASL. Ultimately, the aim is to create a site that can be used as a tool for teaching the history and language of Deaf Philadelphians. This will be useful in the instruction of younger Deaf children, who have fewer and fewer native Philadelphia signing models, and for interpreters who encounter the Philadelphia variety in their day-to-day work.

Gallaudet University Documentation of ASL (GUDA)

GUDA: Background

The language variation that exists in ASL communities is prominently displayed in the stories that have been passed down across generations. Deaf people have necessarily passed down their stories, poetry, and other textual discourses face to face, because there is no widely accepted written form and thus no direct textual representation of ASL. Since the invention of film, ASL discourse has been recorded. However, we must acknowledge the privileges of those who have had access to the technology to make such documentation possible. Historically, those privileged enough to participate in the documentation of their language have largely been white Deaf Americans affiliated with Gallaudet University or the National Association of the Deaf (NAD). In other words, many stories, styles, and signs of the members of our diverse and dispersed ASL communities have not yet been documented or preserved.

Gallaudet University, founded in 1864, is home to a diverse collection of videos filmed beginning in the early 1900s, which continues to grow today. The first filmed video of ASL was generated in 1910 in Ohio at the convention of the National Association of the Deaf (Sign Media 2003). As of 2021, the university has more than one hundred years of films of people signing. Recordings include linguistic-specific research and elicitation, as well as those films made by academic departments for a multitude of purposes. Naturally, the films reflect a wide range of registers, settings, and content, and as such, there is much potential for sociological, cultural, and linguistic analysis in this collection—especially given that these videos are mostly community generated (as opposed to scripted or performed events) (also see Hou, Lepic, and Wilkinson 2020). Another value of the collection is that it showcases different users of ASL—in terms of language experience among other social and racial/ethnic categories, native, early, late, Deaf, DeafBlind, Coda, and hearing signers. As a data set, it allows for analysis of ASL from diverse populations, thereby resisting the theoretical linguist's preference for using data only from native signers (e.g., Snoddon and De Meulder 2020).

When Julie Hochgesang began graduate school at Gallaudet, she learned very quickly how difficult it was to find citable instances of

ASL from these videos for her coursework. She realized that there was no easy way to access and utilize the collection since they exist in different formats, are housed in various departments, and cannot be searched for topic or content. Many of the films—which are stored on the nearly defunct Gallaudet Video Library (figure 3), Kaltura, or Youtube channel, as well as on Facebook—contain valuable contents that reflect different moments in the development and change of the language. In Bird and Simons's (2003) terms, they are, for all intents and purposes, "digital detritus." First, the data are inaccessible in that they may (or may not) be public facing, and second, they are not processed in consistent (i.e., machine-readable or searchable) ways that would make their contents available to search.

Gallaudet University Documentation of ASL (GUDA)[5,6] aims to digitally organize this vast video collection in a way that makes them accessible to the ASL and research communities. The project highlights the need to take care of the stories we already have, akin to the Austin Principles of Data Citation (https://site.uit.no/linguisticsdatacitation/austinprinciples). GUDA started as a personal interest for Hochgesang, an associate professor in the Gallaudet Department of Linguistics, who is a Deaf woman whose primary language is ASL, wanting to create a searchable, usable database. Hochgesang began by trying to identify institutional resources, and along the way, Dr. Emily Shaw (associate professor, Gallaudet Department of Interpretation and Translation) and graduate students Nic Willow and Rafael Treviño joined the project. Multiple conversations with other stakeholders continue to transpire (including Drs. Brian Greenwald and Jean Bergey of the Drs. John S. and Betty J. Schuchman Deaf Documentary Center, the Gallaudet Library, and other departments working with language).

One of the challenges in creating a representative ASL corpus is the sheer size of North America and the diverse communities of Deaf ASL users. The geographical distribution of Deaf ASL signers is unique compared to signing populations represented by other sign language corpus projects in other countries. This need to account for representation of multiple communities within the larger Deaf community in North America presents challenges at every step of corpus development (including procuring grant funding, collecting the films, storing/archiving the data, creating annotations, and conducting analyses). Considering that Gallaudet brings signing people together

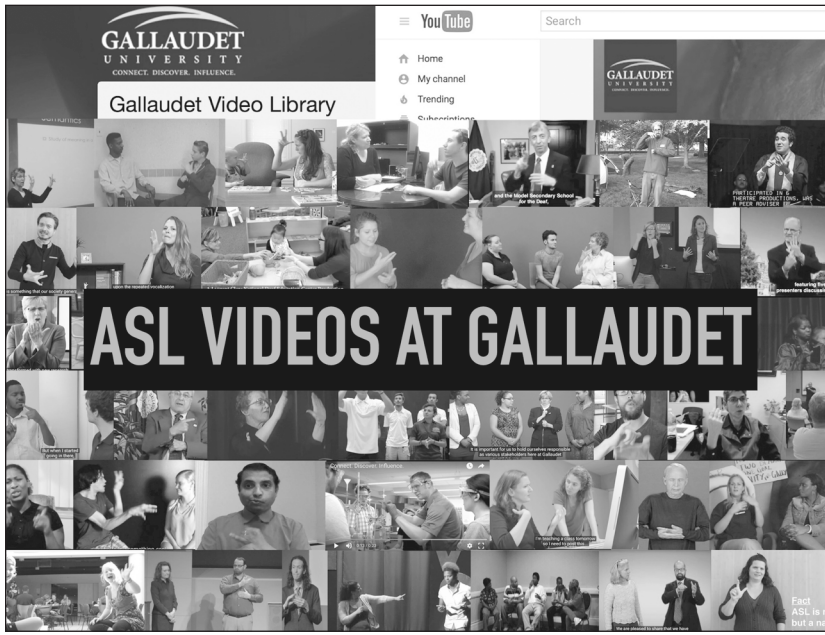

Figure 3. ASL Videos at Gallaudet Online Video Library.

from all over North America, it is well positioned to represent this significant regional variation.

GUDA Project: Progress and Output

For any corpus to be a "lasting multipurpose record of a language" (Himmelmann 2006), it must include cross-disciplinary cooperation, lasting stakeholder involvement, and sustainable resources. Gallaudet University, established more than 150 years ago, is uniquely situated to provide all of these. Currently, GUDA is a preliminary homegrown attempt to curate and provide a sustainable home to this vast video collection.

GUDA is also a call to action to care for data and use local digital tools immediately available to Gallaudet faculty to gather video data, digitally organize them for public use, and deposit them in language archives. When available, GUDA's digital landing site will serve as a point of access for those interested in the data as it is enriched over time even prior to becoming a full corpus. The landing site will allow

FIGURE 4. Overview of the GUDA model (designed by Oswald V. Cameron).

Deaf community members and researchers both on and off Gallaudet campus to pull from GUDA resources or contribute to ongoing collections. This digital infrastructure, an emerging digital curation system for stewardship of ASL videos as shown in figure 4, will point to existing sources of data.

For existing data sets (primary data only or comprehensive data sets) that already have a stable Uniform Resource Locator (URL), GUDA will point to these sources and offer searchability through its digital landing site. For other data sources without stable URLs, GUDA will use current video hosting services by Gallaudet (e.g., Kaltura) to access the videos. The data sources will be organized and searchable along with their metadata, ELAN annotation files using the SLAASh data annotation protocols (Hochgesang 2020a) and ASL Signbank (Hochgesang, Lillo-Martin, and Crasborn 2020b), and terms of use through the GUDA landing site. This site is in development and its features include graded levels of access and protocols for participant reconsent (which have been reviewed by the Institutional Review Board [IRB]).

The GUDA team has also started to organize videos and add minimal annotation. The team has been focused on cultivating interest in the project and generating momentum to get funding to support the work. To that end, GUDA has been presented at various workshops and conferences, both on and off campus. In 2018, Hochgesang and Willow presented at the 13th High Desert Linguistics Society Conference at the University of New Mexico about the early ideas of what GUDA (then called DAGU) could accomplish. At the Georgetown University Round Table (GURT) in 2019, the

team presented their proposal, to mainly professional linguists, that the documentation of primary data (videos) through GUDA is itself a representation of ASL (again note that ASL like most, if not all, signed languages does not have community-preferred written systems). At the 13th Theoretical Issues in Signed Language Research conference (TISLR13), the team traveled to Germany to join signed language linguists from all around the world to share preliminary efforts in developing digital collections with the potential of becoming a representative corpus for ASL. At the Maintainers III Conference in 2019, Hochgesang and Shaw joined other maintainers "interested in the concepts of maintenance, infrastructure, repair, and the myriad forms of labor and expertise that sustain our human-built world," gaining valuable insights about sustainable maintenance of the GUDA data (https://themaintainers.org/).

More recently, in March 2020, team GUDA joined the coauthors of this paper at the "Building Connections with ASL Corpora" workshop sponsored by the Philadelphia Signs project (described in this section), where Shaw and Hochgesang presented their ideas about caring for the videos at Gallaudet. For the Ninth LREC2020 Workshop on the Representation and Processing of Sign Languages workshop proceedings in May 2020, Treviño et al. (2020) outlined the creation of the parallel corpus that made use of the available SRT (subrip subtitle) files of Gallaudet ASL videos interpreted into or from English, or captioned into English.

Future Plans

GUDA has the potential to help create a monitor-style corpus (McEnery and Hardie 2011). Although not designed to be part of a corpus from the start, GUDA aims to pull together video resources already existing at Gallaudet from the early 1900s to date, showcasing the use of ASL across users, discourse genres, and time. As a Deaf-led project, GUDA will hold digital curation, accessibility, cross-disciplinary benefit, community stewardship, and collaboration within its core vision (Berez-Kroekeret al. 2018).

Having been given access to the Deaf communities' histories and languages, linguists and other academics working with language must reciprocate as stewards. By using already existing ASL video sources,

we are salvaging the "digital detritus" (Bird and Simons 2003) of Gallaudet ASL video collections and hopefully creating a representative ASL corpus that will become a resource for researchers as well as community members. During this massive endeavor, care must be taken to complete and standardize the metadata within collections for more comprehensive searchability, resulting in fuller cross-discipline benefit. The GUDA team must also take special care to document sources accurately and ethically, especially concerning participant consent, which will require reconsent measures (Chen Pichler et al. 2016). Although it may take some unprecedented extra work for current best practices for sign language corpora (Fenlon et al. 2015), it is well worth the effort. GUDA stands to become a vital resource to test claims about ASL made in the literature, previously based on grammaticality judgments of a small number of signers from traditionally privileged communities. Most importantly, GUDA can help support the building of lasting resources for the creation of new research.

While the team is aware that conversations about curating data inevitably lead to questions about ownership and licensing, we are wary of the kinds of decisions that promote power and control over the data. Language use is rooted in the communities and cannot be easily packaged into neat little boxes, a practice that stems from applying categories like "nouns" and "indicating verbs" or "academic" and "nonacademic." Among ASL linguists and others, there has been a tendency to make judgments about what "counts" as ASL (and what does not). These boundaries have often reflected social, economic, and cultural biases and have relegated large populations of Deaf Americans to the linguistic sidelines. Instead, GUDA proposes that the process of curating data needs to be considerate, sustainable, transparent, inclusive, reflective, dynamic, and representative. The choices made now will have long-lasting and unforeseen consequences.

The team also envisions Gallaudet as a leader and partner in modeling data collection/organization/sharing infrastructure and potentially hosting data (e.g., archives) or sharing toolkits for this kind of work. Again, given its long history and place in the Deaf communities, Gallaudet is tasked with being a steward for knowledge generated by Deaf people, but we must be mindful of its power. Gallaudet can provide a space for those who wish to generate such knowledge, but such

a space should not be coercive or turn into linguistic gate-keeping. As Taeyoon Choi (https://taeyoonchoi.com/soft-care/distributed-web-of-care/) shared at his keynote presentation given at a conference hosted at the Gallaudet October 2019 (the Maintainers III conference), it is more ethical to exercise "caring, not control" as we think about how to collect, organize, and use information on the internet.[7]

Documenting Individual Variation in ASL (DIVA)

DIVA: Background

As part of RIT, with a campus of 18,000 hearing students, NTID serves a population of more than 1,100 Deaf or hard of hearing students. With students representing every region of the United States, different racial and ethnic backgrounds, different gender identities, different ages, and different educational experiences (mainstream education programs, day programs, and residential schools), the degree of variation in signing varieties observed at the NTID is not surprising. What is surprising is how little is known about natural individual variation in ASL, particularly in racially and ethnically diverse populations.

When Dr. Corrine Occhino joined the NTID–Research Center on Culture and Language (CCL) as an assistant research professor in 2017, she was immediately struck by the stable variation she observed among ASL signers on campus. In 2018, after several long discussions about the variability (and the lack of documentation) of the ASL used on campus, between Occhino and her CCL colleague, Dr. Joseph Hill (associate professor in the Department of ASL Interpreter Education), the project, "Documenting Individual Variation in ASL," (lovingly nicknamed DIVA) was born.

Hill and Occhino reasoned that if the same types of linguistic discrimination seen in spoken varieties of American English are at work in ASL, it is possible that this variation may have wide-reaching effects on the lives of deaf individuals. Spoken language studies have shown that discrimination of "nonstandard" often-racialized varieties of English affect outcomes across a variety of social-interactional settings including education (Hoover, Politzer, and Taylor 1995), employment (Baugh 2003), and judicial system (Lippi-Green 1994; Rickford and King 2016), among others. Hill and Occhino saw this project as an essential undertaking, not just for the documentation of ASL, but

because social activism can and should be part of the sociolinguistic enterprise and the ASL varieties used by a majority of deaf signers across the United States should be recognized and validated in documentation and education.

But how do we study sociolinguistic variation in ASL on a larger scale? Historically, efforts to document ASL have been limited by resource scarcity, including the availability of only a small number of qualified personnel, as well as financial, geographic, temporal, and technical limitations (Occhino and Hill 2018). Numerous discussions about overcoming past limitations led Hill and Occhino to develop a proposal for an online, community-based ASL documentation and education application. By adapting concepts from Citizen Science (community-based hands-on exploration) and Gamified Learning Theory (making learning fun, reward-based, and interactive), Hill and Occhino sought to create a community-based digital platform that would pioneer a new approach to sociolinguistic documentation. Pairing this feature with an additional platform where user-generated video contributions and crowdsourced video annotations could be added by trained community participants, interested in learning more about their language, created a bridge between community-based service learning and online open-course instruction.

Before such a vast project could be undertaken, a smaller pilot project was needed to provide a current snapshot of the state of natural variation of ASL signers from diverse backgrounds and to populate a preliminary database of linguistic variation to serve as a springboard for the development of the web-based research and documentation tool. Occhino and Hill first applied for an NTID internal seed grant, through the NTID Office of the President, which they were awarded in 2018. The ambitious goal was to recruit two signers from every state, varying in gender, racial, ethnic, and socioeconomic backgrounds, within two years' time.

Progress and Output

Though the ultimate goal of DIVA is a web-based platform, the team needed to collect preliminary data to populate their future website in the "old-fashioned way"; therefore, traditional face-to-face video-recording methods were used. To structure the pilot study, Occhino

and Hill began by compiling a list of "classic" linguistic variants for a lexical elicitation task. Signs such as BIRTHDAY have been documented time and again in popular sociolinguistic studies of ASL as having a large number of variants (Lucas, Bayley, and Valli 2001; McCaskill et al. 2011/2020). Hill and Occhino took these signs as a "variant baseline" in that these are signs that can be expected to exhibit phonological and lexical variation across different regional and racial demographics. Additional signs that had been observed to exhibit variation within the NTID community but for which usage patterns were unknown were added. This included signs for changing technologies and applications, terminology related to social activism, and vocabulary related to signs that commonly exhibit initialization.

In addition to the lexical elicitation task, the DIVA pilot included semistructured sociolinguistic interviews and a "debriefing," during which time, the research assistants asked the students to reflect on their answers given during the lexical elicitation task (completed earlier). The interviews involved two participants, who were scheduled to be partners (often two friends would sign up together), and a research assistant who led the interview.

The DIVA research team used focused recruitment strategies to ensure a broad representation of regional, racial, gender, and ethnic identities among deaf students. Codas (children of Deaf adults) were also included, as they too are first language users and have stake in the maintenance of the varieties of ASL used by their parents. In the first year, the team successfully collected lists of 110 individual lexical elicitations from forty signers, representing twenty-two states. During spring 2019, the team was able to begin collecting sociolinguistic interviews and was able to complete ten sociolinguistic interviews (twenty signers in total). While the goal is to continue the data collection phase until two participants from each of the fifty states are recruited, social-distancing guidelines have halted data collection until an online platform is available.

Students were allowed to participate in the DIVA study at two levels: one, "record my signing for internal purposes only" or "record my signing for use and distribution within and among the ASL community for research purposes." All participants completed a brief background questionnaire documenting important potential sociolin-

guistic variables related to their identities, including socioeconomic status, region of birth and education, K–12 educational environment, exposure to sign language, age of ASL acquisition, ethnic and racial identities, gender identities, and sexual orientation. Additional questions, regarding communities of practice and degree of involvement in the Deaf communities on campus, were also included.

During the initialization task, concepts were presented on a computer screen with a rough English equivalent. Participants signed their responses to a mounted iPad. If questions arose or if multiple signs for a single concept were signed, research assistants, all of whom were fluent ASL signers, were available to provide clarification. The sociolinguistic interviews took place during a separate appointment. Participants were encouraged to sign up with a friend, to facilitate conversation. The sociolinguistic interviews consisted of three "short answer" storytelling segments and the linguistic debriefing session, during which time, each participant was recorded using separate cameras, resulting in three video files for each interview (participant 1, participant 2, and interviewer). Sociolinguistic interviews were later "sewn together" so that the three video files were time-locked in a single video using Dedoose, a web application for mixed methods research.

Since 2018, the DIVA team members have presented their work at a number of conferences. The first public presentation of the DIVA project was given by Occhino and Hill at the 47th Annual "New Ways of Analyzing Variation" (NWAV47) in October 2018 in New York City. Their talk, "Documenting Individual Variation in ASL (DIVA)," introduced a broad overview of the DIVA project, including historical context for linguistic variation in ASL, an overview of sociolinguistic documentation studies in ASL, and how the DIVA project advances sociolinguistic and language documentation methodologies for signed languages (Occhino and Hill 2018). Preliminary findings showed that while the number of linguistic variants documented has gone down for some well-known signs such as BIRTHDAY (see figures 5a–5c), other signs for which variation was previously undocumented, such as SOCIAL JUSTICE and RACISM, exhibit a large number of linguistic variants, with a current tally of twelve and ten variants, respectively.

To share the team's findings with the NTID community, in April 2019, undergraduate research assistants Karina Baker, Samara Patterson,

a

b

c

FIGURE 5. ASL BIRTHDAY variants.

Naomi Villalba, and Jenna Battani presented the preliminary findings from the DIVA pilot to faculty, staff, and students at the NTID Student Research Fair (Baker et al. 2019). The students were able to describe the impetus for the project, research methodology, data collection and storage challenges, and preliminary research observations. The NTID community showed great interest in the work being done with the community on campus.

During the second year, the team was able to begin analyzing the lexical elicitation data, counting the number of lexical variants, coding phonological variants, interfacing with ASL Signbank (Hochgesang et al. 2020b), and linking demographic information to linguistic variants. In March 2020, the Philadelphia Signs team invited the DIVA and GUDA teams to a community-oriented research symposium, "Building Connections with ASL Corpora." There, they presented the paper "Documenting Individual Variation in ASL" (Hill and Occhino 2020), which touched on methodological considerations for sociolinguistic video documentation collection efforts, resource management, and public engagement among the small- and large-scale language variation projects, including the DIVA project and other US-based sociolinguistic projects. The workshop, hosted by the University of Pennsylvania, was also the birthplace of a newly formed collaboration that will culminate in the submission of a National Science Foundation (NSF) grant application, which combines the research expertise of these three documentation teams.

Most recently, in November 2020, research assistant Samara Patterson presented their work at the 14th High Desert Linguistics Society Conference, hosted by the University of New Mexico, Department of Linguistics, via Open Science Framework (OSF) online platform. The talk titled, "Phonological and Lexical Variants in ASL," presented the first systematic analysis of phonological and lexical variation captured during Year 1 of the DIVA project, across a variety of sociolinguistic factors such as region, race, and gender (Patterson, Occhino, and Hill 2020).

After the conclusion of their first year of seed funding, Hill and Occhino began applying for federal grants to develop the web-based citizen sociolinguistic portal described in the section titled "DIVA: Background." In June 2019, the team submitted its first national grant

application to the National Endowment for the Humanities–Digital Humanities Advancement, titled, "Citizen Sociolinguists Documenting American Sign Language in the Wild." This initial proposal, built on the preliminary data collected during Year 1, focused on the initial development costs of a web-based documentation portal. Although the application was not funded on the first submission, the team received positive feedback and resubmitted a much larger and more comprehensive application to the same mechanism in spring 2020, with awards announced in spring of 2021.

Future Plans: Digital Citizen Sociolinguists Documenting ASL in the Wild

Occhino and Hill have compiled a stellar collaborative research team consisting of University of Pennsylvania-based Philadelphia Signs team (Fisher and Tamminga) and the Gallaudet University-based GUDA team (Hochgesang and Shaw 2019a) and are preparing a multiyear grant proposal for the NSF: Linguistics Directorate, entitled, "Citizen Sociolinguistics in the Wild: ASL Documentation and Community Engagement in the Digital Age." The primary goals of the project are to empower ASL communities to discover and share linguistic resources and to facilitate exchanges and collaboration between academics and community members. What we are proposing is the development of a free and open-access, web-based Citizen Science platform (*ASL in the Wild*) built to engage members of the ASL community in the documentation and maintenance of ASL dialects and Deaf culture. *ASL in the Wild* takes its main inspiration from exciting work being done in the realm of Citizen Science, which encourages the active participation and engagement of volunteers in the creation of knowledge through data collection, annotation, and dissemination. The Citizen Sociolinguistics approach (Rhymes and Leone 2014; Svendsen 2018), while still relatively unknown in American linguistics circles, provides a framework to address several key issues that have affected ASL documentation for years (Rymes and Leone 2014; Svendsen 2018).

First and foremost, as previously mentioned, wide-scale documentation of ASL has suffered from a lack of resources in the form of personnel, equipment, time, and money. The lack of linguistically trained fluent signers impedes the speed at which ASL data can be

collected and accurately annotated. The Citizen Sociolinguistics hub eliminates the need for expensive equipment and travel to complete data collection, saving both time and money. But most importantly, to date, research conducted on ASL has remained largely inaccessible to the Deaf community, with the majority of research being conducted by hearing academics and presentations about ASL tending to circulate within academia at conferences or in scholarly publications. Finally, while ASL continues to grow in popularity (Furman, Goldberg, and Lusin 2010), cultural and linguistic competency related to the diversity of signers and the related linguistic variation is largely lacking in college departments teaching ASL courses.

ASL in the Wild brings community-based sociolinguistics into the twenty-first century by creating an inclusive research community to engage ASL signers in documentation and investigation of their own language. This will, in turn, expand our understanding of sociolinguistic variability through broadened descriptions of geographic and social variables. This mobile-friendly, web-application with a multitiered user interface and gamified training modules will teach community members how to become their own language researchers. The development of this application represents a feasible response to the calls for action from the deaf community for more accessible, community-engaged collaborations *with* the deaf community, rather than continued research *on* and *for* the deaf community.

ASL in the Wild will roll out in three stages. Currently, Stage 1 (pilot phase) is nearing a close, to be completed during the 2020–2021 academic year. With more than 4,500 videos totaling nearly six hours of video data and an additional six hours of conversational dyads, data are currently being trimmed and annotated for lexical, phonological, and sociolinguistic information. Completed lexical annotations will feed Stage 2 of the project, which is currently in the early development stages. Programmers at NTID are working with Occhino and Hill to develop the web-based portal, focusing on the development of both a multitiered community membership and education modules for learning critical citizen sociolinguist skills. With the web application in place, Stage 3 will focus on product delivery and beta testing. Beginning with a soft release to our partner universities, we will test the application of variation-based lesson plans developed for

college-level ASL Language and ASL/English Interpreting courses. Working closely with our board of advisors, comprising people who represent the community stakeholders, we will get feedback on user-centered design concepts, ensuring that the web application is designed with the community in mind.

Conclusion

Given the rising interest in social activism within academic spaces, the field of sociolinguists is well situated to help pull the broader field of linguistics toward more inclusive practices that situate language at the center of communities and among individual bodies with differing physical and social experiences in the world. In our own ways, each of our projects described here are working not only to give back to the communities that have given us so much but to make them part of the decision-making processes and to center their thoughts and values in our work.

While we are still in the early stages of planning, we are excited to present our vision of the next wave of sociolinguistic research with ASL communities at the center. As we move forward in the digital age, new technologies will be introduced, allowing for increasingly better interactive online learning, video recording and annotation, and cloud-based computing. Our team of ASL community stakeholders, who also happen to be trained linguists and members of both academic and ASL communities, are well poised to lead the charge. With guiding principles of social justice and linguistic activism, we hope to expand the ASL research community beyond academic walls and, through this expansion, build stronger partnerships with ASL communities. In the end, such an outcome will only result in better science.

Notes

1. We owe tremendous thanks to Tony Kroch, professor emeritus of the University of Pennsylvania's Department of Linguistics for encouraging and supporting this project. Without his wisdom, experience, and guidance, this project might never have been realized.

2. Decades of research by Bill Labov and his students and colleagues on Philadelphia English provide both a useful sociolinguistic research model and a source of information about the hearing-dominant societal context within which the Philadelphia Deaf community is situated.

3. A written version of this poster is available in the LREC proceedings (Fisher, Hochgesang, and Tamminga, 2016b).

4. This entails including signers who learned ASL later than age ten, since the two-day school programs in Philadelphia followed an oralist pedagogical philosophy.

5. NB: This project has also been called DAGU (Documentation of ASL at Gallaudet University), but the name has changed since the scope of the project has shifted to documentation of ASL anywhere in North America.

6. We gleefully acknowledge the humorous similarity to the English word "gouda" and find even more pleasure in the similarity between the signs for "cheese" (https://aslsignbank.haskins.yale.edu/dictionary/gloss/430.html) and "movie" (https://aslsignbank.haskins.yale.edu/dictionary/gloss/590.html) in ASL. This connection is only possible bimodally and bilingually and demonstrated here: https://twitter.com/jahochcam/status/1178009709598662657?s=20.

7. Choi also referred to Deaf artist Christine Sun Kim's (CSK) work, which was a delight for me as the only Deaf participant in the audience (https://twitter.com/jahochcam/status/1181335637674397696). Especially profound was the moment where he showed a video of CSK explaining her work in ASL for a full minute without any voiceover. I, Julie, was the only one in the audience that could access the information. I could feel in the room a slight unease and realization of their usual privilege in obtaining access to information.

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