Endangered Languages, Linguistics, and Culture: Researching and Reviving the Unami Language of the Lenape

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Abstract

As many as half of the world's nearly 7,000 languages are poised to become extinct within the next century. When these languages die, it will impact the endangered language community and the academic community alike. Language plays a large role in identity formation, and the loss of a language has significant consequences for its speakers. Endangered language communities also stand to lose valuable cultural practices, such as oral histories, traditional songs and poetry, and other art forms that are tied to language. Linguistics, on the other hand, is at risk for losing half of the subject matter it studies. The study of linguistics, along with other academic disciplines, can greatly benefit from the information found in endangered languages. Conversely, endangered language communities can benefit from expertise of linguists, particularly in regard to language revitalization efforts. The goals of linguists, however, may not always coincide with the goals of the endangered language speakers themselves. As a result, academic culture and traditional culture may clash, causing tensions between linguists and the community. Through an examination of my own experiences conducting linguistic research on sentence intonation in an endangered language, Unami, as well as the experiences of member of the community who learned Unami as a second language, I argue that while there may be occasional conflicts between the interests of linguists and those of speakers of endangered languages, through mutual respect and an awareness of sensitive issues, linguistics and endangered language communities both can benefit from greater cooperation.

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I. Introduction

Imagine that you are the last speaker of your language. Every other person who ever spoke your language has passed away. You no longer have anyone to talk to in your own tongue. Family and friends of your generation, with whom you could have spoken, have died. Your children never learned your language and instead use the language of outsiders. If you want to interact with anyone at all, you must use a foreign language. In shops and newspapers, on television and radio, everything is in a foreign language, and you have no hope of ever seeing your language used in such situations. And, because you never have the chance to use and practice it, you find yourself forgetting pieces of your own language. There are words you used to know but cannot remember, and there is no one you can ask. It is also likely that you alone remember the traditional ways of your people, how you used to live; everyone else has moved on to live more "modern" lives. You feel a sense of loneliness even when surrounded by people.

For English speakers, this image may be difficult to grasp. Our language currently has around 309 million speakers (Gordon 2005). For many people, however, this situation is very real. Around the world, over eleven percent of languages have fewer than 150 speakers each (Nettle & Romaine 2000: 40). As many as half of the world's languages will cease to be spoken within the next century (Krauss 1992: 6). In each of these cases someone will be the last speaker and experience these feelings. Already many have been unfortunate enough to be in this position. The following poem was written by one of the last speakers of Eyak, an Alaskan language, explaining how it felt to be part of a vanishing community:

K’aadih ulah uuch’ q’e’ iiłi’ee.	Useless to go back there.
SitinhGayuudik siχa’ iinsdi’ahł.	My uncles too have all died out on me.
SitinhGayuu siχa’ lisł’ahłch’aht q’al.	After my uncles all died out my aunts
ahnuu si’ahtGayuu q’uh yaan’ q’e’	next fell,
disłiqahqł,	to die.
al iisinh.	Yes,
Aan,	why is it I alone,
deelehtdal dlaGaxuu,	just I alone have managed to survive?
ts’it dlaGaxuu atxsłilahł?	I survive.
AtGaxłalaał.	(Kolbert 2005: 59)

This poem expresses the desperation felt by those who can only watch as their language and culture disappears with the passing of each community member.

The loss of a language is devastating not only for those who speak it, however; it is also devastating to those who study languages. Linguists can learn a lot about human language in general from an examination of the forms found in endangered languages. With every loss of a language the pool of linguistic data, and with it the scope of our ability to learn about our world, shrinks. Endangered languages can be great sources of information, if only we can reach them before the last speakers die. Researchers from other disciplines, such as biology, medicine, and environmental science, also can benefit immensely from speakers of endangered languages, who often have detailed knowledge of local flora and fauna that may be unknown to modern scientists.

The goals and views of researchers, however, are often at odds with those of endangered language communities. The culture of academia, with its focus on objectivity, scientific research, and the need for publication, often clashes with the culture of the community that is the subject of study, whose members may have very different goals.

Despite this potential for conflict, however, linguists and speakers of endangered languages can both benefit from a mutually respectful working relationship. In this paper, I will illuminate these issues through an examination of my own experiences conducting linguistic research on Unami, a Native American (Algonquian) language. I will also present the viewpoint of a member of the Lenape community, the tribe that spoke Unami, about her current efforts to revive the Unami language. Although both of these perspectives suggest the possibility of tension between the needs and values of the academic community and those of the endangered language community, both also stress the potential for mutually beneficial work.

In chapter 2 of this paper, I begin with a brief introduction to the Unami language and the Lenape Indians. In chapter 3, I present, by an overview of language endangerment: what it means to be an endangered (or extinct) language, how a language becomes endangered and how it can be saved. I also address what the loss of a language can mean, both for a culture and for the field of linguistics. I elaborate on these topics in chapter 4, where I address several controversial aspects of endangered languages and language maintenance and the tension between academic and traditional cultures. This includes determining what, exactly, counts as a language and what to call it; who counts as a native or fluent speaker; who should be involved in determining the nature of the community, the language, and the revitalization process; and what role linguists should play in language revitalization. In chapter 5, I return to the specific case of Unami, introducing my own analysis of sentence intonation based on recordings, made about 40 years ago, of a Unami prayer. I discuss how this research can prove beneficial, not only to the linguistic and anthropological community, but to the Lenape community as well. In

chapter 6, I turn to the community viewpoint, relating the experiences of one Lenape woman who has used tapes and other materials to learn Unami as a second language, and has since been teaching it to other members of her Lenape community. I present her feelings about the language, its past and future, and what she feels the role of linguistics should be in the community. Her use of documentation for learning Unami, as well as the use of recordings for my own research, highlight the importance of linguistic recordings. Because the linguistic information contained in recordings is so valuable, to speakers as well as academics, it is crucial to keep them safe and usable. Chapter 7 discusses the difficulties involved in working with old recordings and makes an argument for proper archival practices. Finally, in chapter 8, I conclude by summarizing the ideas and issues covered in the previous chapters.

Throughout the paper, I stress the important but sometimes problematic role that the academic study of language plays in the preservation of endangered languages. Though the requirements of academia occasionally may be at odds with those of the community, linguists and speakers of endangered languages have the potential to create a symbiotic relationship. Though each can exist without the other, their respective efforts can be enhanced when they cooperate with each other.

II. The Lenape People and Their Languages

The Lenape Indians originally inhabited the Delaware River Valley region (present day New Jersey, southern New York, eastern Pennsylvania, and northern Delaware).[1] When Europeans first made contact in the seventeenth century, the Lenape lived in small communities of a few hundred people. These communities were not closely

[1] Throughout this paper I refer to the people as the Lenape Indians, following how they call themselves. They are also known as the Delaware Indians.

associated with each other and did not constitute a singe cohesive group. It was only later, as they were pushed off their lands, that the various smaller groups came together to form the consolidated Lenape Tribe. By the end of the 1600s, the smaller Lenape communities, particularly those nearest to the coast, already were abandoning their lands to move further inland. During these movements, the individual groups began to merge together.[2]

By the mid-1700s the largest of the groups had reached Ohio, where they finally consolidated as a tribe. Around the time of the American Revolution, the Lenape moved further west into western Ohio and Indiana, where they had been invited by the Miami Indians. There remains evidence today of the Lenape presence along the West Fork of the White River in north-central Indiana, such as the town of Muncie ("Munsee"), which was named for one of their languages, and the county of Delaware.

By 1818, the Lenape were on the move again, this time to southern Missouri. Due to discontentment within the community, however, this settlement did not last long, and in 1829 the group signed a new treaty which granted them land in Kansas. A small portion of the community separated at this time and settled in central Oklahoma. After the Civil War, the Kansas group traded their land to gain land within the Cherokee Nation in northeastern Oklahoma. Today, the majority of the Lenape community remains in Oklahoma.

This history has traced the primary path of Lenape relocation, but this was by no means the only story of the Lenape people. Some Lenape groups removed to Texas for a time before being pushed north toward the Oklahoma community. Others moved

[2] This and the following paragraphs on the history of the Lenape are based on information found in Goddard 1978: 213-239.

northward from their earlier homes, some to Ontario, Canada, and some to Wisconsin. There were also some who remained in the east and eventually assimilated, both into other Indian communities and into European communities.

The Lenape spoke two related languages, Unami and Munsee, both of which are in the Eastern Algonquian language family. Figure 1, below, shows the locations of the Munsee and the Unami languages.[3] Munsee was originally spoken by the more northern populations, in northern New Jersey and southeastern New York. Munsee is currently still spoken by a handful of the Lenape Indians now living in Canada, who are working to revitalize the language.

Unami (wənami; ISO 639-3: unm) was spoken south of the Delaware Water Gap (southern New Jersey, southeastern Pennsylvania, northern Delaware). There were originally three dialects of Unami: Southern Unami (the dialect examined in this thesis), Northern Unami, and Unalachtigo. Though Unami no longer has any native fluent speakers (Gordon 2005), there are some ongoing efforts to revive the language among the Lenape in Oklahoma, and also among a group still living in Pennsylvania. These efforts include the development of teaching materials, language classes, and a university-level course on the language at Swarthmore College.

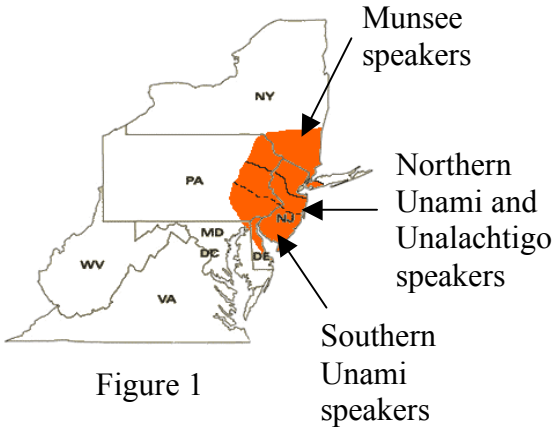

Figure 1

[3] Map adapted from Goddard (1996).

III. Language Endangerment and Language Loss

a. What is language endangerment?

Current reports estimate that there are slightly less than 7,000 languages in the world. Almost eighty percent of the world's population, however, speaks one of just 83 languages (Harrison 2007:14). Almost 3,000 languages are spoken by 20.4% of the people, and some 3,586 languages are spoken by only 0.2% of the world's population (Harrison 2007: 14). These languages are generally considered to be endangered. An "endangered language" is a language that is at risk of losing all of its speakers. According to Krauss (1992: 6), as many as 50% of the world's languages are no longer being learned by new generations of speakers, leading him to conclude that "the number of languages which, at the rate things are going, will become extinct during the coming century is 3,000 of 6,000."

Linguists have proposed several different ways to categorize languages in order to better understand the variety of linguistic situations. Krauss uses the term "moribund" to refer to languages that are not being taught to children as their first language. Unless something changes, moribund languages will cease to be spoken within a generation. "Endangered" languages are those that are currently still being learned by children, but that will no longer be taught to children within the century. "Safe" languages are those that are neither moribund nor endangered – they are currently being learned by children and are safe from extinction, for the time being at least. Oftentimes the term "endangered language" is used to describe both the endangered and moribund languages of Krauss's classification scheme.

Though the term "extinct" is commonly used to describe languages that no longer have any speakers, Leonard (2008) challenges the use of this word. Calling a language

"extinct" (or "endangered," for that matter) clearly refers to the biological analogy of an extinct species. In biology, an extinct species is one for which there are no longer any living animals (or plants, etc.) of that type. For an extinct species, there is no hope or chance of resurrection; once a species becomes extinct, it cannot return.[4] Leonard (2008: 23) explains, however, that this is not necessarily the case for languages. Instead, he refers to some languages as "sleeping languages," meaning "those that are not currently known but that are documented, claimed as part of one's heritage, and thus may be used again." A sleeping language, unlike a truly extinct language, can be "awakened" if some part of the population relearns the language from documentation, as has happened in Leonard's Miami community. Figure 2 shows how Leonard fits sleeping languages into a typical continuum of language endangerment.

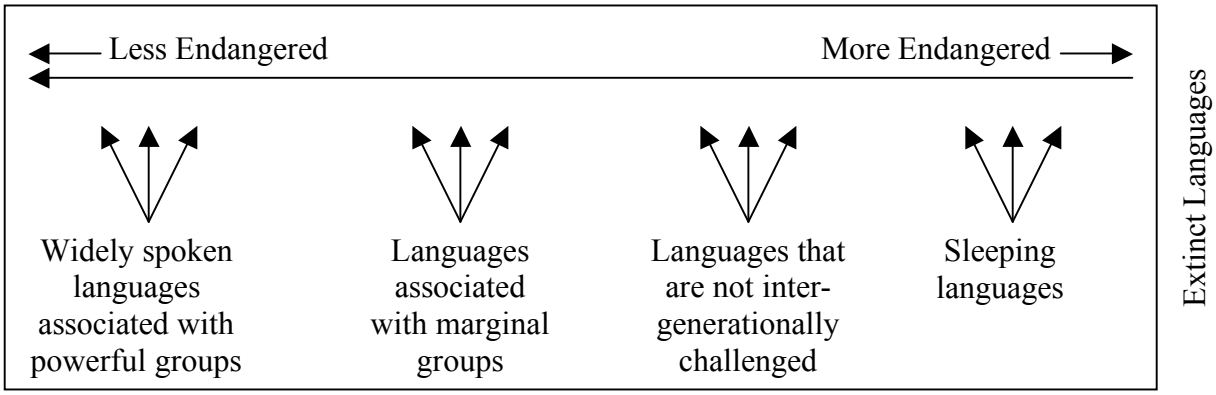

Figure 2: Language Endangerment Continuum (Leonard 2008: 27)

According to this figure, languages (and languages varieties) lie along a continuous spectrum ranging from more to less endangered. Truly extinct languages are not part of this continuum because "languages that are irretrievably lost are by definition no longer

[4] Interestingly, a recent article in National Geographic magazine suggests that it might, in fact, soon be possible to clone an extinct species, the wooly mammoth. Mueller, Tom. 2009. Recipe for a Resurrection. *National Geographic* May 2009. 52-55.

'in danger of being lost' and are thus strange to conceptualize under a frame of endangerment" (Leonard 2008: 27).

Leonard's distinction between sleeping and extinct languages addresses the question of how we categorize languages: Do we merely measure current situations, or do we also take into account future possibilities? Should a language that might come back be considered as part of a separate category from a language that cannot? These are difficult issues that can influence our definition of an endangered language.

b. How does a language become endangered?

Once we have determined what an endangered language is, and is not, we must next consider how a language becomes endangered. There are many reasons why a language might become endangered or even extinct. The physical loss of speakers (due to genocide, natural disasters, or similar causes), the disintegration of the language community (due to displacement, assimilation into the dominant population, or economic concerns), the homogenizing effects of mainstream media (in the form of dominant-language television, radio, and print media), and the forced abandonment of the language (through overt suppression, often accompanied by the institution of dominant-language schools) are among the possible factors that lead to language abandonment.

In a conference presentation, Aragon (2009) recently discussed the effects of genocide on an indigenous community in Rondônia State, Brazil. Near the end of the twentieth century, colonization and settlement of the area led to the killing of nearly the entire Akuntsú tribe. By 1995 only seven tribal members remained.[5] The Akuntsú language is considered one of the "most endangered in Brazil," not only because of the

[5] Sadly, another has since died as a result of a tree falling on their home.

small number of speakers but also because those speakers will not be able to pass the language on to the next generation: There are no eligible potential matches remaining within the group (conference abstract). Linguists are currently working with the Akuntsú people to document the language before it disappears entirely, but there is little hope that it will last beyond the current generation.

For many, it is economically advantageous to learn the majority language and to teach it to their children. Acquiring fluency in Arabic or English or Spanish will help these people and their children to find jobs and be successful. Children also have a role in this process, and often it is the children who make the choice to stop learning their ancestral language and use the dominant language exclusively. Unfortunately, many feel that when they have learned the majority language, they must also stop using their own native language. Some parents fear that speaking the native language at home will slow the child's acquisition of the more economically valuable language. One of the major beneficiaries of this phenomenon today is the English language; worldwide, English is becoming the primary language used for international commerce, science and technology, and higher education.

English is also dominant in electronic media. For the most part, radio and television programs have been broadcast in just a handful of languages. According to Nettle and Romaine (2000: 39), "by 1966, English was the language of 70 percent of the world's mail and 60 percent of radio and television broadcasts." Krauss (1992: 6) refers to television as "cultural nerve gas" because it streams the majority language and culture into the homes of indigenous people and accelerates the rate at which they abandon their own languages and cultures. Technology, for the most part, is not available in indigenous

languages, requiring these speakers to use the majority language if they want to make use of technology – especially the Internet – or have access to mass media.

The causes of language abandonment discussed above are not necessarily deliberately caused. The homogenizing influences of economics and mass media, for instance, usually are not imposed for the purpose of suppressing a language (though they certainly could be). In the case of genocide, the community is deliberately targeted, but the language itself is not usually the target. In other situations around the world, however, languages have become endangered or extinct because the speakers have been purposefully forced to abandon their language by outsiders. By forcing local people to learn and use a new language, conquerors assert their supremacy over the people they have suppressed. In these cases, language shift is caused by deliberate language suppression.

In the United States, Native American groups across the country were forced to abandon their native languages for English. During the late 1800s and early 1900s, the government required that Indian children attend boarding schools, where they would be punished (often through corporal punishment) for speaking anything other than English. Some of the children did not know any English when they arrived at these schools, but they were still punished for using their native language. One woman recently recounted her experiences as a young girl at one of these boarding schools, which she remembered quite clearly:[6] Though she arrived at the school with her sister and several other girls from her home, she was unable to communicate with them because she did not speak English and was beaten on the backs of her hands (among other punishments) whenever

[6] Conference on Endangered Languages and Cultures of Native America, University of Utah, Salt Lake City, UT; March 25-27, 2009.

she tried to speak in her native tongue. Such experiences predictably led many of the boarding school students, to develop negative attitudes toward their own native languages. Being told for years that your language is useless, and having your teacher respond to any attempt to speak the language by actually causing you physical pain, surely will have lasting effects on how you view that language.

Negative opinions and low prestige are a major underlying cause of language endangerment. Craig (1992: 19) discusses how Moravian missionaries pushed the Rama people of Nicaragua to switch from the Rama language to English. Before recent revitalization efforts, speakers believed that "Rama was 'no language' and was 'ugly', and were ashamed of speaking it." These negative feelings about the language on the part of many of the speakers made it difficult for linguists and the few concerned members of the community to gain support for revitalization. Any discussions of revitalization were "characterized by much contradiction and deep ambivalence about the language itself" (Craig 1992: 19). It took the combination of an enthusiastic community member, a change in the political status of the language, and the outside help of linguists for the third (and most successful) revitalization attempt to get off the ground.

c. What can save a language from dying?

If the language situation is so dire for minority languages, with so many factors tending toward language death, it is reasonable to wonder how a community might manage to resist these influences and turn things around. What factors can help to save a language and prevent it from dying? Although there are many forces that can endanger indigenous languages, there are also many forces that can support such languages. There

is not, however, one single factor that can be pinpointed that will necessarily save a language. Instead, a complex collection of factors are often necessary.

Generally speaking, elevating the prestige of a language is required to keep a language from being abandoned. If the speakers of a language feel that it is valuable and important to maintain their language, then they are less likely to stop using it. An increase in prestige can be achieved in many different ways, including the use of the language in media and technology, official governmental recognition for the language, and increased economic status of its speakers.

Though Krauss (1992) referred to television as "cultural nerve gas," television and radio can also be useful in enhancing the prestige of a language. If programs can be broadcast in an indigenous language, the speakers will not only have more opportunities to hear their language, but they will be hearing it in a context often associated with higher economic and social standing. Use of indigenous languages where normally only a majority language would be used shows that minority languages can be just as viable in today's modern world.

Some non-profit organizations have focused on this aspect in their support of endangered languages. Cultural Survival, Inc.[7] (2009: Guatemala Radio Project website) for example, runs a Guatemala Radio Project which supports community radio stations that broadcast in various indigenous languages, providing "news, educational programming, health information, and traditional music, all reinforcing pride in Mayan heritage." Like Krauss, the organization sees the influx of majority language and culture programming as detrimental to indigenous concerns, explaining, "the Guatemalan army couldn't wipe out Mayan culture, but American Idol can" (Cultural Survival, Inc. 2009:

[7] http://www.culturalsurvival.org/home

Guatemala Radio Project website). Despite the harmful effects of mainstream media, however, the organization also sees the potential that radio has for promoting indigenous language and culture.

Raising the economic and social status of the people themselves can in turn elevate their language. An influx of wealth to an indigenous population can help to raise the community's status and as a result, raise the status of their language. Such an increase in wealth can also help to fund revitalization programs, as is the case in the Ayas Valley, Italy, where several tri-lingual schools (French, Italian, and the local Franco-provençal) are funded by the recent shift to a tourism-based economy (Dorian 1998: 13). Dorian (1998:13) claims that when a population experiences a gradual increase in prosperity, "it may be that its usefulness lies above all in the fostering of a middle class with the social self-confidence to insist on traditional identity and heritage." Members of a middle class have an increased economic and social standing that lends itself to the kind of self-assurance that aids in preserving minority languages.

Though most languages in the world have no official status (Nettle & Romaine 2000: 31), gaining governmental recognition can be beneficial for indigenous languages. Official status can lead to more resources for the language, both monetary and otherwise. It allows for (or buoys) the use of the language in official contexts, making knowledge of the language more valuable in the public sphere. Governmental recognition also increases the prestige associated with the language by placing it on the same level (at least theoretically) as the majority language.

Some communities with endangered languages attempt to keep their language from dying through various revitalization efforts. Revitalization can be attempted through

many different methods, including in schools (immersion or bilingual schools or language classes), other classes (for adults or children), master-apprentice programs (native speaker "masters" paired with non-speaker "apprentice" learners), and home-based immersion, among others. Each situation must be analyzed to see which method will work best for the community's needs and wishes. Some programs (or combinations of programs) will be better suited to a particular community that others. Linguists who study endangered languages can provide knowledge about what programs have worked for other communities. These programs must, however, have the full support of the people themselves. No matter what a linguist might say or do, if the people are not at the heart of the program, the revitalization will fail.

d. The impact of language loss on culture

The possibility of language revitalization brings up a question often asked about language loss: Why does it matter if a language dies? If there are over 6,000 languages, why does it matter if one disappears? Wouldn't the world be better off if we all spoke the same language? From a purely physical standpoint, losing a language will not kill the people who once spoke it. Despite all of this, however, something very valuable *is* lost whenever a language dies.

Language is closely tied with identity. The language you speak defines who you are in a major way. Your native language also binds you to others and creates a community of speakers. A leader among the Maori of New Zealand, Sir James Henare, expressed the potential impact of the loss of the Maori language in the following way: "The language is the life force of our Maori culture and *mana* ['power']. If the language dies, as some predict, what do we have left to us? Then, I ask our own people who are

we?" (Nettle & Romaine 2000: 23). Language plays a major role in defining ourselves in relation to, and in contrast with, others.

The loss of language also causes the loss of other culturally significant practices that are dependent on the language. Oral histories are lost if no one can speak the language any more. Likewise, traditional songs, poetry, and other verbal art forms are lost. Even if the language has been written down, language loss may cause written tales to be lost as well, if they were not translated into another language first. For example, it was not until the discovery of the Rosetta Stone that modern experts were able to decipher Egyptian hieroglyphics. When a community loses its language, it also loses many other aspects of its culture. Language loss has a significant impact on both the collective and the individual identities of a community.

e. The impact of language loss on academia

The loss of a language also has substantial implications for academia. The study of endangered languages is important for the field of linguistics. For academics who study the human capacity for language, the more we know about the *varied* ways of using language, the better we will be able to explain such capacity: "Linguistic diversity gives us unique perspectives into the mind because it reveals the many creative ways in which humans organize and categorize their experience" (Nettle & Romaine 2000: 11). The fewer languages in existence (or the less documentation there is), the less diversity there is with which to work, and the less we can learn about human creativity in language.

For example, endangered languages can provide data on previously unattested linguistic forms. In the early years of linguistics, most work was done on Indo-European languages (Nettle & Romaine 2000: 28). Because these languages are members of the

same language family, they are closely related and share many common characteristics. Today, these languages are relatively well documented, particularly in comparison to most indigenous languages. The most comprehensive theory of human language, however, needs to take into account languages from a variety of families because there are forms present in endangered languages that are not found in Indo-European languages. If one examines only Indo-European languages, it would be quite easy to arrive at false conclusions about what is possible in language.

Endangered languages are also the storehouses of information that is valuable not only to linguists but to other academics as well. Indigenous communities often have very specialized knowledge of the plants and animals in the areas where they live. Nettle and Romaine (2000: 56) claim that "many Hawaiians have now forgotten more of that local knowledge accumulated and handed down orally over the past 2,000 years than western scientists will ever learn." Because this information was communicated orally, it has been forgotten along with the language. With the abandonment of traditional languages and cultures, this kind of specialized knowledge may be lost forever.

Both linguists and speakers of an endangered language are in danger of losing something very valuable when a language dies. Working together, perhaps, these two groups might be able to help each other. Unfortunately, however, the situation is often not that simple.

IV. Endangered Languages and Identity

Language has a huge impact on one's sense of identity. Your perception of who you are is defined by how you situate yourself in relation to others. The language you speak constitutes a large part of this identity. Because it is so crucial to identity, language

can become a very emotionally-charged topic. Language is so central to our everyday lives, and to our sense of self, that people can become very defensive if they feel their language is being threatened.

Non-linguistic issues (economics, politics, etc.) that can cause tension also are reflected in how people view language issues. Take, for example, the current English-only movement in the United States. These efforts are primarily directed at Spanish-speaking immigrants. The real issue for many people, however, may not be that these immigrants do not speak English, but rather that they are perceived to be taking away American jobs. This economic concern becomes converted into the belief that English (a language which many of these immigrants may not speak) is the "national language" that should be used exclusively in schools, government, and the workplace.

Issues such as these become all the more difficult when an endangered language is involved. Communities that speak endangered languages may feel significantly more pressure from outside sources. While English has 309 million speakers (Gordon 2005), endangered languages may only have a handful of speakers. In these situations, issues of policy and status become especially important, and can be highly controversial. Emotionally and politically charged questions may arise, such as: What counts as a language? How do you name it? Who counts as a native speaker, or a fluent speaker? Who is a member of the community, and who should be involved with the language and with language revitalization? What role do, and should, linguists and linguistics play? What aspects of a language should be chosen for documentation? With respect to each of these questions, linguists may give a different answer than the speakers themselves, who in turn may have a different view than the majority population.

a. What is a language?

While it may not seem obvious, it can be difficult to determine where one language ends and another begins. Linguists often use the term "mutual intelligibility" when discussing whether two people or two communities speak the same language. Mutual intelligibility simply means that the people can understand each other. Unfortunately, it is not always that simple.

In a way, languages lie along a continuum. If you consider Japanese and English, for instance, the difference is clear. A monolingual Japanese speaker could not understand an English speaker and likewise, an English speaker could not understand a Japanese speaker. But now consider Spanish and Portuguese. Many Portuguese speakers could understand at least a moderate amount of Spanish, and vice versa. Certainly these are still two separate languages, however, which provides some evidence of the difficulties in using the linguistic "mutual intelligibility" approach.

Popular definition often stems from the official status of a language. Italians, for instance, are generally considered to speak one language, Italian, but dialects may be so different as to be unrecognizable. A common aphorism, often attributed to Max Weinreich, states: "A language is a dialect with an army and a navy." Of course, endangered languages rarely have either armies or navies, but this highlights the fact that the separation of languages is not purely linguistic in nature.

Whose role is it, then, to decide what counts as a language and what does not? The linguists? The government? The speakers themselves? All of the above, depending on the different contexts?

In the case of Lenape Indians, the community believes that they speak one language with several dialects (Unami, Munsee, etc.). From a linguistic standpoint,

however, this is not so. According to Goddard (1978), these "dialects" are actually closely related, but mutually unintelligible, separate languages. Some of the structures and words are similar, but they are still distinct languages. Because they are spoken by one ethnic community, however, the ethnic group considers itself to have one language, albeit with multiple varieties. This view can serve to strengthen a cohesive identity for a community that has been splintered by many relocations.

The process of naming a language also highlights the disconnect between linguists and the communities they study. The Lenape community calls their language Lenape and refers to the Unami and Munsee dialects. In linguistics literature, however, these are two distinct languages: Unami and Munsee. According to the Ethnologue, Unami is also referred to as Delaware, Unami, Southern Unami, or Lenni-Lenape (Gordon 2005).[8] Which name is right?

Most speech communities have been in contact with the wider world for many years, and as a result may be called by any number of different names. There is the name used by the people themselves for their own language. There is the name given to the language by the first outside explorers who encountered the people. There may be further names given to the language by other, later explorers or missionaries. There may also be a different name used by linguists today to discuss the language. The Ethnologue lists "over 39,000 language names, dialect names, and alternate names," for less than 7,000 languages (Nettle & Romaine 2000: 28).

From a practical standpoint, these differences in names can be difficult for anyone trying to learn about the language. Having to search for information on three, four, or

[8] To avoid ambiguity, I generally adopt the name Unami for my research, since that it is the name that is most distinct for this language (Lenape or Delaware might also be used to refer to the Munsee "dialect").

even more different names can be troublesome and discouraging. It can also have political ramifications if a group is seeking government recognition. The more names involved, the harder it is to track who speaks what language.

Because language has such an impact on identity, the naming of a language can be of great personal significance for the people who speak it. Even if, in a particular case, the linguistic definition and the popular definition of a language coincide, the use of different names for the language may be controversial. The Nez Perce of the northwestern United States were given that name by the French, meaning "pierced nose." The same people, on the other hand, call themselves "Numi-pu," meaning "our people" (Nettle & Romaine 2000: 28).

b. Who counts as a speaker?

As seen in the examples above, linguistic viewpoints and cultural viewpoints do not always coincide. This is also the case when distinguishing a "speaker" from a "non-speaker." By general definition, a native speaker is someone who grows up speaking a language from early childhood. In most cases a native speaker will also be considered a fluent speaker. Unlike the notion of "native speaker," however, the definition of a "fluent speaker" is more subjective. Fluency lies along a continuum. On one end is someone who knows nothing of a language, and at the other end would be a "fluent" speaker who has full command of the language and can use it effortlessly. Who can properly be described at as "fluent" speaker, however, is variable. At what point is someone considered a fluent speaker? At what point are they simply "proficient" or "competent?"

Having a clear definition that distinguishes between "fluent" and "competent," or between "native" and "non-native," rarely has any impact on daily interactions. It can,

however, have much wider implications when working with endangered languages. For instance, a linguist who wants to document an endangered language will generally prefer native fluent speakers to second-language learners or "semi-speakers" (the linguistic term for people who can speak a language but for whatever reason do not have complete command of it). Documenting the speech of native fluent speakers helps to ensure that the recorded version of the language is as "pure" as possible, especially since most speakers of endangered languages are bilingual.

The problem here is that linguists can have a very different definition of fluency than the general population, particularly considering that linguists often simply refer to "speakers" versus "semi-speakers." In general (non-linguistics) discussion a "speaker" could mean anyone from a native fluent speaker to someone who has only slight knowledge of a language. In linguistic contexts, however, a "speaker" tends to mean someone with full command of the language, particularly a native speaker.

Furthermore, for a linguist to enter a community and decide that some people are (fluent) speakers while others are only semi-speakers may be highly insulting to the people themselves, if they are made aware of it. Who, in this situation, has the right to determine who is a speaker and who is not? If someone considers himself to be a (fluent) speaker of his language, what right does the linguist have to say otherwise? Of course, linguists likely would not publicly announce such distinctions (so as not to offend), but this may have corresponding implications for their research, if they are trying to work with speakers rather than semi-speakers. Some people whom the community may see as perfect resources on the language may not be appropriate for linguistic research.

Conversely, some people whom linguists would consider to be good informants, based on their fluency as well as other factors, may not be acceptable choices according to the community. Outcasts or other politically disfavored people may be wonderful choices for linguistic research, but the community may not wish them to be linked with the image of the language (and by extension, the community). Unfortunately, in the case of endangered languages there is often little choice. As a linguist, do you listen to community concerns and potentially miss out on a valuable resource, or do you choose the best informants and risk alienating the community with which you work?

c. Who is a member of the group, and who should be involved with the language and its revitalization?

Strong emotions can be involved in discussing who is part of a community and who is not, such as in the example above regarding outcast speakers. In the case of the Lenape Indians, tensions exist between those in Oklahoma and other groups elsewhere. Instead of paraphrasing the sentiments of the Oklahoma community (the largest group), I will present their viewpoint in their own words. The following quotation is from a book of oral histories of Lenape Indians. It explains why the editors limited the oral histories to those collected from the descendants of the Lenape Indians who made the journey from Indiana to Indian Territory (now Oklahoma):

> Each of the speakers has continued identity and enrollment as a member of the Delaware Tribe of Indians of Bartlesville, Oklahoma. Those Lenape who quit the tribe by remaining behind, by personal choice, during any of the several moves from the eastern seaboard to present-day Oklahoma may now have descendants identifying themselves as Lenape. But, according to some enrolled tribal members, these individuals are not truly Lenape in the sense of continuity with

> community. Because they have lived apart from the cohesive tribe, they do not possess or represent the tribal values and ideals the Lenape of Bartlesville have retained by living as a community. To explain to themselves and to non-Lenape people what it is to be Lenape, tribal members remind all others who now come forward with some distant story of having Delaware ancestry that a common experience is an essential element…. For enrolled Lenape, honoring ancestors means more than claiming DNA. Being Delaware means having stayed with the tribe above individual considerations. (Brown & Kohn 2008: xv)

The editors state that they understand that other Lenape groups have experienced hardships as well, but maintain that their stories are "separate from the official tribal story" (Brown & Kohn 2008: xv). For those who consider themselves to be Lenape but are separate from the Oklahoma Tribe, however, this quotation is a statement excluding them from the Lenape community. Tensions such as these, resulting from one group that may not approve of the inclusion of "outsiders," can affect linguistic research.

Linguistic research can also be impacted by community opinions about who should be involved in the language itself. Some communities feel that their language is sacred and do not want it to be available to people from the outside. The Pueblo Indians, for example, have restrictions on who can know and use certain parts of the language. Debenport (2009) discusses her work with the Indians of Sandia Pueblo in New Mexico, whose recent decision to start writing down their language, Southern Tiwa, has led to concerns that doing so will make it available to those who should not have access to it. Parts of Southern Tiwa are considered inappropriate for outsiders, or even for parts of the community itself, to hear and know because of their ceremonial importance. In order to

study the language, Debenport required special permission from the tribal authorities. Whenever she publishes any of her research she must check with them to ensure that nothing sacred is being made available to outsiders. Because of this, Debenport was unable to publish example sentences from her research, a standard practice in linguistics. Her eventual solution was to publish on linguistic types instead, rather than individual token sentences, and to draw specific examples from previously published (and therefore already approved) sources. In this way, she was able to publish her research while respecting the beliefs of the speakers.

d. The role of linguistics: interaction with communities

Debenport's experiences highlight the potentially uneasy role of linguists in a community. How can we reconcile the needs of the researcher with those of the community? Academia today is often characterized by the "publish or perish" mentality. A linguist who goes out to do fieldwork is expected to produce some sort of publishable result, generally disseminated in the form of papers and books. Traditional fieldwork generally consisted of a foreign linguist entering an indigenous community, making recordings, eliciting sentences, making observations, and then leaving to return to his or her own institution to publish on the language, with little or no accountability to the group. As Grinevald (1998: 150) points out, though, "the dynamics are shifting at this point." Communities are beginning to make their own demands on linguists that are not always in accord with those of academia.

Grinevald stresses the importance of collaboration between linguists and local communities. She believes that, in an ideal world, linguists would train speakers to conduct their own research on their own languages. As Grinevald (1998: 156) points out

however, this kind of "by the speakers" research is often impossible for endangered languages, since there are so few speakers in the first place.

Between the requirements of academic life and the demands of the community, there are so many different roles for the linguist to perform in a fieldwork situation that it can be overwhelming and quite possibly beyond the linguist's capabilities and training. Within linguistics itself, there is also controversy about what the proper role of the linguist should be in fieldwork situations. Do we, as scholars in the field of linguistics, have a responsibility to assist and encourage communities to revitalize their languages? Or is it condescending for us to assume that we know better than they do? Should linguistic fieldwork be conducted, instead, with "professional detachment?"

The authors of a collection of essays (Hale et al. 1992) agree that linguists have an obligation to do something about the current decline of many of the world's languages. Krauss (1992: 10) writes: "Obviously we must do some serious rethinking of our priorities, lest linguistics go down in history as the only science that presided obliviously over the disappearance of 90% of the very field to which it is dedicated." Without intervention, linguistics stands to lose the very thing it studies. In the culminating article of the collection, Hale (1992: 41) states that, "while it is good and commendable to record and document fading traditions, and in some cases this is absolutely necessary to avert total loss of cultural wealth, the greater goal must be that of safeguarding diversity in the world of people." As linguists, he asserts, it is our role to assist communities and preserve languages whenever possible, not simply document them.

Ladefoged (1992) disagrees, however, arguing that each situation is different. Though it is important to consider each situation carefully, with sensitivity towards the

opinions, customs, and needs of the community, "we should not assume that we know what is best for them" (Ladefoged 1992: 810). In many cases, people want to be part of the modern world and have made the conscious decision to give up traditional lifestyles, including language, in order to pursue that modernity. Though many linguists would claim that this is a tragic loss, Ladefoged (1992: 810) believes that "it is paternalistic of linguists to assume that they know what is best for the community." It is not the linguist's job to tell the people what to do. Instead, linguists should conduct research with "professional detachment": "In this changing world, the task of the linguist is to lay out the facts concerning a given linguistic situation" (Ladefoged 1992: 811). It is then up to the community to decide what to do with that information. In contrast to Hale and Krauss, Ladefoged believes that linguists are scientists and should therefore focus on their scholarly pursuits of describing and explaining language, rather than championing language preservation in a situation where it may not make sense.

If we accept Hale's argument that linguists should help the communities with which they work, and if we also believe that linguists are in a prime position to do so, we may find nonetheless that this is an uneasy position. Many of the communities that speak these endangered languages have had a long history of being ruled, often harshly, by colonial powers. For many, their rights to self-governance and self-determination have long been taken away by outsiders. It can be difficult to trust the intentions of foreigners. The community needs to be in control of its own situation. Unfortunately, however, even if the linguist wants to be helpful, trying to further the community's desires can come into conflict with the linguist's own goals.

e. The role of linguistics: what is recorded

Today, more and more communities are taking control of their own situations and are criticizing the actions of linguists. England (1992) discusses the case of Guatemala, where Mayas have issued statements regarding what they feel is the proper role and conduct for linguists in their community. England (1992: 29) states that it was surprising to realize that:

> [G]ood will and good relations with the individual collaborators in our past research, a dedication to sound scientific principles of linguistic research, and even instruction in literacy and linguistics on the part of many of us were not enough to avoid rather severe criticism of our role in Mayan linguistics.

Instead, the Mayas call for linguists to be aware that they do not work in a "political vacuum," and that many aspects of their research have wider implications beyond the field of linguistics.

The parts of a language chosen to be recorded and documented represent the parts of the language that will remain, even when the last speaker has died. As a result, selection of research focus becomes very important. Researchers are constantly making choices about what to study. They have to choose what language to research (Endangered or not? Local or international?) and what feature(s) of that language to study (Syntax? Phonology? Discourse?). They have to choose with whom to talk (Informants) and in what context (Conversation? Elicitation? Narrative?). They also have to choose which examples to use when publishing on the language. These choices are influenced by many factors, but each of the choices may have impact beyond what is intended.

The Mayas in England's article request that linguists be more judicious regarding some of these choices. For instance, linguists often use example sentences with verbs like

hit or *break* or *kill* to illustrate points about grammar. These sentences, however, do not necessarily portray the language, or its speakers, in a positive light:

> If we write a grammar with thirty illustrative sentences containing transitive verbs, and twenty-five of those sentences are about violent actions, it seems reasonable for a speaker to ask why we chose those particular sentences and to wonder whether we were trying to achieve a certain unpleasant portrait of the people who speak the language. (England 1992: 32)

What the Mayas request, then, is that linguists be conscious of this, and choose alternative illustrative sentences that do not have negative connotations.

Other choices made in research may not have a negative impact, as in the choice of example sentences above, but they may still have broad implications for documentation of a language. For instance, the type of language being recorded directly influences the type of information that will be available on the language. There is a limit on the time and resources available for fieldwork so, by necessity, researchers often have to choose between recording narrative stories or conversations or elicited sentences or names of local plants and animals, and each of these different focuses has its own benefits and drawbacks. Narratives can preserve tales and other information of cultural importance, but they do not show how the language is used in daily interactions, as is available from conversations. Eliciting sentences can provide data to highlight particular linguistic features, but these are not examples of naturally occurring speech. Plant and animal names can be important for preserving traditional ecological knowledge, but may not provide much linguistic information at the sentence level. Linguists must select what

to record based on many factors, with the full knowledge that what they choose to record may be *all* that is ever recorded of the language.

Because of its role in identity formation, language can be a very personally-significant topic. As a result, many aspects of language are highly controversial. From the naming of a language to who counts as a speaker, from who belongs to the community and who should be involved in the language to the proper role of linguists, endangered languages can generate a full range of mixed opinions. What one person believes may be different from what another believes, and what the community thinks maybe be different from what linguists think. In the next two chapters, I will present my own experiences conducting linguistic research and the experiences of a community member who is working to revitalize the same endangered language that I studied. Through these two accounts, I will show how linguistics can be beneficial to both academia and the community, despite the risk controversy.

V. The Linguist's Experience

To illustrate the value of linguistic research not only for the linguistic community, but for communities that speak endangered languages, I now turn to an examination of sentence intonation in Unami. I will present an account of the intonation patterns found in Unami prayers and explain how this research both expands the pool of linguistic knowledge and also provides a useful resource for those who are trying to learn the language itself. Though there are many controversial sides to the issue, such linguistic research can be beneficial to both academia and the community.

a. What is intonation?

Technically speaking, intonation is the result of changes in the fundamental frequency of the soundwave during speech. Intonation is a prosodic feature of language, the parts of speech sounds that extend beyond individual vowels or consonants (suprasegmental). Other prosodic features include stress, length, and tone. In more general terms, intonation is the raising and lowering of your voice when you talk. It is the difference between natural speech and monotone "robot" speech.

Change in pitch is caused by a change in the tension of the vocal folds during speech. By stretching the vocal folds, the frequency of the soundwave is increased, which is perceived as a rise in pitch. Alternately, by relaxing the vocal folds, the frequency decreases and a falling pitch is heard. Speakers can choose to alter the airstream in this way to cause the pitch changes that make up intonation.

Change in pitch can also be caused by an increase in the volume of air flowing through the vocal fords: the more air there is flowing through the folds, the higher the pitch. This type of pitch change can be intentional, but it can also occur for reasons beyond the speaker's control. Ladefoged (2006: 244) recommends the following "experiment" to see how pitch changes can be caused by external forces:

> Ask a friend to press against the lower part of your chest while you stand against a wall with your eyes shut. Now say a long vowel on a steady pitch and have your friend push against your chest at an unexpected moment. You will find that at the same time as there is an increase in the flow of air out of your lungs (as a result of your friend's push), there will also be an increase in the pitch of the vowel.

Because pitch changes can be caused both by intentional alterations to the vocal cords and by outside forces acting on the speaker, the information examined when studying

intonation can also include both intentional and accidental patterns. To determine the linguistic significance of intonation, one must sift through the accidental pitch changes to separate the intentional ones.

Intonation can provide vital information about a statement that is not available from the syntax itself. In English, intonation is what allows you to make the distinction between *He had a car?* and *He had a car.* The question ends with a rise in pitch while the statement ends with a fall. Without this difference in intonation, the listener might be confused as to whether you were telling or asking them something. Intonation can also be used to place emphasis on a particular word, thereby focusing attention on that word, such as in *John gave ME a car*. Here, a raised pitch on *me* signifies that the speaker is highlighting who was given a car ("me" versus "you" or "Sam"). In this case, the intonation is not mandatory for the basic meaning, but it provides additional information about the focus of the sentence.

The fact that only some intonation patterns are intentional can make analysis difficult. While a speaker might choose to raise the pitch to signify a question or to emphasize a particular word, some pitch changes occur for reasons beyond the speaker's control. Intonation can be affected, for example, by the speaker's emotional state. If someone is excited or angry or sad or anxious, his speech will be slightly altered, reflecting this state. These factors are evidence of the complexity involved in studying intonation: How do we separate the involuntary, uncontrollable effects from the ones intended by the speaker?

A full account of the intonation in a language would contain information on all of the deliberate pitch changes used in speech. It would not only describe the patterns that

are present, but explain where the patterns occur and how they interact with the other parts of the sentence (like the syntax). This research is not meant to provide a complete explanation of how intonation is used in Unami; instead, it is an introductory examination of the role of intonation and the patterns that are present in the language.

b. Why study intonation?

At this point, the question may be asked, why should we care about intonation? What can the study of intonation tell us? From a linguistic viewpoint, intonation research adds to our cumulative knowledge about language in general. If the goal of linguistics is to understand how human language functions, it would be irresponsible to ignore data on any aspect of language. Though intonation is not a core focus of most linguists, it can provide important additional information. The study of linguistics should include the many different aspects of language:

> Not only lexicon and grammar are concerned, but the whole of the process of communication, understood as consisting of discourse regularities and the patterning of texts of different kinds, the speakers' goals and strategies, different layers of their attitudes, their empathies, objects of their attention in various contexts, the states of their memories, (direct and indirect) speech acts, conversational implicatures, and so on. (Hajičová 1998: 23)

Furthermore, for those learning an extinct (or "sleeping" language), intonation studies can provide insight into how the language was actually spoken. As there is variation between languages, students need some way to learn the intonation patterns of their particular language. This can be difficult if there are few or no native speakers available,

so linguistic research can help to fill this role. My research provides information of this type for Unami intonation – information that is currently unavailable.

c. Previous research

To date, relatively little has been published on the Unami language. The majority of the linguistics research conducted on it has focused on morphology, particularly in regard to its use for reconstructing Proto-Algonquian, the precursor of Unami and other Algonquian languages (cf. Goddard 1990, 1983, 1974 and Proulx 1984, 1982, 1980). Voegelin (1946) presents data on some basic features of the language, including the phonemes and their distribution, morpheme alterations, and affixes. While this provides a general introduction to the structures present in Unami, it does not consider intonation in any form.

As for intonation in other Algonquian languages, there have been a few studies of prosodic features (including sentence intonation) of these related languages, but most are concerned with the word as the primary level of analysis, rather than the sentence or phrase (cf. Cowan 1983, Gathercole 1983, Leman 1981, Muhlbauer 2006, Siebert 1988, Valentine 1996). These studies do, however, provide examples of the types of prosodic features that are present in other Algonquian languages, which can hint at possibilities in Unami. In particular, one article (Goddard 1991) examines intonation patterns in Fox (Mesquakie) for normal, interrogative, and exclamatory statements.

There are also many works that deal with the broader topic of prosody and intonation (cf. Bolinger 1972, 1986, 1989, Cruttenden 1986, Ladd 1980, Lieberman 1967). These provide a general background on intonation analysis necessary for detailed examinations of these features. Ladd (1996) provides a good overview of the type of

work being done in intonation and what theoretical frameworks are being used. ‘t Hart (1990) presents a theoretical framework for intonation research based on the work of the Institute for Perception Research (IPO) in Eindhoven, the Netherlands. Johns-Lewis (1986) and Urban (1982) discuss the varying use of intonation in differing contexts (such as performance versus conversation). These general works serve to inform my research and locate it within the field of intonation studies.

d. Explanation of corpus

The data for this research were drawn from a general corpus of fifteen recordings, made between 1968 and 1970 by Dr. Ives Goddard of the Smithsonian Institution. Two Oklahoma Lenape women, Martha Snake Ellis and Ollie Beaver Anderson, were recorded as part of his Ph.D. dissertation research on verbal morphology in Unami and Munsee. The collection of recordings consists mainly of one-person narratives (none of the recordings included both women), generally regarding personal and tribal history. There are also two recordings (one from each speaker) that consist of prayers. The lengths of the recordings range from six to ninety-seven lines, with the average length being 37 lines.[9] Each of the recordings had been previously digitized (they were originally recorded on open-reel tapes), and Dr. Goddard had prepared line-by-line transcriptions.

Though the entire corpus was given a preliminary examination, one particular recording, a prayer by Martha Ellis, was chosen for detailed analysis. The prayer recording was chosen because the ritualized speech made the intonation patterns more

[9] A line, in this case, generally corresponds to a single sentence. This will be further explained below.

noticeable. It is well established that different modes of communication may be expressed through different intonation patterns. As Ladefoged (2006: 118) states,

> The intonation is also considerably affected by the speaker's style. When speaking slowly in a formal style, the speaker may choose to break a sentence up. Churchillian oratory will produce a large number of intonational phrases, but in a rapid conversational style there is likely to be only one per sentence.

Prayer recitation, in particular, is prone to distinct forms of intonation. Cross-culturally, prayer "is often in a special ceremonial style…. It is always highly structured" (Miller 1996: 232). Consider the common pattern of recitation for the Lord's Prayer in English, or the drone of Gregorian chants, or the singing of the Torah in Hebrew. Similarly, Unami prayers exhibit stylized intonation patterns when compared to narrative. Figures 3 and 4 below show example sentences from a narrative and a prayer, respectively, to illustrate this point.

e. Methods

The digitized recordings were analyzed using the freeware computer program, Praat. Praat, a tool for acoustic analysis of language, takes sound files and provides the user with visual representations of the sound, including the soundwave, spectrogram, pitch contour, etc. These can then be used to measure various aspects of the sound, such as the amplitude, wavelength, component frequencies, and intensity of a soundwave. For this research, Praat was useful for its ability to determine the fundamental frequency of a soundwave, which gives rise to perceived pitch.

The prayer recording had originally been analyzed into seventy lines by Dr. Goddard. The lines had been separated based on a combination of Unami sentence

structure and intonation. For the most part, each line consisted of one (and only one) syntactic sentence, but in a few cases one sentence had been separated into more than one line due to the intonation, and in one case two syntactic sentences had been represented as one line. [10] For consistency I combined or separated these so that each line consisted of exactly one sentence, changing the total number of lines to 69.

First, I provided a rough approximation of the pitch contour for each line, drawn by hand using only my own hearing. Then, Praat was used to provide a more objective analysis. For each line, the pitch was measured at the top and bottom of any major changes in pitch. These changes were recorded both in Hertz (to provide the absolute magnitude of the fall) and in semitones (to provide the relative magnitude of the fall).[11] I also measured the duration of the pitch change (in seconds) and noted at what point in the sentence it began (based on the percentage of the total length of the sentence). If there was no major pitch change, this was noted and described. The data collected from these analyses are described below.

f. Data

In the hand-drawn pitch contours, my subjective perceptual analysis showed that the primary intonation pattern in the prayer consisted of a monotone recitation (i.e., relatively unchanging pitch) with a perceptible falling pitch at the end of the line, within about the last word. A few sentences, however, did not follow this pattern and did not have a final fall. Instead, the pitch of these stayed constant throughout the sentence.

[10] Dr. Goddard's distinctions about which statements constitute full syntactic sentences (based on Unami verbal structure) have been accepted for this work.
[11] Semitones are a measurement of change of pitch. The equation for calculating semitones from Hertz uses logarithmic functions which serve to counter the fact that speakers have different natural pitch ranges.

I followed the impressionistic analysis with one aided by Praat. With a few small exceptions, the pitch contours in Praat agreed with the contours I had drawn by hand. In using the computer-generated contours, I found that most of the lines began on a slightly lower pitch that climbed within the first syllable or two to a mid-range pitch, which then continued until the final fall. This initial rise was difficult to perceive when simply using my own hearing.

Out of the sixty-nine sentences, sixty-three (or 91.3%) had at least one falling pitch, located at the end of the sentence. These falls ranged from 4.5 to 9.0 semitones. In forty-nine of these sentences (77.8%), the fall began within the final third of the sentence. The remaining fourteen sentence each had a total duration of under three seconds, so it is unsurprising that the pattern might start earlier in the sentence. The duration of the fall ranged from 0.33 seconds to 1.87 seconds, with the average duration being 0.80 seconds. In the six sentences that did not have a final fall, the pitch remained relatively level throughout the entire sentence.

Figure 3 shows the pitch contour of a sentence with the typical sentence-final fall.

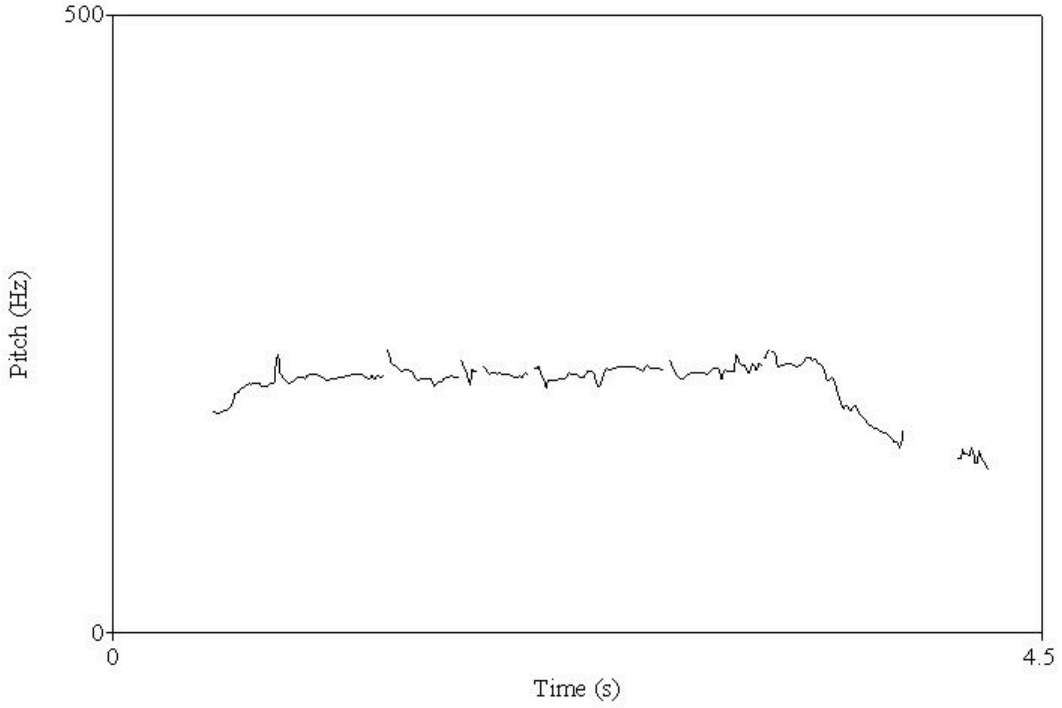

Figure 3

(1) wəla·te·namuwá·k·an, nəməšhika·khúməna, ə́nta-o·x·é·e·k, yú šé· entala·wsíenk.

'We experience happiness when it's light here where we live.'

Fifty-three sentences out of the total (or 84.1%) had only the sentence-final fall, like the sentence above.

While the majority of the sentences followed the pattern above, there were a couple of examples of variation in this pattern. Occasionally a falling pitch was found at a non-sentence-final phrase boundary. In these cases the intonation marked the phrase as if it were the end of the sentence, even though the syntactic sentence continued. In one example, the intonation separated a single sentence into three separate parts, each with its own "sentence-final" intonation pattern. Figure 4 shows the pitch contour of this sentence, with slashes in the transcription to indicate the breaks in intonation:

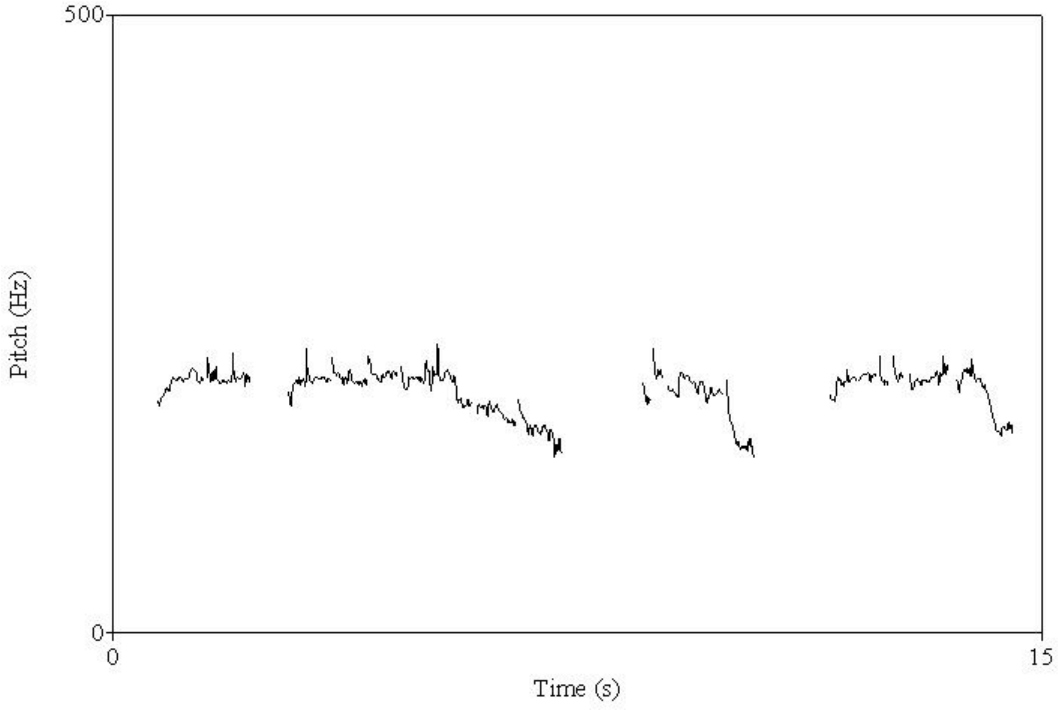

Figure 4

(2) wé·mi awé·n, mwəšhiká·k·wən ní, kəmant·uwwá·k·an, nuxá·t·i, e·li·xtáon, yúkwe=yu=šé· entala·wsu·há·lienk. / ktá šúkw, wté·ha, we·lhála·t, awé·n. / tə́li=tá a·es·ə́s·ak, ču·lə́·nsak, tə́li ču·ləntə́t·ak.

‘Everybody benefits from your divine power, Father, the way you set up this (world) here where you put us to live, / in fact, any creature at all that has a heart, / even the animals, and the birds, and the little birds.’

While fifty-three sentences had only the sentence-final fall, ten sentences were of the type above, with two or more pitch falls in one sentence. In most of these (80%), the final fall was the largest and longest. The final fall in these sentences still occurred within the last third of the sentence (as was the case in the other sentences), though the prior falls could occur as early as the first third.

In a few cases a syntactic sentence would end without the expected pitch fall. These sentences were attached by intonation to the following sentence. Figure 5 shows the pitch contour of a sentence that follows this pattern:

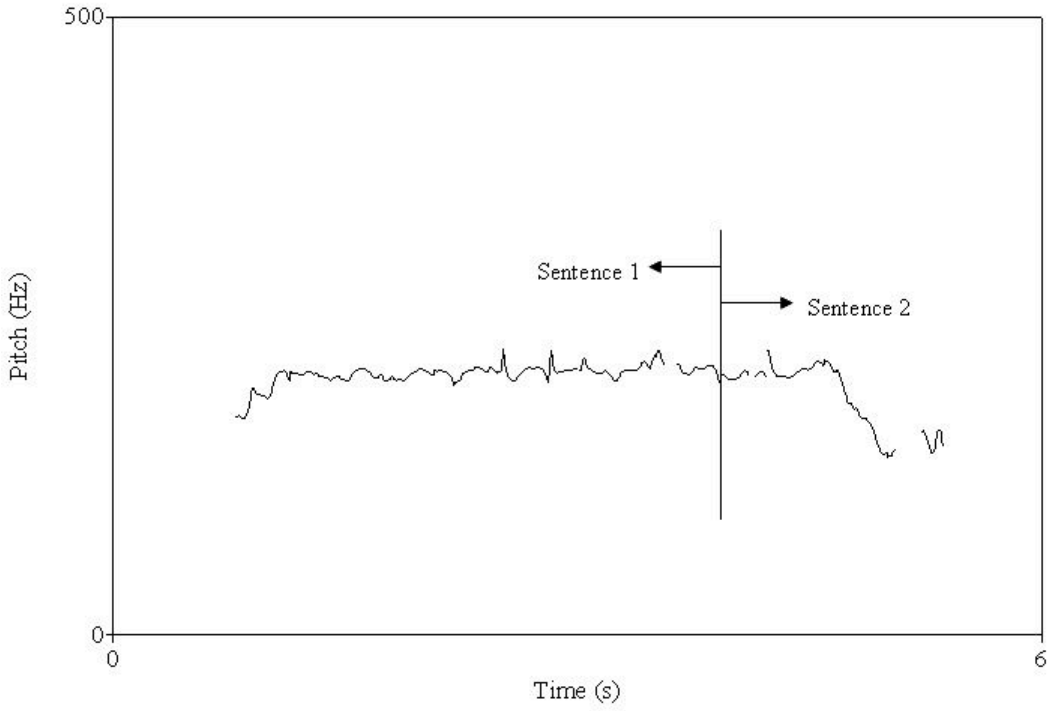

Figure 5

(3) yuhé·e yú, nné·məne·n, alla·mali·ké·enk, ó́·k alli·nxké·enk; o·x·é·e· yú entala·wsíenk.

‘Here, we can now see where to step and where to place our hands; it is light here where we live.’

There were four instances of this type in the data, accounting for ten sentences. This pattern accounts for all six of the sentences without the final fall. (The final sentence in each of these sets had the typical sentence-final fall.)

g. What it all means

The data from the prayer recording show that intonation does not simply separate one sentence from another, but also plays a role in portraying discourse-level information by segmenting speech both above and below the level of the sentence. The general pattern for sentence intonation involves a final fall in pitch, but the speaker can manipulate this pattern for discourse purposes. The examples analyzed show that the intonation may function to present thematic material: The intonation units sometimes unite syntactically separate but thematically linked sentences, and sometimes they break up sentences to give smaller segments thematic prominence. The evidence shows that information encoded in intonation is not necessarily confined to individual sentences. Instead, it can function independently of the limits of the syntactic sentence to provide additional information.

i. Importance

For linguistics, this examination is important because it focuses on an aspect of language that is not often analyzed. Most theoretical linguistics tends to focus on morphology, syntax, semantics, and phonology. Often it examines linguistic structure at or below the sentence level. This research suggests, however, that some information may be encoded *above* the sentence level. Though most of the intonation patterns functioned within one sentence, the presence of patterns that integrated more than one sentence implies that a full understanding of linguistic processes may require looking beyond individual sentences.

This research also fills a hole in the scholarship on Unami. There has been little published on the phonology of Unami, and nothing on its intonation. This research adds

to the cumulative knowledge of intonation within Unami, and by extension, Algonquian languages and language in general.

The prayer intonation data are also important within the field of linguistic anthropology because they provide an example of language in a social context. As mentioned above, the prayer recording employed different intonation patterns than narrative speech. Though prayer recitation and narratives are spoken in the same language, the delivery and the style in which they are spoken is markedly different. This is evidence that the context of a speech act influences its form.

For the wider community, and particularly those Lenape Indians who wish to learn their language, this kind of linguistic research provides vital information on how Unami is spoken by a native speaker. Prosodic features are very difficult to learn without direct speaker input. Since there are no longer any native fluent speakers, using recordings is the only way to gain access to this kind of information.

VI. The Community Experience

In this chapter, I present the other side of the story: the perspective of the Lenape community itself on the subject of study and revitalization of the Unami language. The chapter is based on an interview with Shelley DePaul, a Lenape woman. Though DePaul stresses that she cannot speak for the entire Lenape community, she nevertheless provides insight into the views of one member of the Lenape community toward the Unami language and the role of linguistic data.[12]

DePaul is a member of the Lenape Nation of Pennsylvania, the descendents of the Lenape who remained in Pennsylvania when the majority of the community moved west.

[12] All information and quotations in this section come from an interview with Shelley DePaul conducted on March 14, 2009 at Swarthmore College.

DePaul serves as the language officer for the group and teaches a course on the Lenape language,[13] both for her fellow community members and, more recently, for students at Swarthmore College.

DePaul did not grow up speaking Lenape.[14] It was only about twenty years ago that she decided to learn the language. As someone involved in creative writing, she wanted to learn Lenape in order to write poetry: "I know that words have power, especially the ancient ones … and that's how I felt about Lenape." It was a very long process, however. Because there were no fluent speakers available, DePaul started her journey by reading Lenape-English dictionaries that had been compiled by linguists. Though this provided her with vocabulary, it was difficult to learn how to speak the language from the dictionaries since they did not include any sentence translations. An important step came when she found a book of Epistles translated into Munsee by Moravian missionaries. These were instrumental for DePaul because the sentences were written with word-by-word translations. This taught her how sentences were formed in the language.

Later, after she had been working with the written documents for a while, DePaul was given a copy of taped lessons on Lenape that had been recorded by Nora Thompson Dean, a speaker from Oklahoma. These proved vital to the process of learning the language for DePaul, because no matter how good the phonetic transcription in a book is, it simply is not the same as hearing the language spoken. The tapes allowed DePaul to actually hear the language in order to learn pronunciation, intonation, and stress patterns. Then, in 2002, the Lenape Talking Dictionary was made available online by the

[13] For this section, I refer to the language as "Lenape" since that is the name DePaul uses.
[14] For the most part, DePaul has tried consistently to use the Southern Unami dialect, though her speech does contain some words from Munsee.

Oklahoma Lenape community.[15] This served as another useful resource for learning the language by providing recordings of native speakers saying the dictionary words and sample sentences.

Today, DePaul teaches occasional classes on the language to members of the Pennsylvania Lenape community. Though there is a desire by many in the community to learn the language, it is a tough process. For people who have never learned a foreign language before, jumping into the complex structures of Lenape can be overwhelming. There is a "deep wanting" to learn the language, but also a high level of frustration.

DePaul remembers feeling similar emotions during her own early days of learning the language. These feelings both drew her to learn the language and also pushed her away. When she first started looking at the dictionaries, she felt intimidated by the amount of information and the fact that she would be learning with very little or no assistance: "I felt a calling to my language," but "it's scary.… I thought I'd never do it, but I just kept going." In teaching the language, she tries to help other people overcome these obstacles.

Because of the difficulties that community members face when trying to learn Lenape, DePaul has focused on creating a comfortable atmosphere for supporting new learners. She starts with simple phrases that can be implemented in daily life: *I'm hungry*, *Give me the milk*, *Where are you going?*, etc. So far, her Lenape students have not moved much beyond these basics, but DePaul stresses that even this much is encouraging. Even if the students only learn a small amount of the language, it is an important achievement: "Whatever remnants of the language you keep, that's powerful." DePaul believes that

[15] The Lenape Talking Dictionary translates from English to Lenape. Each entry has an attached sound file, spoken by a native speaker, so that the word can be both seen and heard: http://www.talk-lenape.org/

learning their ancestral language helps to maintain a linguistic identity, noting: “Then the language can’t be separated from culture.”

When creating her own teaching materials, DePaul has had to make some difficult decisions about what to keep and what to change in order to help people to learn and use the language. Most of the learners, for instance, use a simplified version of negation and have not yet learned the many different ways to conjugate verbs. When deciding what is most important to teach, DePaul consults with others and considers the issues involved for the speakers in the community. In a few cases, she has decided not to teach certain forms, particularly the more archaic ones. Whenever she does this, however, she makes sure to make reference to the omitted forms, with an explanation of why they will not be taught. That way, if anyone wants to learn the more traditional version of the language, the information is available.

By choosing to abandon certain structures, DePaul has become subject to criticism. Some members of the Lenape community think that the language should be kept pure and not changed, while others agree with DePaul that if the language does not change, it will never be used. DePaul says that “either you believe that language is a living language and you’re okay with that, or you don’t – you believe it should be preserved as it was.” After discussing this with others and listening to her own heart, DePaul has decided that, at least for her, “yes, the language is going to grow and change,” and that is the way for the language to continue.

In the spring of 2009, DePaul began teaching a course on Lenape at Swarthmore College, highlighting the potential for greater cooperation between linguists and endangered language communities. Eleven students spent three hours per week learning

the language. Pending additional funding, the first-year course will be taught again in the fall, and a second-year course with be offered the following spring. DePaul is optimistic about the impact of the course, both on the Swarthmore students and on her community: "Isn't it pretty amazing? There were three speakers and now there are fourteen." She hopes that, next year, the Swarthmore students will be able to meet with members of the Lenape community to inspire and encourage them to learn the language as well.

DePaul points to the Swarthmore course as an example of what linguists can do to help with language revitalization. The course is offered through the Swarthmore Linguistics Department and consists primarily of linguistics majors. Each student is completing a final project that focuses on creating materials that will benefit language learners. These projects range from translating children's songs into Lenape, to creating a comprehensive glossary of the words learned in the course, to developing a nature walk using the Lenape names for local plants, to programming a computer game for learning vocabulary. When finished, these projects will become resources for future learners, both at Swarthmore and in the community.

Understandably, DePaul has many conflicting emotions about the Lenape language and its outlook for the future. As a language with no native speakers, the prospect of regaining the language is daunting: "It's bleak that we'll get people to talk in any fluent way." Though the language classes are helping, the language is still not being spoken on any more than a sporadic basis, and even then, it is primarily formulaic, memorized sentences or phrases. DePaul feels the frustration of trying to teach the language and encouraging her community to use it: "I'm only one person and I'm the only person." Yet even with these difficulties, she is amazed at what has already been

accomplished, especially regarding the Swarthmore language course: “In the last year, I would never have expected what’s happened to happen. … Even last summer I would never have expected [it].” She is hopeful that the progress of the last year will continue into next year and beyond.

DePaul’s personal experiences underscore the beneficial possibilities of cooperation between endangered language communities and the linguistic community. Her own language learning was made possible by the use of materials that were collected by linguists, and today she is working with linguists to develop and implement new ways to support the language.

VII. Archiving

DePaul’s experiences also highlight the necessity of keeping language documentation materials safe and available. The documents and recordings that DePaul used to learn her language are some of only a handful of materials on Unami that exist. The recordings I used for my own research are also among the last remaining pieces of the language. If these materials were ever lost or destroyed, both linguists and community members would lose an irreplaceable source of information.

Because Unami has no native speakers today, we must rely on recordings that are old and generally of poor quality. The recordings I analyzed were made forty years ago, when technology was not comparable to today’s standard. While linguists today often use high-quality digital recording equipment designed to capture every piece of data possible, these Unami recordings were created well before that technology was available. The original recordings consist of open-reel analog tape recordings that have since been digitally remastered. The sound quality is mediocre. Background noise obscures some of

the sound data, and in some cases the quality is poor enough to completely preclude any computational analysis.

Grenoble and Whaley (2002) provide a poignant example of the problems associated with poor quality data. At the turn of the 20th century, the now extinct Yaghan language was one of the better documented languages in South America. There were even some recordings made of it. Today, however, the phoneme inventory is unclear, and the contemporary literature contains conflicting reports. Although the recordings made in the early 1900s still exist, a century later these recordings have become too muffled and deficient to provide any insight that might help to answer the question.

Though we can never predict how technology will change, proper archival techniques can help to minimize the negative effects of these kind of changes. This is particularly important when working with endangered languages, because much of this data would be irretrievable if lost. If recordings of an English speaker are destroyed or lost, it is an unfortunate event, but new recordings of new speakers can easily be made. Furthermore, there are many alternative sources for recordings and written records of majority languages such as English, including the vast numbers of movies, radio broadcasts, podcasts, television shows, and recorded speeches (from politicians, activists, etc.), to mention just a few.

In the case of an endangered or extinct language, on the other hand, the data from a lost recording is generally lost forever. It is often impossible to make new recordings. Speakers who are elderly the first time may not be available for a second recording. Moreover, there may be few or no alternative sources in existence. If one recording becomes lost, the total amount of language documentation is severely diminished. This is

the case for Unami. It is unclear precisely how many recordings exist, but it is safe to say that if any of these were lost, the total number would be drastically reduced.

The irreplaceable and fragile nature of such recordings underscores the critical importance of proper archiving. Because of the great value of recorded materials for language learning as well as linguistic research, it is absolutely vital that these recordings be maintained and preserved. If the data is not properly cared for and archived, it will no longer be available for *anyone* to use. A language may be reasonably well-documented, but if the information is not stored appropriately, it can easily be lost.

There are several important considerations in deciding what archival methods should be put into practice. First, information must be stored in a way that will promote the longevity of the data. Second, data must remain easily accessible, so that both researchers and other interested persons can make use of the information. There is no point to preserving data if it is inaccessible.

In terms of longevity, Simons et al. (2007) note that there are two pertinent possibilities to consider: software obsolescence and hardware obsolescence. To ensure that future software can access the information, materials should be stored in widely-used formats and constantly migrated to new ones as they are developed. With respect to hardware problems, Simons et al. (2007: 30) recommend that materials be "deposited with an institutional archive that will ensure that they are migrated as needed to fresh media lest they perish on media that become obsolete … or unreadable." Universities, museums, and other large institutions can ensure that their technology is kept up-to-date. Without this kind of maintenance, "many of today's resources will be virtually unusable within 10 years" (Simons & Bird 2003: 118).

While the long-term storage and maintenance of information is of vital importance, so is its accessibility. As Grenoble and Whaley (2002: 1) explain, while a great quantity of linguistic information and materials exists in the world, "that knowledge remains disconnected and impossible to access." Archiving materials in an accessible format ensures that the data will not languish somewhere, unused by anyone.

We have the ability today to disseminate information to a degree never before imagined. Through technology, we are able to spread information quickly and cheaply around the world. In digital format, we can store and transmit not only static images, but also video and sound clips. Many researchers, however, do not take full advantage of these opportunities. Most materials are still being published in paper formats that are expensive and time-consuming. As Grenoble and Whaley (2002) observe, even journals that are published online tend to be simply the print version presented in a different media, without taking full advantage of the additional opportunities that digital formats provide.

Of course, these modern technological advances are not without their own problems. Many different formats exist for each individual need, and this wide range of platforms impedes the spread of information, as anyone who has dealt with format incompatibilities (between Macs and PCs, for instance) well knows. Furthermore, "this proliferation leaves resource developers confused as to how to proceed, dilutes the utility of software tools, and puts resources at risk of becoming inaccessible as formats change" (Simons & Bird 2003: 126). Therefore, in the storage of data, researchers should use those formats that are most universal, and especially those that are supported on more than one platform by multiple software programs.

To this end, a number of "best practice recommendations" have been developed to give researchers advice on how best to record and archive their data. Many recommendations have been developed by the Open Language Archives Community (OLAC), a group organized for "(1) developing consensus on best current practice for the digital archiving of language resources, and (2) developing a network of interoperating repositories and services for housing and accessing such resources" (Simons & Bird 2003: 118).

Best practice recommendations are a good way to inform linguists about how best to record and preserve linguistic material, which in turn can prove useful to researchers and community members alike:

> This documentation … provides present and future generations of linguists with empirical data for research, historians and anthropologists with information on a speech community's unique history and cultural heritage, and speakers themselves with essential material for their heritage preservation efforts. (Boas 2006: 154)

Developing and implementing best practice recommendations is in the best interests of anyone and everyone involved with endangered languages. If materials are lost or destroyed, or otherwise rendered unusable, it would be devastating not only to academia, but to communities as well.

VIII. Conclusion

Linguistic research benefits greatly from the study of endangered languages. Endangered languages may supply forms that do not exist in well-studied majority languages. In my own research, the examination of an endangered language has added to

linguistic knowledge on intonation, a topic not often studied within linguistics. For a field that looks to explain and account for the many varied ways that humans can use language, the information found in endangered languages highlights the creativity and diversity of human language.

Linguistic research, in turn, can be of great value to the speakers or learners of endangered languages themselves. Documentation of endangered languages can help communities to preserve their languages. It can also be used to relearn a language that is no longer spoken. Shelley DePaul's experiences provide a clear example of how linguistics can benefit communities.

There is often a disconnect, however, between the views of the academic community and those of people in the endangered language community. The needs of one community may be conflict with those of the other. Researchers sometimes function as if they exist in an academic bubble, seeing themselves as separate from the outside world. The choices they make during the course of conducting fieldwork, however, can have impacts far beyond the scope of their research. Communities, on the other hand, may place demands on visiting linguists that are beyond their capabilities to fulfill.

Even the most basic definitions of terms such as "language," "dialect," and "speaker" may depend on whose point of view is being considered. The views of a researcher regarding who is considered a "speaker" may be very different from those of the people themselves. Because language plays a large role in identity formation, these topics may be emotionally-charged and highly controversial.

Though the culture of academia sometimes clashes with the culture of endangered language communities, finding common ground is possible. Mutual respect and an

awareness of the sensitive issues at play can help to alleviate tension. “Bridging the gap between academic linguistics and community wants and efforts is surely one of the major challenges of the linguistic profession as it faces the situation of endangered languages at the turn of the new century” (Grinevald 1998: 143). There are many challenging obstacles to overcome, but by working together, academics and endangered language communities can both benefit.

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Appendix: Poster presented at the CELCNA conference, University of Utah, Salt Lake City, UT, March 27-29, 2009

Sentence Intonation in Unami (DEL; Algonquian)

Maureen Hoffmann – Bryn Mawr College, Swarthmore College
Dr. Ives Goddard – National Museum of Natural History; Smithsonian Institution

Introduction

This research examines the patterns of sentence intonation found in the Algonquian language, Unami (Delaware, Lenape). A prayer recorded by Goddard from Martha Ellis in 1966 was objectively observed and described by Hoffmann using acoustic software. The highly stylized intonation patterns in the prayer were then compared to its sentence structure.

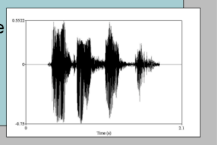
Martha Ellis

Unami

Unami, also known as Delaware or Lenape, is an Algonquian language originally spoken in the Delaware Valley region. After the arrival of the Europeans, the Delaware tribe relocated to various locations, in particular to Oklahoma. The last native fluent speaker passed away in 2000.

Methods & Materials

A digital remastering of the open-reel tape-recording of the prayer was analyzed using Praat acoustic software (a freeware). Praat creates visual representations of various aspects of sounds, such as the pitch, intensity, and duration of the wave. There are 70 sentences in the prayer, each of which was analyzed using Praat.



Data

Figure 1 shows the pitch contour for a single sentence with a single fall at the end. Fifty-one of the 70 sentences in the prayer showed this pattern. The falls range from 4.5 to 9.0 semitones.

wəla·te·namuwá·k·an,
nəməšhika·khúmənа, ə́nta-o·x·é·e·k, yú šé· entala·wsíenk.

We experience happiness when it's light here where we live.

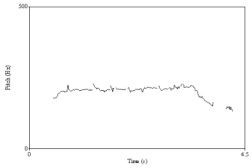


Figure 1

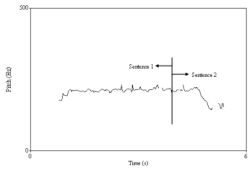


Figure 2

In Figure 2, two sentences have been united by the speaker through the use of the intonation:

yuhé·e yú, nné·mənе·n, alla·mali·ké·enk, ó·k alli·nxké·enk; o·x·é·e· yú entala·wsíenk.

Here, we can now see where to step and where to place our hands. It is light here where we live.

There were three instances of this type in the data, accounting for eight sentences.

Figure 3 represents only a single sentence, but the intonation splits it into three distinct parts:

wé·mi awé·n, mwəšhiká·k·wən ní, kəmant·uwwá·k·an, nuxá·t·i, e·li·xtáon, yúkwe=yu=šé· entala·wsu·há·lienk / ktá šúkw, wté·ha, we·lhála·t, awé·n / tə́li=tá a·es·ə́s·ak, ču·lə·nsak, tə́li ču·lənə́t·ak.

Everybody benefits from your divine power, Father, the way you set up this (world) here where you put us to live, / in fact, any creature at all that has a heart, / even the animals, and the birds, and the little birds.

Eleven of the sentences have more than one fall. In these sentences, the final fall is generally the largest.

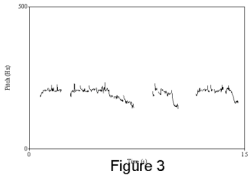


Figure 3

Discussion

The data show that intonation does not merely demarcate sentences but also plays a discourse-level role segmenting natural speech above and below the level of the sentence. The general pattern for sentence intonation involves a final fall in pitch, but the speaker can manipulate this pattern for discourse purposes. The examples analyzed appear to show that the intonation may function to package thematic material. The intonation units sometimes unite syntactically separate but thematically linked sentences, and sometimes break up sentences to give smaller segments thematic prominence.

The intonation patterns used in prayer revealed by this research provide a springboard for the examination of the use of intonation in other stylistic registers of Unami, such as narrative.

A full account of Unami intonation might employ a ToBI framework.

Prosodic features, such as intonation, are difficult to examine without access to native speakers or recordings. Recordings such as these can be informative not only for their grammatical content, but also for their ability to provide information beyond the syntax of the language.

References

The map is adapted from I. Goddard, "Native Languages and Language Families of North America," in *Handbook of Native American Indians*, vol. 17 *Languages* (Washington: Smithsonian Institution, 1996).

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