

Knowing and remembering: Rethinking lexical recall as a measure of proficiency in endangered language communities

Daria Boltokova

Memorial University of Newfoundland

*The Arctic Linguistic Ecology Lab, M.K. Ammosov North-Eastern
Federal University*

Jessica Kantarovich

The University of Chicago

*The Arctic Linguistic Ecology Lab, M.K. Ammosov North-Eastern
Federal University*

Lenore Grenoble

The University of Chicago

*The Arctic Linguistic Ecology Lab, M.K. Ammosov North-Eastern
Federal University*

Maria Pupynina

Institute for Linguistic Studies RAS

This paper problematizes the assessment of speakers' proficiency in endangered language communities. We focus in particular on processes of lexical production and elicitation as proxies for full proficiency assessment. Among linguists, it is standard to assess a speaker's knowledge of specific lexical items in order to set a baseline for further data collection and research. Yet, as we argue in this paper, such tests can give the false impression that speakers do not know their language, since such tests do not distinguish between what speakers can recall in a particular moment and what they do not know because they did not acquire it. The endangered language context in particular calls for a more fine-tuned interpretation of lexical knowledge, given the high degree of idiolectal variation and lack of a community-based standard language. Drawing on fieldwork with Chukchi and Even Indigenous communities in northeastern Russia, we analyze lexical items that speakers claim to not remember. We then distinguish different reasons that are given for not remembering and consider their implications for speakers' proficiency. Finally, we conclude with two recommendations for improving elicitation and language assessment tests.

1. Introduction¹ How should we measure and assess linguistic proficiency in contexts of language endangerment? Is it the case that those who cannot recall a particular word or phrase do not know their language? In the present article, we consider the methods used to assess proficiency, asking what it means to be “proficient” in a context of language shift and what such assessment measures actually tell us. Often, field linguists rely on some kind of lexical recall task, either in the course of lexical documentation or in order to estimate speakers’ proficiency. We discuss such tasks as proxies for a full proficiency assessment, which should include a variety of tests targeting different types of linguistic knowledge and different degrees of access to that knowledge. We also discuss how to interpret different types of responses to lexical recall tasks, drawing a distinction between *knowing* an item and *remembering* it. These responses often provide more nuanced data than simply whether the research participants could recall a word in the target language or not: even the most proficient speakers in a community may not be able to provide all of the items required in a particular task, but their explanations for these gaps are markedly different from those of less proficient speakers.

The majority of language assessment relies on oral proficiency examinations.² Researchers seek to simulate “communicative events” with their research participants – for example, a conversation or interaction – in order to evaluate their linguistic proficiency in a controlled setting. This is the fundamental methodology underlying most second language acquisition proficiency tests. While the guidelines are portable and can be applied, in principle, to any spoken language, the metrics are developed relative to a highly proficient speaker of the language with full use of the language across all domains. On this basis, conclusions can be drawn about a number of important markers of proficiency, including, among others, a speaker’s knowledge of basic grammatical rules and word construction, judgments about the appropriateness of different formulations, and ability to translate items into the language being assessed.

In minority Indigenous language communities, highly proficient examiners may

¹ Research on this project was funded by the National Science Foundation under Grant BCS 1761551 “Investigating Language Contact and Shift through Experimentally-Oriented Documentation” (fieldwork) and the Megagrant from the Government of the Russian Federation under Grant 075-15-2021-616 for the project “Preservation of Linguistic and Cultural Diversity and Sustainable Development of the Arctic and Subarctic of the Russian Federation” (analysis, follow-up work). We are grateful for their support. We are indebted to all the speakers of Chukchi and Even who worked with us on this project. Any errors are our own.

² See, for example, tests such as the ACTFL (American Council on the Teaching of Foreign Languages) proficiency guidelines used in the United States. These guidelines have been carefully developed to assess spoken language proficiency (ACTFL 2012). Guidelines have also been developed in Europe, in the Common European Framework of Reference for Languages (CEFR 2001). The two are roughly analogous, and further guidelines have been developed to translate CEFR ratings into the ACTFL system. ACTFL’s Oral Proficiency Interview (OPI) has been expanded to include a Reading Proficiency Test (RPT) and a Listening Proficiency Test (LPT) so that all skill sets are testable. A document on assigning CEFR ratings to ACTFL assessments is available at https://www.actfl.org/sites/default/files/reports/Assigning_CEFR_Ratings_To_ACTFL_Assessments.pdf (accessed 2021-08-08).

not be available, and more broadly, understudied, under-resourced languages do not have materials developed for such testing, by definition. Research in small-scale communities has shown the importance of using culturally based materials in assessing proficiency, as certain kinds of language (including the lexicon) are used in given domains (Borgia 2009; Kahakalau 2017). For example, coastal Chukchi know how to speak about hunting sea mammals, while inland Chukchi are more familiar with reindeer herding terminology. In Greenland, fully fluent L1 speakers of Kalaallisut living in Sisimiut and Nuuk are emphatic that they do not know sea ice terminology because there is no sea ice that far south. In these contexts, the mythical “fully proficient” speaker with lexical knowledge across “all domains” does not exist.

One standard approach to testing linguistic proficiency in Indigenous and minority language communities relies on lexical elicitation, as in O’Grady et al. (2009), which uses a targeted list of body-part names. This method avoids the need for culturally specific lexical items and is universally adaptable. If the answer is “don’t know” or “can’t remember,” then this is recorded as indicating the absence of knowledge. Our aim in this article is to unpack the “don’t know” and “can’t remember” responses to proficiency tests in contexts of language endangerment. We argue that an overreliance on lexical elicitation and similar strategies runs the risk of generating false negatives. Speakers can “know” a particular item without being able to recall it in the moment (especially in an endangered language community, where opportunities for language use are limited) – that is, they can fail to remember it at the point of assessment. By the same token, speakers may not know an item that is asked of them because they could not be expected to know it in the first place (because it does not exist in their variety of the language, as in the Chukchi and Greenlandic cases noted above, or because the limited discourse contexts in endangerment have kept them from acquiring it). As researchers who study language shift and change among Indigenous communities, we are concerned about how such false negatives can feed discourses of endangerment and ultimately discourage Indigenous peoples from speaking their heritage languages (Heller & Duchêne 2007; Boltokova 2017). In short, we must draw a distinction between a proficient speaker in ideal conditions and a proficient speaker in conditions of shift: Which lexical items can a speaker realistically be expected to have acquired and to use on a regular basis in an endangerment context? These items may be different from those we would expect when the language was robustly spoken, but it is not practical to define a “proficient” speaker relative to a setting that no longer exists.

Our study is based on extensive fieldwork with the Chukchi and Even peoples in northeastern Russia, two communities undergoing rapid language shift. Chukchi, a Chukotko-Kamchatkan language, was claimed as a native language by 5,095 speakers (32% of the ethnic population) in the most recent All-Russian Population Census (2010), but estimates by linguists place the number of actual users of the language closer to 1,000 (Pupynina & Koryakov 2019). Even is somewhat more robustly spoken, with 5,656 speakers (26%) as of the most recent census. Details about our participants are provided in §4.

In our study, we find evidence of speakers who could not recall a lexical item in the moment but were able to do so after further prompting. We distinguish different

reasons that research participants might give for not being able to recall a specific lexical item. In some cases, the speaker could not recall a word as requested simply because there was no equivalent in their language. In other cases, the speaker was asked for the names of animals that were not native to the region, and still in other cases, a speaker could not remember a word or phrase because it was tied to a specific cultural practice that had fallen out of use. We also document several informal devices that our participants deployed to trigger their memories when given sufficient time and support – these devices almost always rely on other cultural (and linguistic) knowledge that should not be discounted in determining proficiency. When our participants could not remember a specific item, they appealed to personal narratives and traditions in an attempt to find the correct association. Many of our participants were able to successfully remember a lexical item using these strategies, despite having initially answered “don’t know.” We conclude with two recommendations for improving elicitation tests of language proficiency that are particularly important when working with Indigenous communities: (1) Tests for proficiency need to be recalibrated to better capture Indigenous beliefs, cultures, and biographies rather than focusing on abstract word use. (2) It should also be standard best practice to follow up on “don’t know” responses during elicitation in order to determine whether there is some undetected tacit knowledge.

This article expands our current toolkit for work in endangered language communities by proposing a revision of tests for language proficiency in order to make them more sensitive to Indigenous epistemologies. Because language endangerment involves a cline of proficiency among the remaining speakers, researchers typically rely on targeted queries about specific lexical items in order to judge how much linguistic knowledge remains. While there are many advantages to lexical elicitation as a method, our argument is that current elicitation practices do not take into consideration the immense variability in expected knowledge and access to that knowledge in the shift setting. Rather, a more interesting observation from our work is that the answers that people give can be more informative than a binary yes/no. It is well known among researchers who work with unbalanced multilingual speakers, such as attriting speakers, that there can be different degrees of access to language knowledge at different points in time. It is not uncommon for attriting speakers and heritage speakers to recover more immediate productive access to lexical items or grammatical constructions the longer they work with a researcher. With this in mind, lexical elicitation tasks have been devised to target both productive and receptive language ability: For the former, speakers are prompted to recall a word based on a picture or a translation; for the latter, speakers are given words and asked whether they recognize them (Schmid 2011). However, these tests fail to capture that the baseline itself (the highest degree of proficiency in the community) can be a moving target. It is also worth examining the causes that underly binary (“correct”/“incorrect,” “know”/“don’t know”) responses to these tasks.

The rest of the article unfolds as follows. In §2, we examine how “language proficiency” is defined and explore some of the most common strategies used to measure and assess proficiency. In §3, we turn to the practice of lexical elicitation in studies of endangered language communities. In §4 and §5, we introduce our data

and field sites, providing an overview of our work with the Indigenous Even and Chukchi communities in the cities of Anadyr and Yakutsk in northern Russia. Here, we focus on the responses given by research participants who could not immediately answer our elicitation requests. In §6, we generalize from our findings to outline two mnemonic strategies that our research participants deployed in an attempt to trigger their memory. Participants would either recall stories and experiences to make a personal connection to the missing lexical item or try to associate the item with specific traditions. In the final section of the article, we recommend modifying how lexical elicitations are conducted when working with Indigenous peoples in order to accommodate these different strategies of remembering lexical items. By improving existing tools for assessing proficiency, we can gain a more accurate and nuanced picture of the extent of language shift in situations of language endangerment.

2. Defining and measuring language proficiency Language proficiency is a category that is much discussed but remains difficult to define. Scholars disagree about how best to describe the category of language proficiency based on their own particular perspectives (see Bachman 1990). What do we mean when we say that a person is proficient in a given language? How much knowledge of lexicon and grammar is enough to be considered proficient in a language? How much does a speaker need to know of sociolinguistic contexts to use the language appropriately? Finally, what are the criteria we use to evaluate proficiency?

We can start by distinguishing two main criteria by which proficiency is determined. The first criterion focuses on *what* speakers know, especially grammatical and lexical knowledge. The second criterion draws our attention to *how* a speaker deploys their linguistic knowledge in various face-to-face interactions in a particular sociocultural context (Anderson 1982; Davies 1989; Spolsky 1989). These two criteria are the main components of the most widely accepted conceptualization of language proficiency as “communicative competence” (Hymes 1972; Canale & Swain 1980). Here, knowledge of how to use language *correctly* is not enough for competence. One also needs to know how to use language *appropriately*. To be sure, we do find scholars using *competence* and *proficiency* interchangeably in their work, making no difference between these terms (see Stern 1983), but others draw a distinction between competence and proficiency, as competence is strongly associated with the idea of “skills of using knowledge” (Taylor 1988: 161). Taylor (1988: 166) argues that competence in the strictest sense refers to “some kind of knowledge” or “state of knowledge,” regarding “structure, state, or form,” while proficiency refers to “the ability to make use of competence.” A more recent conceptualization of the distinction between knowledge and use is provided by Bachman & Palmer (2010). They divide language ability into *language knowledge* (which includes knowledge of form and structure but also of pragmatic rules and sociolinguistic context) and *strategic competence* (which refers to metacognitive “strategies” that guide the planning and organization of language use) (Bachman & Palmer 2010: 44, 48). The notion of strategic competence would seem to correspond more closely to what has previously been called proficiency; however, the “proficiency tests” discussed by Bachman and Palmer require speakers to make use of language knowledge, strategic competence,

and topical knowledge (the relevant lexical and grammatical features that are explicitly at issue in a task) (Bachman & Palmer 2010: 52).³

None of these terms corresponds exactly to the treatment of language ability that we are advocating for here, although it is worthwhile to consider how these different cognitive and sociolinguistic components condition language use. Our goal is to problematize the idea that we can easily calibrate “competence” or “language knowledge” in a shifting speaker community. For the sake of clarity, we refer to the type of language ability we assess here as *communicative proficiency*, to avoid implications that we are testing a static knowledge state. Our goal is to capture the fact that linguistic knowledge emerges from the fluid character of language use across different contexts; nowhere is this more acutely felt than in the endangerment setting, where these contexts may be limited and highly specific. Thus, we are interested in the full range of proficiencies rather than focusing on how shifting speakers compare to “highly proficient” individuals.

Having clarified what we mean by “proficiency,” the next task is to ask how to assess proficiency: when and to what degree a speaker is deemed “proficient.” Given the dynamic dimension of proficiency, a number of disciplines have made issues of proficiency assessment a top priority.

One approach that stands out was developed by scholars of second language acquisition and bilingualism. In order to assess proficiency among second language learners, these scholars break proficiency down into three different knowledge systems: grammatical, social, and strategic. Grammatical knowledge refers to the “knowledge of basic grammatical principles” and lexicon; social knowledge implies the “knowledge of how language is used in social contexts to perform communicative functions”; and, finally, strategic knowledge refers to the “knowledge of how utterances and communicative functions can be combined according to the principles of discourse” (Canale & Swain 1980: 20).

The main objective of this approach is to shift from a framework that treats language as simply a grammar and lexicon to one that sees language as a complex and dynamic system (Harley et al. 1990). “Being proficient in a second language is not just a matter of knowing a lot of words – or grammar rules, for that matter – but being able to exploit that knowledge effectively for various communicative purposes” (Read 2000: 3). Thus, the object of second language proficiency tests is speakers’ “ability to use language communicatively” (Bachman 1990: 81). Assessment of this ability is considered viable through performance- or task-based tests (McNamara 1995; Bachman & Palmer 1996; 2010). Students are given “real-world” tasks that simulate communication activities akin to those they would encounter outside of the classroom. The idea is that their proficiency in a target second language should be judged by how adequately students are able to use what they learned in terms of grammar, social contexts, and principles of discourse in “real-world” situations. For example, “what has been considered as ‘full English proficiency’ amounts essentially to [...] the ability to function adequately in face-to-face situations and use English

³ We are grateful for the feedback of an anonymous reviewer, who alerted us to more recent work on the distinction between competence and proficiency.

appropriately in a conversational context" (Harley et al. 1990: 8).

As comprehensive as these proficiency tests are, we argue here that their applicability in endangered language situations is limited or, at least, that the results of these tests must be interpreted with care. First, most proficiency tests are based on a conceptualization of communicative proficiency that takes for granted "real-world" situations as those in which a target language is widely spoken. In contrast, the domains in which endangered languages are used are restricted at best. In many situations, an endangered language is not spoken in public domains, such as schools, shops, TV, or radio. When it is spoken, it is often limited to specific cultural activities or ceremonies, becoming a valorized genre used by a few, often Elders (Kroskrity 1998; Meek 2010). Second, task-based tests are designed for language learners who study dominant languages such as English, French, or Spanish, which have been extensively regularized and standardized. In contrast, the majority of endangered languages are traditionally oral with hardly any written literature. This means that often there is no standard against which to measure all other ways of speaking in an endangered language. The idea of a standard language is a problematic concept even in the context of dominant languages such as English, but it is even more problematic when we are dealing with endangered languages (see Lippi-Green 1997; McWhorter 1998; Lane et al. 2018).

It is important to emphasize here that our concerns about the applicability of proficiency tests to endangered Indigenous languages are not purely academic. Based on our extensive fieldwork with Indigenous communities, it is apparent that linguists run the risk of testing the wrong abilities. Part of the reason, we argue, is that existing proficiency tests were developed to gauge the linguistic abilities of second language learners, whose backgrounds in the language and opportunity to use it may be very different. This point is also echoed by Indigenous scholars who claim that "proficiency scales developed by linguists for individuals who are learning an additional, thriving language for employment or travel purposes, are not always useful for measuring Indigenous language proficiencies" (Kahakalau 2017: 4). Most speakers of endangered Indigenous languages do not have the kind of immediate recall of words and phrases, precisely because the contexts in which they would use these words are limited and they may not have been taught them as a pedagogical unit (e.g., "animal names") in the language of translation. If a speaker's recall ability is tied to use and place, then it is difficult to assess their proficiency in an endangered language given that language is seldom used. One option is to modify standard second language proficiency tests to fit the contexts in which endangered languages are spoken. This solution can, however, face challenges. Whereas second language learners may be tested on what routine tasks they can perform in their second language (e.g., saying hello, buying groceries), when we are testing the speakers of endangered languages, the context is far more variable. Throughout their lifetimes, speakers of endangered languages receive different exposure to their heritage languages tied to particular relationships or spaces. Some speak the language as children and shift to speaking a more dominant language later in life. Others do not grow up speaking even though the language can be present in their lives through specific people (e.g., Elders) or specific domains (e.g., cultural activities). As a result, their learning

trajectories are different from those of more conventional second language learners. While second language learners typically build up language proficiency in a linear fashion, gradually developing their skills step by step, the learning trajectory of endangered language learners is often more haphazard. Moreover, the potentially small set of domains in which the language was once used may have diminished or even disappeared over the course of a speaker's lifetime, and thus culturally appropriate contexts for use of the language may not exist. Thus, we need a test of proficiency that can be calibrated to account for these additional factors, especially the unique individual histories and learning trajectories of endangered language speakers.

At the same time, many conventional assessment procedures require deep knowledge of the language by an expert who administers the test. Thus, we see a need for a measure to test language knowledge when there are no available specialists. Language shift and cultural change often proceed hand in hand; in communities undergoing advanced shift, it may be impossible to create a culturally appropriate assessment mechanism, especially if the language and culture are understudied. For this reason, lexical production tasks are often invoked as a proxy for the kind of fuller assessment possible with majority languages, and it is worth considering how best to salvage these types of tasks.

3. Lexical production and elicitation in endangered language communities Many linguists are of course aware of the difficulties of assessing communicative proficiency in the field. The problem is operationalizing a measure of proficiency that is contextually sensitive enough to capture the limited domains in which an endangered language will be used. Even within the second language acquisition literature, proficiency defined as an “ability for use” is difficult to grasp. According to McNamara (1996: 59), there are just too many underlying language-relevant cognitive and affective factors involved in performance of communicative tasks. To remedy these and other problems related to assessment of proficiency, Bachman & Palmer (2010: 43) suggest that language ability needs to be defined “in a way that is appropriate for each particular assessment situation.” They highlight that in most assessments, “the definition and scoring criteria will focus on one or more specific areas of language knowledge” (Bachman & Palmer 2010: 44). Other scholars of second language acquisition research also agree that “no one method will provide an entirely valid picture of what a learner knows or thinks” (Ellis & Barkhuizen 2005: 49). This becomes particularly salient in the context of endangered-languages assessment.

In this paper, we focus on lexical elicitation tests as proxies for full proficiency assessment. Lexical elicitation is a type of controlled communicative event invented specifically for the purposes of conducting linguistic research and documentation (Himmelmann 1998: 186; Gilquin 2007). In the Boasian trilogy of grammar, text, and dictionary (or lexicography), the recording and analysis of texts are considered to be “the lifeblood of linguistic fieldwork” (Dixon 2007: 22). It is widely agreed to be the only way to accurately map the grammatical structure of a language. One result is that lexicography has received less critical attention when it comes to data collection (Chelliah & De Reuse 2011: 227). Lexical elicitation is usually used as a pretask or supplementary activity to actual linguistic research.

In combination with other assessments such as speakers' self-assessment, language comprehension of prerecorded sentences, and evaluation of speech rate in the target language, lexical elicitation serves as a crucial predictor of speakers' proficiency at the initial stages of linguistic fieldwork.⁴ Scholars recognize that despite its necessary role, the methodology of lexical elicitation is not well developed, leaving fieldworkers to figure it out through trial and error in the field (Petrollino & Mous 2010).

The main challenge is to overcome the assumption that gives a narrow view of lexicon as a "stock of meaningful word forms that [just] fit into slots in sentence frames" (Read 2000: 5). "Knowing a word" is a complex enterprise (Meara 1996; Zareva et al. 2005). Part of the issue is that there is no single way to measure knowledge of a word. Some suggest that size (or quantity) of lexical knowledge matters, and others argue that quality of words, including such properties as pronunciation, orthographic, morphosyntactic, and semantic features, among others, are more crucial (Zareva et al. 2005: 569). Yet other research shows that those who know more lexical items from a word list provide greater accuracy in such elements of grammar like terms of agreement, case, and subordination in spontaneous speech (Polinsky 1997; 2006; see also Benmamoun et al. 2013). Thus, to assess how lexical knowledge is related to speakers' proficiency is a "mammoth task for the test constructor" (Meara 1996: 46).

To unravel this complexity, word lists that are used for lexical elicitation are designed to reflect culturally appropriate semantic fields. This requires in-depth knowledge of sociocultural contexts where the data are gathered. Some research indicates it is easier for speakers to recall lexical items when word lists are found in the same semantic field (Sands et al. 2017). For example, various types of fauna and other natural objects are one of the first themes to include in lexical elicitation (Dixon 2007). Specific cultural themes or events are also commonly used as they can prompt speakers to recall related lexical items, especially if the connection between these items is based on metaphor and conventionalized cultural knowledge (Field 2009). Moreover, knowledge of domain-specific lexicon is tied to a person's active participation in that domain; proficiency, language use, and cultural practices are intertwined, and changes in one area can trigger changes in another (Grenoble & Whaley 2020).

To be clear, what speakers are able to recall largely depends on what they are being asked.⁵ The more familiar they are with semantic fields, the more likely they will remember more lexical items related to those fields. Ideally, speakers would talk about themes that they can see, hear, or touch. Some of our respondents, for

⁴ The lexical elicitation that we describe in this paper is part of our larger proficiency assessment technique. We conducted these tests to establish a baseline for further collection and research. Depending on how the respondents were able to complete our initial tests, we determined which further tests we would conduct with them. For example, we conducted focused narrative elicitations with more proficient speakers (see the description of the task in §5).

⁵ Schmid (2011: 130) makes a similar point that scholars should be very careful in selecting the tasks they use in research because it largely determines what they may find as a result.

example, needed to envision particular situations in order to recall lexical items. As one of our respondents said, “If you *don’t see*, let’s say I am talking about a cow in the tundra. But if you actually *see* that cow, then it would be *korovajnəj*.” By imagining the context in which a ‘cow’ would be unlikely, the speaker is better able to recall the different names for a cow and ways of speaking about it, that is, whether it is seen or not.

Yet, as we argue in this paper, lexical elicitation is often designed in a way that only “counts” what people remember, excluding the nuances of not remembering as well as whether any aspects of the elicitation may have facilitated remembering some terms over others (e.g., where the elicitation is physically taking place). ‘Remembering’ in these tests is akin to ‘knowing.’ By definition, when speakers say that they do not remember specific lexical items, they are judged as not knowing these terms, but our data show that ‘not remembering’ has its own nuances, especially in the context of endangered language speakers. Because there is an extensive variation of speakers in situations of language endangerment,⁶ fieldwork methodologies need to be constantly evaluated and reinvented. Himmelmann (1998: 188), for example, argues that lexical elicitation should be treated as a kind of “teaching event for which input and control on the part of the native speakers is essential, rather than as some kind of ‘objective,’ culturally neutral way of obtaining data to be administered under total control of the researcher.” When gathering our data in the Chukchi and Even endangered language communities, we took this approach as a guiding principle during our lexical elicitation sessions.

4. Participants and data collection Fieldwork was conducted in 2019 with speakers of Chukchi and Even living in a variety of locales throughout northeastern Siberia and the Russian Far East. Speakers were interviewed in the urban centers of Anadyr, the capital of the Chukotka Autonomous Region, and Yakutsk, the capital of the Sakha Republic (Yakutia), as well as more rural areas such as Bilibino (Chukotka) and Chersky (Sakha Republic). Yakutsk is the largest city (pop. 318,768 in 2019) in northeastern Siberia, with speakers of a variety of ethnolinguistic backgrounds; meanwhile, Anadyr is the capital of the Chukchi ethnic region but boasts only a modest Chukchi population (and is otherwise Russian-dominant), with a total population of 15,849 in 2019. Chersky is a highly multilingual town (pop. 2,550) situated near the lower reaches of the Kolyma River. Bilibino is a town (pop. 5,319) in western Chukotka. Both Chukchi and Even speakers were surveyed at all of these locations.

Both Chukchi and Even are presently highly endangered, with Chukchi shift being arguably further advanced. Even is still being learned by children in some villages, such as in Berezovka and Sebyan-Kyuyol, and is spoken in the home by families, even in some families living in Yakutsk. That said, fluent speakers tend to be in their fifties or older, although there are younger people who are fluent. In Chukchi, intergenerational transmission has all but ceased entirely, and the youngest proficient speakers tend to be no younger than in their forties and fifties (but are

⁶ See Grinevald & Bert (2011) for a typology of speakers of endangered languages.

more commonly in their sixties and seventies) (see Pupynina & Koryakov 2019; Kantarovich, forthcoming). Most speakers are Russian-dominant, with the exception of some elderly monolingual Chukchi speakers and other speakers residing in rural areas. At present, there are few contexts where Chukchi is employed regularly. It can still be heard among reindeer brigades and in some homes but is otherwise reserved mainly for use in specific cultural spheres (e.g., cultural meeting groups, which gather relatively infrequently, or social media). There is some Chukchi language instruction available at public schools, although it is only offered for a couple of hours a week and is under-enrolled. When asked, many ethnic Chukchi believe that preserving the language is important but prioritize mastery of Russian and the learning of English as a language of broader global communication. Language ideologies around Chukchi as used by shifting speakers are familiar ones in the shift and endangerment context: older, typically conservative speakers are quick to point out the errors in younger speakers' language use, and even attriting speakers are extremely self-conscious about the correctness of their speech. Many Chukchi speakers who work with linguists (including several consulted for this study) have received a formal education in the Chukchi language and as such may be more familiar with the translation frame of the elicitation tasks.

Speakers of a variety of backgrounds (older speakers as well as younger attriting and heritage speakers) were asked to participate in two lexical elicitation tasks: one featuring body-part names that varied in frequency of occurrence (O'Grady et al. 2009) and one with animal names, also varying in frequency in the languages. Terms were elicited by different researchers working in different settings. The body parts identified in O'Grady et al. (2009) were elicited using two main methods. Some Chukchi and Even speakers were prompted for the lexical items with the translation in Russian and asked if they remembered the word (in either Chukchi or Even, depending on the speaker's stated linguistic knowledge; some speakers knew both). In other cases, the researchers elicited body-part terms through the use of pictures, to avoid the translation task. For the body-parts task, researchers also occasionally gestured to their own bodies to disambiguate which part or subpart was meant if the Russian word itself was unfamiliar or low frequency. It is not entirely clear whether one strategy versus another was more productive or avoided translation. Even with the picture elicitation task, speakers would often mutter the word in Russian to themselves as they tried to recall the target term (*lokot'... lokot'... kak budet lokot'*? 'elbow... elbow... what is the word for elbow?'), clearly indicating that they were accessing the name in Russian and translating from there.

The list of animal names that were elicited was compiled with the help of a professional zoologist. It consists of the Russian terms for the most notable species (mammals, fish, birds, the most significant insects, and one amphibian) found in Chukotka and northeastern Yakutia. The animal names were elicited solely through translation, although researchers would sometimes provide additional descriptions of the animals if the Russian name was unfamiliar.

The tasks were conducted in a traditional fieldwork setting: either in the participants' homes or in the linguists' local residence. Eight Chukchi speakers completed the animal elicitation task, and twelve completed the body-parts task. Three Even

speakers completed the animal elicitation task, and five did the body-parts task. (Some speakers completed both tasks; some were only able to complete one or the other due to time constraints.) The elicitation was fairly unstructured; speakers were allowed to take their time and to bypass a particular item and return to it. We were not interested in the production of “correct” answers *per se*, but speakers’ responses were checked against comprehensive lists of known translations of these terms in the target languages. Chukchi is especially characterized by a high degree of lexical-phonological variation in different regions, which has been faithfully documented in numerous dictionaries. In general, speakers used one of the expected forms if they recalled a particular lexeme, and they were quick to say they did not know a term and were explicit about the definitions of the alternatives they offered (e.g., ‘dog’ instead of ‘wolverine’).

All of the interviews were recorded. Normally, the researcher and consultant worked as a pair. Some answers were typed on the spot into a Microsoft Excel file by the interviewer. We concentrated on maintaining a vivid dialogue with the interviewee, and sometimes there was no time to type the word accurately. Afterward, the answers were rechecked, and consultants’ comments in Russian about the stimuli were typed into the same file.

5. Don’t know or can’t remember? Chukchi and Even elicitation responses In this section, we focus on what *knowing (a language)* actually means in the context of endangered language communities. Questions of *knowing* intersect with *not knowing*, which may be due to *forgetting* what was an L1 through language attrition (see Jarvis 2019 for an overview) or, alternatively, may be due to not having fully learned the language, that is, incomplete or interrupted language acquisition, as in the case of heritage languages. Both kinds of speakers are found in these communities (Grinevald & Bert 2011). It is important to understand the difference because it can have direct consequences for the results of elicitation. Attritors may have forgotten parts of the language, but that knowledge can be reactivated (Au et al. 2008; Bardovi-Harlig & Stringer 2013). Heritage speakers, in contrast, often produce forms (lexical, morphological) that are at variance with those of a fluent speaker due to such factors as incomplete acquisition and interference.

The approach we took during our fieldwork among Chukchi and Even speakers differed from lexical elicitation sessions that are commonly used in linguistic fieldwork. Following Himmelmann (1998), we set up our lexical elicitation sessions as teaching events. We positioned ourselves not as researchers (or assessors) but as language learners: Our Chukchi and Even consultants were not being “tested” but were instead teaching us their language. Creating this type of frame for our elicitation sessions was crucial for generating the kind of thoughtful introspection by our consultants that allowed us to observe their different epistemological stances. We allowed our teachers to take their time to think, reflect, and deviate from the main task of lexical elicitation, which usually requires them to quickly provide lexical items that they know.

Scholars often seek to limit the time spent on elicitation procedures to increase the accuracy of the assessment (Whaley & Li 2006; Mosel 2011). Our consultants

instead talked about lexical items at length. In fact, many times as they were talking, they would remember related lexical items they did not remember at first. Since lexical elicitation is not a typical communicative event, we tried to make it as comfortable for Chukchi and Even speakers as possible by conducting our elicitation procedures over tea at people's homes. Our goal was not to find a monolingual native speaker as most lexical elicitations are purposed to do (Vaux & Cooper 1999), as we were not interested in collecting new lexemes but to gain an understanding of speakers' command of different semantic categories. Instead, we aimed to target a variety of proficiency levels. Below, we review our primary findings.

Where pictures were not used, we began our elicitation with simple questions such as the following: *Do you know the name for 'x' in Even (or Chukchi)?* We would also ask, *how would you call it?* The language of these questions was Russian, an official language in Russia that nearly everyone speaks. Even though our questions were asking specifically about Chukchi and Even consultants' *knowledge* of lexical items, we noticed quickly that our consultants framed their answers not in terms of what they knew but what they remembered. Our consultants emphasized that there was a clear distinction between knowing and remembering.⁷ Lexical elicitation for them was not about knowledge per se. It was about what they can remember in a given time and context. What is interesting for us here is how people interpret what they cannot remember and how that is related to what they know.

Since memory recall is often tied to situational markers, there is a risk that researchers are testing language proficiency – and making judgements about proficiency – in contexts where the subject is less likely to remember a specific lexical item. In a different setting, however, the same speaker might have no issue recalling the item, especially if this is combined with strategies that evoke personal beliefs and memories that tie a word to a specific use or place. We thus need to be careful to distinguish genuine “don't know”s from possible “can't remember”s.

Throughout our lexical elicitation procedures, Chukchi and Even speakers framed their answers in terms of not remembering. They rarely said, “I do not know.” For example, when Natalia (a Chukchi speaker interviewed in Yakutsk) was asked if she knows how to say ‘spotted nutcracker’ in Chukchi, she simply said in Russian that she had forgotten. Similarly, Viktor (Chukchi, interviewed in Chersky), when asked whether he knows how to say ‘seal’ in Chukchi, he said, “How was it?

⁷ The distinction between “knowing” and “remembering” drawn by our respondents parallels previous distinctions between “receptive” and “productive” knowledge, or “passive” and “active” vocabulary, drawn by researchers of second language acquisition (see, e.g., Read 2000, 154–155). We prefer the distinction between “knowing” and “remembering” for the purposes of our study. We prefer these terms because we are relating how the speakers themselves conceptualize their ability, a somewhat different goal than that of researchers of second language acquisition. First, we asked respondents to recall words in their heritage language that we sometimes did not know ourselves, since the languages being studied are underdescribed. Second, while part of our study focused on the elicitation of lexical items, we were equally interested to hear the connections our respondents made between words, phrases, stories, or other cultural contexts. Our thanks to an anonymous reviewer for pushing us on this point.

No, I don't remember."

To be clear, Chukchi and Even consultants distinguished what they actually could not remember from what they did not know. Often, they explained what they did not know in terms of not having certain animals in their region. We asked Nadezhda (Even, interviewed in Bilibino) if there is a word in Even for 'polar bear.' She replied, "No, because we don't have polar bears [here]." Similarly, Maria (Chukchi, interviewed in Yakutsk) also said that she does not know what to call 'walrus' because "we do not have them." To elaborate, Maria recalled how she first saw a walrus when "it once swam to the Kolyma region."

Others clarified why they knew certain words for animals that are not found in the region. For example, Natalia said, "[I] know from literature [what a walrus is], but we do not have them," while others clearly distinguished borrowed words from Russian. For example, farm animals do not have a Chukchi or Even equivalent, and many consultants knew this. Some even expressed their surprise that we even asked. For example, Katya (Chukchi speaker, interviewed in Chersky) said, "Where would you get cows *here*!?" While others just confirm that *korova* (the Russian word for 'cow') would just be *korova*. Yet many talked in more detail how farm animals were introduced in the region and how the words for these animals came to be in their heritage languages. Viktor, for example, made his guess that *korwalyon* is "likely from the word *korova*." He said, "There were many cows in the *sovkhоз* [a state-owned farm during the Soviet Union]." Similarly, he noted that there were also cows and pigs at the *sovkhоз*, and a new word appeared in Chukchi specifically for pork, *swenjat'ol*, literally 'a piece of pig.'

These nuances are important to proficiency testing in the context of endangered languages. The fact that consultants are able to confidently assert that certain words do not exist in their language could be considered an indication of their knowledge of the language to a certain degree. Indeed, only those who appeared confident speaking their heritage language were assertive about the words that did not exist, whereas those who did not seem confident speaking the language would just say that they did not know the word. Thus, an entirely different metric emerges in differentiating speakers of lower proficiency from those of higher proficiency – not merely what words they can remember, but their confidence in whether the words are *rememberable*. It needs to be emphasized that the timing of "don't know's also matters. Those who were *quick* to assert that they did not know a word displayed a higher comfort level with the language compared to those who *hesitantly* acknowledged that they did not know. In designing proficiency tests, it may be worth adding a few words that do not exist in local languages in a word list. If speakers are well-versed in the linguistic and cultural contexts, they are likely to just acknowledge that they do not have such words, whereas those who have not been actively using the language will try to remember words that do not exist.

An illustrative example of this comes from a separate task that speakers performed. They watched a short cartoon⁸ featuring four animals: a bear, a moose, a hare, and a raccoon. Raccoons are not found in northern Russia, and none of the

⁸ Available at https://www.youtube.com/watch?v=_X_AfRk9F9w&t=1s (accessed 2021-07-20).

target languages have a word for them. Highly proficient speakers knew this and unhesitatingly used the Russian word (*enot*) or some other Russian word (*barsuk* ‘badger’), or devised some euphemism for it, calling it a ‘bandit’ or a ‘little animal,’ among other names, but less proficient speakers did not know that there was no word and hesitated to provide an answer. Some explicitly tried to remember it (much as they tried to remember body-part names). It provides a clear example of how highly proficient speakers not only know the lexicon but also know what words the language does not have and where borrowings are acceptable.

6. Two strategies for provoking memory during elicitations Having made the distinction between what it means to not know and to not remember for Chukchi and Even speakers, we now examine how they explain what they do not remember. In particular, we focus our attention on the instances when speakers claim that they do not remember certain words, yet they are able to recall some properties of a given word or stories related to the meaning of the word. This complicates the hard distinction between what knowing and remembering the language means in the contexts of endangered languages.

Most of our respondents appeared frustrated that they could not remember certain words. The frustration mostly came from their sense that they know the words but just could not remember them in a given moment during our lexical elicitation procedures. Simply put, “not remembering” is not the same as “not knowing.”

6.1 Strategy 1: Appealing to personal narratives as a means of remembering Consider, first, instances where our consultants could not recall a word or phrase as requested but clearly had some knowledge of it. They were just unable to bring their knowledge to mind in the moment. In many cases, an exchange would end with one of our consultants exclaiming, “It’s on the tip of my tongue, but I can’t remember!” Others would try to buy time and muse aloud while trying to find the right word. For example, we asked Viktor how to say ‘fox’ in Chukchi and got the following response: “Wait, fox... fox... how [do we say that].... It’s on the tip of my tongue [Victor clicks, expresses frustration]. I know this, but I can’t remember.” Vadim (a highly multilingual speaker in Chersky) adopted a similar strategy when he couldn’t immediately recall the Even name for ‘wolf.’ He responded, “Wait, there is. There is... somehow, ugh, [Vadim is cursing]... I am becoming forgetful. I forgot.” We saw the same pattern with Anna (Chukchi & Even speaker in Bilibino), who was asked about the Even name for ‘knee’: “I can’t remember ‘knee’ in Even. Wait. Knee... Knee... How do you say knee?” Anna eventually guessed *bödel*, “We always say, ‘My knee hurts.’”

Among the consultants who knew but could not remember, a common strategy was to appeal to context to try to jog their memory by trying to place the word in terms of its use or tying its meaning to a particular personal story. For example, Natalia could not recall the name for ‘Arctic ground squirrel’ but did manage to connect it to her childhood memories. “[T]he boys [in my village] would pour water into their burrow [to drive the squirrels out],” she shared. “[The name] is on the tip of my tongue but [sigh] I forgot.” Maria, likewise, shared a personal story about the

Baikal seals, despite not remembering their Chukchi name: “[T]he word is on the tip of my tongue. We have always hunted for them, [their] fat is very useful. We rarely ate it, seal... Baikal seal... all of these. It’ll come to me later.” These examples demonstrate that, even in the absence of immediate lexical knowledge, these speakers maintain considerable cultural knowledge that can be accessed by this type of more open-ended elicitation task.

Similarly, many other consultants who could not recall a name would link its use to certain Indigenous beliefs or traditions. For example, Viktor had forgotten the Chukchi name for ‘newt’ but did remember that it was a bad omen: “I used to hear the name, but now I don’t remember. I have seen [newts]. Rarely, but it appears [frozen in the snow]. [People] used to say that it [the newt] needs to be cut if caught. If there is blood [after cutting], then something bad [will happen].”

It was clear that these were cases of forgetfulness and not cases of a lack of knowledge. In our follow-up with consultants, we tested the extent to which each consultant who reported not remembering could recall specific linguistic features about the name in question. Natalia, for instance, gave us a detailed description of the names for ‘eagle’ (“I think it begins with ‘r’”), ‘ant’ (“[T]here was something with the [sound] *j’e*, [the word resembles] the ant’s body...”), and ‘wild deer’ (“It begins on ‘v’ or on ‘ev’”), despite not remembering these names during our interview. Viktor likewise revealed some knowledge of how to pronounce the Chukchi name for ‘blackfly’ and, more specifically, how the word ended: “It’s *plakəlyən* or something like that.” None of this linguistic knowledge would have been recorded had we assumed that these speakers were not knowledgeable of these lexical items at all. As Maria insightfully put it, “I can tell you when it comes back to me.”

6.2 Strategy 2: Appealing to cultural context as a means of remembering So far, we have been examining the appeals to personal memories as a strategy for recalling difficult-to-access linguistic knowledge. Our overarching claim is that standard tests of language proficiency do not pick up these sorts of boundary cases and so can mistakenly label participants that cannot recall a word in a particular moment as not knowing this word at all, incorrectly suggesting that such speakers are “low proficiency” or “not fluent.” Below, we examine another common strategy that our research participants made use of in trying to trigger their memories, namely, by linking the use of the word to specific beliefs and cultural practices. This is particularly important to studying Indigenous languages since Indigenous knowledge cannot be abstracted from shared notions of place and community.

Most of our findings about linking strategies as a means of recall come from a highly suggestive set of interviews with Irina, a Chukchi speaker in Anadyr. When she was asked to recall a word but could not, Irina made use of a series of mnemonic devices. First, she invoked similar-sounding words from her cultural context. For example, after initially struggling, Irina managed to remember the word *paaqat* to refer to ‘shins.’ The strategy she employed was to first remember that the Chukchi word for ‘shin’ was the same as the word for ‘fur stockings.’ As Irina explained, ‘fur stockings,’ or *paaqatjot*, “need to be worn by [Chukchi] women and girls [to keep themselves warm].” Recalling that the words for ‘shin’ and ‘fur stocking’ sounded

similar enabled Irina to remember other related words as well. For instance, the Chukchi words for ‘foot’ (*jayəlyən* ‘foot (sg.)’ and *jeyət* ‘foot (pl.)’) suddenly came to mind. Irina was very pleased, exclaiming “that’s all, you see, how I remembered!” She confessed that it wasn’t easy to remember any of these words, since she hadn’t used these particular Chukchi terms in a long while.

A second mnemonic device drew on Irina’s implicit Indigenous knowledge. It was noticeable throughout our interview that Irina’s memory recall was boosted whenever she could connect the word to a specific cultural belief or practice. For example, in addition to recalling the Chukchi word for ‘shin’ and related words, Irina revealed that she also was reminded of a Chukchi folk song, which she sang for us. The song ends with the word *paaqajayət*, which refers to another kind of stocking worn by Chukchi women. “Oh yes, *paaqajayət*,” Irina said in an excited voice after completing the song and was then able to additionally recall the singular word for ‘shin,’ *paaqalyən*. She seemed pleased that her recollection was correct. Irina used a similar mnemonic strategy to recall other words during our conversation, though this was not always successful. For example, Irina could not manage to find the Chukchi word for ‘heel’ despite trying to locate it in a related practice. “Heel... hmm... there is a word that describes a process in which a heel needs to be used to make a hide, trample skin, that skin, and the word that describes this process derives from the word heel, let’s see, maybe I will remember a little bit later.”

As our transcripts from Irina indicate, the inability to immediately come up with a word or phrase is not necessarily evidence of the absence of linguistic knowledge. There are a variety of tactics and strategies that research subjects may rely upon to trigger their memories, if given sufficient time and the right support. Petrollino & Mous (2010) arrive at a similar conclusion in their study of Aasá, a supposedly “dead” language from Tanzania. After a slight modification to the elicitation sessions to tap the “collective memory” of ethnic Assas by bringing together multiple individuals rather than single individuals and researchers themselves, it turned out that there was more linguistic knowledge than previously thought (Petrollino & Mous 2010: 208). The problem, as Petrollino & Mous (2010) also recognize, is that standard approaches to assessing language proficiency are inadequate in contexts of extreme language endangerment, especially within Indigenous communities. What is needed, instead, are tools that supplement existing proficiency tests by prompting endangered language speakers to make use of their personal histories and (implicit) cultural and linguistic knowledge.

7. Improving proficiency tests to activate Indigenous knowledge To conclude, we wish to share how our findings about memory and linguistic knowledge could be used to improve the design of proficiency assessment tools going forward. Scholars have long argued that the use of standardized tests in endangered language communities is problematic due to the diversity of speaker backgrounds and skills (Borgia 2009; Borges 2019). But as Matiu Ratima and Stephen May explain in their study of Maori adult language learners, the biggest difficulty in devising new proficiency tests is a lack of data. “Much of the literature on revitalizing endangered languages is focused on children’s compulsory schooling,” to the exclusion of the “indigenous

adult learner experience" (Ratima & May 2011: 2, 17). Our research with Chukchi and Even communities suggests some ways in which Indigenous adults might experience language differently, based on their own personal and cultural experiences. Building on our analysis, we make two recommendations that could improve current measures of language proficiency by encouraging Indigenous research participants to recall any latent linguistic knowledge.

Our first recommendation is to design language assessment questionnaires to trigger word associations based on Indigenous beliefs, cultures, and biographies rather than simply focusing on abstract word use. Since many Indigenous communities still keep oral traditions and cultures, the ways in which languages are learned and remembered are fundamentally different from those in Western contexts. According to Margaret Kovach, what most distinguishes Indigenous epistemologies is an emphasis on conversation and other "non-structured method[s] of gathering knowledge" that combine "reflection, story, and dialogue" (Kovach 2009: 51). Highly structured interviews and elicitation sessions will fail to accurately measure the linguistic knowledge of Indigenous participants if they rely upon semantic fields that are foreign to them. Instead, queries about a particular word or phrase should be grounded in a more semi-structured conversation that parallels the traditional ways of activating and transmitting knowledge within a community. As our research vividly demonstrates, when participants can connect a word to personal story or cultural practice, then their recall ability increases significantly.

For a working model of a proficiency test that does tap into the memories of research participants, consider the ANA 'ÖLELO proficiency scale developed by Indigenous Hawaiian educators. In addition to standard measures of oral proficiency, the scale also includes assessments of a participant's ability to engage in conversations and to connect their heritage language to Hawaiian culture, values, and traditions. Kahakalau (2017: 5–6), the scale's designer, explains that the purpose is to allow "learners to quantify their practice of Hawaiian traditions like protocol" – enabling participants to link their word use to the practical knowledge of how to do "the right thing, at the right time, for the right reason."

Our second recommendation for improving language proficiency assessment tools when working with Indigenous communities is to reliably follow up on the "can't remember"s. Rather than simply recording a "can't remember" as indicating a lack of knowledge and then moving on, it should be standard practice for there to be a separate set of questions that are put to participants in order to assess whether there is a genuine absence of knowledge. As our research reveals, there is a nontrivial number of community members who do have some knowledge of their heritage language but are, for whatever reason, unable to remember it at the moment. Not only could the under-reporting of "can't remember"s distort the data that are gathered by researchers in the field, but it can also skew the larger conclusions that are drawn about a language's overall health and vitality (Boltokova 2017).

Linguists documenting endangered languages have to operate under nonideal constraints of "limited resources of time, money, and staff" (Mosel 2011: 337). As a result, proficiency testing and other data collection methods must be executed as efficiently as possible, in ways that sometimes work against more holistic methods

of language assessment. But our work with the Even and Chukchi communities suggests that even small adjustments in assessment strategy can yield improved results. The most important adjustment is not situating the researcher as someone who is “assessing” the speakers but rather someone who is trying to learn from their knowledge. Another valuable adjustment that we made early on during our elicitation sessions was to be more flexible with the time that participants were given to respond to a request for a lexical item. This made sessions more dynamic, since we had time to follow up with participants who couldn’t recall a particular item – or who had the item “on the tip of their tongue” – and give them the support needed to prompt their memories through the sharing of songs, stories, and personal narratives. As Scherwing & MacDonald (2020: 225) observe, “the abilities to code, maintain, and order verbal information are skills that emerge from language use,” and so assessments that seek to measure proficiency need to be generally and consistently geared toward engaging people’s “verbal working memory.”

8. Conclusion In this article, we have suggested that proficiency tests can generate false negatives in the assessment of endangered languages when they do not distinguish the “don’t know”s from “can’t remember”s. Drawing on data collected during elicitation sessions with Even and Chukchi research participants, we have explored several reasons that people might not recall a specific lexical item, from not having used certain words in a long time to associating a particular phrase with a specific cultural rite or tradition. Further, because many Indigenous communities rely on the oral transmission of linguistic and cultural knowledge, the best means of prompting memory is often to tap into a participant’s personal narratives and experiences. By modifying our data collection and elicitation methods to follow up on “don’t know”s and provide support for Indigenous epistemologies, we can improve measurements of language proficiency in the field. Having an accurate overall picture of a language’s vitality is essential for work toward the maintenance or revival of a language.

References

- ACTFL (American Council on the Teaching of Foreign Languages). 2012. *ACTFL proficiency guidelines 2012*, 3rd edn. Alexandria, VA: American Council on the Teaching of Foreign Languages. (<https://www.actfl.org/sites/default/files/guidelines/ACTFLProficiencyGuidelines2012.pdf>) (Accessed 2021-07-10.)
- All-Russian Population Census. 2010. *Vserossiiskaia perepis’ naseleniia 2010 goda*, vol 4. Moscow: Federal State Statistics Service. (https://www.gks.ru/free_doc/new_site/perepis2010/croc/perepis_itogi1612.htm) (Accessed 2021-11-01.)

- Anderson, John R. 1982. Acquisition of cognitive skill. *Psychological Review* 89(4). 369–406. [doi:10.1037/0033-295X.89.4.369](https://doi.org/10.1037/0033-295X.89.4.369)
- Au, Terry Kit-Fong, Janet S. Oh, Leah M. Knightly, Sun-Ah Jun, & Laura F. Romo. 2008. Salvaging a childhood language. *Journal of Memory and Language* 58(4). 998–1011. [doi:10.1016/j.jml.2007.11.001](https://doi.org/10.1016/j.jml.2007.11.001)
- Bachman, Lyle F. 1990. *Fundamental considerations in language testing*. Oxford: Oxford University Press.
- Bachman, Lyle F. & Adrian S. Palmer. 1996. *Language testing in practice: Designing and developing useful language tests*. Oxford: Oxford University Press.
- Bachman, Lyle F. & Adrian S. Palmer. 2010. *Language assessment in practice*. Oxford: Oxford University Press.
- Bardovi-Harlig, Kathleen & David Stringer. 2013. The lexicon in second language attrition: What happens when the cat's got your tongue? In Altarriba, Jeanette & Ludmila Isurin (eds.), *Memory, language, and bilingualism: Theoretical and applied approaches*, 291–318. Cambridge: Cambridge University Press.
- Benmamoun, Elabbas, Silvina Montrul, & Maria Polinsky. 2013. Heritage languages and their speakers: Opportunities and challenges for linguistics. *Theoretical Linguistics* 39(3–4). 129–181. [doi:10.1515/tl-2013-0009](https://doi.org/10.1515/tl-2013-0009)
- Boltokova, Daria. 2017. “Will the real semi-speaker please stand up?” Language vitality, semi-speakers, and problems of enumeration in the Canadian North. *Anthropologica* 59(1). 12–27. [doi:10.3138/anth.591.T03](https://doi.org/10.3138/anth.591.T03)
- Borges, Robert. 2019. Rapid automatized picture naming as a proficiency assessment for endangered language contexts. *Journal of Communication and Cultural Trends* 1(1). 1–25. [doi:10.32350/jcct.11.01](https://doi.org/10.32350/jcct.11.01)
- Borgia, Melissa. 2009. Modifying assessment tools for Ganöhsesge:kha: Hë:nödeyë:stha, a Seneca culture-language school. In Reyhner, Jon & Louise Lockard (eds.), *Indigenous language revitalization: Encouragement, guidance & lessons learned*, 191–210. Flagstaff: Northern Arizona University.
- Canale, Michael & Merrill Swain. 1980. Theoretical bases of communicative approaches to second language teaching and testing. *Applied Linguistics* 1(1). 1–47. [doi:10.1093/applin/1.1.1](https://doi.org/10.1093/applin/1.1.1)
- CEFR (Common European Framework of Reference for Languages). 2001. *Common European Framework of Reference for Languages: Learning, teaching, assessment*. Strasbourg Cedex: Council of Europe. (<https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions>) (Accessed 2021-07-10.)
- Chelliah, Shobhana L. & Willem J. De Reuse. 2011. *Handbook of descriptive linguistic fieldwork*. Dordrecht: Springer. [doi:10.1007/978-90-481-9026-3](https://doi.org/10.1007/978-90-481-9026-3)
- Davies, Alan. 1989. Communicative competence as language use. *Applied Linguistics* 10(2). 157–170. [doi:10.1093/applin/10.2.157](https://doi.org/10.1093/applin/10.2.157)
- Dixon, Robert M. W. 2007. Field linguistics: A minor manual. In Aikhenvald, Alexandra Y. (ed.), *Focus on linguistic fieldwork*, vol. 60, issue 1, 12–31. Sprachtypologie und Universalienforschung (STUF). [doi:10.1524/STUF.2007.60.1.12](https://doi.org/10.1524/STUF.2007.60.1.12)

- Ecke, Peter. 2004. Language attrition and theories of forgetting: An interdisciplinary review. *International Journal of Bilingualism* 8(3). 321–354. [doi:10.1177/13670069040080030901](https://doi.org/10.1177/13670069040080030901)
- Ellis, Rod & Gary Barkhuizen. 2005. *Analysing learner language*. Oxford: Oxford University Press.
- Field, Margaret C. 2009. Metaphor, mythology, and a Navajo verb: The role of cultural constructs in the lexicography of endangered languages. *Anthropological Linguistics* 51(3/4). 296–302.
- Gilquin, Gaëtanelle. 2007. To err is not all: What corpus and elicitation can reveal about the use of collocations by learners. *Zeitschrift für Anglistik und Amerikanistik* 55(3). 273–291. [doi:10.1515/zaa.2007.55.3.273](https://doi.org/10.1515/zaa.2007.55.3.273)
- Grenoble, Lenore A. & Lindsay J. Whaley. 2020. Toward a new conceptualisation of language revitalization. *Journal of Multilingual and Multicultural Development* 42(10). 911–926. [doi:10.1080/01434632.2020.1827645](https://doi.org/10.1080/01434632.2020.1827645)
- Grinevald, Colette & Michel Bert. 2011. Speakers and communities. In Austin, Peter K. & Julia Sallabank (eds.), *The Cambridge handbook of endangered languages*, 45–65. Cambridge: Cambridge University Press. [doi:10.1017/CBO9780511975981.003](https://doi.org/10.1017/CBO9780511975981.003)
- Harley, Birgit, Jim Cummins, Merrill Swain, & Patrick Allen. 1990. The nature of language proficiency. In Harley, Birgit, Patrick Allen, Jim Cummins, & Merrill Swain (eds.), *The development of second language proficiency*, vol. 1, 7–25. Cambridge: Cambridge University Press.
- Heller, Monica & Alexandre Duchêne. 2007. Discourses of endangerment: Sociolinguistics, globalization and social order. In Duchêne, Alexandre & Monica Heller (eds.), *Discourses of endangerment: Ideology and interest in the defence of languages*, 1–14. London: Continuum.
- Himmelmann, Nikolaus P. 1998. Documentary and descriptive linguistics. *Linguistics* 36(1). 161–195.
- Hymes, Dell H. 1972. On communicative competence. In Pride, J. B. & Janet Holmes (eds.), *Sociolinguistics: Selected readings*, 269–293. Harmondsworth: Penguin.
- Jarvis, Scott. 2019. Lexical attrition. In Schmid, Monica S. & Barbara Köpke (eds.), *Oxford handbook of language attrition*. Oxford: Oxford University Press. [doi:10.1093/oxfordhb/9780198793595.013.20](https://doi.org/10.1093/oxfordhb/9780198793595.013.20)
- Kahakalau, Kū. 2017. Developing an Indigenous proficiency scale. *Cogent Education* 4(1). 1377508. [doi:10.1080/2331186X.2017.1377508](https://doi.org/10.1080/2331186X.2017.1377508)
- Kantarovich, Jessica. forthcoming. Language variation in a shifting community: Different patterns of noun incorporation in Modern Chukchi. *The International Journal of Bilingualism*.
- Kovach, Margaret. 2009. *Indigenous methodologies: Characteristics, conversations, and contexts*. Toronto: University of Toronto Press.
- Kroskrity, Paul V. 1998. Arizona Tewa Kiva speech as a manifestation of a dominant language. In Schieffelin, Bambi B., Kathryn Ann Woolard, & Paul V. Kroskrity (eds.), *Language ideologies: Practice and theory*, 103–123. New York: Oxford University Press.

- Lane, Pia, James Costa, & Haley De Korne (eds.). 2018. *Standardizing minority languages. Competing ideologies of authority and authenticity in global periphery*. New York: Routledge. [doi:10.4324/9781315647722](https://doi.org/10.4324/9781315647722)
- Lippi-Green, Rosina. 1997. *English with an accent: Language, ideology, and discrimination in the United States*. London and New York: Routledge.
- McNamara, Thomas Francis. 1995. Modelling performance: Opening Pandora's box. *Applied Linguistics* 16(2). 159–179.
- McNamara, Thomas Francis. 1996. *Measuring second language performance*. London and New York: Longman.
- McWhorter, John. 1998. *Word on the street: Debunking the myth of “pure” Standard English*. Cambridge, MA: Perseus.
- Meara, Paul. 1996. The dimensions of lexical competence. *Performance and Competence in Second Language Acquisition* 35. 35–55.
- Meek, Barbra A. 2010. *We are our language: An ethnography of language revitalization in a Northern Athabaskan community*. Tucson: University of Arizona Press.
- Mosel, Ulrike. 2011. Lexicography in endangered language communities. In Austin, Peter K. & Julia Sallabank (eds.), *The Cambridge handbook of endangered languages*, 337–353. Cambridge: Cambridge University Press.
- O'Grady, William, Amy J. Schafer, Jawee Perla, On-Soon Lee, & Julia Wieting. 2009. A psycholinguistic tool for the assessment of language loss: The HALA project. *Language Documentation & Conservation* 3(1). 100–112. (<http://hdl.handle.net/10125/4427>)
- Petrollino, Sara & Maarten Mous. 2010. Recollecting words and expressions in Aasá, a dead language in Tanzania. *Anthropological Linguistics* 52(2). 206–216. [doi:10.1353/anl.2010.0012](https://doi.org/10.1353/anl.2010.0012)
- Polinsky, Maria. 1997. Cross-linguistic parallels in language loss. *Southwest Journal of Linguistics* 14(1–2). 87–123.
- Polinsky, Maria. 2006. Incomplete acquisition: American Russian. *Journal of Slavic Linguistics* 14(2). 191–262.
- Pupynina, Maria & Yuri Koryakov. 2019. Chukchi-speaking communities in three Russian regions: A 120-year story of language shift. *Sibirica* 18(2). 78–124. [doi:10.3167/sib.2019.180205](https://doi.org/10.3167/sib.2019.180205)
- Ratima, Matiu & Stephen May. 2011. A review of Indigenous second language acquisition: Factors leading to proficiency in te reo Māori (the Māori language). *MAI Review* 1. 1–21.
- Read, John. 2000. *Assessing vocabulary*. Cambridge: Cambridge University Press. [doi:10.1017/CBO9780511732942](https://doi.org/10.1017/CBO9780511732942)
- Sands, Bonny, Andy Chebanne, & Sheena Shah. 2017. Hunting terminology in #Hoan. In Fehn, Anne-Maria (ed.), *Khoisan Languages and Linguistics: Proceedings of the 4th International Symposium, July 11–13, 2011, Riezlern/Kleinwalsertal*. Köln.
- Schmid, Monika S. 2011. *Language attrition*. Cambridge: Cambridge University Press.

- Schwering, Steven C. & Maryellen C. MacDonald. 2020. Verbal working memory as emergent from language comprehension and production. *Frontiers in Human Neuroscience* 14. 68. [doi:10.3389/fnhum.2020.00068](https://doi.org/10.3389/fnhum.2020.00068)
- Spolsky, Bernard. 1989. *Conditions for second language learning: Introduction to a general theory*. Oxford: Oxford University Press.
- Stern, Hans Heinrich. 1983. *Fundamental concepts of language teaching*. Oxford: Oxford University Press.
- Taylor, David S. 1988. The meaning and use of the term “competence” in linguistics and applied linguistics. *Applied Linguistics* 9(2). 148–168. [doi:10.1093/aplin/9.2.148](https://doi.org/10.1093/aplin/9.2.148)
- Vaux, Bert & Justin Cooper. 1999. *Introduction to linguistic field methods*. München: LINCOM EUROPA.
- Whaley, Lindsay & Fengxiang Li. 2006. The challenge of assessing fluency for the documentation of moribund languages. (Poster session at Linguistic Society of America, Albuquerque, 5–8 January.)
- Zareva, Alla, Paula Schwanenflugel, & Yordanka Nikolova. 2005. Relationship between lexical competence and language proficiency: Variable sensitivity. *Studies in Second Language Acquisition* 27(4). 567–595. [doi:10.1017/S0272263105050254](https://doi.org/10.1017/S0272263105050254)

Daria Boltokova
dboltokova@mun.ca
 orcid.org/0000-0003-4958-285X

Jessica Kantarovich
jkantarovich@uchicago.edu
 orcid.org/0000-0002-8853-9689

Lenore Grenoble
grenoble@uchicago.edu
 orcid.org/0000-0001-8810-7395

Maria Pupynina
pupynina@gmail.com
 orcid.org/0000-0001-9314-4553