

The objective of this research is the continued documentation of Upper Necaxa Totonac (UNT), an endangered Totonacan language of the Sierra Madre Oriental in Puebla State, Mexico, and the expansion of this project to selected sister languages in the Northern Totonac area. Like many minority languages of the world, UNT is in danger of extinction and its disappearance would be a major loss for speakers and scientists alike. A language contains within it an irreplaceable record of a people's knowledge of their natural environment and their cultural, social, and political history, making the loss of a language a loss of identity. For the scientist, languages encode the unique way in which their speakers organize and understand the world and provide invaluable insights into the cognitive processes of the human mind. The death of a language represents an impoverishment of human linguistic diversity and, as languages such as UNT disappear, linguists of all specializations lose the typological data we need to develop, test, and validate claims about the universal features of human language and its acquisition. In the case of UNT, all but the eldest speakers of the language are bilingual in Spanish, and the language of child-rearing in most households has been shifted to Spanish by parents who see proficiency in the language of the larger society as an advantage for their children.

Building on materials collected in previous SSHRC funded projects, our research team will collect lexical, textual, and grammatical data that will deepen our understanding of UNT and will carry out linguistic surveys of 3–5 additional Northern Totonacan communities to facilitate comparison and internal reconstruction of the Totonacan family. The project will also collect comparative sociolinguistic data on language attitudes, language use, and language vitality in Northern Totonacan communities, revealing the current state of the languages, which are undergoing differing degrees of language shift, and the factors underlying language loss in indigenous communities in Mexico and around the world. During the course of this project, the research team will spend five summers in the field, recording and transcribing texts and survey material, and will work with native speaker consultants on site at the University of Alberta, transcribing and analyzing this material. The emphasis will be on working with texts from fluent older speakers, whose knowledge of vanishing oral traditions is more profound, making them an important link to the community's past. The involvement of graduate students in this project is essential, one of our goals being the training of the next generation of North American field linguists.

At its most effective, this work will provide motivation and resources for those members of the community who value their language and wish to revitalize and preserve it. Documentation of oral traditions will be especially valuable in this respect, both as archival material and as the basis for pedagogical and popular language publications; the reconstruction of the linguistic history of Totonacan, with its potential to identify links between the Totonacan people and important archeological sites such as Teotihuacán, will help to connect speakers with their cultural heritage. For the local community, this project will create a record of the languages as they are used by the fluent speakers, and of the vanishing traditions of those who speak it. For policy-makers, an understanding of the factors underlying language-shift will help develop strategies for language maintenance and revitalization in minority language communities. For the academic world, it will mean a record of a hitherto undescribed language with many significant and unique linguistic properties.

The objective of this research is the continued documentation of Upper Necaxa Totonac (UNT), an endangered Totonacan language of the Sierra Madre Oriental in Puebla State, Mexico, as well as the expansion of this project to selected sister languages in the Northern Totonac area. Building on materials collected in previous SSHRC funded projects, our research team will compile lexical, textual, and grammatical data that will deepen our understanding of Northern Totonac and which will facilitate comparison and internal reconstruction of the Totonacan family. Expanding the project to additional communities will also reveal the current state of the languages, which are seriously threatened, and highlight the factors underlying language shift in indigenous communities in Mexico and around the world. The project will complete the process of making a searchable archive of transcripts of naturalistic child-parent interactions in UNT, collected during earlier SSHRC-funded projects, available to other researchers. These objectives will of necessity focus on the continued development of tools needed more generally in the field study of under-documented languages, as well as computerized tools for historical-comparative reconstruction. Another important goal is the training of graduate students in linguistic fieldwork and techniques for language documentation; we hope to “seed” one or more students in the new communities to undertake more complete documentation over the longer term and, ideally, to stimulate local interest in language revitalization. This project will involve annual six-week field stays in Northern Totonacan communities for the PI and the students involved in the project, and month-long visits to the University of Alberta campus by Totonac speakers.

## 1 Objectives

- a) Northern Totonac text collection and audio archive: This project will build on the current corpus of Upper Necaxa recorded texts, as well as expanding the scope of the archives to include at least an hour of textual material from 3–5 other Northern Totonacan varieties. UNT texts will be transcribed and fully analyzed in ELAN (<http://www.lat-mpi.eu/tools/elan/>). Texts from other languages will be fully transcribed, though analysis may lag behind; it is hoped that preliminary interlinear analyses of these texts can be done within the timeframe of this project. All texts will be published electronically and in book form for the academic and local communities, and will be placed in a publicly-available audio archive (subject to access restrictions requested by speakers or communities). Stories on-line will be in interactive HTML CuPED format (<http://sweet.artsrn.ualberta.ca/cdcox/cuped/>).
- b) Northern Totonacan surveys and comparative wordlists: The project aims to complete linguistic surveys of 3–5 Northern Totonacan communities using a modified version of the MacKay-Trechsel questionnaire designed to target lexical and grammatical features considered significant for cross-dialectal and cross-linguistic comparison within the Totonacan family. Key communities in the Northern area, particularly on its geographical boundaries, will be targeted. Because the questionnaire is quite long and requires the assistance of a native-speaker during transcription, emphasis will be placed on studying a small number of communities thoroughly. However, as opportunity arises, targeted wordlists will be recorded and transcribed with speakers from additional communities; these lists will be drawn from inventories of established Totonacan cognates found in Kondrak, Beck & Dilts (2007). The surveys and wordlists thus collected will be used as part of an on-going project with co-applicant Kondrak in the internal reconstruction of the Totonacan family. This project seeks to develop user-aided computerized tools for carrying out historical reconstruction of language families, and is currently comparing these results with different measures of lexical similarity, in collaboration with the ASJP Project (<http://email.eva.mpg.de/~wichmann/ASJPHomePage.htm>) at the Max Planck Institute for Evolutionary Anthropology in Leipzig to discover to what degree and at what time-depths lexical similarity and phylogenetic classification coincide.
- c) Computational field tools: This project will begin the process of porting the Electronic Fieldbook, a database for the archiving and analysis of linguistic data, into Python for purposes of allowing proper Unicode support and cross-platform compatibility. The Fieldbook, currently implemented in the

Mac-specific SuperCard environment, allows trilingual lexicographic entries in phonetic notation and practical orthography, automatic conversion from one to the other, and cross-links between roots and derivations, as well as sound and video files, sorting and alphabetization routines, and complex search facilities. Texts and concordances are viewable and writable as files in a number of formats (including block-translation and analyzed text), and the Fieldbook is capable of compiling a dictionary in various user-determined layouts using XSLT transformations. The team will also work on converting existing Java-based dictionary software, prepared for the DVD accompanying the *Upper Necaxa Totonac Dictionary* (Beck 2011a), into Java applets to allow the distribution of lexical material via the project website (<http://www.arts.ualberta.ca/~totonaco>).

- d) Grammatical studies: The PI will continue the writing of a reference grammar of UNT, drawing both on material from this project and on material collected, in text and elicitation, during the previous thirteen years working with the language. Work will also continue on valency-regulating morphology (Dixon & Aikhenvald 2000), particularly the assignment of grammatical relations in causative and applicative constructions (Beck 2006b, 2007b). Preliminary data indicate that there is significant variation in this respect even within closely-related languages, and results from the surveys in (b) should shed light on this question. Students on the project will continue in-depth studies on locative constructions, classifiers, and adverbial classes begun on previous SSHRC-funded projects.
- e) Surveys of language attitudes: The co-applicant Lam will work on expanding her corpus of Spanish-language interviews on language attitudes from Upper Necaxa and Ozelonecaxtla Totonac to include members of other Northern Totonac communities. The goal of these interviews is to identify the key socio-economic and ideological factors leading to language shift (Beck & Lam 2009; Lam 2007, 2009, 2010a, 2010b, 2010c; McGraw 2009); because the various communities targeted in (b) differ in degree of shift towards Spanish, expanding the database to include them will provide comparative case studies, allowing us to identify key indicators of language vitality and, possibly, suggesting potential interventions to stem the tide of language loss in Totonacan communities.
- f) Language acquisition database and analysis tools: This project will finalize the conversion of the existing 27 hours of transcribed child language videos made in the field in 2003–07 by coding them in a revised CHAT format adapted for use with a polysynthetic language. CHAT is the set of coding conventions developed for the CHILDES system (MacWhinney 2000, <http://childes.psy.cmu.edu>). Because CHILDES was developed mainly for European languages, many of its conventions require modification for structurally distinct languages such as UNT. To this end, work will be completed on an appendix to the CHAT manual for the coding of UNT morphology that is compatible with CLAN—the analytic component of CHILDES. The results of this work will be generalizable to the transcription, coding, and analysis of other morphologically rich languages, and will be made publicly available as part of the CHILDES system within the next two years.
- g) Student training: One of the most important objectives of this project is to train students and give them hands-on experience working with an indigenous language both in the university setting and in the field. On-site work in Mexico offers an unparalleled opportunity for intensive exposure to field-linguistic techniques and training in the full range of skills needed for the documentation and revitalization of endangered languages—skills which are in great demand in Canada, the United States, and Mexico, where the majority of indigenous languages are in imminent peril of extinction.

## 2 Context

Upper Necaxa is a member of the Totonacan family of languages spoken in East-Central Mexico. UNT is currently the native language of around 3,400 people, most aged 40 or older, in four communities—Patla, Chicontla, Cacahuatlán, and San Pedro Tlaloantongo—in the Necaxa River Valley in northeastern Puebla State. All but the oldest speakers are bilingual, and the language of child-rearing has been

switched to Spanish by parents who see proficiency in the dominant language as an advantage for their children (Beck & Lam 2009; Lam 2009). Most indigenous languages of Mexico, like the majority of the world's languages, are in grave danger of extinction, with potentially tragic results for scientists and speakers alike (Krauss 1992). At least one other Totonacan language (Misantla) has only a handful of speakers (MacKay 1999) while another (Tecpatlán) is spoken by fewer than 600 people (Gordon 2005).

One of the aims of the current project is to continue the work of the co-applicant Lam (Lam 2007, 2009, 2010a, 2010b, 2010c) and her students (del Carpio 2008; McGraw 2009) investigating the socio-economic and ideological factors underlying the abandonment of indigenous languages in Mesoamerica through the comparative study of communities at different stages of language shift. Most of the work in this field has consisted of isolated case studies focussed on a single community (e.g., Garzón 1992; Augsburger 2004; Hidalgo 2006) or contiguous area (Hill & Hill 1986; Ragone & Marr 2006), but the lack of systematic comparative work represents a serious gap in our ability to understand these processes (Zimmermann 2010) and has undermined efforts to formulate effective language policies and maintenance strategies in the Mexican context (Lastra 2001). While many studies on language shift focus solely on factors such as economic marginalization and geographic isolation leading to language loss (e.g., Ragone & Marr 2006), it is becoming increasingly clear that these external factors are not sufficient in themselves to explain why communities react differently in the face of similar pressures, suggesting that any comprehensive analysis must also consider internal factors such as language attitudes and language ideologies (Kulick 1992; King 2001; Lam 2010b, 2010c). Totonac communities, previously unstudied, present an interesting mosaic of relatively isolated communities with similar socio-economic conditions at different stages of language shift (Lam 2009; McGraw 2009), making them ideal subjects for comparative study of the interaction of internal and external factors.

Although Totonacan (a.k.a. Totonac-Tepehua) has traditionally been considered an isolate, recent work by a team including the PI and the co-applicant Kondrak suggests possible deep phylogenetic links to another Mesoamerican language family, Mixe-Zoque (Brown et al. 2011). This work includes the first systematic attempt at the comparative reconstruction of the Totonacan family tree, which has pointed us away from the old impressionistic view that Totonac branch of the family is subdivided into three or four separate coordinate languages, Misantla, Lowland, Sierra, and (sometimes) Northern (Arana 1953; García Rojas 1978). Instead, our results suggest a principal split in the Totonac branch between Misantla and Central Totonac, which in turn subdivides between Northern (including UNT) and Lowland-Sierra, each of these divisions consisting of an undetermined number of mutually-unintelligible languages. Because the Northern group has shown itself to be distinct but is the least-recognized, this project proposes to expand our knowledge of this division by conducting detailed survey work in 3–5 key communities in the Northern geographic area whose current classification is in doubt (e.g., Coahuilán) or whose status is considered crucial for internal reconstruction (Ozumatlán/Tepezintla). Understanding and delineating Northern Totonac is crucial not only because it is the primary bifurcation in the Central Totonac group, but also because the branch seems to be especially conservative with respect to the phonological feature of laryngealization in vowels, the origin of which is highlighted in Brown et al. (2011) as one of the major unresolved issues in the reconstruction of proto-Totonacan and, by extension, the proposed Totozoquean ancestor language for Totonacan and Mixe-Zoque.

Another major challenge for the reconstructive project is that, in descriptive terms, the Totonacan family remains understudied. The earliest work is a grammar written by a Spanish priest (Bonilla 1752); missionaries from the Summer Institute of Linguistics (SIL) have produced three dictionaries (Aschmann 1962, 1973; Reid & Bishop 1974) and some books and articles on specific topics (e.g., Aschmann 1946a, 1946b, 1952–53, 1963; Aschmann & Wonderly 1952; Bishop 1979). The first publication on Totonac by an academically-trained linguist is a grammar of an extinct Sierra variety (Coatepec) written in the 1940s and re-printed in Spanish as McQuown (1990), while aspects of Tlachichilco Tepehua grammar are dealt with in Watters (1985, 1987, 1988). Misantla Totonac is described in MacKay (1991, 1994, 1999) and MacKay & Trechsel (2005); Papantla Totonac (Lowland) has been written on by Levy (1987, 1990,

1992, 1994, 1996, 1997, 1999a, 1999b, 2002a, 2002b, 2002c, 2003, 2004). MacKay & Trechsel (2010) outline Pisaflores Tepehua, while Huehuetla Tepehua (Smythe Kung 2007) and Filomeno Mata Totonac (McFarland 2009) are subjects of recent PhD dissertations. Two native speakers of Sierra Totonac languages have produced MA theses (Tino Antonio 2006; Román Lobato 2008) through a Mexican post-graduate programme in Linguistics for speakers of indigenous languages, and both have entered PhD programmes at the National Autonomous University of Mexico. May 2007 saw the first International Conference on Totonac-Tepehua Languages, with participants from Canada, the US, and Mexico, including three graduate students and three native speakers of different Totonacan languages.

Northern Totonac has received no previous attention from linguists, although the Apapantilla variety is documented to some extent by members of the SIL (Reid et al. 1968; Reid 1979, 1991; Bishop & Reid 1979). UNT was completely undescribed until the PI began SSHRC-funded fieldwork in 1998. Since then it has been the subject of a number of academic publications (Beck 1999a, 1999b, 2000a, 2000b, 2001a, 2001b, 2001c, 2002, 2003a, 2003b, 2004, 2006a, 2006b, 2006c, 2007a, 2007b, 2007c, 2008a, 2008b, 2011b; Beck & Mel'čuk 2011; Escalona Gutiérrez 2004), most significantly the *Upper Necaxa Totonac Dictionary* (Beck 2011a). This research has shown UNT to be a typologically unusual language with a number of theoretically-significant features. Phonologically, the language makes distinctions in vowels for both length and laryngealization, and has an unusual consonantal inventory including three ejective fricatives (/s'/, /ʃ'/, and /ʃ'/) but no ejective stops (Beck 2006c). Morphologically, UNT is a polysynthetic agglutinating language whose verbs combine 10 prefixal positions with 14 suffixal positions (Beck, Holden & Varela, n.d.), many affixes showing variable rather than templatic ordering (Beck 2008b). The language also makes use of bodypart prefixation in locative and verbal constructions (Beck 2004), and employs compounding as an inflectional and quasi-inflectional means to create complex aspectual expressions that go beyond the possibilities predicted by most current theories of aspect (Beck 2011b). UNT lacks both nominal case and prepositions but allows up to five non-oblique objects, all of which appear to be equally ranked for the purposes of syntactic processes (Beck 2006b, 2007b). This last feature is one of the particular targets of the current proposal, as many theories of syntax require grammatical relations to be unique, and the existence of multiple non-oblique objects of the same type, if confirmed, would have far-reaching implications for linguistic theory. Many features of UNT are found in various combinations in its sister languages, and the documentation of these—and their intra-familial variation—will provide theorists with challenging descriptive and typological data.

The same holds true for the study of language acquisition. Current studies of L1 acquisition are based almost entirely on data from European languages, and many claims about universal patterns and sequences in acquisition are untested with languages and cultures outside the Western mainstream. On the rare occasion that data from the acquisition of American indigenous languages are brought to bear on these claims, the data usually challenge or refute them (e.g., Allen & Crago 1996; de León 2001). In the case of UNT, for example, the data already show that the most common locative structure used by adults is not a productive part of the language of children before the age of 10 (Varela & Klint 2006; Varela 2007), while most theories assert that the major structures of a language are acquired at a much earlier age. Since the intergenerational transfer of the language in a naturalistic form is now a minority choice, the acquisition of the language will vanish long before the language itself does, and the data collected on children learning UNT, to be finalized and uploaded to CHILDES in the early stages of the current project, will be a unique and irreplaceable contribution to the typological database on L1 acquisition.

### 3 Methodology

#### *Field-collection of UNT language data*

Every summer during the five-year term of this grant, the PI and the co-applicant Lam will lead a team of graduate students to the field for periods of six weeks to collect primary data. The team will rent a furnished house in the village of Chicontla and set up a base of operations in which consultants can be interviewed and recorded and where computers, printers, and recording equipment can be operated and

stored safely. Consultants will be hired on a full-time basis to work on-site for five to six hours a day, five days a week, at 250 pesos per day (CDN\$25 or about 3 times the minimum wage for a day-labourer). Because many of the best speakers are elderly and unable to travel (or unwilling to take on linguistic work as a full-time commitment), team members will also make home-visits with mobile recording and playback devices to interview additional consultants and to elicit commentary on recordings; this is especially important in that UNT is a dying language and a great deal of material needs to be checked with elders before it can be considered to have been reliably documented.

Texts will be transcribed in ELAN and provided with interlinear analyses with the assistance of the morphological parser built into the project database, the Electronic Fieldbook. The analyzed texts will be used as the source of data for morphosyntactic research and to formulate hypotheses about the meaning, form, and uses of individual morphemes and syntactic structures which can be confirmed/revise through subsequent interviews with speakers, following standard field-linguistic methodology. In addition to collecting more stories, an effort will be made to increase the number of personal narratives and conversations recorded, and to record more texts from female speakers, something that has presented a challenge in the past for cultural reasons. Ensuring that the corpus covers a wide range of genres as well as materials from speakers of both genders helps ensure the documentation of the widest possible range of morphosyntactic devices and discourse strategies, ideally providing the researcher with examples of language use and structure in a full spectrum of communicative contexts. Because accurate transcription of recorded material is both time-consuming and labour-intensive, a great deal of time in the field will be required for transcription. This involves a researcher listening to a recording line by line together with a native speaker consultant who repeats what was said verbatim and assists in writing it down and interpreting it; once a recording has been transcribed and morphologically analyzed, it is reviewed with a different speaker to check for errors and over-all reliability.

#### *Laboratory collection of data*

During two summers in the course of the project, two native speakers of UNT will spend a month on the University of Alberta campus. Past experience has shown that having consultants on-campus as opposed to working in the field has a number of advantages, particularly in terms of making professional-quality sound recordings, performing sophisticated phonetic analyses, and making use of specialized equipment such as air-flow measurement devices which are not particularly portable. Consultants are also able to dedicate themselves to the project full-time, as opposed to dividing their time between linguistic work and ordinary daily activities which frequently disrupt field investigations. Researchers benefit from access to libraries, e-mail, and internet resources, as well as access to advanced laboratory facilities such as those housed in the Language Documentation Research Cluster, the Centre for Comparative Psycholinguistics, and the Alberta Phonetics Laboratory.

#### *Language survey methods*

The extension of data-collection to additional Northern Totonac communities will involve the use of a modified version of a questionnaire designed by Carolyn MacKay and Frank Trechsel at Ball State University to elicit key vocabulary and target important lexical and grammatical features of Totonacan languages. The full questionnaire consists of 683 questions; our team would streamline this to about 450. The original MacKay-Trechsel survey was broad-based, covering 28 communities, including two of interest to this project, Coahuiltán and Zihuateutla; however, the interviewer who carried out the survey was unfamiliar with Totonacan, and the data transcribed by an inexperienced native speaker of Filomeno Mata Totonac after the fact without the assistance of the original consultant. As a result the data collected are unreliable. The new questionnaire will be implemented by trained linguists with previous experience of UNT and transcribed and supplemented with the aid of a native speaker from the target community; members of the research team will also return to Coahuiltán and Zihuateutla with MacKay and Trechsel's results to check them with native speakers there. This will allow us to fine-tune and check

transcriptions, and make sure that the answers to the questions were exactly what the question was designed to elicit. Processing the interview data with native speakers will also provide us the opportunity to explore interesting points of divergence in structure and lexicon as these are uncovered by the survey work. It is estimated that each original survey would require at a minimum 4–6 hours of recording time and 20–30 hours of transcription work with local consultants, depending on the degree of difficulty presented by learning the new sound-system and the overall divergence of the languages from patterns familiar from UNT and other documented Totonacan languages. Data thus collected will be incorporated into lexical and grammatical databases, and comparative vocabulary will be used by the PI and the co-applicant Kondrak as part of the computer-aided reconstruction project presently underway. It will also become part of the larger Totonacan database being constructed by MacKay and Trechsel at Ball State.

### *Sociolinguistic survey methods*

The co-applicant Lam will conduct recorded, semi-structured oral interviews in Spanish with members of each community of different ages, genders, social backgrounds (schooled vs unschooled, labourer vs professional, monolingual vs bilingual) following a protocol developed over the last 8 years in the field to elicit information about language use, attitudes, and ideologies. Students will also be trained in the use of these protocols and called upon to conduct interviews on occasion as opportunity arises. Recordings will be transcribed and transcripts tagged for key words, topics, and themes. Extensive field notes and, where appropriate, video recordings will be made by researchers on the language practices in each community, and these will be supplemented with demographic data collected by local officials, health clinics, and governmental organizations. Data for each community will be analyzed in terms of four broad themes: social history of community, domains of use of majority and minority languages, language ideologies, and language socialization practices. Occasional interviews may also be conducted, through an intermediary, in Totonac with individuals who are uncomfortable with or unable to speak Spanish.

### *Training of students*

Students involved in the project will receive intensive hands-on training in linguistic field techniques both in the institutional setting and on the ground in Mexico. Our Department regularly offers a course in Field Methods, taught by instructors whose primary research involves the field collection of data, as well as bi-weekly workshops, sponsored by the Language Documentation Research Cluster (<http://ldrc.artsrn.ualberta.ca/>), on field-related topics such as data-collection methodologies, elicitation techniques, recording techniques, corpus building, speaker protocols and ethics, metadata structures, and technologies for language documentation. Students on the project will also begin work in Edmonton with previously collected UNT data to familiarize themselves with the sound system and structures of the language. Once in the field, students will initially work under close supervision on transcription, recording, and simple elicitation tasks set by the PI; students interested in (and judged capable of) participating in the survey side of the project will spend their first field session working primarily on UNT, and during the second and subsequent field seasons will be introduced into alternate communities, initially accompanied by the PI. Work in the new communities at first will be on the basis of day-trips and student will remain with the team in Chicontla (which is centrally-located with respect to the other field sites), although as students become more integrated into the communities secure lodgings in the community will be found (generally boarding with the primary consultants is the best arrangement) and students will be expected to report in on a weekly basis. An individual student may work in one or more new communities over the course of the project, depending on how quickly the survey work proceeds (which will depend in part on how divergent the language is from UNT and how steep the learning curve is for transcription); however, it is hoped that students will develop a commitment to the communities they visit, and they may be allowed to remain in place or return to a particular community after a stint elsewhere, provided the larger goals of the survey are felt to have been met by the research team.

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## A. Description of Team

A project of this scope necessarily requires the combined talents and expertise of a number of people, both because of the sheer quantity of data involved and the range of skills required of the participants.

The PI, David Beck, will be primarily responsible for all data collection undertaken in the field and will oversee the transcription and archiving of collected material, as well as the descriptive work on morphosyntax, phonology, and information structure. The PI has been conducting linguistic fieldwork in the UNT communities since 1998, and has supervised many students in the field, often for extended periods of time. He has many close contacts in Patla and Chicontla, as well as in several neighbouring communities, and has developed a deep familiarity with Totonac culture and language. In addition to publications on the grammatical structure of UNT, his research contributions include papers on typology, syntax, phonetics, phonology, language contact, and issues in the linguistic description of undocumented languages. He also has experience in Java and Python programming and designed the prototype for the Electronic Fieldbook. The PI will continue to devote 80% his research time to this project.

The co-applicant Yvonne Lam will conduct sociolinguistic interviews as well as train students in interview techniques. Lam is a recognized expert in the study of language shift in indigenous communities, particularly in Mesoamerica, and has field experience in the Northern Totonac area since 2003. She currently has a cross-generational comparative corpus of 26 interviews from Patla and Chicontla, two communities at different stages of language-shift, and has supervised a student, Rachel McGraw, who conducted 29 interviews in a third Totonac community, Ozelonacaxatla. She has designed a new instrument, piloted in the field in 2010, to elicit information on language use and attitudes appropriate to the Totonac and Mesoamerican context, and will devote 80% of her research time to its refinement and the collection and processing of field data.

The co-applicant Grzegorz Kondrak is a computer scientist and specialist in Natural Language Processing, with expertise in the use of computational tools for the quantification of phonological similarity. His current research focuses on the use of computational tools for the identification of cognate vocabulary and, in collaboration with the PI, the application of these tools to the phylogenetic reconstruction of proto-Totonacan and the investigation of the deeper genetic links of the family to other languages in Mesoamerica. Kondrak will work on the comparative side of this project and dedicate 15–20% of his research time to the development of computer algorithms and supervision of students.

The collaborator Johanne Paradis is an acknowledged expert in language acquisition and the gathering of naturalistic child-language data. She is also highly experienced in using the CHILDES system for the analysis of child language. Dr. Paradis will supervise the preparation of previously-collected acquisition data for donation to CHILDES, as well as in the preparation of academic papers based on this data.

## B. Description of previous and on-going research results

### 1. Basic documentation of Upper Necaxa Totonac:

- a. Upper Necaxa dictionaries: An academic dictionary (Beck 2011a) has been published by Mouton de Gruyter. The PI has also published a practical vocabulary (Beck 2001c) with 4,000 entry words for free distribution in the UNT communities, and is currently preparing an expanded edition for distribution in 2012. The lexical database that is the basis for these dictionaries currently contains 19,676 audio recordings of individual lexical items and example sentences. A Java version of the dictionary on DVD has also been developed, and this is being ported to Java applets for web-implementation.

- b. UNT grammars: A short grammar of UNT (Beck 2004) is now in print; a more complete reference grammar of the language is currently underway.
  - c. UNT texts: In total there are around 26 hours of recorded material in the project archives encompassing 27 fully transcribed and analyzed texts, 45 texts that have been transcribed but are not yet analyzed, and 12 hours of as-yet untranscribed texts. The analyzed texts have been time-aligned with the recordings using ELAN, and are in the process of being made available in time-aligned audio and text format via the UNT project website. The PI is editing a volume of interlinearized texts with Paulette Levy that includes examples from all 11 languages for which reliable data is available, to be published by UNAM.
2. Acquisition data: In terms of raw data, there are now 27 hours of naturalistic child language data (approx. 5,000 child utterances from three children aged 2;6 – 3;0, taped bi-weekly over a three month period) collected and transcribed in the project archives. These transcripts are being prepared for incorporation into the CHILDES database. An additional 10 hours of video of children of various ages performing experimental tasks are currently on file.
  3. Theoretical research: The data collected by the Upper Necaxa Project has resulted in significant findings in a number of theoretical domains.
    - a. Parts of speech and lexical classification: Inquiry into the parts of speech system of Totonacan languages has contributed to the debate on the typological status of the class of adjectives (Beck 2000b, 2002), the classification of ideophones (Beck 2006c), and the cross-linguistic make-up of the class of adverbs (Beck 2008a). The methodologies developed in these papers have been taken up by other researchers (e.g., Palancar 2006).
    - b. Grammatical relations: UNT lacks both nominal case and prepositions, yet allows up to five non-oblique objects in a clause, all of which appear to be equally ranked for the purposes of syntactic processes—a serious challenge to most theories of grammatical relations. Aspects of this phenomenon are examined in Beck (2006b) and Beck (2007b). These shorter works are in the process of being combined with new data from the field into a single larger article for journal publication.
    - c. Morphology: The complexity of the UNT person-paradigms has led to a number of publications (Beck 1999a, 2001a, 2001b), as has the phenomenon of variable morpheme-ordering (Beck 2008b), the use of compounding as an inflectional means (Beck 2011b), and the presence of morphological phrasemes (i.e., morphological idioms—Mel’čuk 1964), discussed in Beck (2007a) and Beck & Mel’čuk (2011). A formal morphological model in the framework of Meaning-Text Theory (Žolkovskij & Mel’čuk 1964) is currently being refined (Beck, Holden & Varela, n.d.).
    - d. Acquisition: Our work has shown that the most common locative structure used by adults is not a productive part of the language of children before the age of 10 (Varela & Klint 2006; Varela 2007), while most theories assert that the major structures of a language are acquired at a much earlier age. A joint paper on the topic by the PI, the co-applicant, and graduate students is currently in preparation.
  4. Historical reconstruction: As result of a collaboration involving the PI and co-applicant Kondrak and incorporating data collected by the PI, a probable genetic link between Totonacan and another Mesoamerican language family, Mixe-Zoque, has been proposed (Brown et al. 2011), the first such link to have been put forward based on rigorous comparative methodology. This work also includes a tentative reconstruction of the Totonacan family, building on earlier work by the PI and Kondrak (Kondrak, Beck & Dilts 2007) on the computer-assisted compilation of cognate

lists for phylogenetic reconstruction. The database for this project currently contains large vocabularies from 8 languages in the family, and improvements to the interface and computational algorithms for cognate-identification are currently underway (Hauer & Kondrak 2011).

5. International Conference on Totonac-Tepehua Languages: The First International Conference on Totonac-Tepehua Languages was held in Banff in May, 2007. There were 11 participants from Canada, the United States, and Mexico, including three graduate students and three native speakers of different Totonacan languages.
6. Electronic Fieldbook: This database for the archiving and analysis of linguistic data allows trilingual lexicographic entries in phonetic notation and practical orthography, automatic conversion from one to the other, and cross-links between roots and derivations, as well as sound and video files, sorting and alphabetization routines, and complex search facilities. Texts and concordances are viewable and writable as files in a number of formats (including block-translation and analyzed text), and the Fieldbook is capable of compiling a dictionary in various user-determined layouts using XLST transformations. The team is currently working on issues of platform independence and web-implementability, making use of the Python programming language for data-processing and of XML and Unicode for data storage. The hope is to develop a tool that can be shared with other fieldworkers.
7. Ethnobotany: As a result of the PI's previous SSHRC projects, there is now a record of some 75 indigenous plant species along with their Latin names and information regarding their cultural significance and medicinal uses. This list is available on-line at the Upper Necaxa Project website (<http://www.arts.ualberta.ca/~totonaco/>). The majority of items on this list were collected in the field and samples are archived with the National Institute of Anthropology and History's Ethnobotanical Archives in Mexico City, and were the topic of an MA thesis (Escalona Gutiérrez 2004) written by a student employed by the PI's first SSHRC-funded project.
8. Official recognition of UNT as a language: As a result of the PI's research, Upper Necaxa has been recognized by the Mexican government through the National Indigenous Languages Institute (INALI). Efforts to verify the exact number of UNT-speaking communities (now confirmed at four) have also led to the language being assigned a unique ISO language code (TKU). Another Totonacan language, Tecpatlán Totonac (ISO TCW), has also been given an ISO designation, whereas it had been erroneously grouped with Upper Necaxa into a putative Patla-Chicontla Totonac (formerly ISO TOT) by the Summer Institute of Linguistics. Such recognition on a national and an international level could have important ramifications for funding and government support for education and bilingualism in Totonac communities.
9. Language shift in Totonacan communities: Research is underway (Beck & Lam 2009; Lam 2007, 2009, 2010a, 2010b, 2010c) examining the attitudes and social factors that have led to the abrupt language shift in the Upper Necaxa Valley from Totonac to Spanish. Although Totonac has been in contact with Spanish for 500 years, only in the last few decades has the language begun to give way to pressure from Spanish; in the Necaxa Valley, the previous generation of parents of child-rearing age was the first to abandon transmission of the language, whereas in other Totonacan communities the transition happened either much earlier or is only now in its first stages. The co-applicant Lam has supervised work by an MA student in another Totonacan community, Ozelonacaxtla (McGraw 2009), where shift is only beginning, and on the basis of the two projects has developed an interview protocol on language attitudes and language use for implementation in the Totonacan context to identify the factors governing the onset of language

loss. Research into the motivating factors for this shift will have implications for language policy and efforts to stem the tide of language loss in these and other minority-language communities.

### C. Description of proposed student training strategies

One of the most important objectives of this project is to train students and give them hands-on experience working with an indigenous language both in the university setting and in the field. Fieldtrips to the UNT communities offer an unparalleled opportunity to work intensively with consultants as well as invaluable experience in adapting culturally to life in an indigenous community; working with consultants on-campus allows students to learn the use of more advanced laboratory equipment and techniques. Students trained on this project will acquire the full range of skills needed for the documentation and revitalization of endangered languages, ranging from phonological transcription and strategies for data elicitation through phonological, morphological, and syntactic description and analysis, and the use of field equipment and software for recording, analyzing, and archiving primary linguistic data.

#### *Project work during the academic year*

Two Graduate Research Assistants (GRAs) will be hired for fieldwork on the project. One of these, Michelle García-Vega, is already in place, having come to the University of Alberta expressly to work with UNT. Recruitment for the remaining position will happen once funding is secured. Computational work will be carried out on an hourly basis during the academic year by Simon Fung, a PhD student working with the PI and Kondrak on natural language processing; Simon has been the primary programmer for the UNT Project for the last two years, and accompanied the PI to the field in 2010. He will continue to work with the PI and co-applicant Kondrak on developing the computational tools needed for this project and the redevelopment of the Electronic Fieldbook and the DVD dictionary reader, which will provide some rather unique experience in natural language processing and the creation of tools for the digital support of fieldwork and linguistic analysis.

#### *Collection of language data*

The GRAs employed by the project will have the opportunity both to participate in summer field expeditions and to work with consultants during those periods when the latter are on-campus. While in the field, students will work one-on-one with consultants in the recording, transcription, and elicitation of language data both at the project base and in private homes in the community. While each student will gain invaluable experience in the data-gathering techniques appropriate to their specializations, they will also receive training in linguistic field methods in general and will have a unique opportunity to live and work in an indigenous community. During the periods when consultants are on-campus, GRAs will prepare and conduct regular elicitation sessions, record texts, work on the transcription of previously recorded material, and, when necessary, assist consultants with activities outside the university. Students will learn analytic techniques for working with linguistic data and will be exposed to and trained in the use of a wide range of laboratory equipment. In addition to general work with consultants assigned according to the needs of the project, students will also be given the chance to gather data related to theoretical topics of individual interest. Such opportunities are crucial to the training of field linguists, as they provide students the opportunity to experience first-hand the difficulties involved in formulating linguistic hypotheses and confirming or negating these hypotheses in a reliable manner. The PI, co-applicants and collaborator all are committed to mentoring students through every aspect of the research process, from data analysis to presenting and writing papers based on their own original research.

The potential outcomes and benefits of this research will primarily impact two broad sectors, the academic (including scholars, post-secondary institutions, and students) and the social (including aboriginal people, NGOs and community organizations, and policymakers). The most immediate impact on the academic side will be the contribution to the linguistic database of naturalistic data on the structure and acquisition of a typologically-unusual family of languages, many of whose members are in extreme peril of extinction. This will contribute to our theoretical understanding of human languages and cognition, in the longer term advancing our understanding of more familiar languages like English and aiding work in computational applications and, potentially, clinical treatments of aphasia and other language deficits. The reconstruction of the Totonacan family and the strengthening (or weakening) of its links to Mixe-Zoque will deepen our understanding of the history and peopling of Mesoamerica and will eventually contribute to the identification of the provenance of major archeological sites such as Teotihuacán and Tajín. The computational tools being developed for historical reconstruction will be of wide general interest and benefit to the profession. The involvement of students in every aspect of this work will be a major contribution to training and will benefit post-secondary institutions in the short term by providing funding and support to promising future scholars, and by producing trained personnel who can become full-fledged academic faculty members and teachers in their own right. Materials gathered during this project will also contribute directly to graduate and undergraduate training and curriculum as they are incorporated into teaching materials, inform our understanding of the theory and practice modelled in the classroom, and, on occasion, form the bases for entire courses on specialized topics.

On the social side, the primary impact of this work will be on the speakers and speech communities, who will benefit from the recording and documentation of their language and the cultural and historical information that comes with it. As languages disappear, a disconnect is created between generations, dividing the elders who are speakers from the younger generation; this rift results in the loss of knowledge of cultural practices, history, and information such as the use of medicinal plants and traditional agricultural practices. It also creates a sociological vacuum in which young people, often excluded from the mainstream society but cut off from their roots, find themselves alienated from their families, with often very serious social, legal, and health problems. Language maintenance contributes to the slowing and prevention of these processes, and language documentation is the first step that has to be taken before effective programmes can be designed. Our research into the factors underlying language shift should contribute to our understanding of these processes and can aid in effective language policy planning, both in the Totonac context and in language minority situations in general. Government policy-makers, NGOs involved in minority-language communities, and local people concerned with language issues will all benefit from understanding the context and causes of the language shift going on in such communities, and the knowledge that materials and expertise exist to try to turn the tide is often enough to spark community interest and activism.

Upper Necaxa data collected by this project will serve as the basis for theoretically-oriented conference presentations and papers in journals; because of the large component of student-driven research on the project, it is hoped that a significant number of these will be authored by or co-authored with graduate students. Articles based on language and survey data are publishable in venues such as the *International Journal of American Linguistics*, *Linguistic Typology*, and *Studies in Language*; sociolinguistic research will appear in venues such as the *International Journal of the Sociology of Language* and *Anthropological Linguistics*. Language acquisition data will be reported in journals like *Journal of Child Language*. A collection of UNT texts with accompanying DVD will be prepared for an academic publisher such as Brill or Walter de Gruyter some time in 2015 and a full-length reference grammar of UNT should be ready by the end of the proposed project in 2017.

The Upper Necaxa Project website (<http://www.arts.ualberta.ca/~totonaco/>) will host textual, lexical, and other documentary materials as well as serving as a repository of academic work and references on Totonacan languages. Although it is currently English-only, a Spanish version of the website will be launched in late 2012, making the site useable by Totonac communities. Except where restricted access is requested by speakers, the texts collected by the project will be made available on-line in interactive HTML format. The complete texts currently held by the project should be posted by the summer of 2013. UNT lexical materials will also be made available, and the Java-based dictionary reader accompanying the UNT dictionary (Beck 2011a) will be converted into Java applets to allow web-based delivery. This should be ready by early 2013.

Survey data from other Northern Totonacan languages will also be incorporated into descriptive and theoretical work. Most notably, lexical materials will be added to the existing database of comparative Totonacan vocabularies which will be the basis for publications on comparative Totonacan and, eventually, an etymological dictionary. A more robust Totonacan family tree will also lead to future publications on the Totonacan–Mixe–Zoque connection. 100 word Swadesh lists will be contributed to the ASJP project at the MPI Leipzig. The refinement of our computational tools for cognate identification will be an important outcome of the project, and these tools will be made publicly available on the project website. The survey data themselves will be shared with colleagues at Ball State University.

The CHAT and CLAN modules of the CHILDES system and the anonymized coded transcripts of the child-language videos will be prepared for donation to the CHILDES Project by the end of 2012. The videos themselves will not be made public, given ethical concerns about privacy.

The sociolinguistic interviews conducted on language shift will also not be made public due to the same ethical concerns; however, this research will allow us to make community-level assessments of language vitality which will be disseminated to policy-making bodies such as the Mexican Instituto Nacional del Lenguas Indígenas (INALI). Likewise, policy recommendations based on theoretical work will be communicated to INALI and other governmental and non-governmental organizations involved in language maintenance and revitalization in Mesoamerica.

The project will continue to produce practical materials for the Totonacan communities. Discussions in Patla are currently underway about the production of either a language primer or a book of children's stories which could be in print by 2015. Survey work will be used to produce small runs of short practical vocabularies for other Northern Totonac communities. Vocabularies and texts will be made web-accessible; additional funds may be sought for paper publication given sufficient local interest.

Following the success of the First International Conference on Totonac–Tepehua Languages held in Banff (May 7–8, 2007) with money from a previous SSHRC grant, plans are being made to hold a second conference in 2013. Monies for this conference will be sought from other sources such as the University of Alberta Conference fund.

The documentary linguistic data collected during this project will be archived in the Language Resource Documentation Cluster and at the University of Alberta Education and Research Archive (<https://era.library.ualberta.ca/public/home>). Some may also be deposited in other archives such as the AILLA (<http://www.ailla.utexas.org/>) to ensure wider access.

## 1) Research contributions over the last six years

### Refereed contributions

- \*Beck, David. (2011). *Upper Necaxa Totonac Dictionary*. Berlin: Mouton de Gruyter.
- \*Brown, Cecil H., David Beck, Grzegorz Kondrak, James K. Watters, & Søren Wichmann. (2011). Totozoquean. *International Journal of American Linguistics* 77, 323–372. [second author, wrote section on Totonacan reconstruction, contributed to Totozoquean reconstructions]
- \*Beck, David, & Igor Mel'čuk. (2011). Morphological phrasemes and Totonacan verbal morphology. *Linguistics* 49, 175–228. [equal contributor]
- \*Beck, David. (2011). Lexical, quasi-inflectional, and inflectional compounding in Upper Necaxa Totonac. In A. Aikhenvald & P. Muysken (eds.), *Multi-verb Constructions: A view from the Americas*, 63–106. Leiden: Brill.
- Beck, David. (ed.) (2010). *A Festschrift for Thomas M. Hess on the Occasion of his Seventieth Birthday*. Bellingham, WA: Whatcom Museum Publications.
- Beck, David. (2010). Uni-directional flexibility and the noun–verb distinction in Lushootseed. In J. Rijkhoff & E. van Lier (eds.), *Flexible Word Classes: A typological study of underspecified parts-of-speech*. Oxford: Oxford University Press.
- Beck, David. (2010). Communicative Structure in Lushootseed syntax: Thematicity and Focalization. In José Camacho, R. Gutiérrez-Bravo, & L. Sánchez (eds.), *Information Structure in Languages of the Americas*, 41–65. Berlin: Mouton.
- Beck, David, & Thom Hess. (2010). Two *syəyəhub* from Harry Moses. In D. Beck (ed.), *A Festschrift for Thomas M. Hess on the Occasion of his Seventieth Birthday*, 1–56. Bellingham, WA: Whatcom Museum Publications. [parsed and formatted two stories collected by Hess]
- \*Beck, David & Yvonne Lam. (2009). Language loss and linguistic suicide: A case study from the Sierra Norte de Puebla, Mexico. In S. Cummins, B. Janoski, & P. A. Shaw (eds.), *All the Things You Are: A Festschrift for Jack Chambers*, 5–16. Toronto: TWPL. [equal contributor]
- Beck, David. (2009). A taxonomy and typology of Lushootseed valency-increasing suffixes. *International Journal of American Linguistics* 75, 533–569.
- \*Beck, David. (2008). Ideophones, adverbs, and predicate qualification in Upper Necaxa Totonac. *International Journal of American Linguistics* 74, 1–46.
- Beck, David & David Bennett. (2007). Extending the Prosodic Hierarchy: Evidence from Lushootseed narrative. *Northwest Journal of Linguistics* 1, 1–34. (<http://www.sfu.ca/nwjl/>) [equal contributor]
- \*Kondrak, Grzegorz, David Beck, & Philip Dilts. (2007). Creating a comparative dictionary of Totonac–Tepehua. In J. Nerbonne, T. M. Ellison, & G. Kondrak (eds.), *Computing and Historical Phonology: Proceedings of the 9<sup>th</sup> Meeting of the ACL Special Interest Group in Computational Morphology and Phonology*, 134–141. Prague: ACL. [provided Totonacan lexical databases, manual ratings of proposed cognate sets]
- \*Beck, David. (2006). What to do with the ideophones?: A problem of lexical classification from Upper Necaxa Totonac. In L. Wanner (ed.), *Selected Lexical and Grammatical Issues in Meaning-Text Theory in Honour of Igor Mel'čuk*, 1–42. Amsterdam: Benjamins.

### Other refereed contributions

- \*Brown, Cecil H., David Beck, Grzegorz Kondrak, James K. Watters, & Søren Wichmann. (2010). Linking proto-Totonacan and proto-Mixe-Zoquean. Presented at EILN XI, University of Sonora, Hermosillo, Mexico. (November 17) [presenter]
- \*Beck, David. (2010). Quasi-inflectional and inflectional compounds in Upper Necaxa Totonac. **Invited talk**, Seminario de Lenguas Indígenas, Universidad Autónoma de Mexico. (October 22)
- Beck, David. (2010). Salishan. **Invited presentation**, First Conference on ASJP and Language Prehistory, Max Planck Institute for Evolutionary Anthropology, Leipzig, Germany. (Sept. 19)

- \*Brown, Cecil H., David Beck, Grzegorz Kondrak, James K. Watters, & Søren Wichmann. (2010). Linking proto-Totonacan and proto-Mixe-Zoquean. Presented at SSILA. (January 9) [prepared slides for Watters to present]
- Beck, David. (2009). Thematicity in Lushootseed syntax. In D. Beck, K. Gerdes, J. Milićević, & A. Polguère (eds.), *Proceedings of the 4<sup>th</sup> International Conference on Meaning-Text Theory*, 55–64. Montreal: OLST.
- Beck, David. (2009). Blurring boundaries: Phrase-level inflection and word-level syntax in the Pacific Northwest. **Invited keynote** address, SSILA/LSA joint session “Inflectional Contrasts in the Languages of the Northwest Coast.” (January 10)
- \*Beck, David. (2008). Variable ordering of affixes in Upper Necaxa Totonac. In S. K. Chin & H. Fusheini, *Proceedings of WSCLA 12*, 29–38 Vancouver: UBCWPL.
- \*Beck, David. (2008). Voice and agreement in multi-object constructions in Upper Necaxa Totonac. *Memorias de IX Encuentro Internacional de Lingüística en el Noroeste*. Hermosillo, Mexico: University of Sonora.
- Beck, David. (2007). A taxonomy of Lushootseed valency-increasing affixes. In K. M. Jóhannsdóttir & M. A. Oberg (eds.), *Papers for ICSNL XLII*, 28–88. Vancouver: UBCWPL.
- \*Kondrak, Grzegorz, David Beck, & Philip Dilts. (2007). Creating a comparative dictionary of Totonac-Tepehua. Presented at the 9<sup>th</sup> Meeting of the ACL Special Interest Group in Computational Morphology and Phonology. Prague. (June 28) [presentation by Kondrak]
- \*Beck, David. (2007). Morphological phrasemes in Totonacan inflection. In K. Gerdes, T. Reuther, and L. Wanner (eds.), *Meaning-Text Theory 2007: Proceedings of the 3<sup>rd</sup> International Conference on Meaning-Text Theory*, 107–116. Vienna: Wiener Slawistischer Almanach, Sonderband 69.
- \*Beck, David. (2007). Argument quantification and qualification in Upper Necaxa Totonac. *Proceedings of the 33<sup>rd</sup> Annual Meeting of the Berkeley Linguistics Society*. Berkeley, CA: UC Berkeley.
- Trembley, Antoine, & David Beck. (2007). Word-order in Mandarin Chinese intransitive clauses. In K. Gerdes, T. Reuther, & L. Wanner (eds.), *Proceedings of the 3<sup>rd</sup> International Conference on Meaning-Text Theory*, 417–426. Vienna: Wiener Slawistischer Almanach. [equal contributor]
- \*Beck, David. (2007). Object marking in Upper Necaxa Totonac. Presented at the First International Conference on Totonac-Tepehua Languages. Banff. (May 7–8)
- \*Beck, David. (2007). Variable ordering of affixes in Upper Necaxa Totonac. Presented to WSCLA 12. University of Lethbridge. (March 30–April 1)
- \*Beck, David. (2007). Adverb qualification and quantification in Upper Necaxa Totonac. Presented to the 33<sup>rd</sup> Annual Meeting of the Berkeley Linguistics Society. Berkeley, CA. (February 10)
- \*Beck, David. (2006). Ideophones, adverbs, and predicate qualification in Upper Necaxa Totonac. **Invited talk**, SFU Linguistics colloquium series. (November 24)
- \*Beck, David. (2006). Control of agreement in multi-object constructions in Upper Necaxa Totonac. In A. Fujimori & M. A. Reis Silva (Eds.), *Proceedings of WSCLA 11*, 1–11. Vancouver: UBCWPL.
- \*Lam, Yvonne, & David Beck. (2006). Transmission interrupted: Minority language replacement by Spanish in a Mexican indigenous community. Presented to the Hispanic Linguistics Symposium, University of Western Ontario. (October 20) [presentation by Lam]
- \*Beck, David. (2006). The emergence of ejective fricatives in Upper Necaxa Totonac. In R. Kirchner (ed.), *University of Alberta Working Papers in Linguistics 1*.

### Non-refereed contributions

- Beck, David. (2011). Foreword to *Semantics: From Meaning to Text* by Igor A. Mel’čuk. Amsterdam: Benjamins.
- \*(2001). *Primer vocabulario práctico del idioma totonaco del Río Necaxa*. [First practical vocabulary of the the Upper Necaxa Totonac language.] Edmonton: University of Alberta. (185 pp, distributed for free in the Upper Necaxa communities)

## 2) Other research contributions

- \*(2007). Organized First International Conference on Totonac-Tepohua Languages. Banff (May 7–8).
- \*(2006). Requested changes to ISO 639-3 classification of Totonacan languages, separating Upper Necaxa and Tecpatlán (formerly grouped as tot) into tku and tcw, respectively.
- \*(2006). (with Y. Lam, J. Holden, & V. Varela) Public talk on “The situation of indigenous languages” for high school students, parents, teachers, and other community members as part of Cultural Week at the technical bilingual high school in San Pedro Tlaolantongo, Mexico. (June 21)
- \*Practical UNT orthography: Prior to my work in the UNT communities, the language did not have a specific practical orthography; in collaboration with my consultants, a practical phonemic orthography was developed and is finding growing acceptance among speakers.

## 3) Most significant career research contributions

- \*Beck, David. (2011). *Upper Necaxa Totonac Dictionary*. Berlin: Mouton de Gruyter.
  - the largest dictionary of any Totonacan language, comprises 9,065 lexical entries, two interlinearized texts, an English–Totonac index, a list of 58 reconstructed roots and their derivatives, a glossary of Spanish terms, and a 50-page grammatical sketch. The volume is accompanied by a DVD holding a searchable trilingual (Totonac–English–Spanish) database including 11,562 interlinearized examples, and links to 5,980 recordings of headwords and 4,584 of example sentences. It also includes the sound files and transcripts of the texts in CuPED HTML format.
- \*Brown, Cecil H., David Beck, Grzegorz Kondrak, James K. Watters, & Søren Wichmann. (2011). Totozoquean. *International Journal of American Linguistics* 77, 323–372.
  - This paper uses the comparative method to establish a genetic link between two language families, Totonacan and Mixe-Zoque, hitherto considered to be isolates, and is potentially a game-changer for Mesoamerican historical linguistics and archeology. It also contains the first systematic proposal based on linguistic data for the internal reconstruction of Totonacan.
- Beck, David. (2009). A taxonomy and typology of Lushootseed valency-increasing suffixes. *International Journal of American Linguistics* 75, 533–569.
  - Contextualizes the valency-regulating system of Lushootseed, and by extension other Salishan languages, in typological terms by showing that what has been previously analyzed as transitive inflection is in fact a system of causative and applicative derivation. The article also seeks to refute sweeping universalist claims about argument structure and lexical semantics by showing that the distribution of transitivizing affixes shows a great deal of lexical idiosyncrasy.
- \*Beck, David. (2002). *The typology of parts of speech systems: The markedness of adjectives*. *Routledge Outstanding Dissertations in Linguistics*. New York: Routledge.
  - Outlines a theory and concrete definitions of parts of speech, and explains the variation in lexical class systems found cross-linguistically, in particular the presence/absence of adjectives. Also puts forward a methodology for the identification of parts of speech in undescribed languages which has gained some currency among fieldworkers and academics in Mesoamerican languages.
- Beck, David. (2000). Grammatical convergence and the genesis of diversity in the Northwest Coast Sprachbund. *Anthropological Linguistics* 42(2), 147–213.
  - Offers one of the most detailed accounts of the morphosyntactic features shared by the Salishan, Wakashan, and Chimakuan families, and argues against the widely-held view that they are genetically related, common features being shown to be potential borrowings. The Salishan language Bella Coola is shown not only to have diverged from its sister languages due to grammatical borrowing from Wakashan, but also to have diverged from Wakashan, divergence from a donor language being a pattern rejected by many theories of language contact.

#### 4) Career interruptions and special circumstances

N/A

#### 5) Contributions to training

##### Doctoral supervision:

Sullay Kanu, (dissertation defense scheduled for October 14, 2011)  
 Daniel Aberra, entering eighth year of PhD programme  
 Simon Fung, entering fourth year of PhD programme  
 Kevin Penner, entering third year of PhD programme  
 Olivia Sammons, entering third year of PhD programme  
 Michelle García-Vega, entering first year of PhD programme

##### MA supervision:

Grant Aiton, entering second year of MSc programme  
 Vianey Varela, MSc Linguistics (2009)  
 Maria Isabel Madeira, MSc Linguistics (2007)  
 Isabel Klint, MA in Linguistics and Humanities Computing (2006)

##### Student involvement in research activity:

Michelle García-Vega has entered our doctoral programme expressly to work on spatial expressions in Upper Necaxa, and is currently beginning a project on Upper Necaxa numeral classifiers; she will begin fieldwork in the Necaxa Valley in the Summer of 2012. Simon Fung accompanied me to the field during my sabbatical in 2010 and worked on the transcription of texts; he has also been heavily involved in the development of the software for the *Upper Necaxa Totonac Dictionary*. Kevin Penner recently completed the entering of all of my transcribed texts into ELAN (a programme for time-aligning transcripts and recordings) and helped prepare HTML versions of two of these for the *Upper Necaxa Totonac Dictionary*.

Ryan Klint (PhD student, withdrawn 2007), Isabel Klint and Vianey Varela were heavily involved in my previous SSHRC-sponsored projects, working closely with consultants brought to Edmonton as parts of these projects and accompanying me to the field. These students have also made presentations at academic conferences based on their fieldwork, and Vianey Varela used data she collected on L1 acquisition of Totonac for her MSc project.

Two other students accompanied me to the field in June of 2006. One, Joshua Holden, later received a PhD from the University of Montreal based on his fieldwork on another language, Dene Suɬiné. The other student, Jorge Tino, is a native speaker of another Totonacan language and recently completed an MA in Linguistics at CIESAS, a post-graduate training institute in Mexico. He is currently studying in the PhD programme at UNAM (Mexico). Another Mexican student, Elizabeth Escalona, who was with me in the field in 2003 working on ethnobotany, has recently earned a doctorate in Cultural Anthropology from CIESAS.

Data collected by the UNT Field Project was also used by an Honours student, Eleni Varelas, for her thesis, *A cue-based approach to the phonotactics of UNT* (supervisor Robert Kirchner). I have also supervised two Honours students whose projects involved the digitization and parsing of Lushootseed texts, and have had two undergraduate students working on directed research projects, one entering Lushootseed texts in a database and the other classifying Upper Necaxa adverbs. The latter is beginning an Honours Project based on this work in the current academic year. Upper Necaxa and Lushootseed data figure prominently in my undergraduate course materials, and I have taught a graduate-level course in Totonacan morphology.