Multimedia: A Community-Oriented Information and Communication Technology

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1. Abstract

The authors emphasize the importance of turning field research results into products which immediately support communities speaking endangered languages in their efforts to maintain their linguistic and cultural heritage. This approach is called here 'fieldwork delivered *to* a language community'. It is a crucial complement to the other four frameworks in which fieldwork is carried out, i.e. *on* community languages, *for* communities, *with* communities and *by* communities (Grinevald 2003). Examples are described of three different genres of information and communication technology products for community language heritage and language learning designed by the authors together with endangered languages communities and delivered to them. A diversity of genres and products are needed to provide the communities with sufficient linguistic support.

2. Introduction

The articles in this volume discuss the linguistic situation of lesser-known languages in South Asia with special emphasis on the employment of information and communication technology (ICT). Previous articles in this section on *Globalization and application of technological advances to lesser-known languages: General background (theoretical) papers* include discussions on how language technology resources can be used in the documentation of lesser-known languages (Borin, Trosterud) and on the necessity of providing linguistic support for the maintenance of linguistic diversity (Allwood). The present article contributes to this discussion by giving examples of how ICT has been applied in communities speaking lesser-known languages for preserving their intellectual heritage and for training in community culture and language.

Experience gained through work on lesser-known languages have convinced linguists of the importance of long-term relationships, co-operation, and interaction with the speech communities (Grinevald 2003:56 and in this volume). Such sustained relationships have implications beyond the ethical principles that govern fieldwork. Ethical issues define relationships between linguists and speech communities when making agreements about the type of work to be done and the utilisation of its results. Long term relationships provide the understandings of the community's history, social fabric and aims that enable projects to deliver outcomes that *can* support language and cultural maintenance.

Grinevald (2003:58) presents a set of approaches to fieldwork, or "frameworks" (adapted from Deborah Cameron, cited in Grinevald 2003), that have successively evolved over time:

- fieldwork *on* a language
- fieldwork *for* the language community
- fieldwork *with* speakers of the language community
- fieldwork *by* speakers of the language community

Each framework sums up responses to factors including changing political trends and fieldwork practice. Grinevald characterises fieldwork *on* a language as an activity "carried out by individual linguists for purely academic purposes, with individual speakers". In fieldwork *for* a language, linguists make themselves "useful" to communities; this has typically focused on community advocacy. The application of ethics and new social science methodologies in the 1980s saw community members embraced as participants in research — hence a shift to carrying out fieldwork *with* the collaboration of speakers. More recently, with increased recognition of community control and the provision of training, fieldwork is being carried out *by* community members. In this paper, we focus on the pathway from community partnership in language work to the tangible products that meet their aims for language maintenance or strengthening, in other words, the delivery of usable resources. We therefore add a new framework to the set:

- fieldwork delivered *to* a language community

This is a distinct framework from fieldwork *for* a language, which Grinevald identifies with political activism from the 1960s, and can also be seen in more recent emphasis on community control of the initiation and conduct of research (e.g. AIATSIS 2000). The "deliver *to*" framework is less concerned than the other frameworks in describing the input side of the process or discriminating between community and linguists' contributions: it is more concerned with the form and effectiveness of the outputs. It complements the other four frameworks and together they describe the full set of perspectives within which endangered languages fieldwork takes place.

We believe that this framework is particularly important for working with endangered languages. It directly addresses language endangerment through a commitment to participating in countermeasures. It has the potential to ameliorate some of the polarity in current debates about who initiates and controls projects because it adds an alternative priority for actual outcomes and their effectiveness. We think that it can add a much-needed dimension to the evolving understanding and practice of the discipline of language documentation (Nathan, to appear). On-going interchanges between linguists and communities in the context of developing and testing linguistic resources can steer the documentation process towards the most important aspects of the language while ensuring that the products designed in this framework are attuned to the actual needs of the community.

A "deliver *to*" framework, then, focuses our minds on the urgency of turning research and fieldwork into usable products. Anticipating the needs of "philologists 500 years from now" (Woodbury 2003:45) is not its task. Within this framework we might plan for what the speech community needs in the next 50 years; but we are even more interested in responding to the fragile state of languages and their speakers by supporting language maintenance and strengthening within the learning time span of youngsters — in other words, a year or two, or three.

3. Language documentation and community linguistics

During the last two decades there has been intense debate about the theoretical, practical and ethical aspects of relationships between linguists and speech communities. Different positions have been taken by various individuals and groupings within the wider field. Two main groupings have regarded the task of the linguist to be primarily concerned with the elicitation, recording, and preservation of linguistic data: "traditional descriptivists", and, more recently, those involved in defining data cataloguing standards and building data banks of various types, e.g. for typological studies.

On the other hand, some linguists and field researchers, such as Ken Hale (1992) have advocated linguists' engagement in the communities' efforts to maintain their linguistic heritage. Community linguistics is becoming more influential among linguists and its principles have played a part in initiating new approaches such as documentary linguistics (Himmelmann 1998). The concept of documentation has been widened to include a range of data much greater than that handled in traditional grammar-dictionary-text models. Today, a state-of-the-art documentation is expected to include multimedia representation of a range of aspects of community life and to present the speakers' attitudes towards and reflections on the language (Himmelmann 1998:166). Such work is, of course, difficult to do if linguists have not developed trusted relationships with community members or participated in meaningful ways in community life. Thus, documentation in this sense presupposes a practice of linguistics *for*, *with*, *by* and *to* language communities.

4. Documentation and ICT

We focus here on local, customised multimedia-based ICT projects rather than generalised or large-scale IT development. Two large IT-centred projects, OLAC and DoBeS, have developed encoding systems and data banks with access infrastructure using metadata to enable "resource discovery", and have developed software for supporting researchers.[1] Both see the production of resources suitable for community use as a secondary task for local research teams (Wittenburg 2003:123; Simons and Bird 2000). However, the bottleneck for endangered languages support is not a lack of encoding or metadata; text in standard interlinear format, or even a simple orthographic text file "marked up" by punctuation, has far more standardised and encoded structure than the simplest digital images or sounds. The real problem is a lack of bandwidth for interchange between knowledge holders and end-users of that knowledge. In a "deliver *to*" framework, the primary and urgent task is to seek methodologies that can mobilise the partnerships between speech communities and linguists. Communities will not need a system for resource discovery when resources are *delivered to* them.

Therefore, the challenge facing language documentation in the "deliver *to*" framework is less one of cataloguing, archiving and dissemination of materials for research and data processing, but rather the discovery and evolution of software and interfaces to assist in the collection, construction, and flexible usage of resources by a wide range of users, especially language community members. This does not mean simplifying or trivialising data or the way we work with it; it means recognising that language resources are not merely data but are embedded in a variety of social processes, and working harder to create sophisticated but friendly, usable, and

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[1] For OLAC, the Open Language Archive Community, see http://www.language-archives.org/. DoBeS (Dokumentation bedrohter Sprachen. Documentation of endangered languages) is funded by the Volkswagen Foundation; see http://www.mpi.nl/DOBES/

pedagogically effective software to a level comparable to that already found in mainstream computer games and office applications.

While documentary linguistics has been widely embraced as a new approach to language endangerment, it is remarkable that in an era of global networking, seamless multimedia and communication technologies, and improving understandings of the value of multimedia and hypertext in learning, we continue to assume that traditional printed, linear text is adequate for most purposes. The documentation agenda must include exploration in new genres of products that can deliver the diversity and richness of materials, and support a range of users (Csató & Nathan 2003:74).

Later in this paper we describe some of our experiences of cooperation with communities to design the form, content and usage of ICT language resources. Although these communities are not located in South Asia, they represent typical cases also relevant for the Indian context.

5. The multimedia pathway

Multimedia is a powerful vehicle for working in a "deliver *to*" framework. The process of developing multimedia naturally directs attention to the nature of linguistic events and performances and to the quality of recording. Multimedia products tangibly present the community's relationships to the language and language performances that appear in the product. As a result they implement pathways between community members as actors, documentations, and their users.

Bird (1999) noted that providing original recordings alongside an analysis can provide a more scientific linguistic account, because any user can examine the analysis in the light of the actual "data". For language community members, the advantages of providing ready access to rich and contextualised representations of actually occurring language events are even greater. In Csató & Nathan 2003:74 we described some of these advantages for those using the *Spoken Karaim* CD,[2] which places its recorded language events at the very *centre* of the product architecture. There are unlimited ways that multimedia can connect an individual community to recorded linguistic events through social, emotional, intellectual and learning pathways.

Two key design principles of *Spoken Karaim* implement multimedia pathways between community input and the user of the CD:
- the users' perception and navigation of the interface depends on their place in, and relationships to, the community
- sounds are never merely data but are performances of fully identified speakers, accompanied by a variety of links to biographical, social, cultural, geographical, and historical information.

6. Multimedia linguistic and cultural resources

6.1 The Karaim communities

Spoken Karaim is a multimedia CD-ROM developed by the two of us in co-operation with Karina Firkaviciute, a Karaim musicologist and representative of the speech community. The CD gives an introduction to the linguistic and cultural heritage of the Karaim community of Lithuania. The community consists of less than three hundred people, of whom the majority still follow the cultural and religious traditions of their ancestors, but only about forty still have a good command of their

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[2] A version of the *Spoken Karaim* CD accompanies Csató & Nathan 2003.

Karaim language. The current generation of Lithuanian Karaims are, thus, in a crucial position in regard to transmitting the language and culture to the next generation.

Currently, there are four main Karaim communities, and together with Karaims living in diasporas in other parts of the world, they total about three thousand people. The communities are scattered far apart, but they have a tradition of keeping in touch with each other. The Lithuanian Karaims, based in the village of Trakai near Vilnius, are in close contact with the other communities in Russia, Ukraine and Poland.

There were previously three Karaim varieties, spoken in Lithuania, Crimea and Ukraine respectively. Only the Lithuanian Karaim variety is still spoken. In the 19th century, the Crimean community shifted its language to Crimean Tatar, a Turkic language spoken by a larger Turkic community on the Crimea. In the Ukraine, most of the west Ukrainian community left the traditional Karaim settlements in the political turmoil of World War 2 and only a handful Karaims remained. The last fluent speaker of this variety died recently.

6.2 *Spoken Karaim* and the Karaim community

The linguistic, cultural and community-based material included in the *Spoken Karaim* CD was recorded and collected by Csató during fieldwork in the Karaim community of Lithuania financed by the Deutsche Forschungsgemeinschaft. Members of the Karaim community participated in the documentation work. Subsequently, Nathan and Csató started to design the CD while they were researchers at the Institute of the Languages and Cultures of Asia and Africa (ILCAA) at the Tokyo University of Foreign Studies. Initial development of the CD was funded by ILCAA (Nathan 2000a), and it was further developed by Nathan while at the Australian Institute of Aboriginal and Torres Strait Islander Studies, and by Csató with the support of the University of Cologne and the University of Uppsala. For more information about the architecture of the CD see Csató & Nathan (2003).

The Karaim CD provides an integrated presentation of many different types of information: recordings of language events, linguistic descriptions and analyses; descriptions of the community's history, religion, literature, social structure, and food; secular and religious music; and images and videos of people and local features in Trakai.

Karaim users, therefore, find themselves immediately at home when encountering the CD. The CD opens with a photo of a large community gathering outside their most important building, the *kenesa* (temple). In the middle of the photo is the late Mykolas Firkovicius, the *hazzan* or religious and administrative leader, who was well known to every Karaim. This opening image invokes the interest of community members; here, or elsewhere on the CD, most Karaims find either themselves, family members, relatives or close friends.

Fig 1: The community opening to *Spoken Karaim.*
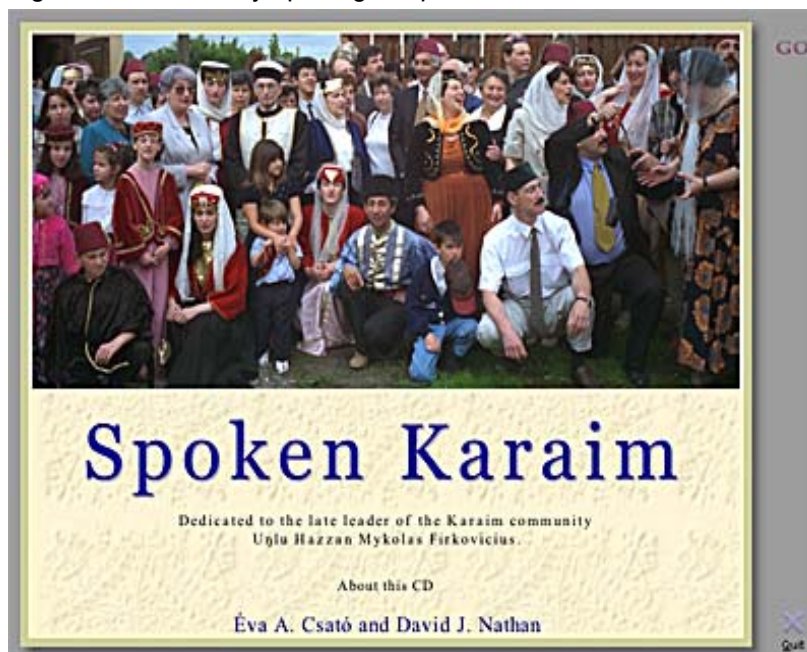
The four Karaim communities are in continuous contact with each other, and marriages across the communities are common, so the social significance of the CD transcends the local Trakai community. In addition, family lineage is a common topic of discussion whenever and wherever Karaims get together. It seems, therefore, that *Spoken Karaim* will continue to be significant in all the communities and also for future generations.

6.3 Reflecting language semantics

The CD is focused on the village of Trakai, which is located between two beautiful lakes. A stylised map of Trakai, its lakes, and the surrounding landscape serves as the navigational frame in which all the information is presented. The user first navigates along the "Karaim street" running along a peninsula to the castle. This street is where for 600 years most of the local Karaims have traditionally lived. The user can visit various sites: the entrance to the Karaim street, the *kenesa*, the house of a Karaim speaker, the Karaim restaurant, the Karaim cemetery, the house of a famous writer and teacher, and finally the castle of Vytautas, the Grand Duke of Lithuania who invited the Karaims to Trakai at the end of the 14th century in order to defend the newly built castle.

Knowledge of this landscape is not only an indispensable part of Karaim identity; it is also deeply embedded in the semantics and pragmatics of the language. Small, dominated languages such as Karaim carry an important semantic load. While national languages used for communication between heterogeneous communities must comprehensively "mirror the world", small, local languages tend to elaborate on

> ... semantic features relating to aspects of their cultural or geophysical environment. Since they are not in need of more general semantic resources, they may develop greater lexical complexity in certain semantic fields... (Johanson 2003: 28)

For example, understanding spatial deixis in Karaim presupposes knowledge of the local landscape. Like many other smaller languages, Karaim has environmentally defined deictic reference points. Spatial orientation in Trakai is described in relation to one of the two lakes, e.g. *göl artxarï* (lake behind:3POSS)

'behind the lake', *göl katnï* (lake at:3POSS) 'at the lake'. The Karaim community in Halich, Ukraine, on the other hand, is settled on the shore of the Dniester River. Speakers refer to the river to describe locations in their area: *ezen katïn* (river at) 'near the river', *ezen ašarï* (river beyond) 'beyond the river'.

In both communities, *göl* 'lake' is used in a restricted sense to refer to the "Karaim lake" in Trakai (to refer to a lake in general, Halich speakers use the Slavic *ozero* 'lake'). Similarly, *ezen* 'river' is always the Dniester, the "Karaim river". This example of complementary lexical restriction found in two dialects of Karaim illustrates the important role of the geographic features in community life.

There could be no better way to document this aspect of Karaim language and community than the representational and navigational system used in the *Spoken Karaim* CD that configures the user's experience in terms of locations around the lake.

Fig 2: *Spoken Karaim* configures the user's experience in terms of locations

6.4 Reflecting authentic lexical copying and morphological strategies

The language content of *Spoken Karaim* is based around recordings of natural colloquial speech. Such speech contains frequent occurrences of words that are copies (borrowings) of words from Slavic and Baltic languages. Lithuanian Karaims have long been intensely multilingual, speaking Lithuanian, Russian, Polish, and today, among the younger generation, English. Lexical and grammatical features from these languages have been copied into Karaim over many centuries (Csató 1999b, 2000a, 2000b, 2002a), and have contributed to the communicative potential of the language. The strategies involved in copying words into Karaim are part of the native speakers' knowledge. Here is an example: a verb can be copied into Karaim with the help of the Karaim auxiliary verb *et-* 'do', which in turn can carry verbal suffixes. From the Slavic verb *peresest'* "to change (buses)" comes Karaim *p'er'es'es't' et'-* and 'I changed (buses)' is *p'er'es'es't' et't'im* (change do:PAST:1SG), 'you changed (buses) *p'er'es'es't' et't'iy* (change do:PAST:2SG), etc.. Within the CD, users can easily hear, read, and search for many such examples.

In contrast, older materials, such as textbooks, typically present purified, prescriptive forms of the language. This has several drawbacks. "Purist" materials foster pressure against fluent speakers' creative copying strategies by giving the

impression that "good Karaim" does not employ "foreign" elements; this, in turn, both inhibits speaking and discourages older speakers from passing on their language (Csató 1999a). Mastery of copying strategies is essential not only to Karaim fluency, but also to its survival, and the presentation in *Spoken Karaim* of authentic contemporary speech containing many examples reflects another community-oriented emphasis.

6.5 Reflections of performances

The *Spoken Karaim* CD documents several significant community events. These include video of a drama written and performed by community members, and of the 600th anniversary of Karaim settlement in Lithuania, which was celebrated by costume theatre in the Karaim street. Other videos show young Karaims reciting poems, counting, and learning songs from their relatives. Such examples may inspire young Karaims to involve themselves in similar types of cultural activities.

Songs play an important role in the maintenance of Karaim identity. When community members gather together they sing in Karaim. For young members, who are often ashamed because they do not know the words, the CD functions as a "jukebox" that gives them easy access to listen to and learn the songs.

Fig 3: Cultural expression in multimedia: Karaim's favourite food, the Kïbïn, in sound (the song is playing), text, and image. You can even imagine the aroma!

6.6 In-community development: The Trakai Summer School CD

The *Spoken Karaim* CD, and associated multimedia resources, have been used as teaching resources in community training at summer schools. These events were organized by the Karaim community of Trakai. We have participated in two of them; the 2001 and 2004 summer camps sponsored by the Visby Programme of the Swedish Institute, Stockholm (the third summer camp takes place in the summer of 2005).

The new ICTs provide many opportunities to serve the needs of speech communities, scholarly communities, and the wider public. The Open Language Archives Community states:

Today, language technology and the linguistic sciences are confronted with a vast array of language resources, richly structured, large and diverse. Texts, recordings,

dictionaries, annotations, software, protocols, data models, file formats, newsgroups and web indexes are just some of these resources. The resources are growing in size, in number, in diversity

... multiple communities depend on language resources, including linguists, engineers, teachers and actual speakers ... These communities are growing in size, in number, in diversity ... And today, we have unprecedented opportunities to connect these communities to the language resources they need. (Bird and Simons 2001)

One way of directly connecting resources to communities is to use them in the context of language training delivered to the community. Using multimedia such as *Spoken Karaim* in community-based training can also make connections *within* the community by bridging between generations, a prerequisite for the transmission of an endangered language. In the Summer Schools, multimedia provided a very effective catalyst for interaction between youngsters and the older speakers. They complemented each other's abilities: the young were adept in exploring the language materials while the older speakers could help them to understand and use them. Similar observations have been made for multimedia language resources in Australian Aboriginal communities (Nathan 2000b).

Multimedia resources can be created in the course of fieldwork and training events. This provides a richer form of connection, because what is eventually delivered to the community has been created with and by them. Our activities over the one-week Summer School in 2004 culminated in the production of a new language multimedia CD. Each lesson was attended by fluent elders who performed teaching and cultural roles. Starting with situations in which the children found it natural to use Karaim — such as greeting others in the Karaim street, asking for food or drink at home or the Karaim restaurant, commenting on the weather, praying in the *kenesa*, and singing traditional songs — the children undertook various activities to build up their confidence and ability. They also elicited and recorded language from the older speakers. These materials were used to create the *Trakai Summer School* CD. Copies were distributed to all the participants at the end of the course.

Fig 4: The Trakai Summer school CD included this Karaim crossword game
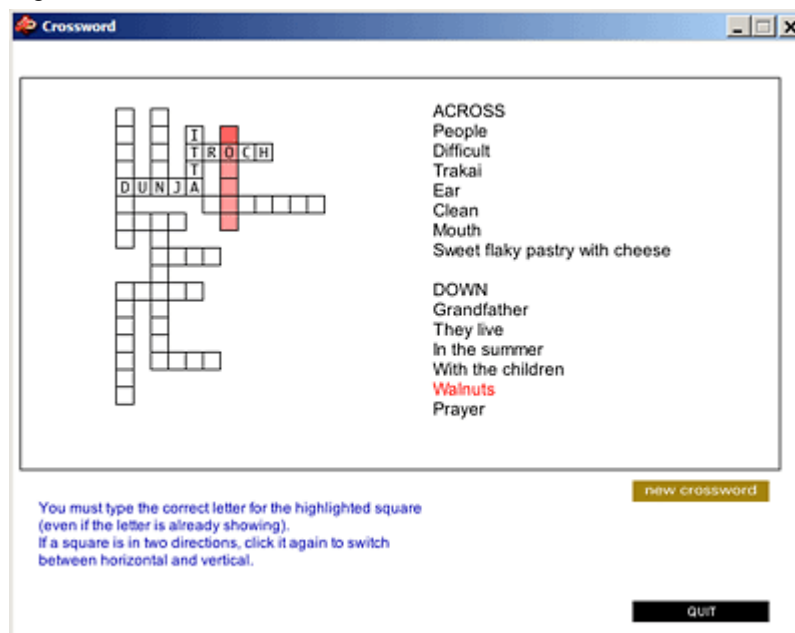
The CD also included a multimedia crossword generator that incorporated some of the learning and recordings that had taken place over the week. It has three types of crosswords:

- standard crossword. This crossword looks like a standard newspaper crossword. Students must input a Karaim word in response to an English clue. The crossword-generation program creates a different crossword for each game, drawing from a set of words, most, but not all of which the students were exposed to (see Figure 4)
- talking crossword. This is a new kind of multimedia crossword. There are no clues: the students have to focus on the sound of the word, thereby drawing their attention to pronunciation and orthography
- picture crossword. Here, the students have to write the names of their classmates that they see pictured. This crossword is intended to mark the CD's relationship to the summer school participants (see Figure 5)

The crossword had an extraordinary impact on the students. They saw it evolving during the course of the summer school and became eager for its completion. Once completed, they enjoyed it as a game (since players get a "surprise" when they complete the crossword), especially when they could use two computers and compete in groups to see which group could complete their crossword first! We also used it as a vehicle for learning, and found that it provided a perfect context and motivation for them to explore and use *Spoken Karaim*. In particular, we found that they were looking up the CD's dictionary and, for the first time, using its "active morphology" inflection generator (Nathan 2000a). We also learned something from the students: that, if sufficiently motivated, they can handle complexities of orthographies without getting diverted or confused. Although the crosswords used a Polish-based orthography rather than the more linguistically accurate orthography used in *Spoken Karaim*, the students had no problem in translating between them (Nathan has made the same observation for Paakantyi students; see Nathan to appear).

Fig 5: The Trakai Summer School CD reflects the students—they are clues in the crossword!
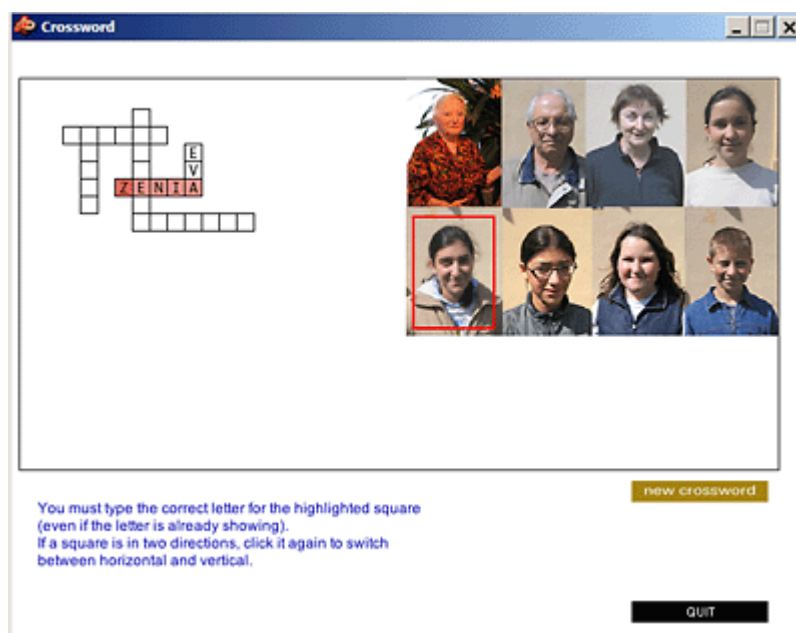
At the end of the Summer School, the completed Trakai Summer School CD was distributed to the participants. The Karaim children were very excited about receiving a new ICT product in the Karaim language, and were proud to have contributed to it. The CD contains:

- Expressions:
    - Greetings
    - Eating and drinking
- Recitations
    - Children's lullaby
    - Prayer
- Songs
    - Kïbïn song
    - Uzun kiunliar
- Game
    - Crossword
- Images
    - An album of photos and video taken at cultural activities, and in classes

6.7 No boundaries: multimedia and collateral activities

A multimedia product can provide a range of collateral resources, contexts, motivations, and inspirations for further language and cultural activities. In the second Summer School, for example, students collected pictures and wrote Karaim text with the aim of turning them into further multimedia resources. They chose illustrations of objects that were relevant to their own life in the Karaim village — words such as 'lake', 'vegetable garden', 'fish', 'boat', 'cucumber', 'community school' and, with the older speakers, formulated Karaim sentences for each picture. Next, recordings will be made and the materials will appear in the next community-based CD.

Spoken Karaim was involved in various indirect ways during the Summer School, including the following:

- a "snakes and ladders" style game was created, based on the Trakai map (see Fig 2). This game was used as the basis of question and answer practice
- the CD's song player was used to teach Karaim songs
- students enjoyed exploring the CD as a "free time" activity
- the CD's dictionary was intensively used as a reference when playing the crossword games
- as a basis for discussion about an appropriate Karaim orthography

6.3 Cartoons

Nathan developed simple software for creating and playing comic-style cartoons, after the idea was suggested by Auntie Rose Fernando, of Collarenebri NSW (Australia), a Kamilaroi (Gamilaraay) elder, former teacher, and prominent and tireless promoter of language preservation in NSW. Comic books have been used for Aboriginal education before, notably the Streetwize series aimed at health promotion.[3] However, extending them to a computer platform has opened up new possibilities.

Cartoons provide an excellent environment for presenting and interacting with sound. It is difficult to find effective, "natural" interfaces for sound, because it is not

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[3] See also http://www.streetwize.com.au/

only difficult to present on-screen (it streams out in time, not space), but finds itself in competition with text, which becomes more seductively effective on-screen, even for people who are weakly literate in other domains (Nathan 1997, and to appear). In the digital environment text is nativised (Levinson 1999), because, like sound in the real world, it flows inseparably with its carrier.

The cartoon's signature "speech balloons" objectify utterances and serve as a transparent means of accessing them. Users know what to do (click on the balloon) and what to expect (the character associated with the balloon speaks). This makes cartoons one of the few rational, conventionalised interfaces for presenting the sounds of language without intermediation by written text.

In addition, cartoons can present a greater range of authentic language usage than most other forms of representation used in language documentation or teaching. Unlike dictionaries, they present words in context; unlike grammars, they present sentences with social meanings; unlike most stories, they show how everyday contemporary language is used in the context of real relationships. In the right circumstances, cartoons can even portray real people from the local community.

Fig 6: Yandrruwanda (SA/Qld Australia) cartoon. Produced with Greg McKellar and Muda Aboriginal Corporation
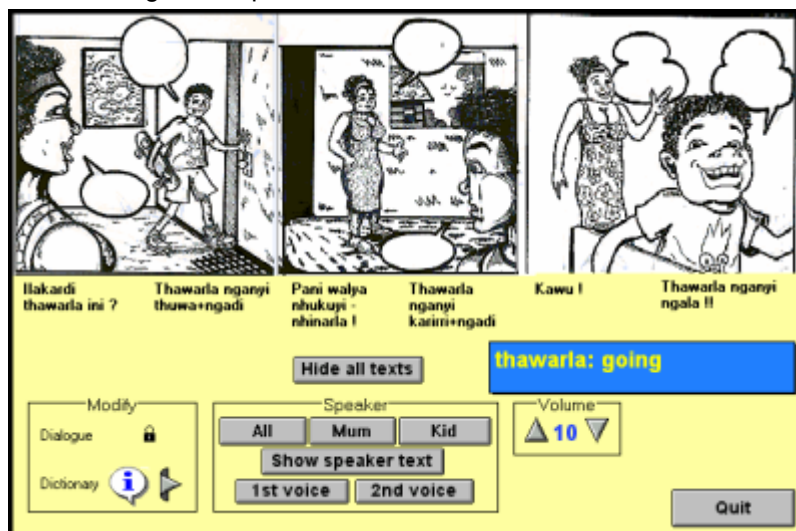
Cartoons are also a wonderful aid to elicitation. By objectifying utterances in social contexts, but without specifying their content, they help partial speakers, or "rememberers" to formulate expressions if asked, for example: "what would she say here?"

Furthermore, cartoons support the elicitation and presentation of the *kind of language* that speakers are likely to remember. Cartoons can portray familiar contexts and activities (either before or after the recordings are made). Being less formal than other genres, they are better carriers of idiomatic and informal expressions that are otherwise often unwittingly censored from printed products. It is all too easy for linguists to fail to capture everyday, idiomatic expressions, the very expressions that can be crucial for maintaining identity. These expressions often continue to be used by the older generation, and, if passed on to younger people, can be markers of cultural identity. Expressions corresponding to English "poor me", or "enough!", or "ouch" can be used a dozen times a day (unlike, for example, constructed neologisms for "new" objects which might only be uttered on rare or artificial occasions). Such standard expressions can be easily elicited and presented using cartoons.

The value of cartoons for elicitation was well illustrated by a particular event during Nathan's fieldwork in preparing a CD-ROM. I worked with an elder on cartoon story, sketching out the frames, participants, and the gist of the story. We were assisted by a linguist, who jotted down a version of the cartoon dialogue. On the day we planned to record the dialogue, the linguist arrived with a neatly typed up script based on the previous jottings, but with grammatical corrections added. As we began recording, the elder started to read the written text; but she soon struggled, stumbled, and stopped, exclaiming in shame, "I'm not literate in my own language!" The value of cartoons as an elicitation methodology had been foiled by a quest for "accuracy", and a creative, authentic, spontaneous speech performance had been replaced by the reading of a prescriptively formulated text. It would be difficult to better capture, in a single event, the contrast between linguist-centred and community-centred approaches.

7. Resources on the internet

Up till now we have not mentioned the Internet and, while there is no disputing its potential for supporting various communications, in general we do not regard its effectiveness for supporting endangered languages or for language teaching as highly as some others do (e.g. Crystal 2000). Fervent interest among language educators during the 1990's in the potential of email exchanges for language learning, for example, has not led to significant uptake of electronic communications in the language classroom.

Some Karaims do use formulaic Karaim greetings within emails (the emails are otherwise written in Lithuanian, Russian or Polish), but this illustrates the real problem: since the Internet offers a more "genuine" communicative environment than staged multimedia resources, it also more genuinely reflects the reality of language shift situations.

The internet is more likely to be associated with written communications among younger, urban, professional, assimilated individuals living away from the main language community. Indeed, the main response to a small website representing the *Spoken Karaim* CD has been contact from a number of Karaims and Turkish people living in the diasporas of Europe, Turkey, and the USA. This does not mean that the Internet is not useful for work *on* endangered languages, only that it has not so far been a fertile channel for communication *in* such languages (with some exceptions, this has been the case for endangered languages generally). It is, however, an excellent vehicle for organising activities, publicising language activities, providing download of digital resources etc.

Internet resources can complement, but not replace the kinds of ICT products and activities we have discussed in this paper. We do look forward to the day when Karaims in their far-flung locations can discuss in and about their language using the Internet's "virtual spaces". But in the meantime, we cannot afford to lose the opportunities that multimedia can offer within a "deliver *to*" approach to endangered languages.

8. What communities want

A "deliver *to*" framework obliges us to understand what communities want delivered to them. We have already argued that communities have not generally turned to the Internet as a means of supporting languages, and that multimedia, especially when constructed in and with the community, provides a better option. We have discussed above some examples for Karaim. Work in many Australian

Aboriginal communities confirms the value of multimedia (Auld, 2002; Nathan, 2000b).

What do endangered language communities want and expect from ICT? While there is no single voice or need that can provide a definitive answer to this question, here is a summary of wishes that we have heard many times in many places that might provide a partial answer:

- the sound of spoken language

- useful, everyday expressions

- product development processes that respect people's "ownership" of language

- products that represent the community's relationship to the language by implementing meaningful pathways between information providers and users

- a range of diverse and adaptable products from comprehensive linguistic and cultural multimedia documentations (such as *Spoken Karaim*) to learning resources, songs, games, and even spelling checkers (Manning and Parton 2001:167)

- products that are easy to use (Goodall and Flick 1996 interpret this as requiring non text-based navigation; however, in practice this *not* been observed nor suggested in community contexts. The *Paakantyi* CD (Hercus and Nathan 2001), for example, uses a contemporary, text-driven navigation system which has been well accepted and found easy to use)

The "deliver *to*" framework outlined in the paper assigns the highest priority to delivering community members' language and cultural knowledge to other members of the community in order to assist communities in their efforts to maintain and strengthen languages. We have discussed various examples of the development and usage of multimedia software within this framework. A complete implementation of the framework would also involve delivering multimedia skills to community members so that they can autonomously develop materials. We can best understand language endangerment through participating in practical efforts to deliver antidotes to communities.

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