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‘Writing about music is like dancing about architecture’: integration of multimedia into linguistic and anthropological publications

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1. Introduction

Oral literature and music are important elements of Aboriginal Australian cultures for contextualising linguistic and historical research. Neither music nor oral literature naturally lends itself to publication as a textual document. Yet the primary outputs of academic research in disciplines such as linguistics, anthropology, and history have generally been textual.

Reducing performances to text, as with musical notation of a song or the description of a performance, involves a flattening of multidimensionality, a loss of information, and the privileging of the researcher’s experience of the performance over the performance itself. This also renders the research product less useful to the wider academic community, as they only receive access to those elements of the performance that seemed most relevant for the research interests of the author. Similarly, the reduction of tens or hundreds of hours of fieldwork recordings into carefully selected representative utterances, presented as glossed interlinear examples in a grammar or journal article, involves a loss of information that past technological limitations forced upon us.

Such limitations no longer exist. In recent years the affordances of newer media have allowed researchers to experiment with integrating audio and visual materials into their text-based analysis. Luise Hercus, with the publications from

her Aboriginal Song Cycles project (Hercus 2008, 2010, 2012, 2014; Beckett & Hercus 2009), has been one of the leaders in this kind of innovation. I was privileged to assist her with the production of *The Emu History from Arabana-Wangkangurru Country* in 2010, but at that time she had been producing CDs and accompanying printed books of song cycle material for several years already. These CDs take the form of interactive ‘books’ created in html form for display in a web browser. They retain a book-like chapter structure with a hypertext table of contents for navigation. The material itself consists of photographs, song texts, musical notation, audio files and interspersed text that situates and analyses the song stanzas.

Unfortunately, these publications are also illustrative of many of the problems encountered when researchers produce research outputs other than traditional paper-based books and articles. It is difficult to find publishers willing to create, market, and disseminate such non-traditional outputs, and this, together with issues around the community’s desires and permissions, meant that Hercus had to arrange for their production and dissemination herself. This in turn means they are difficult to find in libraries or to purchase, and even references to them are not easily available. Because they do not count for the Australian Higher Education Research Data Collection (HERDC) reporting metrics,¹ they are not catalogued in the Australian National University’s research outputs database, from which publication lists on individual researcher webpages are populated. This makes the Song Cycle CDs almost invisible to a researcher who is not already aware of them. This is one very telling example among many of the barriers facing researchers who wish to experiment with newer technologies and their benefits for linguistic, anthropological and musicological research.

In this paper I situate these examples in a broader context, surveying the ways in which researchers in Australia and beyond have begun to incorporate multimedia into their publications and what the future of electronic publishing might hold for our disciplines. In doing so, I elaborate on the aforementioned barriers that preclude more extensive uptake of innovative ways of conducting and disseminating research.

2. Academic skeuomorphism

Skeuomorphism is a term for a design or feature which exists as a hangover from an earlier historical period long after it has ceased to fulfill its original function (see e.g. Cross n.d. for discussion). For example, lamps and lightbulbs are generally shaped in ways that resemble the flame of a candle rather than any of the hundreds or thousands of shapes they could conceivably take. When cars replaced horses and carts, the engine remained at the front, at least partly because that was where the horse had been. In software design skeuomorphic features include, for example, the use of leather or wood grain backgrounds in software skins, or many of the ‘desktop’ metaphors in most current operating systems, including filing cabinet and rubbish bin icons. Similarly, while the publishing landscape has changed dramatically and

previous limitations such as book length, print run sizes, or linearity of structure no longer constrain us, we continue to publish as though such limitations remained. Many electronic books are almost indistinguishable from a printed hard-copy.

Skeuomorphism is not necessarily negative. Skeuomorphic design can overcome users’ unfamiliarity with new media by providing signposts they are more used to, e.g. by adapting elements from printed books, such as tables of contents and indexes, and adding to these hypertext links to the relevant sections. Then the skeuomorphic design functions as a bridge between what is familiar to the user and the new digital environment. This is the approach that Hercus takes in her Song Cycle publications, by retaining a rather book-like structure in her multimedia CDs.

It is not always desirable, or even possible, however, to produce electronic resources that so closely resemble more familiar paper-based publications. When it comes to less linear material, researchers seem often to prefer to present it as a website even rather than a CD or DVD. Websites with underlying databases, of course, are not easily convertible to CD or e-book format in any case. Some of the more well-known examples of Australian language material websites are reference databases, such as AUSTLANG (Obata 2009), or MURA (AIATSIS). Lesser-known Australian databases include the Wadeye Song Language database (Barwick et al. 2010), or the AustKin database of Australian kin terms (Dousset et al. 2010).

Other websites are designed more with language revitalization or other community use in mind, such as, for example Gamilaraay language materials (Ferguson & Giacon 2015-) available at a Moodle site initially intended for language learners, but with guest access also open to any interested researcher. The decisions involved in collating, juxtaposing and structuring these materials, and the analysis necessary to gloss and translate them, mean that the creation of such sites often involves significant original research, but their aesthetic difference from traditional publications makes this less obvious. Such publications that do not attempt to disguise themselves as traditional research outputs are the most problematic from an institutional point of view. In the following sections I will discuss in turn a variety of reasons why academics who may wish to experiment with the affordances of new technology to produce multimedia-rich research outputs find themselves unable to do so, or unable to innovate as much as they might like.

3. Metrics

Grown-ups love figures. When you tell them that you have made a new friend, they never ask you any questions about essential matters. They never say to you, ‘What does his voice sound like? What games does he love best? Does he collect butterflies?’ Instead, they demand: ‘How old is he? How many brothers has he? How much does he weigh? How much money does his father make?’ Only from these figures do they think they have learned anything about him.

(Antoine de Saint-Exupéry, The Little Prince)
The default publishing choice for most researchers most of the time remains paper-based journal articles and books, in large part because of the expectations of universities and funding bodies. While research engagement and choice of research question are generally driven more purely by intellectual curiosity, the choice of how, where, and when to publish research findings is more often constrained by external expectations, especially for scholars in the early stages of their careers. The latter are also counselled by other academics that paper-based publications are what are valued. The move towards quantitative measurement of academic achievements and the connection of this to research funding (cf. Hicks 2012) leaves universities grasping for simple ways to count their researchers’ outputs. Journal articles, book chapters and monographs are more discrete than the production of corpora, websites or multimedia collections, which researchers tend to continue to add to over years or decades and which in a sense are never complete. Researchers also often prefer to cite each other’s paper-based traditional outputs rather than wrestling with uncertain conventions for citing websites and databases, which means that universities and funding bodies in turn can rely on established ways of quantifying their impact. Finally, and perhaps most importantly, institutions primarily wish to count original research, and one of the roles of peer review is to ensure that what journals are publishing is original research. Less traditional outputs may or may not constitute original research, and without being peer reviewed, it is difficult to determine this status. Austin (2016) identifies this lack of appropriate means of review for new research products as one of the factors responsible for what he calls ‘the output gap’ between the relative valuing of traditional research products and newer multimedia or documentation outputs.

None of this is insurmountable. At the moment academic publishing is in a state of transition. Universities and professional organisations are already debating ways of quantifying and collecting non-traditional outputs (see e.g. the resolution passed by the Linguistic Society of America recognizing the scholarly merit of language documentation in 2010). I would predict that the push towards this will become increasingly strong as more academics increasingly spend more time on work that sits at this boundary of what ‘counts’ and what does not.

Many metrics are already unbalanced, in that a monograph frequently is ten or more times the word length of a journal article, yet it is rare to find an institution that counts it as worth so much more. Furthermore, a regular progression of articles incrementally feeds a researcher’s h-index in a way that the same amount of time spent on a book does not. These are similar issues to those faced by a researcher who spends time building and archiving a corpus, or creating a website or database, rather than spending the same time on paper-based publications, and we need to be having the same conversations in each case about how we compare outputs that take such different amounts of time and energy.

Citation issues can also be overcome. Researchers working on multimedia projects have found a variety of ways to make sure these projects can be cited in other academic works. A common solution is to also produce a paper about the multimedia project, and to request that anyone referring to the project cite the paper. In Australia this is the approach taken by e.g. the AUSTLANG languages
database (Obata 2009) and the AustKin kinship mapping project (Dousset et al. 2010). To the extent that researchers only write the accompanying paper to serve this citation purpose, this raises issues of the ‘second shift’ that I detail further in section 6 below. On the other hand, as noted by an anonymous referee, this extra work is already inherent in many disciplines for which the research and the writing are traditionally much more separate activities than is the case in the humanities. In computer science, for example, an algorithm is not itself a publication, and so a similar strategy of writing a paper about the algorithm has always been necessary. Within linguistics, this is therefore also the case for computational linguists.

Another common strategy that has arisen in humanities or social science multimedia projects is to settle on a preferred citation style for the project and to highlight it on the project website. This is how for example the recent eWAVE World Atlas of English Varieties project (Kortmann & Lunkenheimer 2013) has handled the matter.

The role of peer review in identifying original research of high quality is a less-easily surmountable barrier to the development of metrics that include non-traditional research outputs. Issues and innovations in peer review are also topics of much debate in the recent literature (e.g. Bohannon 2013; Hames 2013; Lee 2012; Ware 2011). It is to be hoped that eventually there will be ways of stamping websites, databases or audiovisual materials with a professional seal of approval, perhaps via an approach that separates the review of work for its originality and methodological soundness from the journal selection and publication process. Such separation of review and selection is the principle behind such independent peer review initiatives as Peerage of Science (www.peerageofscience.org), a platform for peer review of manuscripts, with a post-peer-review stage at which subscribing journals select from the already refereed manuscripts those which will be of interest to their audience. We have not yet reached the stage where such approaches have been widely adopted, but if they were, one could foresee a class of research outputs that are refereed in the same system, but then published as websites or digital archives rather than progressing along to the journal selection process. Alternatively, non-traditional outputs could benefit from a system of ‘post-publication review’ (cf. Ware 2011: 42-46).

Meanwhile, paper-based research outputs are also more closely approaching their electronic counterparts. Now that most journals produce electronic issues and many books are released in e-book format, the number of views, or number of downloads have become as viable metrics for books and papers as they have always been for born-digital media. Institutions are realizing this too, and adopting these metrics as measures of ‘impact’, which comes with its own set of problems. For example, I would suggest that the number of downloads a paper has reflects its accessibility to potential readers as much if not more than its quality. A well-indexed open-access paper will frequently be downloaded, not only by researchers seriously interested in the content, but also by casual web surfers wanting to take a quick look to see if it is relevant, by students intending to plagiarise it for an essay, and by robots indexing the web. A pay-to-view paper on a journal website that is not well-indexed will have very low download statistics by comparison, even if it is an academically better-regarded paper. New ways of thinking about and measuring research impact, including impact on the
community that participated in the research, and on the general public, would be especially relevant to Australian linguistic and anthropological research, and might continue to bring traditional and non-traditional research outputs closer together. Woodbury (2014) suggests engaging a broader audience in the role of critics of language documentation archives, for example, envisaging reviews of archival collections in both journals and in the popular media, by analogy with reviews of other cultural exhibitions and events.

4. Perceptions of what counts as ‘serious research’

For a long time, academia has been split between the serious academics who do research, and the service providers who disseminate it. This was historically the case when academics would give written notes or dictations to their secretaries, who would type up a manuscript, which in turn would be passed along to the publisher, who would typeset, edit, and market it. Nowadays, while academics are more likely to type their manuscripts themselves, even format them as camera-ready copy, and also carry out a good deal of their own marketing, there is still commonly a service provider layer in one area: technology. Most universities have IT departments, many have digital archiving or repository managers associated with the library, programmers as part of an e-research facility, and digital research projects often employ programmers, web designers or database managers to deal with the ‘technical details’.

The academics-versus-technicians divide is thus no longer between the world of ideas and the world of dissemination, but between the physical and the digital. The steps involved in expressing ideas electronically are not considered by some to be real research, and this makes academics reluctant to spend their time on them. For many projects, however, the comparison between physical and digital dissemination of research is not even the correct one. The creation of multimedia projects is more akin to the act of writing a paper or book than the subsequent formatting, proofing and printing. As humanists and social scientists we like to say we ‘research as we write’ rather than the natural sciences paradigm of conducting experiments and then ‘writing up’ the results. In the same way, the launch of a multimedia project is a culmination of many acts of scholarship: selection, editing, glossing, translating, interpretation, choice of modalities, and decisions about user interactions all involve analysis of the material that underpins the work (see e.g. Evans & Sasse 2004 for a very detailed discussion of the research activities involved in relating a media object to the rest of a language documentation project and rendering it meaningful to later users). A multimedia project, even when distributed entirely electronically, almost always consists of both a collection of audiovisual material and accompanying text as this ‘radically facilitates automated searches and any number of other digital manipulation approaches, since interfacing with multimedia still sits on a foundation of text in so many ways’ (Quinn 2011).

The problem of multimedia research products not being considered real research is especially relevant in the field of documentary linguistics, and has
been debated in this context for many years. One of the reasons even linguists involved in language documentation do not archive their data as promptly or as often as they perhaps could is the belief that archiving is technical work rather than research, and this is reinforced by (and itself reinforces) the problem discussed in the previous section of institutions not valuing such research products as datasets or multimedia projects. In recent years, however, the field of language documentation has adopted practices that are very clearly acts of original scholarship, such as meta-documentation of community ideologies and attitudes, corpus theorization, data modelling, project methods, hypotheses and goals, and embedded theoretical assumptions (Austin 2016, Woodbury 2014).

Increasingly tighter integration of multimedia into books and journal articles is one way forward here, as the technical work can then piggy-back on something that institutions and funding bodies already acknowledge to be serious research. There has been a great deal of discussion in the past decade about ‘hypertext grammars’, i.e. electronic grammars that tightly integrate audio examples, fully glossed texts and their grammatical analysis, linking back and forth to the multimedia corpus rather than selecting only a small subset of examples to illustrate the text. One of the earliest such grammars is Thieberger (2006), which is discussed also in Thieberger (2004, 2009). The concept of a hypertext grammar has been discussed at length by e.g. Drude (2012), and Evans (2011), and in a number of papers in Nordhoff (2012).

In the Australian publishing landscape there are also a number of electronic dictionaries, often prepared by language centres. Hypertext linking is, of course, ideal for dictionaries. Most dictionaries have not yet incorporated audio examples, but this is quite possible to do, if extremely time-consuming and, of course, dependent on the availability of high-quality recordings of individual words. A wonderful example of what is possible is the *Gurindji Multimedia Database* (Meakins et al. 2013).

Both hypertext grammars and electronic dictionaries are examples of how linguistic research can benefit when linear structure is no longer imposed by the publishing medium. The lack of linearity is something that Simons & Black (2009) comment on when describing the difference between publishing in the Industrial Age (the ‘Second Wave’) and in the Age of Information (the ‘Third Wave’):

> While the theme of the Second Wave is uniformity and mass production (which is still achieved in a PDF master of a book), the major theme of the Third Wave is diversity and just-in-time customization. When the product of writing is structured information, the publisher is able to repurpose that information in multiple products, including interactive ones that allow customers to obtain customized results that match their criteria.

2 Alternatively, as noted by a referee of this paper, sometimes this reluctance is because the acts of scholarship involved in preparing materials for archiving are not ones that help answer the research questions that the given researcher is interested in.
5. Lack of training

Whenever a new technology arises, there will be a lag before people learn to use it, and a further lag before people come to realise what affordances it holds for the work they want to do. In the developed world, researchers coming through PhD programmes and into academic positions today have had access to electronic media, database technology and the Internet since the beginning of their university education, if not from childhood, but specific training in how to use these technologies in their own research may have been non-existent. This means that people working with multimedia and producing electronic research outputs have to experiment and innovate new ways of doing things, some examples of which were discussed above. This is exciting, but it necessarily restricts the field to those who are comfortable enough with technology to know what can and cannot be done, and to push the boundaries of the possible.

One advantage of the current transition period in use of electronic media is that without tried and tested models to fall back on, researchers are still engaging in playful exploration of possibilities. An example of an ethnomusicologist who has innovated a system for multimedia presentation of her research is Dana Rappoport, whose work on the music of the Toraja in Sulawesi has been published in DVDs and websites that include embedded animation (Rappoport 2008). These animations show dancers and singers as coloured dots that pulsate to indicate who is singing, and move in choreographed patterns as the song progresses. Rappoport has also used this work as a platform from which to write about the crisis in academic publishing and the response of academics working with multimedia to this changing landscape (Rappoport 2009).

Lack of training is a problem that applies not only at the level of the researchers themselves, but in the world of publishing as well. A further barrier to embedding multimedia in academic work when it comes to journals is that an editor wishing to implement new digital features has to overcome not only the journal’s own tradition, but also the fact that there may not be anyone associated with the journal with the background necessary to implement such innovations. This means that the creative possibilities for electronic journals remain rather unexplored in most disciplines; many e-journals merely provide a website for dissemination of PDFs which are almost indistinguishable from hard copies of the same papers. Anthropological Linguistics papers often contain some minimal interactivity, e.g. Green & Turpin (2013) has diagrams with embedded zoom and pan controls, and it also contains an appended video file. More and more, journals that have a harder science focus (e.g. PLOS One) allow or even require full datasets to be made available on the journal website or an associated repository, which means that linguists publishing in such journals can include multimedia examples or entire corpora. The above-mentioned example of Rappoport (2009) is published in a journal Musimédiiane with an extremely innovative multimedia layout that embeds image, text, video, audio and interactive elements into a born-digital format that no longer resembles a paper-based journal at all.
As time goes on, there may be more formal training in the use of electronic media. ‘Hubs’ of research such as the emerging Digital Humanities or E-Research areas will bring together and cross-pollinate the different fields involved, including at the undergraduate and graduate teaching level. Within linguistics, language documentation conferences and grant schemes also play this connecting role. This means that a large amount of electronic research is large-scale collaborative work between those who have skills, background and interests in various technical solutions, and those who have skills, background and interests in specific languages. Such collaborations frequently lead to projects that sit at the border of the digital and the physical, such as the conversion of books or paper texts to digital objects and their collection in electronic databases. This is an area of growing interest in Australia, with two recent examples including the *Living Archive of Aboriginal Languages* (2012) and the NSW State Library’s *Rediscovering Indigenous Languages* project (2014).

6. The future has not yet arrived

The previous sections have presupposed that linguists and anthropologists are making a decision not to use technological solutions that would work for them. In fact, this is not quite accurate. The technical ‘solutions’ are not yet quite where we need them to be. Those who choose to produce multimedia outputs, rich electronic corpora, linguistic and anthropological databases, are doing so despite the limitations of the technology. Technology is inadequate for linguistic and anthropological research in a vast number of ways, many of which were identified by Bird & Simons (2003) under the headings of ‘content, format, discovery, access, citation, preservation, and rights’, yet over a decade later remain largely unsolved problems.

One of the most serious problems with technology as it stands is the proliferation of standards, and the impossibility of knowing what software and formats will still be around in a decade, or worse, a century from now. Already linguistic and anthropological research has been created and disseminated in formats (websites, software, floppy disks, even CDs) that have fallen into disrepair and unusability due to loss of compatibility with modern computers or browsers. Practical advice for overcoming some of these challenges is given by Good, Myers & Nakhimovsky (2010) in a paper that covers the problems of interoperability, efficient workflows, and the role of specific software tools for documentary linguistics. Unfortunately software-specific recommendations date quickly, which is at the heart of the problem, but the general principles they consider in their recommendations will remain valid much longer.

A further problem is that technology simply may not be widely available in remote areas. This too, is something that is rapidly changing, as even the most remote communities now tend to have access at least to mobile phones, which allow the playback of audio, viewing of images, and if connected to the Internet, accessing websites. Initiatives such as Google’s *Project Loon*, which uses high altitude air-balloons to provide internet access to remote regions, will further enhance connectivity (see [http://www.google.com/loon/] for details).
In any case, as noted by Quinn (2011) but often overlooked, the book is also a technology, albeit one that most academics are so familiar with that we take it for granted. Lack of literacy in one’s mother tongue, or in fact at all, can present just as high a barrier to the printed resource as lack of access to technology presents to the digital resource. By publishing traditional paper outputs such as grammars and dictionaries, we ourselves do not have to come to grips with new technologies, but our consultants and their families may, in fact, have to learn to use new-to-them technologies such as an orthography, dictionary conventions, or even reading and writing at all. In this way we may be shifting the burden of time and effort from ourselves to our consultants, without even realizing that this is what we are doing.

The time and effort involved in creating multimedia electronic resources should not, of course, be underestimated. This is sometimes referred to as the ‘second shift’ in academic work. A major reason why multimedia resources take so much extra time and effort, however, is because they are so often produced as well as the more traditional paper-based outcomes. A typological database is not counted as real research that can be quantified, cited, and rewarded unless it is accompanied by a journal article describing the database. A multimedia dataset in an electronic archive counts for little until the researcher has also produced a dictionary and a grammar, even if the analysis described in the latter two publications underlies and can be extracted from the glosses, translations and cross-linking within the dataset.

Many researchers therefore do choose to produce traditional outputs alongside but distinct from their multimedia publications. A prime example of this is in Jennifer Green’s work on sand stories in Central Australia as published in Green (2014). Green has taken the approach of producing separate multimedia materials (subtitled DVDs) of the sand stories. In the printed book, however, photographs of story-tellers drawing in the sand are inset with bird’s-eye images of what they are drawing. This strategy allows a single image to convey far more information than is usually possible in two dimensions, allowing the printed materials to stand alone when this is necessary.

As mentioned earlier, Luise Hercus’s series of Song Cycle publications also involves both printed books and multimedia CDs, but more tightly integrates the two by structural replication and the skeuomorphic elements. The main difference is that the music represented in the book only as a music score is also included as a playable audio file in the electronic version. Both the printed and electronic version of the books contain rich media, including photographs of the speakers, the relevant landscape, flora and fauna, musical scores and maps, as well as the original song texts, glosses and translations, and linguistic, historical and anthropological analysis of the materials. The time and effort involved in preparing roughly the same material for two very different dissemination media should not be underestimated.
7. Looking forward

I am of course not suggesting we should abandon traditional paper-based publications, even if and when the technology does overcome the limitations described in the previous sections. Rather, I believe that the boundaries between the two ‘types’ of output – paper and electronic; text and multimedia – will continue to blur until we no longer need to make a decision about what medium we publish in at all. Even today many paper-based outputs are also available electronically, and a ‘book’ or journal article can therefore incorporate large datasets, audio and video, and interactive components. Some institutions are treating download numbers and measures of broader impact as seriously as citation metrics. Researchers frequently release prepublication versions of their papers and book manuscripts on their websites, hyperlink each other’s work, and engage in informal peer review and conversation in the comment threads of each other’s academic blogs, or in more structured venues such as the ‘sessions’ feature on the academic social media site www.academia.edu.

Until the boundaries between paper and electronic research outputs truly disappear, however, we do have to make deliberate choices about how and what to publish. I would argue that academia would benefit, if instead of publishing traditionally and then considering whether we might produce digital multimedia material as well, we started with a different default. Spoken language is audio. Communication is audiovisual. Music and culture are interactive. For the reasons stated in the introduction to this paper, the default should be that research outputs about these areas incorporate these features unless there is a reason not to do so (and as I have pointed out above, there may be many such reasons). A paper-based research product should be a choice that we make because it suits the material we are working with, the ideas we want to convey, or the audience we need to reach.

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Writing about music is like dancing about architecture'