believe it will be. Just as all bilinguals are not automatically translators by virtue of being bilingual, linguists are not necessarily aware of the human side of speaking multiple languages, and they can profit from hearing about the relationship that ordinary speakers have with the languages they speak.

I remember my first Mario Pei book (1954) that I was given as a teenager. It felt more like pulp fiction than schoolwork, but it brought me to the field. Likewise, *Bilingual: Life and reality* does not promote any contemporary linguistic theory. Rather it is a readable, informative, and emotionally satisfying work. Those qualities have perhaps more weight now than in G's 1982 book. This time they come from someone who has been a strong and consistent contributor to the research underlying the book's themes on which the bridge to the nontechnical reader is built. The book is a gift. It is a good gift for multi- and monolinguals alike, and it is a gift to linguistics that helps us explain our field to nonlinguists.

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When languages die: The extinction of the world's languages and the erosion of human knowledge. By K. David Harrison. Oxford: Oxford University Press, 2008. Pp. 304. ISBN 9780195372069. $17.95.

Reviewed by Andrew Nevins, *University College London*,
and Adam Roth Singerman, *University of Lisbon*

A linguist dedicated to documenting languages in the field and to raising awareness of language endangerment, K. David Harrison offers in *When languages die* (*WLD*) an exploration of how 'traditional' or 'indigenous' (terms we introduce in quotes, recognizing their fragility) languages encode vast ecological, astronomical, topological, and mathematical information. Neither a how-to-save-languages guide nor a treatise on technical linguistic theory, this book aims to synthesize diverse academic fields through the prism of language structure and vocabulary, echoing

Sapir's (1921) view of language as 'the most massive and inclusive art we know, a mountainous and unconscious work of anonymous generations' (220).

Examining how languages encode knowledge of taxonomy, geography, and calendrics via linguistically and culturally specific terminology, H asks, 'is it unique, irreplaceable knowledge, or merely common sense knowledge uniquely packaged? Could such knowledge ever be adequately captured in books and video recordings in the absence of any speakers? Once vanished, can such knowledge be re-created, will it re-emerge spontaneously after a while, or is it forever unrecoverable?' (9–10). Whereas much linguistics research examines languages so as to understand typology and constraints on grammatical structure, *WLD* focuses on the useful, practical knowledge of environment, of local species and technologies, and of numerical cognition that languages may encode.

The dual interest in cultural knowledge and individual indigenous peoples leads to an intercalary structure for the book, with chapters and paired case studies organized by kinds of knowledge. The case studies, which focus on individual communities and speakers, highlight the very human side of language loss, though they sometimes have only a tenuous relationship with the chapters that they accompany. Both chapters and case studies provide many human-centered anecdotes and examples, with a sizeable number from H's extensive fieldwork. The first chapter sets the scene with an introduction to language death, examining correlations and divergences between language extinction and biological extinction. It provides a useful demonstration of 'language hotspots'—those areas with the highest indices of language diversity and extinction—and discusses how just a handful of languages have an enormous number of speakers, whereas an enormous number of languages have only a handful of speakers.

Ch. 2, 'An extinction of (ideas about) species', which focuses on biological taxonomies and ethnobiology, asks an intriguing question: even though any 'ideas can be expressed in any language' (24), how do some languages efficiently organize such ideas so as to optimize the packaging of information? Drawing on his own fieldwork in Siberia, H shows how the Tofa utilize highly precise vocabulary that specify age, sex, fertility, and domestic usefulness to identify individual reindeer in large herds (27). While the concept 'five-year-old male castrated rideable reindeer' requires a loaded noun phrase in both Russian and English, the Tofa *chary* transmits the same information in a morphologically opaque but highly efficiently manner.

Some endangered languages describe natural phenomena via very transparent etymologies, as shown in the following contrast between the Solomon Islands and England: 'Only 30 percent of West Nggela fish names are opaque, or lexically unanalyzable, meaning that for speakers of Nggela they convey no information about a fish's appearance, behavior or habitat. By contrast, a full 55 percent of English names for native Thames River fish are opaque, packaging no ecological information' (42). The Nggela, like other peoples who live in close proximity to their natural environment, store significant, readily available information about flora and fauna in their lexicon. H discusses research that shows how diminished use of an indigenous language correlates with reduced ethnobotanical knowledge, as in the case of the Barí of Venezuela (53), and reiterates the significance of 'folk taxonomies', such as that held by the Wayampi of Brazil: although independent from the Linnaean classification scheme, the Wayampi categorization of birds makes fine-tuned, useful distinctions between species.

Ch. 3, 'Many moons ago: Traditional calendars and time-reckoning', cites various examples of traditional lunar calendars that convey information tied to natural cycles. H uses these examples to propose a typology of monthly systems: ecological; ecological, linked to lunar; lunar, linked to ecological; lunar; and arbitrary (91). In this typology, English is cited as arbitrary, due to monthly names that are unpredictable (based on Roman emperors and noncorresponding ordinal sequences) and provide no information about the natural world.

Worth remembering, however, is the fact that calendrical systems move quite readily and easily across linguistic boundaries; consider how many languages have adopted via diffusion the Gregorian calendar. Though traditional calendrical systems may relay ecological information, the Tofa, Tuvan, Ös, and other indigenous peoples could in theory adopt the Western calendar and still make vibrant use of their native tongues, just as other peoples could adopt the Tofa, Tuvan,

or Ös calendars if they saw some incentive to do so. The issue of disappearing calendrical systems—what H calls 'these complex, fragile and highly local calendars, these ingenious time-reckoning devices' (92)—is about 'when peoples assimilate', not 'when languages die'. They are two related but very different questions, and ones worthy of careful delineation.

Ch. 4, 'An atlas of the mind', which focuses on map systems, including those that incorporate frictional distances, terrestrial topography, and multiple frames of reference, argues that naming patterns and directional vocabulary encode accrued knowledge of human-environment interactions particular to specific ecological niches. According to H, as these wind- or altitude-based direction systems reflect centuries of adaptation to specific geographic areas, their loss implies the disappearance of knowledge used for wayfinding. H cites Widlok's (1997) important study of the Hai‖om Bushmen of Namibia, whose ability to navigate in unfamiliar areas far surpassed their European counterparts, which included skilled mushroom collectors, and attributes this skill to the Hai‖om's patterns of linguistic encoding of terrain. This chapter provides firm support for the thesis that languages spoken by small populations in specific areas can, in fact, be specifically tied to those areas. It forms the most striking and most memorable part of the overall argument.

The question of written versus oral narrative traditions is the focus of Ch. 5, 'Silent storytellers, lost legends', which explains how the vast majority of peoples do not write their languages but nonetheless manage to preserve and transmit myths and information over generations. H points out that writing preserves but necessarily fossilizes myths, since 'written stories are only a very impoverished form of spoken ones. Nowhere in a written text can you discern the tone of voice, loudness, excitement, gestures, facial expression, or tempo ... all those things that make a story come alive' (145). His argument leads to a critique of literacy campaigns, not because literacy is undesirable but because ' "literacy" usually means ability to read and write solely in the dominant national or regional language (e.g., Hindi or English)' (148) and 'literacy in large national languages is often the beginning of an educational process that leads to abandonment of small languages' (149).

Ch. 6, 'Endangered number systems: Counting to twenty on your toes', discusses a phenomenon of endless interest for linguists, anthropologists, and laymen alike: the diversity of numerical systems worldwide. H discusses a range of bases, from two (Alome) and four (Yuki, Kewa) to six (Ndou, Arapesh) and even twenty (Pomo), and shows how some may develop from counting on the body itself: fingers (and the spaces between them!), elbows, collarbones, and other nonextremity landmarks serve to anchor numerals, as in Kaluli and Kobon. H describes overcounting systems (such as Vogul, in which twenty-two is expressed as 'two towards thirty') and their importance for studies of the relation between language and thought. He also reaffirms the importance of linguistically encoded indigenous knowledge as an alternative to digital technology, citing the Gay and Cole (1967) study showing that the Kpelle people estimate large numbers better than American college undergraduates. Ultimately, H gathers more than enough evidence to support the important scientific conclusion that the 'diversity of numeral systems shows us that base-10 is neither cognitively nor physiologically strictly determined' (199).

Ch. 7, 'Worlds within words', touches on an array of topics traditionally investigated by linguists, including language change, genetic relationships, reduplication, noun classes, and sign languages. Its brief but lucid foray into case systems and incorporation would serve well for any introductory course on morphology; its criticisms of comparing complexity across languages are convincing; and the demonstration of Tuvan's fine-tuned onomatopoeia and sound symbolism is striking. While three paragraphs are devoted to kinship terminology, this topic, investigated by both anthropologists and linguists, merits greater treatment, as does the brief discussion of how endangered languages can provide information on ancient migrations and the peopling of continents, thereby aiding in the reconstruction of human history. Indeed, this latter topic deserves greater elaboration, especially since it has the potential to pique the interest of even those readers whom the argument for ethnobotanical information packaging fails to convince.

With Chs. 1 through 6 focusing almost entirely on lexical items and structure, some readers may infer that since wordlists alone can capture vast cultural and ethnoscientific knowledge, fieldwork focused on the mechanisms of the grammar proper need not be prioritized. Thankfully,

Ch. 7 (despite its title) goes beyond the level of individual words, and in so doing strengthens the volume overall.

Surprisingly, at no point do whistled languages enter the discussion. Often used by populations whose members must communicate across distances (such as valleys between hills), whistled languages remain tied to small groups' ecological niches and, thanks to increased use of cellphones, face serious endangerment. Given that they represent extreme adaptation by speakers to their geographic environment (Meyer & Gautheron 2006), why do they receive no attention in *WLD*?

H never endorses the Sapir-Whorf hypothesis, the famous suggestion that a language's lexicon and grammatical structure actually shape and constrict its speakers' thoughts. He instead inverts it, arguing that languages 'afford strategies of packaging information, organizing it into hierarchies, and embedding it within names' (25): they do not DETERMINE the shape of culture via abstract mental processes but instead RECORD vast amounts of culturally relevant information. Rather than marvel at, say, the many Inuit words for snow, H explores the greater ramifications when that knowledge, transmitted orally through local languages, disappears.

Problematically, however, *WLD* relies on a rhetorical trope that has come under important scholarly scrutiny in recent years: the idea of universal ownership of human knowledge. H muses: 'We do not even know what exactly we stand to lose—for science, for humanity, for posterity—when languages die. An immense edifice of human knowledge, painstakingly assembled over millennia by countless minds, is eroding, vanishing into oblivion' (3). Indeed, *WLD*'s subtitle ('The extinction of the world's languages and the erosion of human knowledge') suggests that, as the information encoded by minority languages belongs to all persons everywhere, the disappearance of those languages signifies a loss for humanity overall. But as Hill (2002:121–23) persuasively argues, this concept of 'universal ownership', though common in the discourse of professional linguists, is infrequently held by indigenous communities themselves. Such communities may consider their languages key components of local cultural heritage—to which outsiders, including well-intentioned researchers and academics, have no easy right or claim.

The argument for saving endangered languages often toes a delicate line, especially when researchers seem to suggest that a given people ought to continue to speak their traditional language despite potential economic and social disadvantages. Indeed, to argue for the maintenance and revitalization of languages so that outsiders may benefit from the knowledge they contain can come eerily close to the kind of material exploitation that has endangered and wiped out so many indigenous peoples in the first place. While H does not endorse MONOLINGUALISM in nondominant tongues, it bears repeating that many language revitalization programs should probably hold a MULTILINGUAL model (which allows for both local cultural survival and larger socioeconomic incorporation) as an ultimate goal.

WLD sometimes appears to put forth overgeneralizations about the West versus the rest. For instance, the focus on lunar calendrics in Ch. 3 leads to a false dichotomy between 'traditional' calendrical practices, tied to natural cycles, and the Western calendar. Consider pre-Conquest Mesoamerica, in which a highly elaborate system of calendrics included simultaneous cycles of 365-day years and 260-day 'ritual counts', each divided up by thirteen day numbers and twenty day names. Though largely separate from the cycles of the natural world, the ritual counts of this interlocking system were (and remain, among certain indigenous peoples today) of extreme importance for society and religion.

Despite these limitations, *WLD* offers a well-researched and well-argued demonstration of deep connections between languages and the transmission of important knowledge—ethnobotanical, cultural, or spatial—and therefore reiterates the central importance of documentation and revitalization. A definite contribution to the growing body of accessible literature on language endangerment, death, and revitalization, it should be read in conjunction with other works, such as Nettle & Romaine 2000, Abley 2003, and Grenoble & Whalen 2006.

The loss of linguistically packaged information about ethnobotanical, numerical, and navigational phenomena results from increased use of technology and assimilation into a system of global standardization, trends that are in principle orthogonal to continued transmission of minority lan-

guages and that therefore lie outside the purview of most linguistic research. Nonetheless, *WLD* makes a convincing case for linguists to embrace interdisciplinary cooperation. Although we often view endangered languages as rich sources of information for studies of grammar and typology, language death also leads to the loss of knowledge in areas as diverse as religion, ethnobotany, folklore, and calendrics. We thus have a professional duty, H argues, to partner with colleagues in anthropology, ethnoscience, folkloristics, and other disciplines so that documentation and revitalization efforts can be as culturally inclusive and technically informed as possible.

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Lessons from documented endangered languages. Ed. by K. DAVID HARRISON, DAVID S. ROOD, and ARIENNE DWYER. (Typological studies in language 78.) Amsterdam: John Benjamins, 2008. Pp. 375. ISBN 9789027229908. $173 (Hb).

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This valuable and interesting volume is one of many outputs of the Dokumentation bedrohter Sprachen (Documentation of endangered languages; DoBeS) project, funded by the Volkswagen Stiftung starting in 2000. It follows up on the Brenzinger 2007 volume, which was also supported by the same funding source and surveyed overall worldwide levels of language endangerment. The volume provides a very substantial contribution of case studies on linguistic and other implications of endangerment and various ways of documenting endangered languages. It is also of more general interest in covering a rich array of data that illustrate the effects of language contact on linguistic structure at all levels from phonology to discourse. After a brief introduction by the editors, eleven chapters range over methodological issues, ethical issues, and linguistic outcomes, as well as some sociolinguistic, anthropological, and historical factors. The three editors are US-based, and the twenty authors include scholars based in Europe, the US, and Latin America.