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Ecolinguistics reunited: Rewilding the territory

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Abstract: Ways of meaning link ecosystemic destruction with social and linguistic interdependencies. By freeing the entangled roots of these phenomena, we can find a way to rewilding ecolinguistic territory. Turning from focus on analysis of languages, texts, or practices, one unleashes the epistemic power of *linguaging*. As we come to know and understand, linguaging permeates perception and action. The perspective solves what I call “Haugen’s problem”, or how languages can interact with environments. Playing down the mind, semogenesis uses practices to graft the cultural on to the biotic. Saying things, like all natural innovation, connects history with cascading situated contingencies. With culture, artifacts, and voices, practical action enables discovery of techniques. These use natural evenering as personal know-how draws on an evolving social semiotic (or cultural second order). Meanings link emplacement to practices that serve people who engage in organized action. The results shape realities which, along with languages, transform the bioecologies that make up the changing ecosphere. Pursuing the epistemic power of linguaging brings new awareness that can ground practical theories. Once we focus on consequences of linguaging and languages, ecolinguistics gains maturity. To become a discipline, however, theorists need to use historically effective work to build a clear vision of how, as ecolinguists, we can contribute to the future of evolution.

Keywords: biosemiotics; distributed language; ecolinguistics; ecology of language; linguaging; semogenesis

1 Introduction

Ecosystemic destruction is often framed by technoscience (e.g. climate change, the loss of biodiversity, soil depletion) in ways whose repetition masks the gravity of what is happening. Countering, I urge us to develop a new ecolinguistics based on

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careful thinking about interactions between languages and their environments. To solve what I call “Haugen’s problem”, I propose rewilding ecolinguistic territory. On this view, languages become epistemic tools that link the said, the suppressed, the taken for granted, and the unnoticed. This happens once human activity is traced to emplacement (see Barron et al. 2020) – events occur somewhere, connect with the absent, and use what Halliday (2003b [1997]) calls semogenesis. The insight, I suggest, brings ecolinguistic awareness to issues of ecosystemic destruction. Rewilding is a step towards changing ourselves, our attitudes, and, above all, organized practices. An applicable ecolinguistics can pursue what is valued in “any particular environment” to change “the varied facets of people’s lives” (Halliday 2009: vii). Just as history differs, so will ways of enhancing education, changing damaging practices, telling stories, and obliging science to bring benefit to the living.

In rewilding ecolinguistics, I focus on *linguaging* (for review, see Cowley 2019a). Unlike language, linguaging is a symbiosis of the biotic and the cultural. Its sensorimotor aspect abolishes dichotomies of language/non-language, culture/nature, mind/body, and social/natural innovation. In a place, people act under verbal, material, social, and embodied constraints. Semogenesis happens *here* – as engaging with ‘things’ is influenced by material, cultural and verbal structures (Cowley 2021b). Although a form of material engagement (Malafouris 2013), semogenic techniques mesh aspects of circumstances with doing and saying. As the techniques draw on a body’s history, brains self-construct as re-use enables people to manipulate artifacts that shape expertise. Where induced by bionic devices that allow ‘mind control’ over a prosthesis, we describe the process as one of evoneering (e.g. Gahrn-Andersen and Prinz 2021). I suggest that the brain uses natural evoneering to master the techniques of material culture.¹ Acting with words, like engaging with things, sets off enactive signification as wordings and punctuated expression evoke experience and expertise. In linguistic cases, semogenesis links changing lexicogrammatical patterns (Halliday 2003a [1990]) with techniques of understanding and speaking as people link action, wordings, and expressive experience that has a statistical imprint. This happens as natural evoneering links cultural modes of expression with bodily techniques: without any sense of what we are doing, we engage with things, other people and, as we do so, mesh action and social norms with meaning potential. We achieve epistemic outcomes by concerting bodily ways with material as we adapt to the familiar while finding ways of going on. As understanding emerges, we link aspects of the

1 Artificial evoneering often grants ‘mind control’ over a screen (Barfield and Williams 2017); one can evoneer a business model to favor, not growth, but a location’s human and nonhuman inhabitants (SIRClE 2014–2017).

perceived world with wordings and epistemic tools that include, say, mathematics, poetry, and engineering. Since the results use unintended and unreported evoneered techniques, we only gain a passing sense of how little we know. On a planetary scale, the results are disastrous: a toxic mix of economics and technoscience has led to melting ice caps, warming seas, dying soil, and the death of species upon species.

Bioecologies or living consortia (Clements and Shelford 1939; Cowley 2014) include human (and other) social groupings. As part of the ecosphere, these transcend social ‘realities’ and, once that fact is grasped, we make possible a sense of natural inclusion (Rayner 2018). Epistemic tools show that we are living, semogenic creatures whose bodies manage organized life, attitudes, and ways of acting. Since practices change both bioecologies and ourselves, we learn much from linking techniques, languaging (hence, meaning-making), and experience. In seeking to reunify ecolinguistics, in Section 2, I follow Shapiro (2011) in ascribing ‘natural innovation’ to all living systems (including cells). Humans too innovate as they use contingencies (events), cross-over (affect, empathy, communication), and cyclic interdependencies (e.g. routines, maturation, seasons). However, unlike most animals, humans have hyper-plastic brains that learn cultural techniques thanks to natural evoneering. As a result, human realities draw on the said, the sayable, and the unsayable which, as they change over time, transform bioecologies. As we build ‘worlds’, we alter the adjacent possible (Kauffman 2000) – often for the worse. In Haugen’s (1972) loose phrasing, languages ‘interact’ with environments. Equally loosely, given the power of what is said and done, in Section 3, I claim that languaging and its techniques serve as epistemic tools. In Section 3.1, turning from the mantra that Haugen’s ecolinguistics is metaphorical (e.g. Fill 1998, 2018; Garner 2004), I stress a depth of a vision that allows linguistic and social interdependencies (c.f. Eliasson 2015). Yet, Haugen’s aspiration for ecolinguistics is unfulfilled because, above all, he omits the bioecological and places faith in ‘interaction’ by ‘minds’. His mentalism suppresses history, practices, ways of acting, and even meaning. To rectify this, in Section 3.2, I turn to how semogenesis underpins Halliday’s social semiotic. However, I trace human realities to, not texts (or ‘realization of lexicogrammar’), but emplaced and organized technique-rich activity. Languaging arises as practices are actualized by malleable human bodies that allow variable acting and ways with wordings. As semogenesis shapes public outcomes languaging spreads across persons, artifacts, and, above all, multiple scalarities. Thus, in actualizing practices, people follow rules while drawing on contingencies, habits, experience, and expertise. Using emplacement, we improvise (often together). In Section 4, I return to reuniting ecolinguistics. In Section 4.1, I discuss how, in cognitive ecosystems, epistemic outcomes use evoneered techniques that shape knowing, thinking, feeling, and acting. In Section

4.2, I solve “Haugen’s problem” by sketching how semogenesis brings off both intended and unintended effects. Once we focus on events in the wild, new awareness can clarify how, using languaging, we transform both the world and human agency. In Section 5, I suggest that once making/using texts is traced to languaging not only can we reunite ecolinguistics but, at once, we take a step towards becoming a discipline that aligns with the life sciences.

2 Natural innovation and knowing

Evolving ecosystems explore the *possible* by creating bioecologies or unique consortia of organisms. They use natural innovation to shape relations that constitute the entanglement of the living – ways of being a world at a moment (e.g. a pond). Within and across bioecologies, innovation is ubiquitous. Using multiple scalarities (what we formalize as space and time), ecosystems re-organize as they configure a changing biosphere (Kauffman 2000).² Hence, 21st-century biology (Shapiro 2011) foregrounds natural innovation. While some trace this to the organic coding used in metabolism (Barbieri 2018) and others treat this as a platform that enables dynamic forms or likenesses to construct worlds (Markoš et al. 2009), this is no place to debate what is deemed semiotic (see Favareau 2010). Accordingly, I use the term *natural innovation* in a general sense. Regardless, in language, dynamic forms or likenesses (e.g. prosodic patterns, wordings, facial expressions) contribute to human ways of life, ecosystems, and worlds. In general terms, behavior links natural and cultural modes of innovation. Languages co-evolve with human lineages, use historical contingencies that transform experience and conditions of life. Without knowing what we do, natural evoneering prompts us to adopt cultural techniques, habits, ways of coping with contingencies, and means of suppressing what we feel. So-called ‘soft skills’ integrate speaking, understanding, and techniques with unfolding expertise. Since many human dispositions have social roots, in evolutionary time, culture linked hominin sensitivity to voices and techniques with what Damasio (1999) calls “the feeling of what happens”. From birth, and before, infants establish interdependencies as evoneering enables them to draw on culture as they sensitize and respond to others. Such natural innovation is unlike linguistic ‘interaction’. Where, for

² For some the ‘ecology’ is a scientific object that links the biotic and non-biotic (see Eliasson 2015). To include human experience, I turn to actual bioecologies (where we live and on which we depend). Globally, *contra* Cowley (2014), bioecologies unfold ‘within’ physical constraints and, thus an evolving biosphere (Kauffman 2000). As an objectification, the *ecology* abstracts from complexity and, often, emphasizes the non-biotic.

example, phonological and morphological systems interact (e.g. in German), they do not change each other. In human dyads, by contrast, we do not rely on communication (*qua* message exchange) but, rather, mutuality. In infant-caregiver dyads, people adopt ways of acting *for* one other: natural evoneering favors bidirectional co-adjustment. Although formal and functional models capture normative aspects of language (Love's [2004] second-order constraints) with predictable parts (and 'rules'), humans also use systemic interdependencies and cultural techniques. Much depends on attention, modulating action/expectations, construing and adjusting to others as, together, we shape circumstances.

Practices are actualized by particular people at particular times (see Becker 1988). Natural innovation enables emplaced people to co-orient to linguistic, institutional, and material aspects of culture. Strikingly, this contrasts with Artificial Intelligence (AI) systems such as Generative Pre-trained Transformer 3 (GPT-3) which search finite data to generate outcomes ('problem-solving') or, technically, use prompts to reach cheap semantic outcomes (see Floridi and Chiriatti 2020). While deep learning cannot deal with irreversible questions or how we contrive utterances out of phenomenal experience, semogenesis shapes how we communicate, read, and grasp cultural 'ideas'. In parallel, evoneered ways of *acting* enable a footballer to dribble past an opponent, a cook to decide what spice to add, and a stranger to find the way in a forest. While at odds with mentalism and behaviorism, involuntary activity is ubiquitous. In Chinese tradition, for example, people are said to draw on 续 (*Xu*, 'extension'). The insight matters because 续 allows one to break impasse and act creatively by using simple tricks. In the terms used here, as parties get stuck, they re-align actions or contrive by using a continue-create-and-complete routine (see Wang and Wang 2015). They link emplacement, close attention to activity (by all parties), and norms that, for Wittgenstein (1957: §151), induce 'knowing' how to go on ('as if following a rule'). People link praxis, natural innovation, and, often, silent thinking. Although linguists usually privilege mechanism and process, like 续, languaging (Mulcaster 1582; see Cowley 2019a) helps bodies to generate *understanding*. The insight also appears in Humboldt's (1999) view of how *energeia* engenders language-specific 'thinking' (a symbiosis of the biotic and the cultural). In Darwin (1981 [1871]), the verbal (or artificial) extends natural (and culturally variable) expression. With culture, involuntary, techniques come to link circumstances, social learning, and action. Using evoneering, individuals draw on practice and use entrenchment to adopt techniques and styles that shape their understanding. Recurrent events link emplacement with ways of acting. Humans co-perceive and show exquisite sensitivity to how practices are 'normally' performed: as sketched below, they use what Hutchins' (2014) calls *cultural ecosystems*. Hence practices are actualized differently by different people or, across time, by the same person. Neutrally

enabled evoneering brings human flexibility – we gain ways of doing the ‘same thing’. In reuniting ecolinguists, therefore I look beyond the usual content of linguistics or, in traditional terms, “what it is that is under investigation” (Halliday 2003a [1990]: 139). Instead, I suggest that ecolinguists ask how practices and techniques co-function with languages to bring changes in cultural and individual understanding.

3 Reaching beyond structuralist models

Structural, generative, cognitive, and other linguistic models *describe* systems. Often, a model is taken to ‘represent’ a language, a variety of a language, or a subset of its parts. While grammatical traditions took such a view for normative reasons, Saussure scientized the approach by positing linguistic objects against a historically specific ‘point of view’ (Saussure 1983: 8). The claim challenges the folk belief that languages determine ‘correct’ usage. Far from being normative, Saussure (1983) begins with facts of ‘speech’ (*parole*) or linguistic things:

It should be noted that we have defined things, not words. Consequently, the distinctions established are not affected by the fact that certain ambiguous terms have no exact equivalents in other languages [...] No word corresponds precisely to any one of the notions we have tried to specify above. It is an error of method to proceed from words in order to give a definition of things. (Saussure 1983: 14)

For Saussure, (scientific) linguistic objects are realities or signs that serve to understand what he calls ‘words’. Not only can they be distinguished from non-linguistic entities but, as if by miracle, they ‘represent’ something like commonsense. In the twentieth century, the belief led to the design of physical symbol systems and technologies that use (pseudo) linguistic objects. Yet, there is no evidence that linguistic objects have any pre-theoretical ‘reality’. Post-Saussurian tradition was first rejected as ‘objective idealism’ (Vološinov 2011) and, later, traced to a conduit metaphor (Reddy 1993), written language bias (Linell 2005), and the language myth (Harris 1981). Its unwarranted speaker bias (Andresen 2013) uses unwarranted code models (Kravchenko 2007; Love 2004, 2017). Some try to sidestep the difficulties by appealing to the empirical ‘reality’ of objects such as *forms* (Bloomfield 1933), *utterances* (Harris 1952), *universal grammars* (Chomsky 1965), *conceptual structure* (Lakoff and Johnson 1980), or *I-language* (Chomsky 1986). Indeed, for some, transcriptions represent ‘reality’. In order to avoid these pernicious reifications, I, therefore, propose rewilding the field. With Halliday (2003b [1997]) and Steffensen and Fill (2014), I view ‘language’ as a metaphor (or part of what Love [2004] calls a *second order*).

In the early twentieth century, scientific models were devised to represent objects (or ‘reality’). This historical contingency was spurred by success in studying little things (e.g. macro physics, atomic chemistry). In fact, however, models also work by *changing* what we know – or think that we know. As tools, artifacts, instruments, etc. (de Oliveira et al. 2021) models shape epistemic outcomes. For Frigg and Nguyen (2017), though they can be representational, they also mediate between theories, serve in theory construction, generate target systems or, crucially, allow one to build new models. Often, a model’s formal properties matter less than its *actual use*. The same applies when engineered systems such as GPT-3 (or Google translate) use prompts (e.g. 续) to generate semantic outcomes (e.g. *extension* or *продолжение*). In spite of epistemic value *for humans*, GPT-3 is wholly reliant on reversible statistical operations (Floridi and Chiriatti 2020). What they call ‘biological intelligence’, by contrast, uses irreversible process, experience, and understanding. Indeed, experience tells us that *extension* and *продолжение* are ‘poor’ translations of 续. Even if, as output, they too trigger thoughts, translations, analysis, etc., these use natural evoneering and cultural techniques. Hence, there are both parallels and contrasts between what GPT-3 does and human use of linguistic ‘form’. Both persons and machines can use written types to trigger systemic discrimination and unexpected output (for an observer). It is likely, therefore, that humans use something akin to an AI system’s deep learning. However, as a wording, 续 means something for someone: even if a person does not speak Chinese, natural evoneering will prompt some sense of its emplaced ‘connotational’ value. The fact has an astonishing implication. Prompts such as 续, *extension* or *продолжение* act as mini-models or epistemic tools which, given emplacement, link semogenesis with statistics/conventions. In this sense, the prompts can be compared to scientific theories. Like these, they are “concrete artefacts [...] constrained by their design in such a way that they facilitate the study of certain [...] questions, and learning from them by means of construction and manipulation” (Knuuttila 2011: 262). The causal and statistical power of such artifacts combines with the evoneered to enable novel and yet apposite use of wordings (or theories). For living beings, wordings – nonce events – afford *more* than data processing: understanding uses semogenesis. Remarkably Rosen (1991) offers a parallel view of how formalization contributes to science; models, he argues, gain their value in forcing creativity or what he calls the modeler’s *art*.³

Engineering science uses models as epistemic tools to develop materials, modes of use, and new opportunities for users (for detail, see Boon and Knuuttila

³ The important point is that (physical) wordings are part of activity and thus unlike ‘words’ (and material signs). For Sellars, languagings (‘wordings’) draw on circumstances to take on transcendental value that eludes Kantian immanence (see Seiberth 2021).

2009). As Rosen (1991) would say, the field formalizes art. The claim grounds my aspiration to reunify ecolinguistics by focusing on how both activity and wordings combine as we actualize practices. For ecolinguistics to become a cohesive field, or discipline (see below) that describes languages and discourse, one needs to include both semogenic art and languaging. Once we rewild the linguistic garden, one can revalue experience, change attitudes, and nurture practices of social and individual change. A history of describing linguistic patterns (idem usage) serves both to describe practices and in building practical theories (see Cowley Forthcoming).⁴ Attention, therefore, focuses on techniques that enable languaging to serve people who try to predict, optimize and change behavior. One can enhance linguistic models by re-engineering both ways of meaning and ‘bits of natural language’. As in materials engineering, one can even develop techniques that bind embodied, prosodic, grammatical (and causal) properties. Thus, like materials scientists, one can seek understanding of extant and possible ways of acting that indicate “how to create or intervene with special material properties” (Boon and Knuuttila 2009: 688). In turning from representational models, epistemic outcomes can derive from how languaging transforms perception and action (and AI). The results bear on both practices and how people in bioecologies shape the ecosphere.

3.1 From ecology to bioecology

Like Haugen and Halliday, most ecolinguists invoke the ‘ecology’ in a general sense. In what Eliasson (2015) rightly dubs Haugen’s ‘preliminary’ sketch, he gestures at an ecolinguistics whose ‘object’ is the ‘interaction’ that is alleged to connect languages with the environment (and systems ‘in the head’). In Halliday’s programmatic remarks, he urges us to reject the ideologies of growthism and classism. Below, I connect Haugen’s (2001 [1972]) view of ‘context’ to how, in a material world, Halliday allows history (ways of meaning) to bear on lexicogrammar. I start here, first, because the figures are seen as founders of the field (for details, see Eliasson 2015). Unfortunately, historiography shows them as inspiring diverging directions of research. In seminal work, Fill (1998) contrasts Haugen’s metaphorical approach with non-metaphorical ones inspired by Halliday. In Fill’s view, whilst Haugen uses ‘ecology’ as a stand-in for ‘society’, Halliday

⁴ One of the reviewers asks how an ecolinguistics of languaging relates to linguistics. Basically, linguistics becomes that part of ecolinguistics that pursues how structures and media co-function with varieties of ‘discourse’ and, thus, how discourse analysis (and systematic reading, corpus analysis, etc.) can contribute to practices and can be used in practical theories.

promotes study of ‘language and the environment’. Although the reading is legitimate, as the field diverged, it led to a ‘two direction’ dogma (Eliasson 2015). In an important later state of the art, Steffensen and Fill (2014) regret that studies have separated natural, symbolic, sociocultural, and cognitive ecologies (Steffensen and Fill 2014). In *The Routledge Handbook of Ecolinguistics*, ecolinguistics becomes a mere umbrella term (Fill 2018: 3).

To attain new unity, one must focus on the environment and its parts. Loosely, one can posit a surrounding world/reality, or what a human observer (or scientist) sees as a metaphorical ‘ecology’. In this sense, homo sapiens live *with*, say dogs and cats. However, as mammals, we are part of the ecology in a stronger sense: we inhabit bioecologies where languaging has both biotic (e.g. through agriculture) and non-biotic outcomes (e.g. road use). Technically, as holobionts, our body mass consists largely of bacterial assemblages whose ecosystems have a global reach. Since the consortia of our guts contribute to human well-being, the point is non-trivial (for persons). Beyond the skin too, humans rely on plants, animals, and microorganisms that shape bioecological conditions. Unlike the ‘ecology’, bioecologies are what Ingold (2008) calls ‘zones of entanglement’. While these living entities can be studied as ecosystems, this requires a third-person view. By contrast, the future of evolution (or rejecting classism and growthism) depends on using peoples’ experiences to change awareness, attitudes, and action. We need to grasp how practices damage (and benefit) living systems just as, of course, we pursue how psychology, society, and interaction influence what Haugen (occasionally) calls the ‘natural environment’. Haugen leaves aside such matters because, as so often in pioneering work, his writing is “fundamentally a reaction to dominant trends in 20th century linguistics” (Eliasson 2015: 89). He challenges the reduction of language to ‘organized structure’ or, simply, products of lexicon and grammar. In a way that inspires many (see Fill 1998), Haugen links ‘the spirit of the science of ecology’ with a plea for “a dynamic holistic perspective on human language” (Eliasson 2015: 90). Yet, emphasis on the sociological (and the formal) is narrow. For Haugen, only linguistic practices matter (e.g. writing, standardization, giving institutional support), and these are presented as separable from meaning (let alone lived understanding). True to his time, he equates communication with interaction by ignoring how living bodies enact social systems. In hindsight, his work’s sociolinguistic limits resonate in what can be read as a credo:

Language exists only in the minds of its users, and it only functions in relating these users to one another and to nature, i.e., their social and natural environment. Part of its ecology is therefore psychological: its interaction with other languages in the minds of bi- and multi-lingual speakers. Another part of its ecology is sociological: its interaction with the society in which it functions as a medium of communication. (Haugen 2001 [1972]: 57)

As in generativism, a mind is the locus of ‘language’. While denying that language exists, “as a rigid monolithic structure” (Haugen 2001 [1972]: 64), Haugen does not ask how linguistic analysis can address psychological and sociological concerns. Rather, he invokes ‘interactions’ – events within minds (in bi/multi-linguals) that arise in engaging with an ‘external world’ (viz. as they act and perceive) and within society. Since language is in the head, not social activity, but society is the “true environment of a language” (Haugen 2001 [1972]: 57). Indeed, communication is traced to, not practices and/or understanding, but a “society that uses it [i.e. a language] as one of its codes” (Haugen 2001 [1972]: 57). Haugen’s *ecology* is a blurry rendering of mental, actional, and social interaction.⁵ In seeking to inspire linguists to examine the concerns of “anthropologists, sociologists, political scientists and psychologists” (Haugen 2001 [1972]: 57), he leaves out how this is to be done. However, hints arise in Haugen’s (1978) study of how, in spite of the odds, Faroese has survived (Haugen wrongly thought it was dying). Although the language binds people to one another and to nature, i.e. their “social and natural environment”, Haugen has nothing to say of the binding or how it bears on community-specific practices. Rather, the *Ecology* ends with 10 questions that aspire to expand and remix linguistic models. Haugen’s ecological spirit is designed, above all, to encompass what humans value.

Fill’s (1998) classic paper entitled “Ecolinguistics: State of the Art 1998” begins,

Ecolinguistics began with a metaphor. Einar Haugen, in a talk given in August 1970, spoke of the “interactions between any given language and its environment” (1972: 325), which he compared to the ecological relation between certain species of animals and plants in and with their environment. (Fill 1998: 3)

Fill imagines ecolinguistics as a holistic field “where the natural sciences (most specifically biological ecology) and the humanities (philology and philosophy) interrelate” (Fill 1998: 1). But no such field has ever emerged: few ecolinguists draw on the life sciences and most analyze discourse, texts, and/or narrative while leaving aside experience and embodiment. None of Steffensen and Fill’s (2014) ecologies address how humans can change the future of evolution. While they rightly focus on the ‘metaphor’ of language, the shift has favored new stories (Stibbe 2015) and a theoretical exposition of languaging (see Steffensen and Cowley 2021a). To bring unity to the field, Haugen’s vision must connect history,

⁵ One of the reviewers asks how interaction between species bears on interaction between languages. While I find weak parallels with translating, translanguaging, and comparative study, AI is suggestive. Above all, machine codes often use logics based on English that shape practices across languages: there are parallels, say, with how a class of bacteria interacts with species (making changes that may be benign).

practices, and how meaning uses semogenesis as in the tradition inspired by Halliday.

3.2 Putting semogenesis first

If Haugen offers breadth, Halliday brings unparalleled depth to meaning-making. This brings aspects of reality to the relation of ‘language and the environment’. Once language is seen as a metaphor, it becomes (among other things) a set of resources for conceptualizing ‘reality’. Even if his key question is, “How do people mean?”, Halliday is deeply concerned with consequences and, overtly, calls for new ways of meaning. Indeed, one can make such moves in aspiring for an ecolinguistics that influences social practices by, above all, encouraging human populations to develop new practices and techniques that co-evolve with epistemic tools. We must understand practices and their consequences in order to draw on languages, institutions, and languaging to enrich both local bioecologies and the wider ecosphere.

Halliday holds a representationalist view and, following tradition, investigates text. He asks how a language system (or lexicogrammar) uses currents and patterns as, in parallel, people use non-linguistic material. Focus falls on analysis of how texts ‘realize’ meaning or, in his terms, *how* experience is construed. Halliday (2003b [1997]) treats historical effects as linguistic, contradictory, and ‘parallel to’ practices in a material world. He denies that language is located ‘in’ the heads of its users by treating grammar as a ‘metastable’ system (described by an observer). It links semogenic events and practices in ways that, following Edelman (1992), he ascribes to intraneural activation. Acts of meaning are social, situated and allow texts to realize lexicogrammar. As part of ‘reality’, language is a ‘shaper’, ‘construer’, and, as noted above, a ‘metaphor’. Indeed, it enables factual reports of reality. Without semogenesis, these equilibria could not inform human ‘consciousness’ – culture would rely on *concreta*. Yet, grammatical models leave aside the concerns of anthropologists, sociologists, political scientists, and psychologists. Ecolinguists in systemic-functional tradition usually critique texts (or discourse) that bears on environmental issues. Almost alone, Goatly (see 2021) offers a wider vision. He shows how cryptogrammatical features of English bias us to view ‘reality’ in terms of little things (and, perhaps, language as pattern and currents). For Goatly, this tempts us to sanctify scientific universalism (or the Newtonian paradigm). Countering, he urges a process view that militates against dominant usage. In “New Ways of Meaning: The Challenge to Applied Linguistics”, Halliday (2003a [1990]: 170) advocates social *change*: as he says, “Growthism and classism are our two main ideological menaces: and

ideologies are constructed in language”. They are inseparable, undermine well-being, and, for Halliday, the fundamental issue is class. Strikingly, class connects how acts of meaning use lexicogrammar (i.e. discrete functional choices) with aspects of semantic style (i.e. choices of fractal pattern). In our terms, class appears in our evoneered techniques. Hence, to change society, we need to change how people actualize practices. But how do acts of meaning arise?

Acts of meaning have a probabilistic aspect in that, just as in using an AI system, a text’s epistemic value includes conventional construals. However, reading is an art whereby one seeks effects that make sense *for a person*. In the wild, languaging arises during performances as events change persons, culture, and the living world. In folk terms, alongside the probabilistic, acts of meaning exude *quality*. While leaving out particulars, Halliday does advocate a broadly constructive logic. Although his method describes texts (in relation to lexicogrammar), he notes that “a theory is also a semogenic system” (Halliday 2003b [1997]: 248). As a linguist, rather than treat it as an epistemic tool, he focuses on function (viz. as a general property) as opposed to how its systemic power animates acts of meaning. Indeed, he treats the origins as intraneural and turns to context (not emplacement). Rather than trace semogenesis to living, he ascribes its functionality to language systems. The view highlights the conventional and, thus, the explicit. Yet, as noted, unexpected epistemic shifts occur even in GPT-3 – processing uses deep learning to simulate meaning making. Semogenesis, by contrast, comes closer to how, in dominant tradition, linguists conceive of ‘language’ as having a wide and accessible sense. By contrast, in languaging, one stresses the particular and the individual (Becker 1988). One asks how natural innovation uses emplacement to bundle evoneered techniques with contingencies that bind the formal, functional, and probabilistic. For people experience and events matter.

Since techniques and culture appear in other primates, one can hypothesize that pre-linguistic semogenesis uses natural innovation. For example, a chimpanzee that ‘fishes’ for termites transforms experience (with a stick) into meaning (the pleasure of termite eating). In a rudimentary form, even a bee-dance enacts meaning that construes experience. In both cases, actional techniques are adopted without intent and, in that of the chimp, they are evoneered by practice – termite fishing relies on flexibility. However, Halliday highlights realization to focus on how ‘reality’ uses the said and the sayable. Indeed, he is so focused on linguistic ‘signs’ (and texts) that he sometimes implies that signs are ‘real’ as when saying that “semiosis unfolds alongside the material world” (Halliday 2003b [1997]: 249). Hence, in making ‘construal’ a paradigm of how language shapes experience, Halliday omits action and emplacement for an intellectualist view. He leaves out individual understanding. Further, semogenesis does *not* arise in ‘parallel’ to the

material. Thus, in careful analysis of taking a selfie on Table-mountain, Johannessen and Boeriis (2021) show that semogenesis, (and use of semiotic resources) links material properties of engaging bodies with techniques for aligning to the extra-bodily. They detail how planning, precise calibrations of equipment, timing, and action are coordinated: emplaced use of a camera *is* semogenesis. An act of photography links natural innovation, equipment, languaging, and skills that draw on evoneered techniques. In this cooperative act of meaning, just as in using a theory, material entities (viz. a camera) draw on techniques that work as epistemic tools.

4 Ecolinguistics reunited

To challenge the fuzzy notion that *interactions* connect a language with the social environment, I traced semogenesis to emplacement. Accordingly, acts of meaning can bring forth knowing (i.e. not just ‘representing’) or, simply, be epistemic tools. Semogenesis thus extends natural innovation in that, as with termite dipping, it co-evolves with cultural techniques and natural evoneering. In humans, semogenesis links *ways* of moving and perceiving while weighting institutional, social, material, and linguistic resources.⁶ On this view, Haugen’s work is not a ‘metaphorical’ use of ‘ecology’. Rather, as a post-Chomskyan, he mistakenly places language in the mind of users. Like many cognitive scientists, Halliday rejects any such view. In contemporary terms, the world’s material properties inform embodied experience (and vice versa). Like construal, semogenesis binds history, function, practices, and acts of meaning. Haugen’s mental, actional and social ‘interactions’ obscure bodies, the absent and life’s scalarities. On such matters, Halliday too is silent. While setting the goal of challenging hegemonic ideology, he limits his focus to how lexicogrammar is realized in texts – using history, practices, and cryptogrammatical features such as an English bias for little things. He overlooks the concerns of anthropologists, psychologists, sociologists, and political scientists and says nothing on issues like the survival of Faroese. Thus, while excluding actual behavior, Haugen’s vision is by far the wider. Indeed, it is precisely this width that blinds him to acts of meaning (and construal), or how

⁶ One of the reviewers asks how biotic, environmental, and cultural ‘constraints’ impact on semogenesis. The question identifies a description of what we observe (viz. in terms of factors) and the observable: semogenesis uses techniques and simplex tricks of, above all, the voice, facial expression and gaze. In languaging, as across the living world, simplex tricks like inhibition and vicariance bind ‘factors’. However, the neurophysiology of such binding (see Berthoz 2012) or, indeed, its evolutionary history, lies outside an ecolinguistic focus on languaging qua *activity in which wordings play a part*.

semogenesis co-opts linguistic patterns and currents. Further, while Halliday places language in parallel to the material, this misleads. Techniques that actualize practices *are* semogenic. As Johannessen and Boeriis (2021) show, evoneered techniques bring some of the world's material properties to a selfie. Next, I show how languaging connects linguistic embodiment, wordings, organized action, and events.

4.1 Languaging and epistemic tools

Given emplacement, a highly attentive non-reader of Chinese may be able to utter and/or visualize 续. A less attentive one will have a sense of its meaning, remember that it transliterates as *Xu*, and/or retain a visual image (however, partial). Such accomplishments demand techniques that, with practice, bundle as procedures. In short, as languaging, reading is reliant on natural evoneering – coming to use techniques without knowing what one does. While one can aspire to read as if drawing on lexicogrammar, this is not what people ordinarily do. There is unfathomable diversity in any ‘reading scene’ (Benne 2021). In focusing on how epistemic results come about, one reaches beyond that of how texts are construed. One asks how, given emplacement, people use expertise, experience, and knowledge in attending and remembering as one re-evokes what one has read (and lived). Acts and construals happen somewhere and, above all, *for* someone. In the wild, activity in which wordings play a part informs acting and perceiving. Like pets or microorganisms, human languaging uses a bioecological being's here and now. Hence, for humans, events are emplaced. A human here is inseparable from other places just as a now echoes other times: emplacement enables, say sharing food supplies, engaging socially, or using bits of equipment while drawing on techniques. Like dogs, we link experience of a place with other scalarities. We bring expectations to reading as we use our bodies (and eyes) to orient to patterns (perhaps making construals). Although wordings (and texts) are central, the perceived probability of patternings (and other) visible details work together with the embodiment of reading. As we *construe* wordings, embodied factors impact on epistemic outcomes. Reading is accomplished by a person in a specific place such that a second (or subsequent) reading is bound to invite a new anticipative attitude. One reaches beyond both the probabilistic and linguistic as one assimilates the results. Even reading *this* sentence is semogenic. Understanding (including ‘not understanding’) is a unique contextualization that works *for you*. In this sense, languaging – including reading – is activity in which wordings play a part. It arises as one coordinates hands, eyes, and brain to set off resonances, evoneered techniques, and how, *here*, understanding is amalgamated.

A radical ecolinguistics (see Steffensen and Cowley 2021) traces languaging to a symbiosis of sensorimotor activity and encultured behavior. Rather than start with a lexicogrammar (or correct ‘ways of speaking’), such models play to objectifications of language (in a scientific and/or prescriptive sense). Looking beyond the grammarian’s domain, language is part of praxis. In English, a five-hundred-year history stands behind how languaging applies to the use of the tongue (see Cowley 2019a). Early usage predates modern science and the familiar dichotomies of language/non-language, mind/body, psychology/society, natural/artificial innovation, etc. Given how philology and linguistics share ‘speaker’ bias (Andresen 2013) and rely on analysis (or little things) as well as code models, linguists often overlook how epistemic events enact languaging. Yet, as people language, semogenesis prompts ‘going on’ or, indeed, continuing, creating, and completing (using 续). A turn to languaging places the nonce (never to be repeated) at the heart of human activity. The same applies to analysis: systemic-functional (and other) methods depend on acting as whole-bodied, culturally organized persons. Given techniques, events are more than utterances, speech acts, or construals – much depends on contingencies. Hence, they enact coordinations of coordinations (Maturana 1978) that arise as we orient to each other’s orientations. Concretely, wordings, voices, and actions all draw on cultural techniques or evoneered ways of acting. Hence, languaging applies to “activities involving language” (see Love 2017: 115) including, I suggest, singing, calling for a ball, and thinking silently. Languaging permeates even covert aspects of ‘thinking’ (see Seiberth 2021) that are embodied and emplaced. As Becker (1988) insists, languaging is particular. For Swain and Lapkin (2011), it allows advanced learners to make creative use of lexicogrammatical resources. It favors translanguaging (Li 2018) and animates concrete poetry (Lee 2021). Languaging engenders understanding in a here/now where scalarities amalgamate.⁷

Languaging occurs as semogenesis links circumstances to ways of using lexicogrammatical constraints. It takes on a verbal aspect in achieving epistemic ends. Emplaced results need no intentions because, in Sellars’s sense (1960), languagings are transcendental (see Seiberth 2021). Wordings evoke the absent – they resonate with usage, evoneered techniques, knowledge, and lexicogrammatical patterns/currents. Even if usually an accompaniment to action, the verbal aspect of languaging often echoes in the silence. As we deal with things, use emplacement to gain ‘familiar’ ways of actualizing practices, managing

⁷ An ecolinguistics of languaging ignores unnoticed indexical indices associated with things (Gahm-Andersen 2021) and, as Batisti (2021) argues, how features of languages influence agent subjectivity. If defined as *activity in which wordings play a part*, inquiry into languaging is limited to its role in practices.

events, and attributing sense to others. Evoneered techniques enable us to coordinate, use perspectives, and act with sensitivity. While languages divide cultural traditions, practices and technologies connect in *cognitive ecosystems* (Hutchins 2014). In clarifying the concept, Hutchins uses the case of queuing. As we engage in the practice, we *perceive as do others*. No overt languaging is needed to see a queue as a queue or, indeed, in using techniques as we behave. Where we want to buy a single item in a supermarket, it may be acceptable to ask to go to the front of a queue. At an airport or a bank, this does not apply. Even in settings where queues are generally orderly, this does not always apply. In Denmark, for example, people do not queue for a train. Cultural ecosystems enable sensitive use of evoneered techniques as a result of unthinkingly binding perceiving and acting with what is said. Mini models (e.g. *queue*) and epistemic tools regulate how communities act, self-display, evaluate others and, above all, do so ‘without thinking’. They link natural innovation and semogenesis as techniques grant us expertise, experience, and a familiar world. As shown by the discovery of the interaction order (Goffman 1983), like language, social conduct follows rules (within language games).

In cognitive ecosystems, people act together as they actualize practices. They coordinate, use emplacement and familiarity with lexicogrammatical and other resources that link experience, flexible use of equipment, and the feel of what happens. Human living uses, not just bodies (with brains) but also how others experience and construct ‘reality’ – aspects of the world take on, among other things, ideational meaning. But do not just make and construe (linguistic) meaning. Even if we often focus on little things (and processes), human experience also uses the pre-reflective (for Halliday, ‘consciousness’). Human powers derive from neither what is localized (in the brain) nor what is situated (in practices) but how such resources co-function as we use things, techniques, and modes of social organization.

4.2 Haugen’s problem – solved

Reuniting ecolinguistics requires one to treat understanding as inseparable from languaging. By highlighting epistemic effects, cultural activity can be traced to how techniques, wordings, and bodies allow people to engage in construal, action, and use of emplacement. Action arises in cognitive ecosystems. However, given natural evoneering, we also use what Skovorodnikov and others call *linguistic consciousness* (Kopnina and Magirovskaya 2019). As emphasized in Russian ecolinguists, within a linguistic domain, groups converge on how they orient to ‘reality’, share stories, and align acting, perceiving, and adducing reasons. By linking a collective view with Halliday’s vision, I solve “Haugen’s problem”. Languages

affect the ecosphere through embedded chain reactions that use emplaced semogenesis. Hence, languages (i.e. lexicogrammars and usage) impact on bioecologies (and human parts) through cultures and cognitive ecosystems. These link languaging, texts, equipment, and practices with experience that excites techniques that use physical, bodily, and ecosystemic constraints. The logic unfolds as follows:

- Given emplacement, semogenesis sets off languaging, perceiving, and acting within culture and cognitive ecosystems (e.g. selfie-making on Tablemountain).
- In cognitive ecosystems, people use lexicogrammatical constraints or **languages**; constraints on *semogenesis* bring forth wordings as part of neurophysiological activity (these can be covert ‘thoughts’ or overt ‘utterings’).
- Where remembered or recorded, wordings perdure and can affect subsequent events – often, within projects (e.g. reworking other ‘voices’).
- In projects, people use evoneered techniques in organized activity that draws on practices (e.g. telling stories in ecolinguistic communities).
- Organized activity makes use of economics, technoscience, production demands, etc. (e.g. working with scientists and organizations in appropriate ways) to set off controlled material process that, often inadvertently, changes bioecologies and, on large scales, the ecosphere (i.e. Haugen’s **environment**).

Ecological catastrophe links failure to grasp *how people understand* with a toxic mix of economics and techno-science. Lexicogrammars (and probabilistic factors) constrain languaging – as we integrate ‘realities’ with use of evoneered techniques (as we act, hear and speak). Yet, since the material can be semiotic, unintended effects abound. Even taking a selfie on Tablemountain can have unexpected epistemic uses. Every person must start where she is coming from or, more formally, it is only through the humanity of others that we become human. Hence, *Ubuntu* (‘humanity’), as the value is known in Zulu, ensconces emplacement with an ethical stance. In organized activity, acting with human understanding as informed by others demands sensitivity to circumstances. Given the moral demands of such a view, one can feel bound to challenge values like universalism, individualism, and free will (see Copley 2016; Cowley 2019b). Not only do these models reduce persons to post-Kantian autonoma, disembodied interpreters, but they sustain a flawed view of mind. Whether or not one adopts an actional ethics (Cowley 2021a), rewilding ecolinguistic territory demands new sensitivity to emplaced values.

Failure to control economics and technoscience has destroyed many biosystems. Leaving aside whether to ascribe this to growthism and classism and/or descriptions such as climate change, ‘reality’ involves more than the *reportable*

(or reported). While this matters (and gains status from naïve realism), organizational and technoscientific change impacts on ecosystems that lie beyond the perceived (or, the perceivable). In bioecologies even humans rely on feeling and action that, without articulation, binds the material with the semiotic. As a result, we suffer without understanding. A focus on ‘reality’ (and the said) can mask the damage wrought. Often, we ignore how, say, technoscience damages the quality of life. Yet, of course, science produces interested epistemic outputs. In what Ziman (2000) calls the post-academic university, science too favors market-driven choice, freedom, and social responsibility (i.e. voluntarism, individualism, and universalism). In short, it is integrated with growthism and classism. To begin by managing (negative) events, we can replace such values with bioecological awareness – the power of emplacement, a sense of ourselves, and commitment to bioecological richness. This parallels how, in global development, an important shift has given new emphasis to health equity (see Gostin et al. 2019). We can demand that science deliver *ecosocial equity* by addressing actual problems in actual places – and, above all, ‘marginal’ bio-ecologies. Indeed, moves in this direction are underway as ecolinguists work for goals in education and in seeking, emplaced ways of extending personal, social, and bioecological well-being.

5 Conclusion

Rewilding means that, as in Russia, ecolinguists can aspire to alter linguistic consciousness (Kopnina and Magirovskaya 2019). Once “Haugen’s problem” is solved, positive action through languaging can drive collective change. Since the ecosphere is permeated by praxis, many living things depend on how humans actualize activity, wordings, and, thus, languages. Rather than debate linguistic ‘reality’ (or theory), a reunited ecolinguistics can use observing, modeling, and (re) making practices to be, at very least, a field of applicable work. We can strive for goals like saving ecosystems, improving education, identifying misleading discourse, enhancing human well-being, and the like. Given ecosocial diversity, variation within and across geographical borders will shape the array of priorities. For example, many use harmonious discourse analysis to enhance a human-nature balance (Huang and Zhao 2021; Zhou 2017). Using an ecosophy of “diversity and harmony, interaction and co-existence” (He and Wei 2018; Wei 2021), these scholars solve problems in ways that resonate with Chinese tradition. They may aim, for example, to alter linguistic consciousness among Chinese diplomats by using the criterion that they “respect the diversity of world civilization and establish the idea of harmonious co-existence of one another” (Xue and Xu 2021: 83). One looks forward to future work on how such values bear on diplomacy.

Ecolinguistics increasingly aspires to become a discipline (see He 2018). By grounding itself in praxis, it can pursue how techniques affect discourse, languages, and, above all, languaging. Highlighting organized action, such a discipline will deal with practices. It will track emplaced understanding which, as actualized, leads to changing techniques and practices that improve (or damage) bioecologies. While there are many policy implications, ecosocial diversity depends on cascading small-scale change (and natural evoneering). In China, one can ask how discursive practices enable students or educators to gain ways of *experiencing* harmony with nature. In other places, other practices are of concern. In Denmark, while some bring bio-ethics to education, business, or science, others pursue health benefits of bioecological awareness. Globally, as Stibbe (2015) shows, shared stories can support ecosocial equity or, indeed, to trace how discursive strategies link classism with science and exacerbate the climate crisis. Hence, we find the exciting prospect that a reunited ecolinguistics can build an actional agenda. If we accept rewilding, we must change linguistic consciousness – including our own. Hence, a turn to languaging has theoretical consequences. In spite of grammars like that of English (Goatly 2021), reality does not consist in processes and things but, rather, these arise for a living observer. While the idea is not new, as applied to languaging, it grants experience of bioecological awareness and, in time, changes attitudes and social aspirations. The ecosphere draws, in part, on how the results affect praxis and, as humans adjust, what each of us understands, says, and does.

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