

CONCLUSION: POSITION IS POWER

Looping back to my opening narrative about the Global Taxonomy Initiative established by the Convention on Biological Diversity in 1998: Nearly 25 years later, even with the impressive advancements in all facets of biodiversity science—from DNA barcoding to large scale computational phylogenetics—the field still has some of its greatest challenges in front of it. Even with the problems associated with managing data aggregation, the limitations and problematics of algorithmic software, and need for high-speed computing for speculative evolutionary purposes, the greatest challenges for biodiversity science, it seems to me, are social and cultural more than they are technological. On the whole, biodiversity science is not a computationally intensive endeavor, at least not when juxtaposed with other largescale collaborative scientific initiatives such as CERN, which requires a \$5 billion Large Hadron Collider, in addition to a bevy of other accelerators and decelerators, to perform a core function of its work. The workhorse of the biodiversity is the relational database—one of the most integral and overlooked tools on our technological and scientific landscape. The core challenges, as noted by the Alliance for Biodiversity Knowledge (Hobern et al. 2019), are in part the need to coordinate global skills and activities, develop shared roadmaps, and to manage shared and collective governance. These are human problems, problems of social and collective epistemology. The increasingly international and collaborative nature of biodiversity research is requiring a shift in consciousness in the field that prioritizes data sharing, open science, and the emergence of standards that,

to at least a certain extent, prioritize data communication for the benefit of the greater scientific good. And at the heart of this cooperation are biological classifications that, by virtue of their communicative importance, have emerged as central spaces of promise and of conflict.

An aim of this narrative has been to expose the ways that classifications in general, and biodiversity classifications in specific, create, expose, distribute, and sustain various modes of power. This power is representational, it is material, it is epistemic, and fundamental. If we recall our hypothetical WeevilBase from chapter 3, we can imagine the numerous possible online repositories this data has populated by way of structures such as the Catalogue of Life and GBIF. Scientists from every nation the world could have downloaded WeevilBase data and implemented it in any number of ways. One problem is that we may know how many times WeevilBase was accessed or downloaded (by way of platform metrics), but we cannot for certain know for what purposes or where the data potentially flowed thereafter. This data, now activated in these disparate spaces, has the capacity to inform a host of environmental and ecological decisions and interventions. But like so much information, the further it gets from its context, the less control creators have over its interpretation and production context.

The Catalogue of Life is an instructive infrastructure because, while it facilitates the necessary sharing of information, it also pushes against many of the prevailing assumptions that have been central to the practice of biodiversity taxonomy for hundreds of years, particularly that the primary role of biological taxonomies is to present a formal and unified presentation of an argued hypothesis. As a result of this turn toward access, a system like the Catalogue shows what we lose epistemically when we design systems primarily for broad and varied uses. Local knowledge and context are lost to the benefit of global data coordination and control. Perhaps most importantly, the mixed reception and critiques of composite systems starkly expose the fact that classifications have epistemic impacts *at all*.

The classification issues discussed throughout this text are, I believe, central to the production of human culture in our current epistemic environments—even beyond the narrow limits of environmental culture and biodiversity work. We know that platforms like the Catalogue of Life

are shaping the outline of biodiversity knowledge in educational environments. The Encyclopedia of Life (2018), for example, offers a number of lesson plans for grades 2 to 12, and by virtue of these (admittedly, useful and indispensable) resources, the logic of consensus classifications is now becoming the default for many students just as textbook models of the classification of dinosaurs dominated my own youth. But more significantly, biodiversity classifications deeply affect the way humanity imagines itself to live in, and in relation to, this natural world. What biodiversity taxonomists take for granted—that classifications are artificial and constructed, that they are arguments and subject to fruitful disagreement—is just not an acknowledged or normalized reality in our public consciousness. Just as individuals depend on the seemingly objective quality of search engines for their information retrieval purposes, so too do individuals see trees of life and other graphical representations of the natural world as static and singularly authoritative. If any biodiversity taxonomist thinks otherwise, I urge you to please spend a few days at the reference desk of a library (as I did for many years); I can assure you, the first impulse for the general user is not to question the veracity of most of the information they receive. Our collective, public ability to interrogate our informational world is staggeringly lacking.

So, when structures like the Catalogue are constructed with layers of complex epistemic entanglements, we need to be aware of how best to facilitate systemic transparency so that individuals can appropriately contextualize this information. It is imperative that academics in all disciplines (scientists, humanists, artists, computer science, and all) work together in ways that can make the internal schematics of information structures more visible—to foster a culture of questioning with regard to how we navigate technologies and to ingrain a sense of critical inquiry and an ethic bent toward openness and justice. The more concerted we do this, the more sensitive our collective publics will be to the reality of what these contingent and opaque structures illustrate—and what they do not. Public trust in science and authority is at an all-time low, and although it's impossible to pinpoint any one reason why this is the case (surely there are many), we can certainly say that the information infrastructures we create

are not helping to ameliorate this trend. Of course, changing the course of the public perception of information is not the sole responsibility of the Catalogue—or any one system, for that matter. The point here is that the Catalogue’s structure and composition does give us the opportunity to ask productive questions about the future methodologies of applications of classification and taxonomic work.

Scholars in information studies have worked for decades to make finding information easy, to optimize our user environments for ease and comfort, and to deliver relevant information. But, alas, the pendulum has swung too far in one direction: it is now too easy to find the information we think we need and far more difficult to find information that is useful and true. This must change, and for this to happen, we have to feel comfortable critiquing the very foundation of our information practices—even at the expense of slowing our efforts and working through some of the disciplinary problems these efforts expose.

With this said, it is important to note that classifications are not only the foundation for our production of knowledge and understanding of the natural world; equally impactful are their material consequences on the lives of countless species around the globe. Throughout this text I’ve discussed a number of hypothetical organisms as exemplars for my discussions—dingoes, beetles, bears, parrots, and mussels, to name a few. The examples may be hypothetical, but the circumstances related to the peril of these species are not. It is relatively easy to perhaps turn one’s head and say, *Well, this is the natural course of things!* But nothing about the climate, extinction rates, the fires, the flooding, and the prevalence of disease is happenstance. It is our human inclination to exploit that produced these natural ills, and this is a problem.

At this moment, I am in my living room at what I hope will be, in retrospect, the beginning of the long end to the COVID-19 pandemic. National and international discourse is such that economic hardships take precedence over the lives that have been lost and on the toll this has taken on our collective global psyche. Meanwhile, the environmental circumstances that exacerbate these problems continue to go undiscussed, if not wholly disregarded. As noted by the Harvard Chan Center for Climate,

Health, and the Global Environment (C-CHANGE), “Many of the root causes of climate change also increase the risk of pandemics. Deforestation, which occurs mostly for agricultural purposes, is the largest cause of habitat loss worldwide. Loss of habitat forces animals to migrate and potentially contact other animals or people and share germs. Large livestock farms can also serve as a source for spillover of infections from animals to people” (2020). This imbalance and disregard for our natural surrounding is our proverbial canary in the coal mine. This scenario, and many others like it, raises the stakes for work in the biodiversity taxonomic sciences. It is, in part, because of biodiversity data produced over the course of hundreds of years that we have a baseline to understand the rate and impact of our ecological and environmental change.

And so, with the stakes as high as they are, we can better understand why the material and aesthetic qualities of classifications have been so important to the narrative of this text. Our position in a classification—our derivative positionality—is important because it serves as the nexus between our affective experience in the world and the abstract representational space that is so often easy to overlook. But that representational space is integral to how we function within society—and more importantly, how we think about our own identity in relation to human and nonhuman entities. If *designers* of systems are not giving due attention to the diverse potentials of these spaces, then we will never reclaim our technological identities, nor the power that they have over us in our daily interactions. We have to continually argue that classification space *is* justice space, and that the lived world will continue to be unjust unless our derivative identities reflect an alternate reality based on equality and equity. It is important for IS scholars and practitioners to realize that they have a role to play in how these online infrastructures work in service to these ends.

But even beyond personal identities, it is important for all information specialists to invest in this broader project of systemic deconstruction and critique for those who cannot act on their own behalf. I am not speaking merely of the human world, but also of the natural world. The species on this planet have everything to lose but have absolutely no agency with regard to our decisions and actions. Social justice *is also* environmental and

ecological justice; one cannot exist without the others. To speak disciplinarily: information studies would do well to examine new modes of justice beyond those that apply to anthropocentric concerns—they can, perhaps, help us reenvision new potentials for classificatory arrangements. The analytic I illustrate in figure 0.1 is only a small part of the larger critique of power as it relates to representational and informational spaces. In our social reality, our social (economic, education, etc.) position dictates the capacities of our social powers, while in our represented spaces, our power is relative to our classified position. The fate of the dingo is one thing, but the reality is that our human fate is as contingent and dependent on these systems as any other organism. Our social and representational positions are fragile, so we should tend to them with the care and capacities our physical selves deserve.

Those that work within the broad discipline of information studies have an obligation to the public to view spaces of classification as facilitating both epistemic empowerment and epistemic injustices. And while we may not be able to define any *exact* notion of how we define empowerment or justice universally (and it would be dangerous to do so, it seems to me), we certainly can and should design our interventions to create systems that accept many sources and structures of knowledge. We must *try*, even if the end result is imperfect on the pathway to some semblance of success. In any geographic and political space, we will be materially, politically, economically, and socially challenged in some way. But we should still continue to acknowledge that if we start dialogue; if we enact critical literacies; if we design and implement our services, programs, and collections in culturally diverse ways, then we have, properly, to the best of our ability, set the foundation for whatever change is necessary—whether it is *our* concept of change or not. Using humanistic approaches based on historical, philosophical, and cultural contexts is the best that we can do. And surely, if there was a time to do so, that time is certainly the present. All said, if I—if we—are to succeed in these aims, then surely libraries and the information disciplines will be an integral part of this change. But we must first acknowledge that any change in the world will, at some point, contend with the activity of classification—it is, after all, one of our most basic human instruments. Such is the impact of space represented: position is power.

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Classification and the Biodiversity Sciences

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