Recomposing kinship

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What would happen if we accepted technological connection as a form of reckoning kinship? In exploring this position, I draw on accounts of disability and illness. First, I focus on an account of fecal microbial transplant use and the intimate connections the technology creates between the recipient and donor. This is followed with the case of a woman who relies upon facilitated communication to communicate with her social others, which depends on her use of other persons to interact with a keyboard. In both cases, material connections with and through technology disrupt the putative nature of kinship as based in "custom" and "blood." Taking technological mediation in the production of kinship networks seriously destabilizes humanist conceptions of the contours and capacities of bodies, eroding the distinction between self and world. In apprizing the role of technology in making kinship networks, attention to disability and illness experiences of the world point to ways out of dominant conceptions of the human and the need to ethnographically attend to nonnormative bodily engagements with material worlds as the basis for emergent forms of personhood and subjectivity.

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Start here, with Gregory Bateson's parable of a blind man with his walking stick, his effort to get his reader to reconceptualize the human body and its relationship with its environment:

> Consider a blind man with a stick. Where does the blind man's self begin? At the tip of the stick? At the handle of the stick? Or at some point halfway up the stick? These questions are nonsense, because the stick is a pathway along which differences are transmitted under transformation, so that to draw a delimiting line *across* this pathway is to cut off a part of the systemic circuit which determines the blind man's locomotion. (Bateson 2000, 318)

Bateson wants to erode the distinction that is often made between a person and the tools they use to interact with the world. The blind man, for Bateson, is inseparable from his stick, at least insofar as he comes to rely upon his stick as a necessary tool for navigating his environment. As a prosthetic, the stick serves to remedy its user's sensory impairment; it does not, however, seek to replace like with like, substituting some technologically mediated form of vision for the "natural" vision the blind man lacks by normative standards. Instead, it seeks to join with the already-existing physical capacities of the blind man to become something more: blind-man-and-stick. In this way, the blind man's relationship with the stick recomposes both the man and the stick into something new: a body with emergent capacities, a stick with a human relation. As a conduit to the world, the stick composes new relations.

   I recently returned to this Bateson passage because I have been working through the many intimate relationships individuals narrate with the technologies that make their lives livable. More

than mere prosthetics or assistive technologies, these technologies are more like kin and make kinship possible. They appear to meet Marshall Sahlins's criteria for kin, namely "mutuality of being" (Sahlins 2013, ix). But Sahlins, like many anthropologists focused on kinship, seems overly focused on humans as the only actors that can be kin, although, as the ethnographic record shows, personhood— and kinship—is sometimes extended to yams, spirits, nonhuman animals, and otherworldly actors, particularly outside of the North Atlantic (Gell 1998; Ivy 1995; Munn 1992; Strathern 1988). What these kinds of persons seem to share, at least in some historical sense, is a basis in the organic, or, in Gell's discussion of art, verisimilitude with the living. Why has the inorganic, the technological, been ruled out of the possibility of kin relation (Bennett 2010; Chen 2012)? What might be the implications of considering technological objects as a kind of kin rather than as a kind of prosthetic (Haraway 1991; Stiegler 1994)? How might attending to technology and the inorganic as the basis of relations between persons open up terrain in conceptualizing kinship and the category of the person?

These questions about kinship become vital in the wake of actor-network theory (ANT) and the anthropology of science more generally. ANT proponents, and others working in close proximity to ANT, start from the ontological position that all actors in a network are of equal importance to the network (Latour 2005; Law and Hassard 1999; Mol 2002). What differentiates one actor from another is the agentive power of that actor, specifically the ways that an actor can change experiences of time and space throughout the network or in relation to specific other actors (Callon 1986; Lien and Law 2011; Mitchell 2002). Actors can work together in ways that provide individual actors—or collectives—new agentive powers (Haraway 2003a; Latour 1991). In the context of networks that include humans, who have the ability to represent their beliefs about the network they exist within, the agentive powers of specific—and whole categories of—actors can be obscured. Feminist science studies scholars have engaged with ANT, with specific focus on the ways that some ANT-based accounts drop politics and questions of power from their analysis (Fullwiley 2011; Martin 1997; Reardon 2017; Taussig 2009). Here, I am compelled precisely by the political dimension of kinship that troubles how kin might be accounted for in the flat ontological approach provided by ANT: how might kinship as a political category of worldly connection and mutual dependency trouble the apolitical impulse in some attempts to account for relations between actors as based solely in depoliticized agentive associations? Focusing on kinship—particularly as a mechanism through which lives are made livable and connections between bodies are made through idioms of caring about and caring for—shows how agentive relations are facilitated through material interactions that are obscured through ideological practices that support neoliberal notions of the individual (Buch 2018; Gershon 2011; Greenhouse 1992). These agentive relations compose persons as persons through the material interdependencies they share and the narratives that structure their relationships.

As a feminist intervention, and especially rooted in the feminist anthropology of science, conceptualizing kinship as a dependency relationship between actors that facilitates being in the world in livable fashion helps show how representational forms of kinship—i.e., David Schneider's "blood" and "custom" (Schneider 1980), the anthropological use of the kinship chart (Wilson 2018)—obscure the compositional interdependencies that enable these facilitations. Kinship as a necessarily political category predicated on who belongs to whom and under what conditions an individual can be considered a person in a given society (Ordover 2003; Roberts 2011) builds on feminist critiques of institutionalized forms of power, particularly those that legitimate themselves through recourse to "nature" as the basis for domination (Martin 1992; Yanagisako and Delaney 1994). This is clear in cases where forms of systemic exclusion, ranging from miscegenation laws

to eugenic policies, rule some kinds of persons as less than full persons—and, in extreme cases, as not persons at all (Fleischer and Zames 2011; Roberts 2011). In this context, focusing on medicine, healing, and disability is especially illuminating.

American biomedicine seeks to normalize individuals (Davis 1995; Martin 2006; Porter 1999). This occurs through the use of therapeutics—pharmaceuticals, surgeries, prosthetics—that either promise a return to a pre-illness state or provide the basis for the development of a new "normal." In either case, the charismatic power of biomedicine is predicated on the promise that a cure will restore an individual to full personhood (Dumit 2012; Metzl and Kirkland 2010; Wolf-Meyer 2014). This is dependent, especially in the American context, on disability and illness being associated with less than full personhood for much of the nineteenth and twentieth centuries (Garland-Thomson 1996; Gilman 1988). That lack of full personhood has led to various forms of disenfranchisement, including sterilization policies, institutionalization, the appointment of guardians, and the imposition of limitations on individuals' rights to work and marry. Less than full personhood is equated to less than full social participation (Rapp and Ginsburg 2001). The curative powers of biomedicine promise both a restoration to a "normal" body and full social participation. Focusing on cases where full personhood is contested or facilitated and the material connections that these forms of personhood rely on helps to show what is at stake in making kin—or in denying kinship to specific people and through particular technological conduits that compose emergent bodies and relations.

In this essay, I draw upon a wide set of research with individuals who have been diagnosed with various medicalized conditions as a means to show how technology makes kinship relations between people and acts as kin in itself. These cases include neurological disorders, which are widely accepted to impact individual's abilities to communicate in normative ways, with specific reference to nonverbal autism. I also draw on cases of individuals with a gastrointestinal disorder that relies on fecal microbial transplantation as a treatment. What these accounts share, and this is apparent in Bateson's parable, are the ways that technologies make human-human relationships possible and, in so doing, come to be imbued with facilitating powers of their own, which they are thereby animated by and become kin through. They also come to animate their users, constituting a "mutuality of being" (Sahlins 2013) that is based on interdependence and a sense of caring about those whom the technologies connect. Conceptualizing kinship as a conduit that composes emergent relations and bodies shows how kin are both a means to establishing further kin relations and that relations between kin are never an end unto themselves. In this way, kinship as a compositional technology is both a kind of relation and makes kinds of relations possible. In making this argument, I draw on perspectives from feminist science studies, the anthropology of science, and disability studies, each of which seeks to disrupt normative accounts of kinship as based solely in the organic, human, and nontechnological.

Disability studies scholars point to the ableist conceits that posit individuals with impairments as having "lost" or as "lacking" something (Kafer 2013; McRuer 2006), and thereby challenge the phenomenological caricature of humans as "animals without qualities" (Stiegler 1994), defined as we are by the tools that we use. For many disability studies scholars who identify as being disabled, the impairment to their mobility, senses, or cognitive experiences is often treated not as a lack but as a different mode of existence with its own challenges and benefits (Kleege 2018; Watts Belser 2016; Yergeau 2017). This can veer at times to the exceptional position of the "supercrip," whose impairment endows them with more-than-human capacities, albeit rather modest ones—like a lip-reader's ability to read lips across a room (Schalk 2016). Similarly, self-identified neurodivergent individuals conceptualize their nonnormative cognitive styles as enabling atypical but nonetheless

generative ways of being in the world (Antonetta 2007). From ableist perspectives, these accounts—and especially the accounts of individuals with mobility impairments—can be unsettling to some readers; writing of her use of a wheelchair, Julia Watts Belser argues that "The mutuality between wheeler and chair demands an understanding of how hand and tire interrelate, how weight affects wheel. Motion and presence are unified; the self is expressed in and through wheels" (Watts Belser 2016, 12). It is precisely the "mutuality" and expression of the self through the relationship between wheeler and wheeled that disrupts ideological conceptions of the active user as a full person and technology as an inert object. Like other disabled scholars, Belser demonstrates a dependency of being that derives from the "mutuality" that her relationship with her technology engenders. She and her wheelchair become possible—become persons—through their relationship with each other. The use of her wheelchair also allows Belser access to society more generally, through which she can forge kinship connections with others.

My interest in disability and illness narratives of interdependence is to invert Marilyn Strathern's suggestion that "the world [is not] a kin-based one" despite being full of relations (Strathern 2014, 45-46). What if instead we conceptualized the world as full of inorganic and organic kin, all of whom we have relations with and through, but to degrees of attenuation or intensification? What if we accepted that kinship is a kind of technology, and that technology makes kinship possible?[1] This might be a perversion of the basic premise of kinship studies in anthropology, which, over their 150-year history, have relied almost solely on human-human relations (Lévi-Strauss 1969; Schneider 1980; Strathern 1992a; Weston 1997; Yanagisako 1978), but if one turns to scholarship that comes out of Indigenous traditions, this conception of relationality is more apparent. For many Indigenous scholars in North America, "relations" point to the necessary connections between humans and their worlds, often as the basis of what Dwayne Donald refers to as "ethical relationality" (Donald 2009; Laduke 2016; Todd 2018). In the context of settler colonialism, and particularly in the context of American neoliberal settler colonialism focused on the individuation of the person, the ignorance, obfuscation, and rejection of relations serves to ground power relations that privilege some modes of being in the world over others—especially autonomous individualism over interdependence. Taking these insights and pushing Strathern's "descriptive" and Sahlins's "mutuality" approaches to kinship to their extremes, focusing on human-technology relations show how relationships with technologies are a form of kinship and make kinship possible; there is no kinship outside of the technologies that make kinship possible. Against the obfuscatory politics of neoliberal kinship in the North Atlantic, I argue that narration makes kin, and it is precisely the connective function of narrative—narrative as a form of biocommunicability (Briggs and Nichter 2009)—that connects bodies across times and spaces. It is this narrative function that creates a caring relation between bodies (Buch 2018; Fisher and Tronto 1990)—or, at least, describes these relationships and accounts for the visceral connections that the technology of narration makes possible.[2]

Taking into account perspectives from Indigenous scholars, disability studies, and the anthropology of science, I argue that kinship is a conduit that composes emergent bodies and relations and their connections. Traditionally, anthropologists conceptualize kinship as a kind of relation, with one's status as kin being either positive or negative, that is, one is either related to someone else or not. Over time, anthropologists have argued that kinship is a cultural system of relations and should not be reduced to mere biological understandings of relatedness. As a cultural system, kinship often makes recourse to biological tropes, utilizing "blood" and "genes" as ways to reckon relatedness between individuals and families as well as racial and ethnic communities (Schneider 1980; TallBear 2013). Conceptualizing kinship as a conduit asks not whether one is related

to another, but what the principle relation between person and kin opens up in terms of extended relations. As in Strathern's discussion of "cutting the network" (1996), accepting kinship as a conduit of relations demonstrates what people are willing to be related to and what they are not, as well as the means through which individuals come to be related to each other, materially and narratively. Such a view builds upon substantialist conceptions of kinship (Daniel 1987; Marriott 1976; Strathern 1992b), wherein kinship is reckoned through shared substance (e.g., food, semen, breast milk), and suggests the possibility that the inorganic might operate analogously to shared, organic material.

In this essay, I focus on two very different primary examples, fecal microbial transplant (FMT) and facilitated communication (FC), which draw from two different research projects. These are supported by two briefer examples focused on sleep medicine and genomic ancestry tests. Across these examples, my attention is on how technology serves to create connections between individuals, and how, in some cases, caring for technology serves as a primary means to connect individuals with wider relations. The examples suggest technological forms of kinship fall into two kinds of expression: technology-as-kin, wherein the object is treated as if it is a person, although that personhood may be limited, and technology-as-conduit, serving as a mechanism to bind individuals through the compositional mediation that technology provides, thereby founding a relationship of caring about another individual or group as kin. I am most interested in this second expression, as it serves to move discussions of technology-as-kin beyond simple fetishism (Stratton 1996) and shows how technology—and the inorganic generally—serves to make bodies share qualities, capacities, and histories across time and space, thereby making kin through the conduit of technological mediation (Haraway 2003b; Helmreich 2003). Moreover, technology-as-kin obscures that the relation between person and object is itself a conduit that opens up relations between the individual technology user and the world of relations that technology makes possible.

Fecal microbial transplantation is the process whereby an individual with disordered gut flora receives an infusion of healthy gut bacteria from a donor. This donor sample is sourced from a healthy individual's feces, added to distilled water, blended, and implanted through enema. Generally, the effects of the infusion—or "colonization" in the medical literature (Rohlke and Stollman 2012) —occur quickly and resolve many medical concerns within days. However, because FMTs do not necessarily resolve the underlying microbial dysbiosis, patients may need to receive FMTs in an ongoing, therapeutic fashion.

Facilitated communication is a communicative practice used by caregivers to give voice to those they care for who are either nonverbal or have severe communicative disabilities. This can involve the use of keyboards or notebooks with simple symbols associated with objects and actions; the caregiver aids the disabled communicator by holding an elbow or arm to ease the communicator's ability to point at or press a letter or symbol. In this way, individuals with communicative disabilities are able to convey messages to those around them. FC is also increasingly seen as including other forms of caregiver interpretation of disabled communicator gestures, including tapping, eye movements, and verbal but nonlinguistic sound making (Biklen and Cardinal 1997).

There are controversies around both FMT and FC. For some actors in state agencies, physicians, and scientists, FMT is seen as potentially conveying diseases alongside its curative effects, which has led the Centers for Disease Control and Prevention, the Food and Drug Administration, and the National Institutes of Health to sponsor regulations of FMT limiting its use to research hospitals and clinics until its effects are better understood (Wolf-Meyer 2017). FC is seen by some as the falsification of communication on the part of caregivers (Chan and Nankervis 2014). Rather than accept that the disabled person is able to communicate with the physical or interpretative work of

the facilitator, skeptics see the facilitator as manipulating the communicator to convey what the facilitator is interested in communicating.

The controversies about FMT and FC are based on their being forms of mediation. In FMT, the technical apparatus that facilitates the transfer of microbiota is seen as a neutral, transparent technology that allows a microbial colony to be transferred from one body to another. The anxieties about FMT are ascribed not to the technology but to what the technology is mediating. Conversely, in the case of FC, it is precisely because the mediator—the facilitator—is seen as potentially interfering with the communicator's intent that concerns arise. The anxieties attendant to each of these mediating processes—one technological, one human—point to anxieties about conduits and what they serve to bring into a kinship relation.

What is at stake here are the ethical affordances that kinship allows, as well as the kinds of kinship that are accepted as normative. If an older, resolutely humanist anthropology worked to afford personhood to all humans in a kin network, and the recognition of other people's personhood was predicated on their anthropocentric kinship networks, the inclusion of nonhuman others serves as a means to extend this recognition of personhood to vital actors outside of the "modern" North Atlantic and its secular, rationalist approach to personhood. Animals, spirits, landscapes, and ecological actors could all fall under the protection of an expanded anthropological posthumanism that recognizes their importance in non-Western forms of kin reckoning. Despite its importance in everyday life in the North Atlantic, the inorganic often escapes such ethical affordance. What occurs when the inorganic is instead captured by the protections that kinship provides? How might kinship reorganize the nature of the relation between a human and a nonhuman, inorganic other?

Sleep and Ancestry, Kinship as Caring-For and Caring-About

I initially began focusing on human-technology kin relations during my earlier fieldwork with individuals diagnosed with sleep disorders, and especially based on my conversations with people with sleep apnea (Wolf-Meyer 2012). Apnics, as those diagnosed with sleep apnea are sometimes called, are generally prescribed the nightly use of continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP) machines. Both are secured to the sleeper with a face mask, and both operate on the same principle: air is pumped into the sleeper to ensure that the airway remains open, thereby avoiding the airway collapse that leads to a failure to draw in adequate breath. Severe cases of apnea cause ongoing sleep loss, along with weight gain, memory impairment, and secondary medical complaints, including high blood pressure and stress. CPAP and BiPAP machines are relatively elegant therapies in that they often immediately restore a full night's sleep for users. Over the last thirty years, the technology has benefited from miniaturization, with the machines getting smaller, more efficient, quieter, and easier to clean, and the face masks becoming smaller, more adjustable, and more comfortable. What for many years was a constant complaint of patients using old, large, noisy machines—namely, that the masks were uncomfortable and the machines too complicated—has been largely rendered moot. But, even with the complaints about the technology and its bulkiness, users I interviewed confessed to an intimacy with their machines, and, in some cases, their partner's machines. The people I interviewed talked through how each day, either after waking or before going to bed, they needed to take the time to clean the machine and mask, taking it apart, washing it, and replacing it by the bedside. They talked about preparing their machines for air travel and discussing them with coworkers and friends, and recalled—often with retrospective good humor—introducing them to new bed partners. CPAP and BiPAP machines seemed to become

members of the family, and many people I interviewed narrated their sense of loss when exchanging an old model for newer technology, even when they recognized the benefits of the new machines. Many still held onto their old machines, tucked away in storage somewhere.

These human-machine connections might be reduced to a facile cyborg relationship, where the external, inorganic object serves as a supplement to the patient, providing them with an airway that allows breathing during sleep. But the attitudes evidenced by CPAP and BiPAP users demonstrated how their relationships with these technologies were not supplemental to themselves, but rather means through which they connected with others and with their worlds–they served as conduits to make kin through. Rather than simply caring for their technological objects, as one might care for a prized possession, users show how their CPAP and BiPAP machines allowed them to care about their health and social others. Over time, this has begun to feel to me as analogous to the ways that individuals have come to employ genetic ancestry testing, which, as a technology, provides a mechanism for individuals to come to care about–sometimes directly and sometimes diffusely–new kin and oneself as kin to others.

The rise of genomic technologies, as feminist science studies scholars have shown (Franklin 2007; Fullwiley 2011; Rapp 1999; Taussig 2009), has created new alliances between individuals. In many cases, this has provided ways for individuals and families to see themselves in hereditary lineages that are racially and ethnically marked, at times leading to controversial claims about minority group belonging (TallBear 2013). Genomic technologies have also aided in the understanding of hereditary and rare diseases, leading to the building of kinship networks across genetic conditions in efforts to appeal to states for medical care and increased scientific research (Heath, Rapp, and Taussig 2005; Rapp, Heath, and Taussig 2001; Taussig, Rapp, and Heath 2003). As a conduit for making kin, DNA technologies do more than simply connect people across space and time; they serve to render similitude between individuals, families, and communities through the technology itself (Cf. Friedner 2015). Beyond merely ideological fantasies about the relationship between individuals, genomic technologies serve to make people like one another, bridging disparities in experience, history, location, and physical condition (Fujimura 1996; Montoya 2011; Reddy 2007). Rather than conceptualize their work as one of making resemblances, DNA tests might be thought of as materially rendering bodies like one another, as sharing a biological terrain that serves as the basis of conceptualizing connectedness, relationality, and one's relationship to the mediating technology itself (Nelson 2016). I see this bundle of relations–to individuals, families, communities, and technologies–as the basis for arguing that technology is not a mere fetishistic object of faux-kinship but rather is the conduit for kin relations and a form of kin itself. As a conduit bringing bodies together over space and time, technology serves as a prosthetic to narrate the "mutuality of being" between kin. In the following, I turn my attention to two very different cases, both of which connect individuals with others, their worlds, and their selves through the technologies they employ. In this way, the conduit of their technological dependences makes kinship possible.

FMT: Kinship as Conduit

Reporting on her experience with FMT on a Facebook support group, which I refer to here with the pseudonymous name the Gut Dysbiosis Treatment Community, Rebecca says:

It is different for everyone. I had cramping, fatigue, low energy, weight gain, and body aches immediately after the FMT. The energy never returned to pre-FMT normal and my weight continues

to increase. (Until the FMT I was energetic and thin.) Other people have had success. Unfortunately, I wasn't one of them.

Picking up on Rebecca's discussion of weight gain, another commenter, Jack, who is a medical researcher asks, "You had an overweight donor, didn't you?" The dialogue continues: "It turns out I did. I was told she was 'normal body weight' (not true). Now I deal with feeling like I am living with someone else's sluggish overweight body stuck in mine." It is unclear whether Rebecca's donor was in fact overweight; she should have no way of knowing since the clinic should not disclose this information. But in this interchange, her donor's weight status is quickly ratified against the assumption that Rebecca's "energetic and thin" status was not the by-product of her illness but her natural state. That natural state is colonized by the "sluggish overweight body" that the FMT procedure sympathetically contaminates her with, making her less her pre-illness self and more akin to her unknown donor.

Jack assures her, however, that the sympathetic process can occur in reverse. He tells her:

You can reverse those symptoms finding a slender donor with a very clean medical history, no history of being overweight, and a clean diet. Someone active. And if a medical clinic did this to you and lied about their donor, you might consider a lawsuit.

Rebecca replies: "A medical clinic did the FMT. It can be reversed?! That would be amazing! How would I eliminate the biome from the first donor to replace it with someone new?" Jack replies:

Yeah, it "can" be reversed. Theoretically. We do it in mice models all day long. Make fat ones skinny and skinny ones fat by fecal transplants. The same thing happens with our own microbiomes. It doesn't mean you won't just introduce new side-effects, however. This is not even close to a perfected science. This is pioneer science shit. It's all about finding the right donor "for you."

What is being negotiated here are the natural states of bodies and how, through superimposition through FMT, these natures become colonized and kin to other bodies. The science of FMT—for Jack, at least—is both "pioneer science shit" and also a process that operates in a transparently sympathetic, colonizing way. While there may be doubts about the science—which Jack captures in his invocation of "pioneer science shit"—FMT is also, unproblematically, the mechanism through which Rebecca went from being "energetic and thin" to "sluggish" and "overweight." Jack goes on to suggest that "it's all about finding the right donor 'for you,'" implying that the "right" kind of donor is one that shares a natural, pre-illness state with the recipient. As much as these natural states are perceived as being indebted to one's birth, early diet, and genetics, medical science suggests that they are also shaped by one's exposure to antibiotics, contemporary diet, and everyday life. Jack suggests that Rebecca's contemporary condition is the result of using the wrong donor, not the result of an unpredictable procedure. Ideally, she should have sourced her donor sample from kin, from someone whom she was most like; instead, using an unknown donor's sample has led to Rebecca developing a sympathetic kinship with a stranger, and someone she sees as fundamentally unlike her. Despite that, she is drawn into caring about that unknown donor and the impacts that the donor has had on her life.

Half-jokingly, the members of the FMT online community refer to themselves as "pooineers," indexing their role as experimental guinea pigs in a highly regulated, controversial landscape of microbial medicine. They are asked to reconceptualize their kinship network, not as based on the typical forms of biological and legal reckoning that accepts some people as kin and others as not, but rather as "good" and "bad" donors based on questions of health, diet, chronic illness, antibiotic

exposure, and histories of mental illness; simultaneously, they are tasked with reworking their relationship to the state, primarily through their engagement with medical institutions, specifically research hospitals that have filed applications with the FDA for the use of FMT in the case of *Clostridium difficile* infections. But the experimental status of FMT also drives patients to peri-legal informal networks of donors, internet support groups, and online resources. In reconceptualizing one's kinship network, unlikely qualities of personhood and microbial stewardship come into play: questions about antibiotic use, vaginal birth, breastfeeding, diet, and personal histories of illness and well-being all become germane to considering who makes an appropriate donor. In ruling out donors, one reworks the contours of a kinship network, seeking to become more like those with healthy microbiomes and less like those—often reproductive-biological kin—who are unhealthy. The "pooineer" is compelled to explore a terrain of risk and exposure. This exploration is motivated by medical desperation, with individuals driven to experiment with potentially dangerous self-administered treatments, and serves to rework the contours of kinship through FMT. FMT makes new kin possible—as well as new understandings of kinship apparent—and it is precisely because of these potentials that questions of donorship become important to practitioners and patients, while the technology itself is seen as a neutral conduit to create these relationships.

Jack goes on to suggest that the real danger is more widespread colonialism, and that "if they are using overweight people as donors for you, they're doing it [to] other people too. That same overweight, sluggish donor probably donated several samples they are using on patients currently." Rebecca, in this figuration, is a bellwether case, the first, obvious example of the contamination of a population of patients with the wrong kind of donor. Rebecca's implication is that the clinic knew the status of her donor as "sluggish" and "overweight" and used the sample anyway, thereby enabling this process of contamination. Jack's invocation of the law and the need to stop this colonization process is due to his surety that the same clinic is affecting "other people too"—and, likely, that lax oversight and screening processes are allowing other bad colonies to sympathetically contaminate an unwitting and desperate population. From there, the threat is that these bad colonies compel a cascading descent into illness for their recipients, who, in their desperation, trade one disordered state of being for another.

FMT serves to make people like one another; following Rebecca's self-reporting, one might also see FMT as making people *into* one another, as she accounts in her experience of having her donor's body trapped within hers. The technology of FMT is a transparent conduit—it serves to move the purified sample of a donor into the body of its recipient—and thereby makes kin across bodies. As a technology, it is akin to the work that DNA testing services provide, albeit with direct material consequences for the bodies that FMT acts upon. Where CPAP and BiPAP users might expect a generic experience of their technology, with one user's experience likely to be similar to another's, the experience of FMT is decidedly different: the technology might elicit similar experiences in its clinical application, but its real effects are based on the content of the FMT sample that is conveyed between bodies. Through shared substance, FMT can recompose the material of one body into another body.

Ideally, as Jack's intervention attempts to make plain based on Rebecca's experience, this is rooted in identifying the "right" donor who is similar to the pre-illness state of the recipient. Like navigating a hall of mirrors, this attempt to restore an individual to a healthy state depends upon an understanding of their pre-illness state as similar to their donor's present state; in so doing, the imagined relationship between the recipient and donor is an ideally isomorphic one, where the donor is so similar to the pre-illness recipient that the recipient feels as though they return to their

pre-illness state, to an undisturbed sense of self. That kind of experience, where one is unproblematically returned to a previous sense of self, might not expose the kinship work that FMT does, as the unmarkedness of being healthy is less apparent than the perceived pathology that Rebecca narrates. Rebecca's experience points to the rendering of similitude between bodies that FMT can accomplish: the mismatch between Rebecca's donor and her pre-illness self reveals how powerful FMT can be in recomposing bodies. In doing so, FMT reveals who one is like and who one is unlike; it also reveals how one can be rendered to be like another—not in any superficial way, but in profound experiences of embodiment and being in the world. Through FMT, Rebecca—and others—come to understand their "mutuality of being" across bodies, dependent as they are upon the microbial colonies of others and the influences those colonies have upon recipients' bodies.

FC: Conduit as Kinship

"Now You Know Me Think More": A Journey with Autism using Facilitated Communication Techniques (Hundal and Lukey 2003) follows Ppinder Hundal as she joins Pauline Lukey's home as her ward, their adoption of FC, and Ppinder's integration into her caregiving and educational communities. Ppinder grew up in a Pakistani Canadian family, and at the age of ten, entered the Canadian foster care system. Up to that point, she had been schooled in a special education facility in Victoria, where Pauline worked with her as an in-school caregiver. Ppinder had been diagnosed with autism at a young age, a symptom of which was her inability to speak. Ppinder could understand spoken language, despite a mild hearing impairment, but could not use her voice to make discernible language to communicate with those around her. As such, gestural communication became necessary, first using sign language, and eventually in the form of FC.

During Ppinder's schooling, she and Pauline were both introduced to sign language, which provided them with a simple vocabulary to communicate Ppinder's desires, including "cookie," "coat," and "finished." Over the first year that Ppinder lived with Pauline, their collective vocabulary of signs expanded to include hundreds of simple signs, and over time Ppinder's syntactic sophistication increased as well. At the age of sixteen, Ppinder moved into a group home with new foster parents, which was Pauline and Ppinder's shared intent. At twenty-three, Ppinder needed a new living situation, and her social worker brokered her moving back in with Pauline. By Pauline's account:

> Eighteen months later Ppinder's communication consultant and I heard about a technique to assist people with a wide range of handicaps to do things, including typing, which, without this supportive technique, they were unable to do. This was called Facilitated Communication (FC). (Hundal and Lukey 2003, 25)

Before this, Ppinder had had experiences using a typewriter, but it had been directed by her caregivers, who asked Ppinder to type a specific letter, and then aided her in executing that plan. Pauline and the communication consultant learned the technique to aid Ppinder in her use of FC, which Pauline describes:

> I learned how to support Ppinder's hand with [my] hand cupped under her hand or arm and with a steady backward pressure to allow her to move her hand forward to the typewriter keys, then we would bring it back to the original position. One important part of the technique is that we must never push Ppinder's hand forward but must always maintain a backward pressure so that the choice of letter is always her's [sic]. (26)

At first, Ppinder and Pauline continue to use a typewriter for their communication, but over time they begin to use a simplified letter board, which includes a QWERTY keyboard, numbers, and key terms for Ppinder's everyday life: "more," "headache," "stop," and "something else." Ppinder begins by spelling things phonetically, responding to a set of prompts from Pauline to shape her early experience of FC: for example, "Ppinder and Pauline drink" to which Ppinder responds with "cofe" (coffee). Over time, Ppinder requires less assistance from Pauline, both in the physical support of her hand during FC and in the semantic prompts Pauline provides her with. Ppinder benefits more generally from Pauline's facilitation, as Pauline is often called upon to translate Ppinder's written communication for those she is interacting with. Nonetheless, Ppinder makes significant strides in her communicative capacities through the technologies that she employs—her typewriter, her letter board, her Canon Communicator, and her facilitators' hands. Her memoir is named after a phrase she wrote after using FC for six months: "think now you no me think more ggggive me time to have how i can get ther how i must be good girl" (37). FC allows Ppinder to move from nonverbal communication, restricted to simple referential sign use, to the ability to convey complex moral and social concerns alongside reflexive self-understandings.

The adoption of FC was not without its difficulties. As Pauline recounts:

At the beginning we didn't know anyone using the Facilitated Communication technique so we were in unknown territory. There was a lot of uncertainty—uncertainty about what was happening, uncertainty about whether Ppinder was choosing the words or whether I was unconsciously guiding her. Sometimes she seemed to be typing my thoughts—as I know her so well it was difficult not to anticipate what she was going to say. Although some typing indicated that I was not guiding her I was not at first convinced that they really were her words. (50)

Pauline is aware of the broader social milieu that FC is situated within, particularly the suspicion some people hold toward FC as a legitimate mode of communication for disabled speakers. Pauline writes, "I do sometimes influence what Ppinder types, but this is not surprising—we all influence others in our conversations" (51). She goes on to suggest that she is convinced that Ppinder chooses her own words, noting that she types "almost independently," that she feels Ppinder's muscles move, that Ppinder "reacts emotionally" to the content she types about, and that she "has given many of her facilitators information which they had not previously known" (2003:51). Ppinder comes to depend upon her facilitators and the technology of FC more generally as a means to connect with the people in her world, as well as to express a robust sense of self. This dependence is based on the shared language and interpretive frameworks that are the basis for communication, all of which is predicated on mutuality of comprehensibility across communicators. In this way, FC provides a means for Ppinder to make kin.

As Pauline recounts, FC allows Ppinder to connect with the people in her social world. Ppinder's growing abilities of self-expression challenge the ableist expectations of her "theory of mind" (Grandin and Barron 2005) as well as her comprehension of the motives of the people who make up her everyday life. Before Ppinder adopted FC, the people in her social world largely saw her as responding to her environment and desires in straightforward ways—if she wanted a cookie, she would sign "cookie"—but FC allows Ppinder to convey much more complex ideas about herself, her world, and her relations as captured in her phrase "must be good girl." Ppinder becomes dependent upon others for these communicative acts and the knowledge that they elicit— of herself and of others—which makes her "mutuality of being" in relation to FC and her facilitators apparent. Ppinder depends on others for her care, but FC technology provides her with a means

to communicate a sense of self, of others, and of her world. That production of a subjective self is possible through the facilitation that her communication assistants provide her with, serving as technologies for her utilization of graphic and linguistic communication. More than the letter boards, typewriters, and Canon Communicator, then, all of which are strictly "technological" and inorganic, it is the organic people in her world who are induced to behave in machine-like ways, seeing their facilitation of Ppinder as transparent and unbiased in its effects. This "mutuality of being"—between Ppinder and her facilitators—goes beyond simple dependence and into the relational intimacies that move individuals from limited participation in society to a subjective sense of self and social interdependencies. The technology Ppinder employs to communicate can change as long as it meets basic linguistic and semiotic requirements for her and those around her, but the technology of her facilitation is required for her to make kin with those in her social world and to be treated as kin in turn.

The anxiety that some critics have about FC—which is reflected in Pauline's comments about her fear of influencing Ppinder's efforts at communication—index what is at stake in accepting FC as a legitimate technology. The technology of communication that FC represents, particularly in the context of models of subjectivity that depend upon the use of language and discourse for the development of a sense of self (Benveniste 1973; Butler 2005; Foucault 2000), troubles the previous understanding of nonverbal individuals: Might their sense of self and connection with others be different if they had been provided with FC in any form? If the answer is yes, it depends upon the facilitator serving as a neutral technology, attempting as best as they can to efface any motives they bring to the communicative interaction and to serve as a conduit for the intentions—gestural and communicative—of the communicator. That effacement seeks to reduce the facilitator's agencies to mere physical support for the communicator, rendering the facilitator into a supple and elegant technological medium for the communicator to act through, a transparent and unbiased conduit. In adopting such a role, the facilitator seeks to limit their influences for the sake of allowing the communicator full, free expression. In so doing, the communicator is able to build kinship through the technology of facilitation, with the facilitator—and, in some sense, communication itself—serving as a conduit for the connections between bodies across time and space.

Conclusion: Recomposing Kinship

I often draw kinship charts to explain what kinship is to my students. The simple, graphic representation of kinship networks clearly represents traditional ways of reckoning kin between kinds of persons—children, parents, aunts and uncles, cousins, grandparents, in-laws—and, at its most reductive, appears to naturalize the relationships between individuals through its elegant graphic medium. Over time, I have begun to wonder how the technology of the kinship chart, how its representational logic and technological mediation, have come not to represent already-existing forms of kinship but to make new forms of kinship possible and exclude others through their composition. As a conduit, the kinship chart makes connections between people, seeking to demonstrate their "mutuality of being" through a simple narration reduced to its graphic representation of a line connecting persons. Rather than demonstrating a connection, the technology of the kinship chart composes a connection between bodies, across spaces and times. The kinship chart documents who one cares about, but not necessarily who one cares for or is cared for by. In the context of seeking to represent only those kin bound by biology or law, the kinship chart fails to represent all of the organic and inorganic connections of dependency that exceed the

normative expectations built into the kinship chart's narrative technology. This obfuscation of the connections that individuals depend upon to be full persons—as someone who cares about others and is cared about in turn—implicitly ratifies the individual as an autonomous actor.

In the examples I have provided, technology serves to make individuals care about other individuals, families, and communities, and to acknowledge their interdependencies to these diverse networks of actors. Caring about and "mutuality of being" is more than the narration that the kinship chart might provide; instead, it is a substantive interaction between bodies that recomposes them in fundamental ways. These recompositions are not the blind-man-and-stick as a mere prosthetic user, but the blind-man-and-stick as mutually dependent actors in the world, each of which depends upon the other for its agencies and thereby creates connections with other bodies across time and space. FMT and FC might be a perverse pair—their dissimilarities are great—but they point to the ways that individuals are induced, through a technological medium, to care about others, to care about the impacts that others have on their lives, and to see others as kin. This recomposition process—and kinship generally—can be generative and acrimonious, leading individuals to care for and about those they desire to and, often, those they wish they did not have to care about or for. Rebecca comes to care about a donor from whom she would otherwise be remote; this connection also encourages her to reflect on her personhood and the effects her illness has on her body and relations with the world. Ppinder comes to articulate herself and her relations through the communicative powers that FC provides her with, assisted by Pauline in the mechanical process of communicating with letter boards, typewriters, and her Canon Communicator. Rebecca's and Ppinder's experiences are not simply forms of mediation that FMT and FC make possible: the technologies they employ recompose their bodies through the connections that the technologies make possible, thereby making them kin to others in a social world.

Conceptualizing kinship as a conduit that connects individuals across time and space through the production of caring about others opens up the possibility of treating the inorganic as a conduit for kinship relationships and, by extension, technology as a kind of kin. What affordances do these kinship connections demand? One might consider here the resurgent interest in debunking FC (Chan and Nankervis 2014), which has led to the removal of both facilitators and the technologies they employ from the lives of the people they previously served (Chandler 2017). This removal of facilitators and their communication technologies renders users without the means to make kin through the conduit of communication. Protecting relationships with technologies-as-kin—however these relationships challenge social norms—also means protecting the relationships with the people the technologies connect as kin and the social worlds kinship makes possible.

The technologies that anthropologists have employed to make kinship legible—kinship charts, ethnography, DNA testing—participate in an economy of humanist recognition that bestows personhood to some actors and not to others. A posthumanist approach to kinship that builds on insights from Indigenous scholars, disability studies, and the anthropology of science has the potential to push the political question of who counts as kin and what kinship constitutes by way of a relation into less traveled directions. In so doing, questions about corporeality and necessity, of bodies and their dependencies, come to the fore. If the delimitation to a defined body serves the disciplinary, liberal impulse in Western humanism (Armstrong 2002), and the anthropocentrism of human-only kinship reckoning ratifies this liberal tendency (Wilson 2018), a more expansive, inclusive politics that attends to the necessary relationships that individuals develop with and through technology has the potential to recompose bodies and their agencies. These recompositions might help to account for the diverse dependencies that bodies require to have livable lives. These

recompositions might also point to the systemic forms of exclusion that liberal humanism has relied upon and continues to utilize, particularly as a means to deny the relationships between specific individuals, communities, and the worldly connections they depend upon. As a feminist critique, deploying kinship as a tool to recompose how bodies and their connections are conceptualized, which dependencies are attended to and which are obscured, serves to unsettle normative expectations about bodies and their relations. Deploying kinship to describe human dependencies with the nonhuman, organic and inorganic, has the potential to expose what is at stake in excluding these dependencies, both for the societies anthropologists study and for anthropologists themselves.

Acknowledgements

Notes

1   In this respect, I am building on the anthropology of biotechnology, particular those scholars who focused on how emerging technologies in the latter half of the twentieth century and early twenty-first century were remaking dominant conceptions of kinship in the North Atlantic. This was especially the case in relationship to questions raised by cloning (Franklin 2007), genetic screening (Taussig 2009), "biosocial" connections between individuals diagnosed with similar conditions (Rabinow 1996), and forms of citizenship mediated by claims to shared genetic or biological experiences (Heath, Rapp, and Taussig 2005; Petryna 2002; Rose and Novas 2005).

2   This claim is analogous to Lesley Sharp's (2006) discussion of organ transplantation, in which the technology of organ transplantation creates new forms of intimacy between the individuals and families involved in the procedure. Recipients and donors of organs sometimes develop relationships with new family networks as a result of the medical procedure. In some cases, however, knowledge about donors and recipients is suppressed specifically to deny these formations of kin, which might be seen as upholding privacy rights, but also serves to reify notions of autonomy.

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