WE HAVE ALWAYS BEEN JUGGLERS: HUMAN-NONHUMAN RELATION IN JUGGLING AS A PRACTICE

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ABSTRACT

We Have Always Been Jugglers examines the hobbyist juggler's relationship to their props as a case study for wider human-nonhuman relations as theorised by scholars of the nonhuman turn. Over the past two decades, circus studies have begun to trouble the circus' ties to modernist ideals of progress, mastery, and virtuosity. I extend that project to juggling where popular Western conceptions of the form centre on skill, difficulty, and the "n+1" logic of always adding one more object. Conventionally defined and practiced, juggling reproduces a colonial, capitalist progress narrative that treats matter as inert and controllable. This dissertation draws on Indigenous, feminist, disability, performance, and new materialist studies to reveal how juggling can be understood instead as a collective, embodied, non-hierarchical practice of play with the object world and offer limited but healing modes of relation within a damaged world.

I engaged three intersecting methodologies to complete this project: 1) Bruno Latour's actor-network theory to conduct and analyse semi-structured interviews with 19 North American hobbyist jugglers; 2) research-creation to acknowledge my own participation in juggling knowledge production as a juggler; and 3) the zettelkasten, a bidirectional linking method of note-taking that produces a non-hierarchical network of interdisciplinary knowledge.

I argue that juggling—redefined through a new materialist lens—is a creative intra-action between beings that enacts previously indeterminate ontological boundaries and can serve as an onto-epistemological model for reimagining human relations to the nonhuman world. Chapter One grounds this argument in jugglers' lived experiences, reading their practices alongside Jenny Davis's reconceptualization of affordance theory to propose juggling as a vocabulary for living responsively/responsibly with things. Drawing on Karen Barad's agential realism and Indigenous theory that pre-dates and complicates it, Chapter Two uses the example of siteswap notation to

flatten the ontological divide between juggler and prop, arguing that distinctions between the active human and passive nonhuman enable other oppressive forms of differentiation. Chapter Three examines juggling as a temporalizing process, asking how its non-linear and relational temporalities might challenge chrononormative, capitalist conceptions of time that suppress diverse embodiments (like those of disability) and, in doing so, drive ecological harm.

DEDICATION

To my Grampa,

who would've wanted to be here to see the first person in his family complete a PhD,

and to whom I promised I would.

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INTRODUCTION

For what good is knowing, unless it is coupled with caring?

— Robin Wall Kimmerer, *Braiding Sweetgrass*

I started seriously juggling during my undergraduate degree when I joined the Queen's and Kingston Jugglers' Club and started attending juggling festivals across North America. Already I'm sure most of my non-juggling readers have questions because I have heard these questions many times before:

Ontario has clubs for jugglers?

Yes, I've personally been a member of the Kingston, Waterloo, and Toronto juggling clubs where we'd meet twice a week to juggle, discuss juggling, and sometimes watch juggling films.

What happens at a juggling festival?

Among other festival-specific activities, most juggling festivals feature an open gym for training at all levels, juggling games and competitions, juggling prop and merch vendors, evening gala performances, workshops and lectures on a variety of juggling techniques and concepts, and a late-night adult variety show called a "renegade."

What does it mean to juggle "seriously"?

For me, it means to learn juggling patterns, techniques, and concepts beyond what the general public understands about juggling and to engage in juggling as a deliberate practice.

During my tenure as President of the Queen's Jugglers' Club, longtime member Greg Phillips and I brought back the Kingston Juggling Festival from a decade-long hiatus and renamed it the Limestone City Juggling Festival. One of the first invited guests we programmed

in the festival gala show was the Institute of Jugglology, a Northwest Arkansas-based juggling group made up of, at the time, Ellen Winters and Galen Harp. As professional jugglers, Winters and Harp spent their days training juggling, creating juggling routines, teaching juggling to school and community groups, and performing juggling in venues as diverse as schools, libraries, art galleries, burlesque shows, and street festivals. At the Limestone City Juggling Festival in 2015, Winters and Harp performed their award-winning act *Circuit IV: Mandala*.[1] The juggling routine featured hollow props—prop is the term for a juggler's tools—including balls, rings, and clubs, that were filled with colourful sand. The props had holes in them so that sand flowed out of them as Winters and Harp threw them in patterns to themselves and each other, creating streaks of colour in the air, extending and delaying each prop's arc.

Then in the fourth year of my undergraduate degree, I didn't yet know that Jugglology's performance would inspire my own trajectory of research and creation. Jugglology's performance, by skillfully using props as brushes to create strokes of colour in the air, made juggling legible as both a highly technical sport and an expressive fine art form—one of their goals in creating the piece. As athletes, Winters and Harp had to be extremely skilled because as sand flowed out of their props it landed in the jugglers' eyes and the props landed in unpredictable locations due to their shifting weights and centres of gravity.[2] As artists, they showcased juggling, as some theorists have described it, as "a sculpture that lasts for a really short time" (Åberg and Gilligan, 'Episode 4', sect.1:02:34-1:03:32). The Institute of Juggology similarly defines juggling as "a state of arrested decay," meaning it creates a "pattern woven

[1] Winters and Harp were the 2014 International Jugglers' Association gold medalists in the Teams division. The Institute of Jugglology is now run solely by Galen Harp.

[2] As Winters told me during my 2018 professional placement with the Institute of Jugglology, "As the sand spills out, the weight changes. But [the props] don't all do that at a uniform rate. Some of the balls remain heavy, some get light. The sand rings as the sand gets closer to half full actually become almost completely unpredictable… I could make the same throw to Galen three times in a row and it could come in anywhere over a 3-foot span because the weight of the sand will actually pull it backwards and forwards" (Anderson 40).

through time and space that is constantly falling apart only to be rebuilt in the same moment" ('Arkansas Juggler Theater'). In juggling, unlike in (much of) sculpture, the image produced is never fixed. The art produced by juggling, as I argue later in this dissertation, does not emerge from a human subject acting upon passive matter; rather, it relies on an ongoing, iterant connection between juggler and prop. To make this even more explicit in *Mandala*, Winters and Harp juggled over a canvas on the floor. Sand, dropped props, footprints, insects, objects, and movements accumulated on the canvas between them. At the end of the performance, they removed any fallen props from the canvas, signed their names in the sand, and slowly tilted the canvas for the audience to view momentarily—before the sand melted to the ground. The sand painting was not (just) a representation of the juggling that created it but a trace of the artwork itself. This moment gave *Mandala* an ecological sensibility by acknowledging the many materialities and material performances—the temporary set of relations—that contributed to a final image that exceeded the intentions of any single participant.

My research questions continue the lines of thinking that began after I witnessed *Mandala*. What kind of relationships between humans and world does juggling promote and how? How does the hobbyist toss juggler's understanding of concepts like time and agency differ (or not) from understandings presented by theatre and performance studies, new materialism, and other related performance forms? How does reconsidering ontological distinctions between human and nonhuman affect thinking about circus, a medium that has gathered related performance forms within a dramaturgy of human exceptionalism? Can a study of hobbyist juggling practice foster less anthropocentric ways of doing circus as called for by circus artist and dramaturg Vincent Focquet? Are "less anthropocentric" circus aesthetics/practices possible? Are they necessary? What does it mean to be a juggler? What does it mean to be juggled?

In this dissertation, I argue that juggling—redefined through a new materialist lens—is a creative intra-action between beings that enacts previously indeterminate ontological boundaries. Rather than treating juggling as the skilled manipulation of passive objects by an autonomous human subject, I approach it as a relational practice through which human and nonhuman agencies emerge together. In this sense, juggling can be understood as an ecological mode of thought: a way to engage with a world composed of multiple, interconnected beings operating across scales and in excess of any individual's control. By foregrounding the distributed agency of the juggler-prop assemblage, juggling cultivates an ecological sensibility attentive to relation, contingency, and co-constitution. Juggling may not offer a solution to ecological crisis, but I argue it can open spaces of relief for thinking and practicing differently within a damaged world shaped by colonialism, capitalism, environmental destruction, displacement and other social and ecological crises described by scholars writing in performance studies and the nonhuman turn.[3] Sustaining a juggling pattern requires ongoing responsiveness to the agencies of multiple participants. So too does living within a precarious world shaped by complex and entangled human and nonhuman relations.

To develop this argument, I analyze practices that are central to my own juggling—including learning the three-ball **cascade**, **passing**, and **siteswap notation**—through the framework of new materialism and related thought.[4] I draw on my experience as a juggler, on critical texts in new materialism, theatre, circus, and performance studies, and on interviews with hobbyist jugglers across North America. I propose juggling as an onto-epistemology, or

[3] See Donna Haraway's *Staying with the Trouble*, Anna Tsing's *The Mushroom at the End of the World*, Natalie Loveless's *How to Make Art at the End of the World*, and Gabriel Levine's *Art and Tradition in a Time of Uprisings*.

[4] As noted in the Methodology section of this introduction, bolded and underlined words in this dissertation link to related items in a video glossary of juggling terms as a visual aid for my non-juggler readers, full glossary listing available in Appendix A.

philosophical carpentry:[5] a way of being-knowing that illuminates the entanglements of objects, agency, and temporality, which are also the titles of the three chapters that follow. This introductory chapter situates my project within the historical moment I inhabit as a juggler, maps the theoretical terrain that led me to this thesis, and outlines the research methodology that grounds it. The latter part of the chapter discusses the structure of the dissertation and provides a detailed breakdown of what follows.

Mandala is a performance in which jugglers and props are entangled and in which control is partial, distributed, and uncertain. It is a piece about juggling and, more broadly, a piece about what it means to share action with others, human and otherwise. This rejection of clear boundaries—between performer and prop, intention and accident, art and environment, hobby and profession—in all its contradictions, summarizes much of what I love about juggling. Long before I had the theoretical language to describe these relations, I was drawn to juggling because it offers a way of engaging with a world that is simultaneously playful and rigorous, individual and collective, technical and creative. The questions that animate this dissertation emerged not only from scholarly encounters but also from years of participation in juggling communities, artistic experimentation, and sustained relationships with the objects I have thrown, caught, dropped, and performed alongside. Before turning to the historical context and theoretical framework that informs this project, it is worth pausing to explain why juggling matters so deeply to me and what is at stake for me, personally and intellectually, in studying it.

I love juggling. I love how easy it is to understand. I love how clear the parameters of success are. I love seeing my slow, almost imperceptible improvement over time that comes

[5] See Karen Barad's *Meeting the Universe Halfway* for a description of onto-epistemology and Ian Bogost's *Alien Phenomenology* for philosophical carpentry, which is his methodological response to Graham Harman's object-oriented ontology.

from trusting the process. I love that once you *can* juggle, it doesn't feel like a mastery of the props any more than walking feels like a mastery of the legs or the ground. It's just a part of me. I especially love juggling with others. I love the negotiation of making something performed by people of different heights, backgrounds, knowledges, and skill levels sustainable. But I also love when the **pattern falls apart or collides** and we chase after the props to try again. I love that you don't need to speak to your passing partner to develop what feels like a deeply personal relationship to them. I love that I can juggle more when juggling with someone more skilled than I am—the way that jugglers can lift each other up and help grow their skill faster. I love that, in juggling, there are no rules. I set my own goals. They can be creative, artistic, athletic, mathematical, bodily; I can juggle for performance, for weight loss, for meditation, for relationship-building, for pure enjoyment, for improved hand-eye coordination, or I can just juggle.

I think juggling can be overlooked because it seems frivolous, childish, or perhaps low-brow—a seemingly solely physical pursuit that lacks deeper meaning. Compared to many other circus disciplines juggling developed alongside and is still performed in the context of,[6] it is also relatively safe.[7] But why should we only value that which puts us in danger? Since its emergence through what Marx termed "original accumulation,"[8] capitalism has depended upon violent

[6] Juggling was often performed on horseback in one of the earliest circus disciplines, equestrian trick riding, including by John Bill Ricketts who is credited with bringing the traditional circus to America (Cain, 'Animal Juggling Acts'). Today it can be seen as an added dimension of skill to many other variety and circus arts, like rola bola, giraffe unicycle, and more.

[7] There are many stories of acrobats that turned to juggling after a career-ending injury. The most famous of which might be Paul Cinquevalli, but a more recent example is trapeze-artist turned hula hooper after a hand-to-hand injury Chloe Somers Walier, who I interviewed for my short-lived juggling podcast *Props to That* (Anderson, 'Shifting Gears in a Circus Career with Chloe Somers Wall'). As Duncan Wall writes in his book *The Ordinary Acrobat*, as compared to other circus arts, "The only danger a juggler faces is the danger of looking foolish" (66).

[8] Often called "primitive accumulation," the 2024 Paul Reitter translation of *Capital: Volume I* uses the term "original accumulation" so as not to imply it is a "simpler or less sophisticated thing"; Reitter also notes, though, that original does not mean over as "'original' forms of accumulation still occur, in ongoing events of colonization and imperialism" (846–7ni).

processes of ongoing expropriation and extraction that contribute to ecological and social crises to this day (Fisher; Fraser; Harvey; Klein; Moore). In a capitalist society, I find something compelling in a practice organized around sustained attention and maintenance rather than profit. I am drawn to juggling precisely because of its apparent uselessness to a capitalist society that often values efficiency, productivity, and measurable outcomes above all else. Juggling requires me to devote time, attention, and care to an intrinsically rewarding activity that "is an end in itself" and therefore puts me in a "flow" state of ordered consciousness (Csikszentmihalyi 67). In its seeming frivolity, juggling engages the body and mind simultaneously and globally (Quat), increasing brain gray matter, which aids thinking, memory, and decision-making (Driemeyer et al.). Juggling improves reaction time and intuition, critical thinking and goal setting. And it does this through collaboration with the nonhuman world, by adapting to and accommodating for the world outside of ourselves.

Juggling is already used as a metaphor in our society for attempting balance in multitasking, but often it's used when someone hasn't yet achieved that balance or are struggling to attend to or care for many things simultaneously. We are afraid of dropping the ball. Jugglers, though, are actually very good at managing many props at once. So, how do they do it? Do they pay attention to one prop at a time? Do they see the whole situation clearly at once? How does juggling engage in relations between bodies and objects, intention and contingency, precarity and sustainability, progress and maintenance? For me, that's what this dissertation is about.

What is Juggling?

Juggling is easy to recognize but surprisingly difficult to define. When I juggle in the park, every passerby that stops to watch me understands what I'm doing as juggling—regardless

of whether I'm throwing and catching balls, rolling a hat along my chest, or balancing a club on my face. However, practitioners often disagree about where its boundaries lie, as evidenced by the responses I received when asking jugglers, "what is juggling?" for this project. Some described juggling as simply object or prop manipulation; others defined it as a particular mindset or intention towards object manipulation; others as the physical act of throwing and catching, or specifically throwing and catching at least one more object than there are limbs doing the throwing and catching; for others still, juggling is an expressive, movement-based relationship between person and prop; and still others, it is a chain of actions and responses, or responsibility, between a body and object. Practical manuals of juggling include education on balancing and tossing objects, but also practices as diverse as rope spinning, plate spinning, baton twirling, and knife throwing.[9] Even scholars who approach juggling through mathematics and physics are quick to note that there is no universally accepted definition of juggling, nor any definitive list of activities that do or do not belong within it.[10]

The diversity of these definitions suggests that juggling is less a discrete activity than a family of related practices whose boundaries shift according to context. This was the argument presented by juggling thinkers Dr. Erik Åberg and professor of juggling Jay Gilligan in a lecture-performance at the International Juggling Association's Festival I attended in 2017 in Cedar Rapids, Iowa. In the lecture, Gilligan picked up a ball from a table and placed it back on the table, then asked the audience of jugglers whether the action was juggling. The audience agreed that it was not. Then, he did a three-ball cascade, briefly incorporating the ball from the table into

[9] Theatre educator Hovey Burgess, known for introducing juggling techniques into acting classes in the 1960s, divides these forms of juggling into three spheres in his book *Circus Techniques: Juggling, Equilibristics, Vaulting*: balance juggling, toss juggling, and gyroscopic juggling.

[10] Both mathematician Burkard Polster in his book *The Mathematics of Juggling* and physicist Jack Kalvan in his book with mathematician Arthur Lewbel *When Balls Collide: Understanding the Skill of Juggling* open their books with a section titled "What is Juggling?" where they are quick to flag the problem of defining juggling—although each book focuses almost exclusively on toss juggling.

a four-ball pattern and replaced it on the table. When asked, roughly half the audience considered picking the ball up to be juggling this time. Finally, Gilligan performed a pattern in which all four balls were repeatedly picked up from and returned to the table. The audience now agreed unanimously that these actions were juggling. Yet nothing about the action itself had changed. A ball was still being picked up from a table and placed back on it. What changed was the context in which the action occurred and the relations that surrounded it. Åberg used this demonstration to argue that juggling is best understood as a genre of related practices commonly organized around the cascade pattern. This anecdote is useful in revealing that juggling cannot be reduced to specific movements, even if it does not define juggling per se. Actions become legible as juggling through relation.

This emphasis on relation within systems is particularly important for the arguments in this dissertation. Several interview participants described juggling not simply as controlling an object but as entering a reciprocal process in which actions and reactions continually shape one another. I find it most useful in this dissertation to think of juggling as a practice—"repetitive, embodied, participatory, transformative, and unfinished" (Levine 11).[11] Through repeated encounters with objects, jugglers cultivate habits of attention, responsiveness, and perception. As a practice, juggling provides a useful site for thinking about broader questions of agency, relation, and coexistence that extend beyond juggling itself. This focus on juggling as a practice, rather than as a performance, also allows me to foreground the juggler's embodied experience

[11] Gabriel Levine, in his book *Art and Tradition in a Time of Uprisings*, draws on contemporary art discourse and Bourdieu's concept of habitus to reclaim practice from its neoliberal association with individual self-improvement instead understanding it as a process of embodied becoming through repetition shaped by collective social fields (12-13). In *The Logic of Practice*, Bourdieu argues that practices are "generated" and "organized" by habitus, which is itself "constituted in practice" (52-53). Practices therefore emerge not from formal rules or individual intentions alone but from historically and socially situated ways of doing that pre-exist any particular practitioner. This helps explain why jugglers often struggle to articulate a singular definition of juggling. Juggling is learned through participation in a collectively constructed practice rather than abstract definition or individual innovation.

and the relations formed by practitioners rather than shifting attention toward questions of spectatorship and audience reception. In the next two subsections, I explore the kind of practice juggling is and the kind of community that forms around that practice. The following section will demonstrate its enduring nature across time and culture.

Juggling as a Form of Play

If juggling is best understood as a practice, then what kind of practice is it? On the surface the goal of juggling appears simple and contained: don't let the ball drop. As circus historian Duncan Wall writes, "juggling is simple yet magical, accessible yet perplexingly captivating"; it is a discipline that anyone can think alongside, simply by picking up and playing with the things around them (55). And the verb "play" is crucial here. I use it to mean a mode of exploratory engagement with the world, not an escape from reality. Unlike many everyday interactions with objects, juggling, as a practice, often does not serve an instrumental purpose. It is often an autotelic experience, which Mihaly Csikszentmihalyi cites as a key factor in the enjoyable state of flow emerging from skillful play and defines "as a self-contained activity, one that is done not with the expectation of some future benefit, but simply because the doing itself is the reward" (Csikszentmihalyi 67). As a part of that playful, autotelic experience, jugglers explore possibilities of movement, relation, and attention.

This understanding of play is echoed by other scholars writing on juggling, performance, and the nonhuman turn. "Juggling is playful," Anthony Trahair, author of *Pearls of Juggling*, writes, and perhaps because of its playfulness, it is also "surprisingly powerful," encouraging practitioners to find rhythms, confront uncertainty, and develop trust (Trahair). Speculative realist games scholar Ian Bogost argues that, although play with things may seem "unserious and

trivial," relating to objects in ways other than their intended use "requires greater attention, generosity, respect, and investment" toward the things with which we interact (*Play Anything* 4). Similarly, improvisational musician Stephen Nachmanovitch writes that play frees us from arbitrary restrictions, expanding our field of action and cultivating "adaptive flexibility" (45). In juggling, this repurposing of objects for non-instrumental purposes is integral; Åberg states that, when a juggler encounters an object meant for a specific function, she "constantly asks this question:… 'how can this thing be used in a different way'," repurposed, or redefined (Åberg and Gilligan, 'Episode 4', sect.57:32-58:04).

Gilligan, Åberg's conversation partner in their juggling podcast *Object Episodes*, extends this idea through what he calls a "juggling consciousness" ('Episode 12'). Rather than teaching fixed techniques, Gilligan encourages jugglers to recognize that every decision they make with an object could have been made differently. A juggling consciousness therefore treats interactions with objects as contingent and open-ended rather than predetermined. Juggling encourages an awareness that relations are not fixed in advance but emerge through ongoing engagement among human and nonhuman participants. As D. Wall puts it, "juggling isn't a type of performance so much as a way of interacting with the world" (99). In this sense, juggling is an "ecological form" as described by Natalie Loveless in her keynote address for York University's *Imagining Differently Conference* I attended in 2021: "it takes seriously the situated relational ecosystem in which it is embedded" (*Why Research Creation*).

In our everyday lives, we rarely question the ways we are taught to relate to objects; they're part of our habitus. Modern capitalist cultures tend to privilege instrumental uses of things while obscuring the social and material relations through which commodities are produced (Marx); decisions about object-use are largely left to market forces, which prioritize the

quantitative expansion of monetized value through commodification and exploitation (Fraser). Although juggling remains entangled within these capitalist systems—through the private production of props and commodification of performance—it nevertheless cultivates a different mode of engagement with those processes: a form of playful, embodied systems-thinking. Unlike many other forms of non-instrumental and playful modes of engaging with objects, juggling involves sustaining dynamic patterns among multiple moving objects where each action—usually a throw, but sometimes a roll, spin, or other manipulation—generates the conditions for the next. Learning to juggle means learning to perceive and participate within these systems. As Nachmanovitch writes, "technique itself springs from play... by persistently experimenting and playing with our tools and testing their limits and resistances" (44). Juggling is a structured form of play in which practitioners develop skill through the embodied repetition of increasingly complex, rhythmic patterns of movement involving both objects and bodies.

"Fun," Bogost writes, is "the outcome of tinkering with a small part of the world in a surprising way" (*Play Anything* 3–4). Juggling specializes in precisely this form of tinkering. One of my interviewees, Matan Presberg, notes that juggling "attracts the kind of people that like to think about things for the sake of thinking about things." Juggling offers few externally imposed rules, no clear endpoint, and little social or economic payoff. Juggling well or interestingly requires sustained attention to variations in hand placement, trajectory, and rhythm, often by oneself. Many jugglers, me included, tend toward multiple hobbies not because of a drive for recognition or money, but because we are drawn to the pleasure of learning systems deeply, even when that learning is socially marginal or largely invisible. In this sense, juggling selects for a mode of curiosity that is patient, self-motivated, and oriented toward process rather than reward.

The relationship between play and practice emerged in my interviews as well. When I asked Ezri Wyman whether they considered themself a juggler when they first began throwing objects at age six, their immediate response was, "No, I wasn't a juggler, I was just playing." Yet Wyman now, contradictorily describes juggling as "a way to play as an adult." As a child, experimenting with objects required no particular identity; it was, in Wyman's words, "just something to do." Only later did those same actions become legible as juggling. Looking back, Wyman now considers themself to have been a juggler from the moment they first picked up three balls and threw them into the air, even if none of those throws were caught. Wyman's reflection suggests that play is not separate from juggling but foundational to it. "Most jugglers are not competitive, and most jugglers aren't in it for money," they reasoned, "It's just to do it because it's fun. Even though it's 100% totally pointless for most of us." The fun of juggling emerges from its specific form of play: the ongoing exploration and of developing increasingly complex relationships among bodies, objects, and time.[12]

Nachmanovitch observes that "play makes us flexible," that it "enables us to rearrange our capacities and our very identities so that they can be used in unforeseen ways," and that "a creature that plays is more readily adaptable to changing contexts and conditions" (45–48). This flexibility and responsiveness to change is not autonomous, spontaneous pleasure; rather, it is *practiced* through play and emerges through play *as a practice*—cultivated through repetition. In Bourdieu's terms, repeated engagement produces a "spontaneity without consciousness or will," in which action is possible without explicit deliberation in the moment (Bourdieu 56). Juggling

[12] Although not all of my interviewees called this play specifically, this aspect of *increasing complexity*—translating to improved skill—was a vital part of juggling's fun for many of my interviewees; including Eric Jackson who highlighted the gradual but noticeable improvement of juggling that gives him a "dopamine drip… every single practice" when he goes from "sucking to being good in such a short period time." Or Tim Dresser, who said plainly, "If I stopped getting better, I would probably stop juggling." Or Emily Moore who made graphs of her juggling progress and commented, "I think the joy or the fun from that comes with being able to see the progress."

exemplifies this logic of deliberate practice—sustained, repeated engagement with structured, patterned activity—through which practice—a subconscious responsiveness—results. The more a juggler practices, the more they can improvise new patterns because they have internalized the spatiotemporal logics of the system.

New materialist and posthumanist scholars—addressed later in this introduction—have similarly emphasized forms of situated, responsive engagement with more-than-human worlds. Donna Haraway calls for "staying with the trouble" by developing "response-ability" with our other-than-human kin—a willingness to improvise new ways of living together in damaged landscapes. Haraway explicitly cites "the realm of play" as the space in which "serious worldliness and recuperation become possible" (*Staying with the Trouble* 24).[13] Anna Tsing similarly describes survival in the Anthropocene as a practice of arts of noticing, attuning to unexpected assemblages and possibilities that emerge amid ruin.[14] Juggling, understood as a structured form of systems-based play, with its ethic of exploring what objects *could* do rather than what they *should* do, practices responsiveness through embodied repetition of temporal relation among bodies and objects.

Juggling as a Community of Practice

The hobbyist juggling community occupies a central place in my analysis because it is a community of practice I'm personally involved in and most clearly foregrounds juggling as a collective, ongoing practice rather than a product-oriented or individualised, professional form.

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[13] She also notes this is a premise of science fiction—a genre from which I drew much inspiration in the writing of this dissertation.

[14] Many other scholars I studied for this dissertation also cite playfulness, wonder, curiosity, etc. as integral to ecological adaptation and responsiveness. Ecological new materialist thinker Jane Bennett writes, for instance, that to discern vital materialities we need "to admit a 'playful element' into one's thinking" (15).

The etymology of amateur—from the Latin *amator*, meaning "lover"—is instructive here: to be an amateur is to act out of love, not out of obligation or productivity. "I think there's more development in juggling that's been done by amateurs than people realize," Bren Piper, a hobbyist juggler based out of Sault Ste. Marie and Banff, told me during our interview, "because it's just people goofing around." Piper described juggling festivals, where today hobbyist jugglers tend to dominate the attendance, as sites where this experimentation, or goofing around, becomes visible and shared: "the gym is open 24 hours and… at 3am when people are tired and semi-drunk, some weird juggling happens... But then you remember that the next day and you try to build off that with your friends." It feels good to be a part of these collective, distributed moments of learning and play.

This love-driven experimentation mirrors what Loveless calls polydisciplinamory—not just *inter*disciplinarity as a question of which fields you are committed to, but a practice of curiosity and care, where methods are tended and nurtured for their own sake. Jugglers are engineers, artists, nurses, physicists, and programmers who pick up juggling alongside their professional lives and often bring the logics and constraints of those other practices into juggling itself. Juggling exists in what Isabelle Stengers calls an "ecology of practices," where no single practice is granted priority and each must be allowed to develop its "own force" (195). Within this ecology, hobbyist jugglers have innovated at every level of the juggling field—in its tricks, styles, techniques, and theories that structure the practice itself. They have created mathematical notations to represent and generate new juggling patterns, designed props that change what juggling can be, and built software and apps that visualize and expand the practice. My own contribution, this dissertation, is my way of participating in juggling's "milieu" through another practice I love: scholarly thinking and writing. Juggling innovation arises, yes, from the technical

mastery of professionals or the institutional authority of circus schools, but also through distributed, playful, love-driven practices. Juggling is what interdisciplinary artist and theatre studies scholar Gabriel Levine calls a "radical vernacular" in that it is a collective practice of "doing, making, and thinking that [is] not sanctioned by 'official' cultural institutions" and in so being is powerful in "reshaping shared ways of being in the world" (4–5).[15] Hobbyist jugglers thus exemplify a non-hierarchical, practice-based mode of relation explored through curiosity and play,[16] rather than mastery or productivity.

As juggling grows as a hobby, so too do the various styles and perspectives on the practice. In North America there are two dominant organizations promoting juggling which exemplify these coexisting approaches to juggling practice. The World Juggling Federation (WJF), founded in 2000 by President Jason Garfield, aims to spread the sport of juggling by vying for its inclusion in the Olympics and promoting it as highly technical, competitive, and rules-based. Physically challenging juggling, which I'll refer to as "technical juggling" in this dissertation, is today referred to in many instances as "WJF style juggling" making the WJF synonymous with technical difficulty and precision. By contrast, the International Jugglers Association (IJA), where I am a member, was formed in 1947 by a heterogeneous community of vaudeville performers, hobbyists, prop makers, and new enthusiasts all looking for a way to

[15] Another way juggling might be considered a "vernacular practice" according to Levine's definition is that it "tends to operate on the horizontal rather than the vertical plane" both at the level of community (early jugglers are respected and celebrated in the community as much as seasoned ones) and at the level of the body (jugglers early in their practice get equal neurological benefits from juggling as experienced jugglers—the benefits are based on difficulty relative to the individual, not based on a generic, externally imposed level of difficulty) (30).

[16] Another vernacular practice that juggling is similar to in this respect is skateboarding before its institutionalization through competitions like the X Games. In fact, skateboarding is often referenced in juggling contexts as a comparison, including during my interviews when Presberg said juggling in "Mexico and South America... is more like skateboarding is here [in North America]. It's more of the cool kid thing." Or by Åberg who was a skateboarder in the 80s before settling into juggling and says it was skateboarding that first taught him "the idea that a skill like that could be achieved by practice" (Cain, 'Interview With Erik Åberg'). Skateboarding may be a more place-based, site specific practice than juggling, but juggling sometimes borrows that aesthetic from skateboarding too, as in my favourite juggling video: "Parade" by Wes Peden. Juggling is just one of many practices sustained through peer learning, experimentation, shared spaces, and communities of practitioners rather than official cultural institutions.

connect with other jugglers.[17] Since its founding, the IJA has promoted juggling as a community where the stated goal is "to render assistance to fellow jugglers" and whose foundational principle is that of "mutual friendship."

Although there is much conceptual division between these two organizations, there is a great overlap in their constituencies, and they might be understood as articulating different logics within a broader ecology of practice. The community of practice that has developed around the IJA is particularly useful for my purposes because it foregrounds juggling as a horizontally organized, collectively sustained form of activity rather than a vertically structured, competitive, or credentialed one. Belonging to the IJA has encouraged me to connect with diverse people that have at some point, for some reason, gotten curious about the dextrous manipulation of objects, regardless of how challenging or "correct" it is. It has encouraged me to see the parallels between toss juggling and flow arts, acrobatics, magic, crafting, cooking, video gaming, skateboarding, and other forms through which humans dexterously interact with the object world in intentional, practiced, and rhythmic ways.

In a world where many of my interactions with the object world are extractive, accelerated, and instrumentalized, juggling offers a way to spend time with things—not to determine what they can do for me so much as just to get to know them and where our bodies and abilities can intersect. As a collective embodied practice, it produces "an experience of

[17] The IJA enabled the hobbyist culture that emerged within juggling and pushed forward the form. In the 1970s, juggling experienced a dramatic boom. Membership in the IJA grew to the point that, "In 1975, The Wall Street Journal dedicated a front-page story to the association's annual convention... and membership promptly doubled again" (D. Wall 81). D. Wall speculates that this popularity was due to juggling's accessibility, since it didn't require expensive equipment compared to other circus arts (81). Juggling was also countercultural and progressive—it's a sport you can do without competition, meaning anyone could participate at any level. This resulted in popular publications like John Cassidy's *Juggling for the Complete Klutz* (1977) that "helped demystify the form, breaking down what had long been seen as an impenetrable circus craft" and within 10 years, "juggling had gone from a niche circus specialty to a mainstream pastime, visible on college campuses across the U.S." (82). Juggling holds an uneasy place within the institution of the University, though, in my experience having been kicked out of university buildings for reckless prop throwing and outsiders welcomed into campus clubs.

equality, capacity, and shared power" (Levine 30). However, as Levine reminds, the horizontality of vernacular practice doesn't imply an escape from broader structures of power or a scalability into formal political structures, and my own relationship to juggling still exists within settler-colonial and capitalist frameworks and is shaped by their exclusions and inequalities. Although my interviewees frequently lauded the IJA and jugglers in general for their generosity and supportive, collaborative ethos, the juggling community is not universally accessible nor uniformly equitable. As Presberg put it in our interview, "juggling requires space and space is political." Juggling in North America remains male-dominated and participation often requires financial resources, international travel, and access to institutions such as colleges and universities where many juggling clubs have historically emerged. Certain technical juggling spaces have excluded disabled practitioners even when adaptive approaches were available, and I have myself avoided some juggling environments because of unwanted attention from older men. These limitations matter because they remind us that vernacular practices do not stand outside the worlds they seek to reimagine. In fact, it is within oppressive social and political conditions that juggling's significance emerges by generating partial and temporary forms of collective coordination that unsettle the logics of progress-oriented, individualised neoliberalism. As Levine argues, vernacular practices "open affective spaces that productively estrange their participants from the networked controls of neoliberal capitalism and the possessive enclosures of settler colonialism," and in doing so may offer limited but healing modes of relation within damaged social and ecological conditions (30).

We Have Always Juggled

Juggling as dexterous object manipulation is not an isolated circus technique but an enduring human practice that appears across cultures, geographies, and historical periods. The earliest known depiction of juggling appears in the Beni Hasan tomb paintings of ancient Egypt (c. 4000 BCE)—where props were made of sewn leather stuffed with bran or corn husks—but practices of throwing and catching objects emerged separately throughout the ancient world, including in Greece, Rome, China, Japan, India, and across Indigenous cultures of North America as well as Aotearoa (New Zealand) and Australia (T. Wall, *Juggling - From Antiquity* 11–14). These practices took many forms: pastime games, gambling, military recreation, religious ceremony, athletic competition, and professional entertainment (Alvarez; T. Wall, *Juggling - From Antiquity*; Truzzi). In Japan, for example, the object manipulation practice of daikagura, passed down through generations from master to student, was performed to keep evil spirits out of Shinto shrines before worship before becoming increasingly secularized over time; today the practice of daikagura occupies a totally distinct place in culture from modern juggling, which is a Western import (T. Wall, *Juggling - From Antiquity* 51). In the ancient Roman Empire, juggling practices circulated alongside broader cultural exchange networks extending toward the Far East, including jugglers purchased as slaves to entertain the Chinese Emperor (47). In China, there are many myths about China's best jugglers; for instance, a warrior from 403 BCE who broke ranks to juggle nine balls on the battlefield causing the other side to turn and flee (48). Medieval European jongleurs combined throwing and catching with music, acrobatics, and itinerant performance.

This history is fragmentary and shaped by systems of suppression. Performers across Europe and Russia were periodically criminalized or persecuted by church and state authorities, and much documentation of juggling practices has been lost (57). Documentation that remains is

often confused or taken too literally by non-juggling historians because first-person accounts of skills are often spectacularized and juggling lacked a precise definition as dextrous object manipulation until the late-1800s. Histories of Indigenous throwing and catching practices are particularly underdocumented within Western scholarship and accounts I did find were mediated through colonial perspectives rather than primary Indigenous accounts (Kerr; Truzzi). Despite a lack or loss of documentation, dexterous object manipulation appears with persistence across human societies, emerging independently in geographically distinct cultures. This dissertation does not attempt a comprehensive history of juggling, though. I briefly situate juggling historically here to emphasize that the manipulation of objects—whether as play, ritual, spectacle, labor, or social practice—seems to answer a recurring human impulse. By situating juggling as a longstanding and cross-cultural practice of human–object relation, this dissertation approaches juggling as a lasting mode of human-nonhuman relation through practiced coordination honed mainly through encounters with the handheld object world.

We Have Always Been Jugglers

The title of this dissertation does not solely refer to a historical situation, as I describe above, because if juggling is understood as a practice of ongoing relation with objects, then humans have always been jugglers in an ontological sense as well. In this sense, I draw on French science and technology studies scholar Bruno Latour's claim that "we have never been modern." For Latour, modernity is not simply a historical period but a particular way of imagining the world that emerged in the 17th Century with the birth of empirical evidence in the laboratory and "discussions about the meaningful behaviour of nonhumans," which humans

could appeal to as a source of knowledge (*We Have Never* 24).[18] This created the conditions for what he calls the Modern Constitution: the idea that nature and society are distinct from each other. This institutionalised conceptual distinction the moderns strive for has been productive in scientific, political, and economic senses, but they have never truly been successful in purifying these domains. Scientific instruments, domesticated animals, industrial technologies, agricultural systems, infrastructures, ecological crises, etc. are never purely natural or purely social; they emerge through relations among human and nonhuman actors. The modern constitution therefore rests on a paradox: the more moderns attempt to purify nature from society, the more visible the entanglement becomes. We have never been modern because we have never actually lived in a world composed of separate human and nonhuman domains. By alluding to Latour in the title of my dissertation, I argue that juggling makes visible relations that modern thought often obscures. Jugglers, knowingly or not, embody the idea behind the Nonmodern Constitution: "the human is not a constitutional pole to be opposed to that of the nonhuman" (137). I frame juggling as an assemblage of diverse agencies that are distinct but interdependent. Juggling is not a new way of relating to objects, it makes tangible a condition that has always existed. To be human has always been to coordinate with nonhuman others. We have always been jugglers.

Juggling and Circus

[18] For Latour, the beginning of the modern era is exemplified by an epistemological debate between Robert Boyle and Thomas Hobbes—who he says are "two major figures from the very beginning of the modern era" (25) as outlined in Steven Shapin and Simon Schaffer's book *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life*, which analyzed both scientific practice and the "religious, political and cultural context of science" (*We Have Never* 20). Other posthumanist scholars cite a slightly earlier point as the beginning of the modern Nature/Culture divide: the "father of modern philosophy" René Descartes' and his mind-body split.

Juggling predates circus by millennia; however, circus is today an enduring frame through which the Euro-American public understands juggling. The traditional circus emerged at the same time as the Industrial Revolution, with the first circus ring opened by Philip Astley in late-eighteenth century Britain, and incorporating pre-existing practices including juggling (also, acrobatics, clowning, animal performance, balancing acts, etc.) into a new dramaturgical framework centred on narratives of spectacle, virtuosity, novelty, risk, and individual achievement—not dissimilar from the narratives driving technological advancement at the time. In the first of the "Open Letters to the Circus," theatre and circus researcher and dramaturg Bauke Lievens sets the traditional circus up in this way so clearly, it is worth quoting at length:

> This heavy focus on skill [in traditional circus] expressed, and even helped to propagate, a contemporary image of man that was inspired by a belief in the 'big stories' of the time—cultural narratives like the Idea of Progress, which emerged from the Enlightenment and became so influential in the modern era that spanned the 19th and beginnings of the 20th century. Traditional circus was also born during the Industrial Revolution, at a time of rapid urbanisation and in the midst of a sudden boom in entertainment that sought to please the quickly growing working class audience… Shaped in this way by commerce and culture, the forms of the traditional circus were neither innocent nor meaningless. They functioned as a frame, reinforcing a particular way of seeing and experiencing the world. ('First Open Letter')

The deep-seated capitalist and modernist logics of the form are echoed by many circus scholars (Tait and Lavers). As a stage for the modern myth of "Western Man," traditional circus staged a specific vision of humanity "in which the white, male, heteronormative subject … holds the reins

in his hand" (Ursić 48).[19] In North America, circus was also entangled with modernity's myths; P. T. Barnum's museum staged "giants, midgets, albinos, conjoined twins, 'missing links,' dog-faced boys, fat ladies and skeleton men of the freak show" as spectacles that blurred the boundaries of nature and society, capitalizing on the growing authority of science and technology (Jürgens 26). The spatial arrangement of Barnum's displays placed the spectator at the centre, encouraging them to experience the exhibits as "an accessory to the persona of the mobile contemporary citizen in an expanding world" (25). Barnum's circus and Astley's ring were places to practice modernity in the Latourian sense: a place crowded with hybrids of nature and society, where audiences could participate in the ongoing project of purification, drawing the boundaries between them. In this way, the traditional circus was also a tool of colonization; circus semiotician Paul Bouissac argues that circus was so successful in prescribing colonizers with "heroic" behaviour that it underwent "extensive replication within the cultural space of Western nations and beyond," due in part to "its power of appropriation of others' cultural forms" (57).[20]

Circus was also implicated in the production of modern hierarchies of being, which can be understood through the concept of animacy, described by Mel Y. Chen, a professor of disability, critical race, and gender and women's studies, as "a quality of agency, awareness, mobility, and liveness" (2) that can be used to organize bodies along an animacy hierarchy with

[19] Ursic means "reins" literally: the equestrian displays showcased originally by Philip Astley at the end of the eighteenth century demonstrated man's domination over the horse, a spectacle that functioned as "a point of orientation for British citizens towards a more righteous and honorable expression of masculinity," distinct from colonized populations (Ursic 44).

[20] This colonization was not just metaphorical, either. The railroads that the modern North American circus used and showcased were also "key in the mass killing of an estimated 50 million buffalo that had roamed Turtle Island," buffalo that were and are "deeply entangled with the life of the plains people" (LaDuke and Cowen 248). The railroad enabled the travel of white supremacy, including the circus as a representation of it, and anticipated the later deployment of other colonial infrastructures, like transatlantic ocean liners, in ever-expanding networks of human and more-than-human entities (Schweitzer, *Transatlantic Broadway*).

the adult, white, free, able-bodied, literate male at the top (27). Circus and freak-show performance frequently participated in these hierarchies by staging racialized, disabled, and nonhuman bodies as spectacles through which audiences could confirm their own position as normative human subjects.[21] However, as historian of black performance culture Uri McMillan argues, the rendering of racialized bodies as objects in circus and other performance cultures does not need to be understood as purely disempowering; it can become "a performance-based method that disrupts presumptive knowledges of black subjectivity" and reasserts agency, unsettling the very hierarchies circus appears to reproduce (88). Questions of agency, objecthood, and the boundary between subject and object are central to this dissertation, although I approach them through relations between jugglers and props rather than through the spectacularization of human difference.

Juggling continued to develop both within and beyond the circus throughout the twentieth century. In the early to mid-twentieth century, performers like Enrico Rastelli and later Francis Brunn, who originally performed 8-minute acts within the traditional circus, helped establish juggling as an art form that could stand on its own when they became popular enough to headline variety shows or TV specials as 20-30-minute headline acts (Purovaara 135). By the 1980s, contemporary jugglers like Michael Moschen and Jérôme Thomas were creating and performing full-length (an hour or longer), standalone artistic juggling shows in theatres. Despite this expansion and separation, circus remains the primary frame through which many members of the

[21] Within this framework, racism operates as an ontological degradation: racialized subjects are rendered objects despite their subjectivity, becoming what Chen calls "abject subjects"—subjects who are aware of their own abjection (33–40). In the circus and freak show, this degradation was staged through proximity to animality. Figures such as the "dog-faced boy" or the "missing link" aligned racialized bodies with animals. According to Chen, animals are also recruited as fetishized stand-ins for "nature" or "the real," meaning racialized performers were framed as naturalized, degraded, and spectacularized, letting spectators engage in scientific discourse to think through and confirm their relative humanity (100). Even today, Ursic notes that Cavalia's show *Odysseo* reproduces modern hierarchies along racial lines: Black performers are staged on the ground, aligned with animals and nonhumanity, while white performers are elevated on horseback.

public encounter and understand juggling. Although almost none of my interviewees described themselves as circus artists or admitted to any relationship between their juggling practice and circus, some still align their practice with circus when speaking to non-jugglers because productions like Cirque du Soleil's are often their sole cultural reference point.[22] This association with circus matters because circus has historically framed juggling through narratives of virtuosity, human exceptionalism, and control. Even within the "new circus" of the late-1960s and onward,[23] which rid itself of the animal acts, ring-style spatial arrangement, and isolated acts that constituted the traditional circus and contributed to its political unconscious, juggling may still be the discipline that most clearly enacts a fantasy of human supremacy.[24] It is the juggler Anthony Gatto in Cirque du Soleil's *KOOZA* that circus and performance scholar Erin Hurley uses as an example of the "performer body," a body that arrests narrative with their virtuosity, extreme "bodily control," and exceptionalism that "resides in what it can do that others cannot" (Leroux and Batson 128). Hurley's reading demonstrates how circus to this day often encourages audiences to understand juggling as a display of individual mastery, where objects function primarily as evidence of human skill. The appearance of mastery can obscure the extent to which juggling depends upon responsiveness to the capacities and constraints of objects themselves, a possibility that contemporary circus artists and jugglers have increasingly explored.

Contemporary Circus Studies

[22] For instance, Howes said in our interview that if she's talking to "random public people" about her juggling practice, "then I would see it more as a circus art… because people do see shows like Cirque du Soleil and they're like, 'Oh, it's there, it's called circus, it's called juggling, and therefore, juggling is part of the circus arts.'"
[23] The "new circus" is often cited by scholars as emerging in 1968 with the social upheaval in Paris (Lavers, et al. 3).
[24] See Hurley page 124 for more on what she calls the "political unconscious" of new circus. Hurley also highlights the "corporate" and "replaceable" bodies of Cirque du Soleil artists, which to me is an even more insidious capitalistic framing of the circus body than those individualised, exceptional bodies of traditional circus.

You may notice in the previous section I distinguished between "traditional" and "new" circus styles. In this section I introduce another term: contemporary circus. The boundaries between these categories are contested and may overlap within a single circus show. Broadly speaking, though, traditional circus refers to the spectacle-based forms that developed from the eighteenth century onward, while new circus emerged in the late twentieth century as "a counter-reaction to the excessive scale of American circus" through the blending of circus with dance, theatre, and other art forms (Purovaara 124). Contemporary circus developed out of new circus and has increasingly turned its attention toward the conceptual, political, and aesthetic assumptions underlying circus techniques and performance. As Finnish cultural advocate and past director of the Center for New Circus Cirko Tomi Purovaara notes, contemporary circus often asks what particular circus practices—juggling, clowning, acrobatics, animal training—might mean and do in themselves (126). This distinction is important for my project because contemporary circus has become a significant site for questioning the narratives of mastery, virtuosity, and human exceptionalism historically associated with circus. As the editors of *Contemporary Circus* note, contemporary circus creators "contest" inherited assumptions about apparatus, performers, politics, and creation, developing works in which circus skills carry conceptual, emotional, and social meaning rather than functioning solely as demonstrations of prowess (Lavers et al.). This shift has occurred in juggling faster and more thoroughly than any other circus discipline, with pioneering figures such as Thomas and Moschen mentioned earlier (Purovaara 135). As Lievens puts it, circus "has gone from physical dominance over the trajectories of the object (traditional circus and nouveau cirque), to the object dominating the trajectories of the body (contemporary circus)" ('First Open Letter'). This shift makes evident that the optimism of industrial modernity associated with the traditional circus—premised on a

belief that human ingenuity could progressively master nature, technology, and material conditions—has given way to the precarity of life in a damaged world characterized by ecological crises, pandemics, global conflict, and other cascading issues that remind us humanity exists within interdependent networks that exceed human control.

Contemporary circus juggling takes interest in responsiveness, uncertainty, and the agency of objects, which resonates with my understanding of hobbyist juggling as a radical vernacular practice in which experimentation, collective learning, and playful engagement matter as least as much as technical perfection and create space to explore more just ways of being in the world. Contemporary circus jugglers contest mastery by shifting attention away from the controlled, obedient object toward materials and conditions that resist or redistribute control. They are picking up "unjugglable" objects like cacti and barbed wire, engaging mutable materials such as wet clay and ice, and even exploring invisible forces as props, including wind, electricity, and virtual reality.[25] "Don't let the ball drop" becomes a more complex rule for the game of juggling in these scenarios: What does it mean to drop a ball made of ice that is dripping out of your hands, or a ball that only exists digitally? Other juggling practices contest mastery by rethinking skill itself rather than displacing the human. Sean Gandini, a leading figure in contemporary juggling, sees juggling not as a ceaseless drive for "one more" but as an exploration of patterns, remarking that skill is "our imprisonment in circus" (176). Contemporary juggling groups like Gandini Juggling and Ea Eo distribute the skill of juggling across many

[25] See work by Gandini Juggling, Ea Eo, and Collectif Petit Travers mentioned here, but also, the Institute of Jugglology—*Mandala* from the opening of this introduction, and Galen Harp's solo work with ice balls and barbed wire—as well as Jimmy Gonzalez's work with soft clay, Jo Kamm's porcelain juggling props, and Adrien Mondot's juggling in/with interactive digital environments. Phia Ménard's foundational, discipline-shifting work with wind and ice is discussed further in Chapter One of this dissertation.

performers where, as Collectif Petit Travers remark in their show *Our Interior Mornings*, "the goal is not to finish first, the goal is to be together."

Rastelli shifted juggling away from "combination tricks"—the act of "taking unrelated skills of juggling and manipulation and merging them into one trick"—toward the form of juggling most widely recognized in North America today: "*n*+1" toss juggling where *n* equals the number of hands, and juggling is defined as throwing and catching at least one more object than that number (Cain, 'Creating a Juggling Combination Trick'). To push the form to its limits one simply needs to keep adding 1 (*n*+2, *n*+3, *n*+4, etc.). This bigger-is-better logic produces predictable shows with a quickly reached and obvious endpoint.[26] As D. Wall observes, through emphasis on virtuosic accumulation, "jugglers painted themselves into a corner," since after a certain threshold of objects the difference in skill level is no longer even discernable to an audience (65).

Contemporary juggling departs from this logic, instead interpreting juggling as "a relationship of three things: it's of the object, it's of your body, and it's of your environment" (Åberg and Gilligan, 'Episode 4', sect.1:47:03–1:47:11). From this perspective, juggling is not defined by increasing control but by shifting configurations of relation. Juggler and artist Phia Ménard similarly reframes juggling as a way of entering "the most human relationship one can have with the cosmos," replacing virtuosity with ecological entanglement (Lavers et al. 37). Juggler and educator Robin Dale similarly insists that in his practice, juggling is not "the practice of throwing and catching objects for entertainment," but rather "arranging actions into satisfying

[26] In his 2022 solo show *Reflex*, Gilligan dramatizes this problem: he frames juggling as a contest with the audience, who are always asking him to do (at least) one more than before. Inevitably, the audience reaches a number that Gilligan can't juggle and the audience "wins," but the victory feels hollow, the performance over too soon.

sequences which reveal various behaviours of the object" (Dale). These practices do not abandon skill but displace mastery as its organizing principle.

For all the reasons above, I situate this dissertation within the field of contemporary circus studies, which has developed over the past two decades through increasing collaboration between academic and technical institutions and often, as in my case, finds a home within theatre and performance studies departments. Whereas the traditional circus "resisted academic scrutiny for cultural and economic reasons"—operating through an apprenticeship model and the protection of trade secrets—contemporary circus artists are often researchers themselves, experimenting with new aesthetics and actively questioning the nature of their discipline (Leroux and Batson 12). As Head of Circus Arts at Stockholm University for the Arts Alisan Funk observes, in formal education we are "taught to sideline our body's knowledge," and often circus artists initially turn to circus to "compensate by being present in the body to the exclusion of intellectual reflection" (Funk). Over time, this division between mind and body, intellect and technique can come into question. "Having nourished the experience of bodily investment," Funk writes, "there are questions that remain unanswered, conversations that we want to have, ideas that we crave to investigate, connections that we feel are lacking." Funk suggests that "the desire to include both the body and the mind in our work compels us to return to the hub of critical thinking, the university, to find out for ourselves how each one of us can understand our bodily experiences within the greater context of humanity's search for meaning." Likewise, scholars like myself have turned to circus practice because circus knowledge is difficult to access through distanced observation alone: it is embodied, iterative, materially contingent, and often tacit.

The Montreal Working Group on Circus Research, founded in 2010 as "an informal gathering of academics interested in the aesthetics, economics, and ethics of Cirque du Soleil," has been integral to establishing contemporary circus studies as a legitimate academic field (Leroux and Batson 13).[27] Through the working group, Concordia University and École Nationale de Cirque (ENC) formed a formal research partnership with three stated goals: first, "to develop specialized knowledge retention in circus arts"; second, "to disseminate circus-related knowledge"; and third, "to widen the scope of scholarship and encourage dynamic academic approaches to studying the circus arts" (14). The group is now a vibrant hub for circus scholarship, drawing large gatherings and international attention.

A commitment to thinking through doing and questioning the art form itself—why we do it, what it is, and what it might become—is a defining feature of contemporary circus arts and scholarship. As such, methodologies in circus studies tend to emerge from within practice rather than being imposed from outside it. "The circus community," Funk writes, "is rejecting an age-old paradigm that insists mind and body are separate." Multimodal scholarly publications like the book *Thinking Through Circus* highlight this shift as well.[28] The editors of that volume note that, because "physical circus practice and thinking are often imagined to happen in *separate* spaces and at *separate* times," artists are encouraged to approach their physical movements "as 'thoughtless' physical doings which can be filled with any meaning or content" (Lievens et al. 7). Circus artist, educator, and publisher Thom Wall argues that training cultures that prioritize physical technique over seemingly more academic/intellectual pursuits like history and theory,

[27] Early members included theatre scholars Erin Hurley, Karen Fricker, and Louis Patrick Leroux, who collaborated on a special issue of *L'Annuaire théâtral* on Quebec circus in 2009, alongside economic geographers Norma Rantisi and Deborah Leslie.

[28] See also: *The Really Fantastic and the Fantastically Real: Doing Circus Now* (Kavanagh and Hamer); *Writing the Circus* (Strange Wonderful Creature); *Circus Thinks: Conversations 2022* (Circus Thinkers Platform). These publications enact circus through text by including comics, dialogues, collage, and more.

what he calls the "back tucks before books" approach, risk treating "spectacular circus skills" as ends in themselves "rather than tools to be used for creative expression" and conceptual exploration (T. Wall, 'Pathways to Circus'). Indeed, this attempt to separate theory and practice obscures the fact that every circus discipline already carries embedded assumptions, aesthetics, and values; when these remain hidden, they silently shape the field while evading critical examination. By making underlying assumptions in circus technique—of mastery, progress, virtuosity, difficulty, and more—visible and discussable, circus studies and contemporary circus artists resist dichotomies of mind and body, subject and object, society and nature, and theory and practice, articulating instead how circus thinks through the bodily, material, and relational world.

The Nonhuman Turn

Many contemporary circus scholars draw extensively on new materialist and posthumanist scholarship as it provides a framework through which to question anthropocentrism and disciplinary boundaries, and boundaries in general. Francesca Hyde and her apparatus, together as "Fran-Tank," question the boundaries between themselves in *Thinking Through Circus*.[29] They ask, "Where do we end?" acknowledging the many different beings that make up who they are (Fran-Tank 137). As a field, new materialism is interdisciplinary, or perhaps even nondisciplinary, rejecting boundaries between disciplines and beings. To return to Latour, his text *Reassembling the Social* reacts against the tendency to treat the "social" as a separate "domain of reality," cordoned off from others such as the biological, political,

[29] Tank is an HDPE jerry can Hyde uses as a counterweight in hair hanging, a circus art in which the performer is suspended in the air only by their hair.

psychological, or scientific (3). For Latour, the social is instead "a trail of associations between heterogeneous elements," which means that sociology becomes the practice of tracing those associations, regardless of disciplinary boundaries (5). This refusal of neat separations across domains, and this attentiveness to relations that exceed humanity, underpin the methodology of actor-network theory (ANT). ANT has been taken up across the social sciences because it "does not limit itself to individual human actors but extend[s] the word actor—or actant—to non-human, non-individual entities" (*We Have Never* 2). Latour's work is foundational to new materialist thought and appeals to circus thinkers like Fran-Tank who, through circus, "see the intimacy between humans and non-humans, the way they touch each other, the way they know each other" (141).

Situated within the broader "nonhuman turn," which I'll discuss in a moment, new materialism as a field did not emerge from any single source, or even any single academic field or turn;[30] rather, it emerged across the humanities, social sciences, physical sciences, and fine and performing arts (Buchanan; Yi Sencindiver). Because of this, any attempt to list its foundational figures looks slightly different, though many accounts include thinkers I also draw on in this dissertation: Donna Haraway, Bruno Latour, Karen Barad, Timothy Morton, and Jane Bennett, among others. Despite their divergent approaches, these scholars' theories align on several points, including that, "all materialities have 'agential' force" (Jones 25), that "agency is distributed across and among materials in relation" (Tompkins 2), that "brackets formerly demarcating the living from the nonliving, like the human from the nonhuman, have widened exponentially" (Schneider, 'New Materialisms' 7), and that "to really grasp the nature of and potential solutions for the world's most critical problems, including environmental degradation,

[30] Nor is it truly "new" as it recasts much earlier Indigenous ways of knowing, which I discuss later in this introduction.

climate change, poverty, systemic violence, and warfare, nonhumans in all their myriad forms must be given their due" (TallBear 190).

With human activity taking a central role in shaping the Earth's climate in the current geological epoch proposed to be called the Anthropocene, we are forced to recognize humans not as privileged actors standing apart from the world but as entities entangled with nonhuman forces, "equal to the nonhuman climatological or geological forces on the planet" (Grusin vii). This shift in perspective has intensified scholarly urgency in addressing environmental degradation by getting "hands and feet dirty again after years of avoiding earthy materiality" (Buchanan). New materialist approaches respond to this call by dismantling oppositional or binarized ways of thinking, critiquing the ontological dualism of Cartesianism that has long separated mind from body, culture from nature, human from nonhuman (Coole and Frost; Conty; Grusin). Instead of Descartes, new materialist scholars tend to draw on philosophers like Spinoza—who is Descartes' contemporary but was not absorbed into modern culture like Descartes—because he offers a monist ontology rather than a hierarchical split between mind and matter. In place of Cartesian binaries, new materialism insists on "a reckoning with planetary thought and the material world—ecological thinking that looks at the interdependence of species with each other, that is observant and attentive to the ways that material becoming is a way of theorizing politics in and of itself" (Grusin 4). New materialism, then, is not only a renewed commitment to materiality and an extension of agency to the nonhuman but also a recognition that ecological, human/nonhuman entanglements are sites of politics and ethics. For Latour, this is also an issue of nondisciplinarity, writing that "we have been stuck with a scarcely attenuated opposition between 'social' conflicts and 'ecological' conflicts—as if we were dealing with two

distinct entities"—these two seemingly separate fields, though, need to adopt each other's issues as their own to make any change (*Down to Earth* 58).

Although the performance forms that circus brought together under one tent have always showcased an entanglement of human and nonhuman entities, only recently have circus scholars begun to decentre the human in those relationships, and by drawing explicitly on new materialist scholarship. In *Thinking Through Circus*, for example, contributors cite such thinkers as Jane Bennett, Karen Barad, María Puig de la Bellacasa, Donna Haraway, and Timothy Morton to explore how circus practices can model alternative modes of relation. As Bauke Lievens and Camille Paycha argue, "Precisely because the relationship to the object is so central in circus… it is a space in which we can develop and perform other possible ways of relating to what surrounds us" (26). They further propose that "agency in circus is maybe more a matter of mapping and performing the many ways in which objects, nature and other bodies affect us and are affected by us, instead of showing how well we master and control them" (27). This more ecological approach to circus is focused further in Vincent Focquet's chapter, as he argues for a "rethinking [of] the relationship between humans and things" in circus (Focquet et al. 44). For Focquet, technological mastery and geoengineering cannot solve ecological catastrophe; instead, he imagines a "humble juggling," one in which jugglers "tune our presence to the objects that surround us… and to the impossibility of understanding them (or juggling them)" (48). His text suggests that circus may even require us to "meet things outside of the black box, in their environments, around their predicaments" (48). Many contemporary circus artists are indeed experimenting with precisely this kind of site-specific, environmentally responsive practice. Cirque Barcode's *Branché*, created in collaboration with Acting for Climate, rethinks the touring circus format by staging performances within local forests (Barcode Circus Company). Closer to

where I write, in Waterloo, Ontario, Erika Lui's silks performance "Refractions" took the perspective of Schneider's Creek, showcasing the watershed's history and lifeforce (Lui). These examples, both coming from a Canadian perspective, but mirroring work explored internationally, demonstrate how new materialist approaches have shaped circus studies and circus-making alike, foregrounding ecological entanglements.



Figure 1. Erika Lui's silks performance "Refractions" with the Schneider Creek behind. Photo by Geoff Martin.

Circus studies recently turned to new materialism to rethink human–nonhuman relations, but theatre studies has long grappled with similar questions of agency and the role of objects

in/as performance. Taken as an ontology, Latour's writing suggests that to exist is to act, or perform. Yet for Latour, action is never singular or self-contained:

> To use the word 'actor' means that it's never clear who and what is acting when we act since an actor on stage is never alone in acting... As soon as the play starts, as Irwin [sic] Goffman has so often showed, nothing is certain: Is this for real? Is it fake? Does the audience's reaction count? What about the lighting... If we accept to unfold the metaphor, the very word actor directs our attention to a complete dislocation of the action, warning us that it is not a coherent, controlled, well-rounded, and clean-edged affair... action is *dislocated*. Action is borrowed, distributed, suggested, influenced, dominated, betrayed, translated. (*Reassembling the Social* 46)

This metaphor of theatre—as a space to explore how humans "become-with" the nonhuman at every scale of what Haraway calls the "terran compost pile"—has resonated deeply with theatre and performance studies scholars, including my supervisor Marlis Schweitzer, who appreciate ANT's "deliberate invocation of theatrical terminology" and use it as a methodology to trace networks of actors "irrespective of whether the actor is human" (*Transatlantic Broadway* 13). As a theatre artist and scholar myself, Latour's metaphor resonates. In my undergraduate theatre degree, I first encountered Émile Zola's concept of naturalism, which insists that the environment of the stage—its set, props, lighting, etc.—affects the audience's understanding of the characters and their motivations before any actor enters the stage. "Everything is interdependent in the theatre," Zola wrote, "Truth in costuming requires truth in setting, in diction, in the plays themselves. Everything walks in step down the path of naturalism. When the costumes become more exact, it's because the settings are that way too" (Gerould, 'Emile Zola' 365). This emphasis inspired me to imagine objects, spaces, and materials as active participants

in performance. Similarly, I was introduced to Denis Diderot's *Paradox of Acting*, which destabilizes human exceptionalism by suggesting that actors do not need to "feel" anything at all; they only need to reproduce the outward signs of emotion ('Denis Diderot' 200). This proposition implied three things for me: first, that acting is material choreography rather than inner essence; second, that a nonhuman entity, like a machine or robot, could in principle perform emotion convincingly; and third, that actors may not be so distinct from circus performers, who focus on technique, repetition, and the material work of the body.

More recently, theatre and performance studies scholars have explicitly engaged with new materialism to theorize objects as agents that both shape performance and perform in their own right. Drawing on cultural theorist Bill Brown's distinction between objects and things (objects as use-oriented and things as the object resisting or exceeding its use), which itself draws on Heidegger's distinction, performance scholar Robin Bernstein clarifies the difference through the lens of performance, writing, "An object becomes a thing when it invites a person to dance" (70). Bernstein writes that, "one gains performance competence not only by accruing contextualizing knowledge but also, crucially, by holding a thing, manipulating it, shaking it to see what meaningful gestures tumble forth," meaning that scriptive things are simultaneously archive and repertoire (90). Juggling props both shape performance—their shape teaches us how to manipulate them; we can only perform what the prop allows—and contain traces of performance. Schweitzer agrees that things, namely costumes, "contain knowledge; they enact it and they pass it on to other bodies" ('Nothing but a String of Beads' 38). Bernstein foregrounds textuality and scripts, but Schweitzer extends this with "choreographic things," thereby foregrounding movement and the non-linearity it suggests. This shift highlights the temporality of things: they are not simply documents that fix the past in the present, but dynamic actors co-

constituted by past and present. By emphasizing the nonlinear, multitemporal dimension of objects, Schweitzer encourages us to see things as entangled in ongoing processes of decay, endurance, and transformation.

So, attending to choreographic things also means attending to time. Just as Latour insists that action is always distributed and borrowed, theatre and performance studies scholars remind us that time, too, is distributed across human and nonhuman actors and overlapping with or "touching" other times. Objects carry temporalities that exceed human chronology; for instance, a juggling ring whose surface "remembers" its repeated impacts and gradual wear. Such a temporal reorientation aligns with Rebecca Schneider's argument in *Performing Remains*, where she shows through reenactment that theatre is temporally multiple and time is theatrical. It also resonates with Philip Auslander's argument that performance events are always already mediatized and therefore their temporalities multiple—the use of microphones, for example, amplifies and extends the timing of words said (24). This scholarship prepares the ground for thinking about juggling props as scriptive and choreographic things—objects that invite, constrain, choreograph, and extend human-nonhuman relations across spatial and temporal scales—rather than as only commodities or objects to facilitate human skill.

Whereas Bernstein and Brown ultimately leave the human at the center of their analyses, political theorist and philosopher Jane Bennett's interrogation of anthropocentrism challenges the ontological distinction between human and nonhuman. In *Vibrant Matter*, Bennett posits that materiality itself has vitality and agency and that "there was never a time when human agency was anything other than an interfolding network of humanity and nonhumanity" (31). This is a rejection of anthropocentrism, but also of "caring for an environment," as Bennett prefers the language of "encountering a vital materiality" because it horizontalizes relations between

humans and nonhumans at all scales and challenges their ontological separation (111). She instead insists on a "same-stuff claim": "this insinuation that deep down everything is connected and irreducible to a simple substrate, resonates with an ecological sensibility" (xi). Bennett also complicates temporality, noting that "'objects' appear as such because their becoming proceeds at a speed or a level below the threshold of human discernment... to live, humans need to interpret the world reductively as a series of fixed objects" (58). From this perspective, the apparent fixity of props, costumes, or set on stage is less a sign of inertness than of human limits of perception. What looks still or dead may simply be moving, decaying, or becoming at a tempo we cannot track. Theatre and performance studies has also wrestled with this tension. Writing about Yorick's skull in *Hamlet*, Aoife Monks notes its ability to unsettle the subject/object divide: "Its murky status as a property makes visible the dialectical relationship between subjects and objects; it makes concrete the frailty and fragility of subjectivity" (359).[31] In this sense, performance demonstrates that the line between humans and things is blurry, or fundamentally unstable, as both co-constitute each other's temporal animation.

The strand of new materialism emerging from theatre and performance studies is part of a larger intellectual movement often described as the nonhuman turn. First articulated as such in a 2012 conference organized by Richard Grusin and outlined in his edited collection *The Nonhuman Turn*, these approaches seek to counter the anthropocentrism of certain strands of Western philosophical thought by decentering or questioning the human. The "nonhuman," as Grusin defines it, might variously include "animals, affectivity, bodies, organic and geophysical systems, materiality, or technologies" (vii). Broad in scope, the nonhuman turn encompasses work in affect theory, animal studies, cognitive science, new media theory, and other fields.

[31] See also Lezlie Cross "The Linguistic Animation of an American Yorick" and Andrew Sofer's *The Stage Life of Props*.

Grusin describes the turn as an effort to imagine "a way forward for the arts, humanities, and social sciences in light of the difficult challenges of the 21st century," challenges ranging from "climate change, drought, and famine; to biotechnology, intellectual property, and privacy; to genocide, terrorism, and war" (vii). The nonhuman turn distinguishes itself from previous academic turns in the late twentieth century—like the cultural, textual, ideological, and aesthetic turns—which were dominated by linguistic and representational paradigms. The nonhuman turn proceeds from the conviction that language and discourse cannot fully account for the vibrancy, agency, and recalcitrance of matter. The nonhuman turn also challenges the tenets of social constructivism, namely that "the agency, meaning, and value of nature all derive from cultural, social, or ideological inscription or construction" (Grusin xi). Diana Coole and Samantha Frost's field-defining anthology *New Materialisms* expresses gratitude for the work constructivism did to provide "insight into the workings of power," but argue that "an allergy to 'the real' that is characteristic of its more linguistic or discursive forms... has had the consequence of dissuading critical inquirers from the more empirical kinds of investigation that material processes and structures require" (6). Grusin is careful to distinguish the nonhuman turn from posthumanism, noting that it does not imply a teleological shift from "human" to "posthuman" but rather foregrounds the inseparability of human and nonhuman from the start (ix). Other scholars in the turn echo this refusal of "post" by emphasizing that humans have *always* been entangled with nonhumans, and we have *never* been modern.

Speculative Realism

One strand of the nonhuman turn I was drawn to while researching this dissertation is speculative realism, and in particular object-oriented ontology (OOO). Speculative realist

thinkers write within the continental philosophical tradition, but they resist what Quentin Meillassoux terms correlationism: the tendency, running through much of modern philosophy, to only discuss "things insofar as they correlate to some version of the (human) subject" (Morton, *Dark Ecology* 13). Morton, writing at the intersection of object-oriented thought and ecological studies, does not reject this tradition so much as extend from it, accepting the Kantian insight that we never grasp things in themselves—only ever data, impressions, and correlates—but not restricting that limitation to humans. "Correlationism is true," Morton writes, "but disastrous if restricted to humans only" (17). If things exist in a withdrawn way, they withdraw from everything's access, not just ours: "they cannot be splayed open and totally grasped by anything whatsoever, including themselves" (16). This means that human perception is, as Bogost puts it, "just one among many ways that objects might relate" (*Alien Phenomenology* 8-9). To decentre human access is to develop a more ecological awareness because ecology, for Morton, "is the thinking of beings on a number of different scales, none of which has priority over the other" (22).

The term speculation underscores both the impossibility of fully grasping objects and the necessity of imagining their existence beyond our own access. The speculative orientation resonates with science fiction and is one reason I return to that genre throughout this dissertation: it models ways of thinking about the alien, the inaccessible, the nonhuman. It also draws me to the OOO of Graham Harman, which highlights the withdrawnness of objects, and defines an "object" as "any entity that cannot be paraphrased in terms of either its components or its effects" (Harman 3). A juggling club has a withdrawn reality that resists my mastery because something always slips, refuses, or surprises, reminding me that the object is never exhausted by what I know of it. However, Harman in particular has been critiqued for avoiding or

downplaying the political stakes of objects/relations (e.g., race, gender, colonial histories), precisely because OOO theorizes "object life in its most radically non-relational forms" (Tompkins 2). Speculative realist philosopher Levi Bryant develops this detachment further, insisting that if realism is to claim a world independent of humans, it cannot simultaneously insist that ontology is always political: "Our *knowledge* may be irreducibly tied to politics, yet to suggest that reality is also thus tied is to project an epistemological problem into the ontological realism" (Bryant et al. 16). As a scholar working in performance studies and within the climate crisis, I cannot accept an apolitical ontology. Juggling props, performing bodies, and ecological systems are not neutral entities, they are always entangled with histories of labor, extraction, inequity, and power.

Morton offers a way to hold both the withdrawn strangeness of objects and their political entanglements. For Morton, "all objects are deviant insofar as they exist in difference from themselves" because they are "riven from within between what they are and how they appear" ('All Objects Are Deviant' 73). Therefore, existence itself involves movement and deviation; "movement is part of being a thing… such that a thing deviates from itself, just to exist" (78). This understanding of movement—and particularly deviation or the constant swerve—as integral to existence resonates with me as a juggler because a prop must always leave my grasp for my action to be considered juggling. Ecological awareness emerges from recognizing that this withdrawnness applies to oneself as well. As Morton writes, "I am co-constituted by my idea of me, which is in a loop with actual me... but it is not me" (74). The self, like every object, exceeds its own grasp. Morton reveals this insight through the image of the strange loop, a Möbius strip with only one side, in which individual actions and collective systems fold back on one another. He gives the example of turning a key in an ignition—as an individual act it doesn't seriously

harm the earth, it's statistically insignificant, but as a participant in a collective system it does. Therefore, in my actions, I both am and am not myself. Ecological awareness is that twist, the Aristotelian "peripeteia," the recognition that as much as we are the hero of our story, we have also been the villain all along. That yes, "I'm a person," but "I'm also part of an entity that is now a geophysical force on a planetary scale" (*Dark Ecology* 9). If traditional circus framings of juggling contributed to "the modern myth of transcending one's material conditions," my approach to juggling begins from the opposite premise: that we are always situated "on a very specific planet with a specific biosphere," embedded within places and timescales that exceed us (10). This is not an apolitical claim. It is a claim about complicity, responsibility, and the impossibility of standing outside the systems that constitute us.

Agential Realism

Feminist theoretical physicist and philosopher Karen Barad's agential realism proves useful in my dissertation to explicate how these constitutive relations occur. Barad develops what they call a posthuman performativity, a theory influenced by Judith Butler's work on gender performativity but expanded into nonhuman and nonmodern domains. Where Butler locates performativity primarily in the human and the social, Barad critiques this as inadvertently reinscribing a nature-culture dualism and privileging discourse over materiality (Barad, *Meeting the Universe* 35). Like Latour, Barad insists that the natural and the social cannot be disentangled; however, they locate their entanglement not in "networks" but in material-discursive practices of measurement—sites where matter and meaning meet (67). Drawing on quantum physics, they show that matter is not a passive substance waiting to be interpreted but an active participant in the world's ongoing becoming. Entities do not pre-exist their relations;

rather, they emerge through relations that co-constitute their participants, what Barad calls intra-action. “Bodies are not objects with inherent boundaries and properties,” Barad writes, “they are material-discursive phenomena. ‘Human’ bodies are not inherently different from ‘nonhuman’ ones. What constitutes the ‘human’... is not a fixed or pregiven notion, but nor is it a free-floating ideality” (‘Posthumanist Performativity’ 823). The concept of intra-action describes juggling well because jugglers, props, and patterns all co-constitute each other in practice—something I discuss further in chapter two. Agential realism offers a way to theorize juggling as an ecological model; humans and nonhumans must be thought of in relational entanglements and ontology and epistemology cannot be separated. To juggle is to think with and through material relations.

Indigenous Epistemologies

The so-called “new” theories of the nonhuman “turn” echo long-standing philosophies from Indigenous worldviews that have been passed on through oral and embodied storytelling and legal traditions. Indigenous scholars continue to communicate these theories in their own words and practices, but their contributions are overlooked in certain areas of academic discourse. Red River Métis anthropologist Zoe Todd addresses this issue in her article “An Indigenous Feminist’s Take on the Ontological Turn,” where she critiques Western scholars’ tendency to cite European thinkers writing on the “more-than-human” while ignoring their Indigenous contemporaries writing on the same topics, a practice that “perpetuate[s] the white supremacy of the academy” (18). Sisseton-Wahpeton Oyate scholar of Indigenous science and technology studies Kim TallBear also writes that, “The academy is integral to the colonial state that manages indigenous lives and nonhuman relations, too often to our collective detriment,” and so her goal is to “support the flourishing of indigenous thought and life in the twenty-first

century" (180). Similarly, settler performance studies scholar Virginie Magnat emphasizes that, "Western researchers have a responsibility to redress historical injustices linked to the processes of systematic exclusion," and urges us (myself included) to "hold space for Indigenous philosophy, which values orally transmitted embodied ways of knowing, so that we may contribute to decentring, unsettling, and decolonizing Eurocentric paradigms that remain dominant in the academy" (27).

My engagement with Indigenous perspectives on the interrelatedness of all things is necessarily limited—not only because the field is new to me, but also because translation of Indigenous language and ideology out of embodied contexts is impossible ("Theory of Water," Simpson). However, I aim to strengthen the ideas in this dissertation and my allyship to my Indigenous peers by citing Indigenous scholars directly, addressing the extractive knowledge practices that Dylan Robinson compares to "resource extraction upon the lands and waters of Indigenous peoples across Canada" (Carter et al. 209). That said, I recognize the valid concerns that White settler scholars like myself often cite Indigenous thought out of a "hunger" for or "instrumentalization" of Indigenous knowledge, stories, and culture. Mississauga Nishnaabeg author Leanne Betasamosake Simpson writes that Indigenous knowledge is only ever seen in the academy as an enhancement to Western sciences: a source of solutions for issues such as climate change or placating Indigenous peoples' resistance to industrial development through "consultation" (*Theory of Water* 145). This is a partial recognition of Indigenous knowledge because it's only interested in English sources and information—not foundational ethics and philosophies (145). At least until Indigenous scholarship—whether through embodied practices, oral storytelling, or academic discourse—is valued equally within the academy, skepticism

toward Western citational practices will persist. While these ideas and methodologies are new to me, I commit to deepening my engagement and being a better ally to my Indigenous peers.

Throughout my research, I occasionally found connections to Indigenous thought, but they felt abstract and detached—not quite a real engagement with Indigenous scholars or ideas. Potawatomi scholar Robin Wall Kimmerer's *Braiding Sweetgrass* was a turning point for me, as I think it must be for many settler scholars, because it braids academic/western/scientific understandings of the world with Indigenous wisdom and the teachings of nature. Kimmerer's call for a gift economy—an economy of reciprocity—that is in direct opposition to the market economy in which nature is reduced to "natural resources" gave me an actual alternative to capitalist, colonialist ways of imagining interactions. Her personal storytelling grounded her writing and is counter to the "basic Western model of academic scholarship," which Anishinaabe theatre scholar Jill Carter describes as "introduction, body, conclusion, argument, support, prove the argument" (225). This model reflects capitalist, colonial systems in that, "It's teleological, it's a goal-oriented progression, it's a model of progress" and it doesn't "consider how our own positionality and histories and relationships impact those structures" (Carter et al. 225). In this dissertation, I try to incorporate my own experiences, emotional attachments, and passions to ground the work in the personal and singular perspective from which it's written.

For instance, viewing Indigenous visual art throughout my PhD studies encouraged me to develop an emotional connection to the land, to acknowledge the interdependence of humanity with all living things, and recognize that so much of Indigenous thought has been stolen and gone uncredited or was suppressed/disappeared due to the impact of colonization. Billy Gauthier, a sculptor of Inuit ancestry whose protest and artistic work responds to his home in North West River, Labrador and whose work I saw at the Kitchener-Waterloo Art Gallery, comments that he

listens to the material to tell him how to sculpt (ex. “working in bone we are often challenged to become more creative, thinking in whimsical forms”) and in so doing his work carries a message of listening to the land (Doull et al. 61). Gauthier recognizes that “nobody is willing to protect anything unless they fall in love with it,” so he sculpts the land intensely as an act of protest in the hopes that his passion will come through and viewers will understand that his “culture and nature are synonymous” (Doull et al. 37). Gauthier’s commitment to his land, seen through his extremely technical sculpting, is also reflected in his activism, like when he went on a hunger strike, putting himself at great personal risk, to protect his people from risks of methylmercury poisoning due to planned flooding for the Muskrat Falls hydroelectric dam (L. Wall). Member of the Professional Native Indian Artists Incorporation (PNIAI), Anishinaabe artist Norval Morriseau, whose work I saw at the Art Gallery of Hamilton, paints thick lines between and around figures to demonstrate that “all the beings, including the Anishnaabe human, are interconnected and together become one form… human beings are part of everything and are responsible for maintaining those relationships” (Morriseau). Morriseau is one of the most counterfeited artists in the world and the crimes against him expose the ongoing theft and suppression of Indigenous culture today as collectors stop purchasing Indigenous works out of fear of fraud (Allan).

Just as modern Western art movements such as Surrealism were influenced by Indigenous artists without credit, so too have academic movements such as new materialism built themselves on the backs of Indigenous philosophies that have long rejected the human supremacist belief in active subjects and passive objects. As TallBear writes, “Indigenous standpoints confound the Western animacy hierarchy” that imposes a rigid divide between the animate and inanimate (180). A more fitting term then for the field in which I situate myself

might be "(k)new" materialism, which is a term "employed to describe knowledge as simultaneously old and new" and which I learned from Magnat's article "(K)new Materialisms: Honouring Indigenous Perspectives" in the *Canadian Theatre Review* and she learned from Manulani Aluli-Meyers' article "Holographic Epistemology: Native Common Sense," where Aluli-Meyers credits Māori scholar Shane Edwards as the originator of the term (Magnat 35). The concept of (k)new materialism also prompts me to reflect on the chronology I constructed above. In tracing a history from ancient throwing and catching practices, through the traditional circus' staging of them, to contemporary circus' alignment with new materialist theory, I risk reproducing a familiar narrative of intellectual progress in which relational understandings of humans and nonhumans appear as recent discoveries. Perhaps contemporary juggling's interest in material agency and ecological relation isn't a radical innovation of the form and more a rediscovery of possibilities obscured by modernity. Native American hoop dance, for instance, appeared within the new circus context of Cirque du Soleil's *TOTEM*, where Lumbee hoop dancer Eric Hernandez performed the form within a Western dramaturgical frame. While this framing can emphasize virtuosity and the "performer body," hoop dance is not primarily organized around the spectacularizing of technical escalation, even though it does involve dexterity and training. Hernandez describes hoop dance as a healing, ceremonial practice that traces the stages of life and connects him to spirituality. His dance is inspired by the movements of mother nature and he uses it to "give energy back and to display the energy that we carry" (Chabra). Such practices demonstrate that skilled object manipulation is not always framed through mastery over matter. Other traditions understand dexterous engagement with objects as a way of participating in social, ecological, and spiritual relationships within and beyond the individual performer.

The relational grounding of hoop dance and similar Indigenous object manipulation and performance practices are not newly theorised by European thought. Latour's critique of modernity is an attempt within Western philosophy to rethink categorizations that Indigenous epistemologies hadn't organized themselves around in the first place. In fact, Latour has been criticized for not citing Indigenous scholars in his work. His ecological theories align with existing Indigenous thought and his articulation of the problems in our world can be addressed by listening to Indigenous thinkers. He argues, for instance, that modernization is inseparable from globalization and colonization insofar as it extends a single mode of ordering the world across territories rather than expanding a plurality of worldviews (*Down to Earth* 13). Globalization and modernization mean removing an attachment to the local and the land so that "any attachment to any soil at all has been read as a sign of backwardness" (14). To resist modernism is "to want to preserve, maintain, ensure one's belonging to a land, a place, a soil, a community"—a desire and practice that is innate to Indigenous peoples' cultures on Turtle Island and one that colonization erodes (15). Latour calls for readers to "cherish a maximum number of alternative ways of belonging to the world," which requires a nonmodern approach to actants, and argues that the growth of inequalities, populism, and forced migration are all responses to the Earth's reaction to the attacks on it by globalization (16). Climate change both exposes and intensifies structural inequities, with "a rapidly closing window of opportunity to secure a liveable and sustainable future for all" (Calvin et al.). Climate justice emphasizes that the most marginalized bear the heaviest burdens, while the privileged have historically benefited from extraction—but not forever.

Methodology

My research for this project was guided by three intersecting methodologies: actor-network theory, research-creation, and the zettelkasten system of knowledge management. In this section I outline how these methodological outlooks altered my understanding of theory, practice, knowledge, speculation, documentation, output, and more. When people ask what this dissertation is about, I tell them it investigates the relationship between jugglers and their props. To complete this research, I conducted semi-structured interviews with 19 jugglers in North America and consulted existing nonmodern theory which I further examined in my own juggling practice. I chose these jugglers and these nonmodern texts because they are people and ideas I have already been "thinking with" (to use Haraway's term)—in some cases for over 10 years.

Using ANT as a methodology is almost to reject methodology entirely. ANT does not give the researcher a framework for where, when, or how to look, nor what to look at. Instead, ANT's "main tenet is that actors themselves make everything, including their own frames, their own theories, their own contexts, their own metaphysics, even their own ontologies" (Latour, *Reassembling the Social* 147). Latour believes that frameworks in research are of no use, because they are tacked on by the researcher after the fact. If the actors studied are simply operating under some framework, then they are not actors at all, "they have simply realized a potential" (153). Instead, ANT follows the actors and simply describes "what they do to expand, to relate, to compare, to organize" (150). Because of this, every new subject requires a different approach to research and writing. As a juggler myself, I am already deeply embedded within the network I will be studying. This gives me a strong idea of who and what is acting at the outset of my project.

Interview Process

I've been involved in the hobbyist juggling community for the past 13 years and in that time, I attended many juggling festivals across North America, co-founded a juggling festival that still runs in Kingston, ON, and performed original juggling routines for audiences of fellow jugglers. To complete this dissertation research, I interviewed hobbyist jugglers who were already in my juggling network. This was a practical decision, but also one that mirrors the way the juggling community and ideas within it spread. Most of the jugglers I interviewed are people with whom I have had long conversations about juggling prior to beginning my research. In particular, I am indebted to Greg Phillips for teaching me siteswap and new juggling patterns early in my journey, Naomi Stager for helping me unpack ideas about the culture of juggling, Eric Jackson for expounding on the nature of art in juggling, and Tim Dresser for never passing up an opportunity to talk about the performance and communication of juggling. Conversations about the nature and practice of juggling happen on car rides to juggling festivals, living room showings of new juggling films, the comment sections of Facebook group posts, and everywhere jugglers gather. Since this study was done alongside others in my immediate juggling network, the results represent a very specific time, place, and ideology within hobbyist juggling history. I spoke to jugglers who work in the fields of nanotechnology, physics, computer engineering, mechanical engineering, theatre, nursing, software development, visual arts and sculpture, etc. Not only have these hobbyists created innovative juggling tricks, patterns, styles, and acts, but they have also developed supports for juggling like community festivals, mathematical notations to represent and create new juggling patterns, computer programs and apps that mimic the juggling process to help jugglers visualize the activity, or prop design and manufacturing. They support or create juggling innovation at every possible level.

Alongside the above-mentioned jugglers, ideas from the following jugglers are also included in this dissertation: Kevin Chen, Aslynne Howes, Ezri Wyman, Andrew Romanowski, Joshua Hanneson, Roy Stracovsky, Bren Piper, Mike Moore, Emily Moore, Matan Presberg, and Cassandra Wiens. I chose to interview these jugglers because they are serious hobbyist toss jugglers that are a part of my personal juggling community. I considered someone "serious" if they had been juggling for more than a year and interacted with the juggling community outside of their local juggling club (for instance, attending national or international juggling festivals, interacting with jugglers from other geographic areas online, etc.). I considered someone a "hobbyist" if they weren't juggling as a living, even if they sometimes made money from juggling. I considered someone a "juggler" if I, as a fellow juggler, thought that they considered themselves a juggler. I had to make these decisions about how to restrict my pool of interviewees before conducting the interviews, so I didn't know whether my interviewees would necessarily identify with these terms. As such, my understanding of juggling, jugglers, seriousness, hobbyism, and the "juggling community" narrowed and expanded throughout the interview process. The data from four interviews I conducted early in my process, although it contained engaging ideas about the nature of juggling, was omitted because the jugglers themselves didn't quite fit the above criteria I settled on for the rest of my interviewees.[32]

The interviews for this dissertation were conducted predominantly in May, June, and July 2021. My original goal was to visit my interviewees' juggling spaces and juggle with them as we talked, so that their theories could be expressed and understood in a more embodied way.

[32] One of the jugglers, Kim Campbell, was a connection from my circus studies background, rather than within my juggling community. Another, Alex Larson, was aiming to attend circus school and has since been working professionally as a juggler with Canada's Wonderland and Acting for Climate. And two others, Krysten Hagedorn and Ryan Deschamps, are situated more neatly within the flow community, which overlaps with the juggling community. These interviews were invaluable to narrowing my dissertation's scope.

Instead, due to research ethics restrictions and personal convictions during the COVID-19 pandemic, I conducted these interviews over Zoom. However, jugglers did still sometimes embody their responses by juggling or gesturing on screen. For each interview, I started from the same set of questions, included in Appendix B of this dissertation, and let the conversation flow wherever my or my interviewee's interests lie. As such, interviews ranged from 45 minutes to two hours long.

One of the most impactful questions I asked of my interviewees turned out to be, "Could you describe the relationship between you and your props?" Some interviewees reflected quite deeply on the specifics of what happens between their body and the props while they are juggling. They considered the difference that prop type makes; for instance, how is juggling balls—which come into and then leave contact with the juggler's body—a different experience than juggling flower sticks—which might never contact the juggler's body, but rather are manipulated using sticks that act as extended limbs? (*Is the juggler ever a bounded individual acting on distinct, passive objects, or are they more like a distributed, contingent system?*) Some jugglers focused on their emotional relationship with their props; for instance, how does a juggler choose the props that they buy, and why might they prefer to juggle their own balls, despite them having no obvious physical difference to others' balls? (*How can props be understood as carrying affective histories of care and familiarity rather than being interchangeable, commodified units?*) Still other interviewees hypothesized about the differences between juggling by themselves and juggling with others; for instance, how do jugglers relate differently to a prop when it was originally thrown by their own hand versus when it was thrown by a passing partner? (*How is the agency in juggling distributed across multiple human actors before nonhuman entities are even considered?*) My interviewees' reflections like these and

others helped me grapple with juggling as a practice that is co-produced and distributed across diverse and vibrant materialities.

Research-Creation



Figure 2. The author performing juggling at the Sault Ste. Marie Busker Festival in 2017. Photo by Bren Piper.

Research-creation, for me, falls under the umbrella of "artistic research" and refuses any one disciplinary allegiance, driven rather by the researcher's curiosity; research-creation is a boundary object: a methodological approach that "does things with disciplines, satisfying certain of their requirements, without, however, belonging properly to any one of them" (Loveless, *How to Make Art* 32). As mentioned earlier, circus scholars are often also practitioners themselves. Because of this, practice-based research methodologies are dominant in contemporary circus

studies. Circus lends itself well to research-creation because, as Leroux writes, "in circus," unlike in traditional theatre, "action is both potentiality and kinetic force: it takes place not *between* bodies… but *on* bodies themselves" (75). Circus, like research-creation itself, also straddles many borders as a "transnational, cosmopolitan space" with an "interdisciplinary poetics," made obvious by the working relationships, for instance, of "Hamlet on the Wire," an exemplary research-creation project led by Louis Patrick Leroux in Montreal for the 400th anniversary of Shakespeare's death in 2016. In this project, itself an entanglement between theatre and wire walking, "multiple languages were spoken… inspired by both English and French theatrical traditions, [the project was] both performance and happening, both traditional tightwire and a physical vocabulary rooted in a gestural contemporaneity," which all led to "a plurisemiotic, plurilingual space, imposing a modus operandi of active listening in an environment favoring (re)translation and constant (re)interpretation between text and body, between voice and music, between English and French, and between artistic referents and expectations" (77). Leroux also played multiple roles within the project as "director, translator, and researcher" which were entangled, further blurring the boundaries "between Shakespeare and circus, between commission and creation, between words and movement, between adaptation and transgression," and so on (71). Even the boundaries of sound and movement become confused in "Hamlet on the Wire"—as in many circus pieces performed alongside live music—as movement has to be "textured and manipulated" by the musician, even as the musician watches "for any gesture, hesitation, or variation" in the movement (83).

According to Owen Chapman and Kim Sawchuk of Concordia University, research-creation can take four forms: research-for-creation, research-from-creation, creative presentations of research, and creation-as-research. All four of these forms interact and overlap

within my research. Although each of my methods could be defined by methodological approaches that typically belong to other fields—the close reading of philosophy, the semi-structured interviews of the social sciences—I made the conscious decision at the outset of my research to situate myself within the paradigm of research-creation. The reasons for this are three-fold. Firstly, as I am a juggler myself, I do not think it is possible to divorce my thinking about juggling from my juggling practice itself. Whenever I think or read about juggling, I do so with the "idiosyncratic gaze of the artist" that is typical of artistic research methodologies (Borgdorff 50). My academic reading is also always research-for-creation because I take that academic knowledge into my juggling practice. And, in the context of my dissertation, my juggling practice is also always creation-as-research as it expands my understanding of academic thought. Secondly, my interviewees are jugglers as well. I want to honor their creative work and thought as equal to my own, so I consider my interviews with them as research-from-creation because our conversation is a reflection on their creative practice. Thirdly, I have created artistic works throughout my dissertation to find clarity in my thought (see the juggling lecture in Appendix C). In this way I have conducted research-for-creation but also performed creative presentations of my research. Although some legibility within the disciplines a project spans is important, both ANT and research-creation projects trace unique and emergent interdisciplinary approaches to answer their research questions. As such, they cannot be fully grasped by any one discipline. Probably the most important aspect of research-creation projects for Loveless is their "bringing together of… different species of output"—for instance, a book, a video, or a circus performance—that "are understood to have equally weighted value as objects of knowledge production" (30). In my project, rather than committing myself to one side of the theory/practice binary by theorizing about it to produce a solely written product, I have attached video

documentation of my creative outputs to this dissertation, which I conducted "practicetheoretically," as Loveless calls it.

Although research-creation has existed in the professional art world and even academia for some time, debates about the validity and nature of research grounded in art practice, or what is simply called "artistic research" in some parts of the world,[33] have their origin "in art education institutions and their funding bodies, mainly as a consequence to adjustments to higher education in general" (Malterud 26); for instance, the establishment of the national Research Assessment Exercise (RAE) in the 1980s in the UK "evaluated the projects of all eligible university researchers" and "framed 'criteria' that subsequently opened the funding door" for artistic research projects, followed by the UK government's creation of an Arts and Humanities Research Board (AHRB) in 1998 which further advanced artistic research criteria (Kershaw 2). In the Canadian context, the conviction that practice itself can function as a site of knowledge production has been formalized through the concept of research-creation, which has been shaped in large part by public funding bodies including the Fonds Québécois de la Recherche sur la Société et la Culture (FQRSC), which acknowledged crossover between arts and social science/technology research in 2000, and followed by the Social Sciences and Humanities Research Council (SSHRC), and the Canada Council for the Arts.

SSHRC defines research-creation as an approach that combines creative and scholarly practices, situating creation within the research process itself and producing critically informed work through experimentation and artistic expression (SSHRC). Performance studies scholar and

[33] "Artistic research is the dominant term particularly in the Nordic countries, where Finland is considered to be one of the first countries to adopt artistic research due to "the independent university status of the major arts universities" and because "funding is linked to the number of graduated students rather than the research output of the staff" (Arlander, 'Artistic Research in a Nordic Context' 152). In Australia, alternatively, artistic research tends to be called "practice-led research" and by 2010, the vast majority of "performing arts and creative writing" research outputs were "non-traditional research outputs which were previously unrecognized" (Robson 133).

curator of numerous research-creation projects Laura Levin, though, cautions that this formal definition is not a neutral recognition of practice-as-research methodologies in the arts so much as it reflects "the discourses and preoccupations of Canada's funding bodies and cultural institutions," and while artist-researchers like myself have embraced the shift in the Academy to produce performance-as-research "as a recognition of intellectual rigor in the arts and as a challenge to binaries in the academy (intellectual/technician, theory/practice, and so on)," this framing has also become a "precondition for securing the funding and attention their work deserves" (62–63). Levin goes further, arguing that artist-researchers' scholarly creations cannot be understood simply as challenging institutional norms or even fleshing out their individual research profiles, but also, "within this knowledge-based economy, where creativity is part of the country's global marketing scheme," research-creation works are also valuable commodities that help establish Canada as a globally competitive nation (64). I use the term "research-creation"—as opposed to "performance-based research," which is dominant in the field of performance studies—aware of the entanglement Levin describes in part because it is the term I heard most frequently in a circus studies context and the one that resonates most strongly with my own work, and in part because circus studies' own emergence as a legitimate site of academic inquiry in Canada cannot be separated from funding and institutional structures.

Despite these material conditions of its production, and its "danger of upholding the very binaries that it purports to undo," research-creation still complicates a strict division between thinking and doing (64). Its rise in circus signals a shift away from a purely technical focus towards an understanding that "doing is also thinking" (Borgdorff 21). Early in the emergence of artistic research in the academy, foundational thinker Henk Borgdorff identified four ways theory and practice could be understood in relation. First is the instrumental perspective in which

theory serves "as a body of technical professional knowledge… specific to the craft, needed to practise the art form," an example of which might be the way siteswap acts as a theoretical underpinning to juggling practice (18). The interpretive perspective on theory "involves any form of reflection on artworks, or on the production or the reception of art, that rises above the level of the craft itself," so this dissertation might be said in part to contribute to the interpretive theory of juggling (19). The performative perspective acknowledges that "theory itself is a practice… theoretical approaches always partially shape the practices they focus on"; this insight is relevant to the way that my methodologies shaped my writing practice (particularly in the case of the zettelkasten discussed below) and echoes Barad's work that I reference throughout this dissertation (20). Finally, the immanent perspective articulates that "naïve practice does not exist"; practice is always already shaped by historical, cultural, political conditions and their concepts, theories, and understandings (21). This final perspective is echoed not only in Barad's concept of material-discursive practices, but also in the treatment of technology as never innocent in Davis's affordance theory addressed in chapter one of this text.

My own research-creation, which promiscuously traverses across these perspectives, is inspired in part by rope artist Camilla Damkjaer who develops a methodology she calls the "homemade academic circus." In her work, Damkjaer engages with the theory of Deleuze and Guattari in the circus discipline of vertical rope by creating lecture-performances. To complete her research, Damkjaer invented the persona of a "professional circus amateur"—a persona which I adopted for my own project. Damkjaer uses the "amateur" terminology out of respect for circus artists (the specialty of their knowledge and rigour of their training). I also use it because, as a hobbyist juggler, I am driven by a love for the technique first and foremost. Although the

word "amateur" is often used as a dismissal of one's work, the amateur makes discoveries precisely because they approach their craft in an unprofessional way.

Performance-based research is likewise common among performance studies scholars both generally and specifically among those rethinking the nature/culture binary (M. Donald; Hall; Rusted; Valenzuela). Performance scholars remind their readers that, "knowledge emerges from physical, practical, observational, and creative engagements with a lively material world" (Hall 359). In studying (with) my own juggling, I also align my work with performance artist and scholar Katherine Behar's object-oriented feminism which "approaches all objects from the inside-out position of being an object, too" (*Object-Oriented Feminism* 8). "Without the modesty of self-implication," Behar writes, "object-oriented thinkers can miss what may be their only opportunity to discuss and engage with objects' perspectives and experiences"[34] ('Facing Necrophilia' 124). Even more relevant to the theoretical underpinnings of the present work, Annette Arlander, an artistic researcher within performance and environmental art, demonstrates how Barad's agential realist philosophy is of particular interest within artistic research methodologies because Barad argues "apparatuses are productive of the phenomena they measure" and "in a similar manner, artistic practices are specific forms of engagement that make specific phenomena manifest. The artist-researcher is literally producing phenomena – artworks or performances – and not only observing them" ('Agential Cuts', loc. 3747). Arlander notes that artist-researchers must take note of Barad's notion of intra-action and agential cuts in order to "account for the apparatuses we use or are used by – and for the marks on bodies they create" (loc. 3907). She applauds Barad for "creating a bridge between science and humanities" that "makes space for a wide variety of experimental practices artist-researchers might engage with"

[34] For context, she says this because OOO treats each object as totally impenetrable to other objects. We cannot *know* another's experience.

(loc. 4036). By incorporating research-creation into my ANT methodology, I plan to not only "follow the actors," but also acknowledge my own presence as an actor and the ways in which my methodological apparatuses participate in producing the phenomena I study.

Zettelkasten System of Knowledge Management

The third methodology I worked within for this dissertation is the zettelkasten system. This is a method of notetaking developed by German social scientist Niklas Luhmann and it literally translates to "slip box" method because Luhmann took his notes on small slips of paper and stored them in a box. Really, though, the zettelkasten is not just a way of organizing and managing notes, it can also be a methodology for pursuing knowledge and a philosophy of knowledge. Over the past six years, I have developed my own iteration of the zettelkasten system, which I have shared extensively online and has been cited in a variety of books, videos, Reddit comments, and blogs.[35] I have been inspired in this train of thought by a variety of other online thinkers using the system.[36] The tenets of my zettelkasten as a methodology of research and learning are: 1) everything is/can be knowledge, 2) knowledge is personal, 3) thoughts are the basic units of knowledge, and 4) knowledge is interconnected.

Tenet one, *anything could be knowledge*, mirrors the above claims by Latour and Loveless that knowledge does not adhere to disciplinary boundaries and the OOO/ANT claims that anything can be an object/actant. When I read an academic text, I might be developing

[35] My own zettelkasten content has mainly been shared to YouTube, including an introductory video with 1.5M views at the time of writing (morganeua, *The FUN and EFFICIENT*), and Medium, including an introductory article with 37K views at the time of writing (morganeua, 'Note-Taking Is Not Enough'). Others have cited these videos (Fast).

[36] On YouTube see: Martin Adams, Nicole van der Hoeven, Vicky Zhao, and Linking Your Thinking with Nick Milo. See also contributors to the Zettelkasten Forum, including especially: Sascha and Christian.

knowledge, but also when I juggle, I might be developing knowledge. Different knowledge might emerge from these different actions, but one is not more important than the other. Knowledge, like actors in ANT, gains value through the strength and density of its connections. Tenet two, *knowledge is personal*, differentiates knowledge from information. Information is fact-based. To turn information into knowledge, there must be some personal relationship developed to it, even if it's just relating it to another, existing piece of personal knowledge. The third tenet, *thoughts are the basic units of knowledge*, is somewhat practical as it's necessary to define the outer limits of a note in the zettelkasten system so that they can be connected to each other. A thought, then, is a piece of knowledge that is irreducible (or "atomic" as they say in the zettelkasten community); it is self-contained, it cannot be broken down and those pieces still be understood as self-contained thoughts. This aligns with OOO's definition of objects as being irreducible to their connections/relationships. Finally, the fourth tenet, *knowledge is interconnected*, ties everything together. If knowledge is personal, it is innately connected to other knowledge. If notes document individual thoughts, they can be linked to as many other individual thoughts as needed to create surprising interactions. If everything is knowledge, not valued more or less than any other knowledge, then embodied knowledge is interconnected with cognitive knowledge, making those distinctions between forms of knowledge somewhat irrelevant. As Bogost writes, "all things equally exist… none's existence fundamentally different from another, none more primary nor more original" (*Alien Phenomenology* 11). Likewise, in my zettelkasten, I treat all notes equally. No matter how much is in them, whether they are referencing a whole book or a single thought, no matter what inspired their creation. There is no hierarchy in my zettelkasten that says, this note comes "first" or this note is more "authentic" than another. The zettelkasten, then, is an aesthetic intervention into the norm of academic

research in Harman's sense of aesthetics as first philosophy; since objects withdraw from full access, my understanding of any given note is indirect, only accessible through the connections I'm able to form around it. The disciplinary boundaries that typically structure academic research are one way to suggest we can fully know and contain a note, but withdrawal resists that kind of settled classification. The zettelkasten is also an ecological intervention into conventional research norms, acknowledging that dialogue and relation are constitutive elements of knowledge production. The zettelkasten is research-creation itself—an "ontograph," as Bogost might call it, or a practice of "earthing the laboratory," as Spatz might—because, although it is hosted digitally, it is a place where "all manner of forces, materials, bodies and knowledges collide in ways that are carefully orchestrated yet also rigorously unpredictable" (Spatz 36).

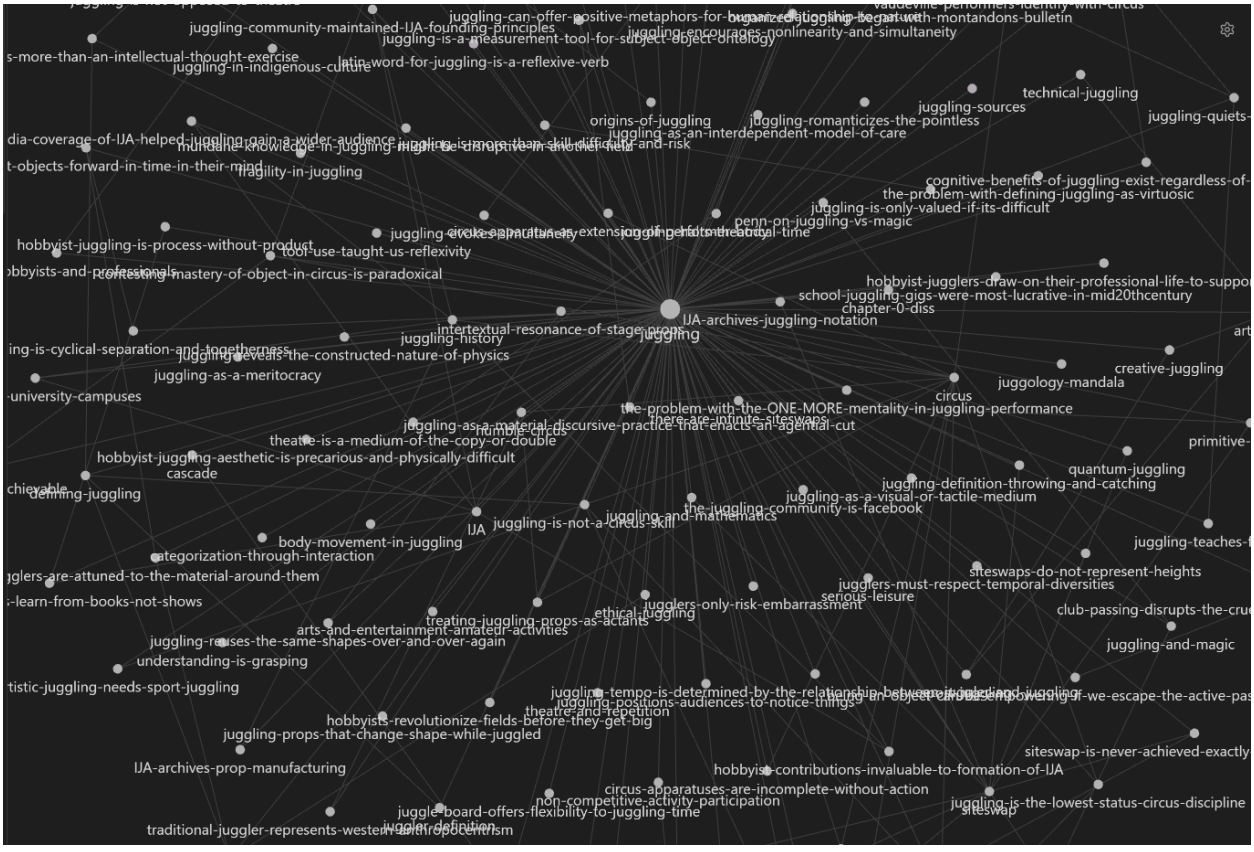


Figure 3. The network of connections emerging from the note "juggling" in my Obsidian-based zettelkasten. Screenshot by author.

Networks have appeared in my research process in other ways as well; the juggling community was described as a network in some of my interviews, so my employment of ANT and the zettelkasten system mimics how the juggling community already emerges and expands.

To analyze the interviews I conducted, I treated them more as philosophical texts than qualitative data and divided those texts into individual thoughts as I would for any source entering my zettelkasten. Jugglers are philosophers who think with their bodies and the interviews were not treated qualitatively differently than any other source I thought with. This is why, along with my treatment of interviewees as research-creators, readers might notice fewer interview quotes and anecdotes in this text than they expect from the written output of oral histories shared during qualitative research. My citational flattening or "humility" in this project meant any potential source of knowledge was fair game, including fictional texts.[37] I learned a lot from science fiction novels while researching this dissertation and so they make appearances throughout this dissertation. As Haraway explains in a documentary about her work, science fiction writings are not used to illustrate her points; rather, "the stories that they tell, the storytellers, are in my view, thinking. And thinking is what we need to do… The disciplines will take care of themselves… Thinking is a material practice with other thinkers. And some of the best thinking is done AS storytelling" (Terranova). Storytelling is also central to Indigenous thinking and knowledge sharing; although I didn't set out with this goal in mind, I realize now that these commitments—to self-reflection, storytelling, non-hierarchical networked knowledge production, and treating the embodied knowledge of interviewees as already doing philosophical work—are all methods of decolonizing the Academy.

[37] In *How to Write a Thesis*, Umberto Eco calls the acceptance of any source of knowledge—because we could learn something from anything/anyone—"academic humility," saying, "If I wanted to do research, as a matter of principle, I should not exclude any source" (ch. 4).

This dissertation is also accompanied by a video glossary of juggling terms mentioned throughout the following text. I struggled to linguistically describe the juggling patterns and movements I reference in this dissertation for the non-juggler, but visualizing those patterns is necessary to understanding some of my arguments. So, the first instance of juggling terms will be **bolded** (and in the digital version of this text an embedded link) if they are accompanied by a glossary entry of the same name. I recommend viewing those videos whenever necessary while reading. Also included as a video appendix to this text is a juggling-lecture I performed at Pinch Cabaret in January 2023. This piece drew on my readings and interviews for this dissertation and should be viewed as a creative presentation of the research I had conducted to date.

Chapter Breakdown

This dissertation is composed of three chapters, which, to me, mirror the three balls that a person first picks up when learning to juggle. Together, they form the most recognizable juggling pattern—the cascade—whose siteswap notation (discussed further in chapters 2 and 3) is simply "3." The structure of the dissertation therefore echoes the form of juggling itself: a continuous exchange among distinct but interdependent objects—chapters—but the objects I've chosen to juggle are: objects, agency, and time. Besides being a juggling term, "cascade," from the Italian *cascare*, "to fall," names both a small waterfall and a process through which something, like knowledge, is passed along in stages. I am drawn to this double meaning because to fall is often treated as failure, as in dropping the ball, but in a juggling cascade the fall is what sustains the motion. Like water spilling over rock, each fall reintegrates into another flow. The cascade is therefore not an image of loss but of continuity, of movement through and with gravity rather than against it. Betasamosake Simpson describes water—*nibi*—as a force that "works with, and

asks us to embrace uncertainty, multiplicity, adaptation, iteration and decentralization, as forces that create the conditions for life to emerge and continue" (*Theory of Water* 8). To imagine the structure of this dissertation as a cascade is to think with/as water—to understand falling, juggling, and knowledge transfer as generative motions that cannot be contained and create a network of bodies across imagined borders. The structure of this dissertation follows this movement—beginning with the most tangible relations between jugglers and their props and moving toward more conceptual considerations of what these relations can teach us about agency and temporality—each chapter passes something to the next in a rhythm of continual exchange. To be honest, this is one of the reasons I struggled to complete this writing. The ideas within the chapters that follow this introduction were so thoroughly interconnected in my mind and in my zettelkasten (the externalization of my knowledge), I couldn't figure out how to break them apart into chapters or place them in a linear order. I think there is value in writing something out linearly, but I know that these ideas swirl in my head like a whirlpool at the base of a waterfall, or simply like a juggling pattern.

Chapter One, titled "Objects," grounds this project in the lived experiences of jugglers and their relationships with the props they manipulate. Drawing on interviews with hobbyist jugglers, I examine how their reflections on learning and sustaining a juggling pattern reveal ways of thinking that already resonate with new materialist thought. Rather than treating props as inert tools that demonstrate human skill, this chapter considers how they participate in shaping bodily technique, rhythm, and attention. Through this analysis, I begin to reconsider juggling as a relational and ecological practice—one that models care, reciprocity, and sustainability in the everyday negotiations between human and nonhuman actors. By reading these practices alongside new materialist theory and Jenny Davis's reconceptualization of affordance theory, I

propose that juggling offers a vocabulary for reimagining what it means to live responsively/responsibly with things.

Chapter Two, titled “Agency,” expands the conversation from individual jugglers to the larger systems that have shaped how humans understand their separation from the nonhuman world. This separation—tied to colonial expansion, capitalism, and racial hierarchies—has also structured the epistemologies that dominate much Western thought, including the assumption of detached objectivity within academia itself. To move toward more sustainable and equitable futures, this chapter seeks to unsettle those inherited divisions by turning to both Western theorists who propose a “flattened” ontology and to Indigenous thinkers whose philosophies have long refused the dualisms of nature and culture, subject and object. Through the practice and notation of juggling, I explore what it might mean to live and think in a world without vertical hierarchies of being. Drawing on Bennett’s concept of distributed agency and Barad’s agential realism, I analyze siteswap, the notation of juggling, to argue for juggling as intra-action and matter and meaning as mutually co-constituted. Jugglers and props together enact an understanding of being that resists extraction and domination, offering instead a practice of reciprocity.

Chapter Three, titled “Time,” turns from ontology to temporality to ask how the temporality of juggling could challenge capitalist, colonial, racist and ableist understandings of time. I argue that time does not simply pass but is continually produced through the intra-actions of bodies, materials, and forces and I offer juggling as a method for encountering these multiple temporalities. Siteswap may seem to fix the time of juggling in a numerical sequence, but in this chapter, I demonstrate how, in practice, it opens multiple coexisting temporalities that value difference and interdependence. Rethinking temporality is necessary because the causes and

effects of environmental devastation do not unfold linearly like Western notions of capitalist or settler time would have us believe. We need new temporalities to grapple with this crisis. I analyze alternative temporal frameworks such as crip time, queer time, and Indigenous temporalities through the lens of juggling to imagine a more inclusive, just, and sustainable temporality.

CHAPTER ONE: OBJECTS AND THINGS

> *What habits have prevented us—prevented you—from thinking about objects, let alone things? Or, more precisely, perhaps: what habits have prevented you from sharing your thoughts?*
>
> — Bill Brown, "Thing Theory"

In this dissertation, I argue that juggling, redefined through a new materialist lens, is a creative intra-action between beings that performs an agential cut, enacting ontological boundaries that are indeterminate before the intra-action; through sustained, repetitive, and rhythmic engagement with the nonhuman, juggling encourages more playful, sustainable relationships between humans and the world, highlighting the distributed agency of the juggler-prop assemblage. In this chapter I draw on quotes from my interviews with hobbyist jugglers to discuss how some jugglers already think about their relationships with objects in potentially new materialist ways, even if conventional understandings of juggling see objects mainly through the lens of human mastery. Based on my interviews and new materialist theory, I begin to redefine juggling in ways that I hope will not only expand and deepen juggling practice but also offer a philosophy for how to treat things more ethically. When I use the term "ethically," I invoke Puig de la Bellacasa's ethics of care and Barad's formulation of a "posthumanist ethics, an ethics of worlding" (*Meeting the Universe* 392). For Barad, matter comes to matter through the world's intra-active becoming; ethics, therefore, is not confined to human intention or discrete moral actions, but concerns our responsibility and accountability for the "lively relationalities of becoming of which we are a part" (393). This chapter examines how nonhuman entities shape human action

and are, in turn, shaped by it, arguing for the importance of recognizing their mutual influence within shared systems of existence.

The argument I lay out in this chapter is as follows: Within capitalist modernity, objects are often encountered primarily as commodities, so while they may be highly visible or imbued with meaning, their complex relations and actions in the world are obscured. This perception is not innate but produced through ingrained, normative, citational practices that repeatedly position humans as active subjects and things as passive resources. Such habits are problematic because they encourage instrumental relationships with the nonhuman world, conceal interdependence, and limit our capacity to respond to nonhuman agencies, all of which re-enacts systemic inequities. By shifting our approach to "listen" to things, we can disrupt these patterns of object-use and imagine alternative modes of relation with the world's vital materiality. However, it's not enough to just acknowledge a thing. We also need to explore the affordances that emerge through our interactions with things to find more sustainable ways of manipulating (with) them—recognizing that "manipulating" here draws from the terminology of juggling, which is also called object manipulation. In this context, manipulation reflects the mutual and fluid dynamic of influence found in juggling, where both human and nonhuman can act upon and respond to one another, rather than implying the typical negative connotations of control or exploitation. This mutual manipulation is a form of play that jugglers are particularly practiced in. So, the research question at the heart of this chapter is: How does juggling, understood as a practice of deliberate manipulations with the nonhuman, cultivate more playful, responsive, and sustainable ways of relating to the world?

I attempt to answer this question by first articulating the problem with how we currently think about objects and discussing how thing theorists have addressed this problem. Then, I draw

specifically on Jenny Davis' update to affordance theory to explore how nonhumans structure human action using examples from my own juggling practice. Finally, I discuss insights gained from my interviews to discuss how jugglers listen to things.

The Mastery Model of Modernity

Since the seventeenth century, influential strands of Western philosophy have positioned human subjects as epistemologically privileged in relation to the object world. For instance, Descartes famously distinguished between the human mind as a nonphysical thinking substance entirely separable from the body, enacting a cut between mind and matter and establishing the rational human subject as distinct from the material world (Coole and Frost 7). As another example, Kant distinguished between phenomena—how things appear to a human's spatiotemporal perception—and noumena—things in themselves, inaccessible through human perception. As Harman notes, Kant's ethical framework grants intrinsic value to rational human beings while treating nonhuman objects primarily as means rather than ends in themselves (Harman 68). Although these philosophies differ significantly, new materialist and speculative realist scholars criticize them both for theorizing human cognition as the privileged site through which reality becomes meaningful or knowable, rather than considering matter a vibrant, active participant in the production and perception of reality. These assumptions helped sustain other influential distinctions—including subject and object, human and nonhuman, nature and culture, and matter and meaning—and it is against this philosophical backdrop that new materialist scholarship emerged. As Coole and Frost write:

> Many of our ideas about materiality in fact remain indebted to Descartes, who defined matter... as corporeal substance constituted of length, breadth, and thickness; as extended,

> uniform, and inert. This provided the basis for modern ideas of nature as quantifiable and measurable... According to this model, material objects are identifiably discrete; they move only upon an encounter with an external force or agent, and they do so according to a linear logic of cause and effect. (Coole and Frost 7)

Descartes' conception of nature could have resulted in a deterministic world view, where humans are powerless in the same way that Western philosophy imagines nonhumans to be powerless. Instead, it resulted in the moderns believing essentially the opposite—that humans are the masters of the universe, because Descartes theorized that thought was "ontologically other than matter" (Coole and Frost 8).

Cartesian dualism also fits decolonial scholar Julietta Singh's definition of mastery in that it "involves splitting in either the sense of carving a boundary or an infliction of mutilation" so that there is a "subordination of what is on one side of a border to the power of what is on the other" (12–13). Mind-body dualism results in a belief in human supremacy. And once there is a split between the human and nonhuman, it becomes easier to make further hierarchical divisions between beings.

Many theorists associated with the nonhuman turn describe the dominant philosophical inheritance of modernity as "correlationist," by which they mean that objects are understood primarily in relation to human perception or use (Harman; Meillassoux). This privileging of the human subject has contributed to what Bennett calls "the image of dead or thoroughly instrumentalized matter," which is an image that "feeds human hubris and our earth-destroying fantasies of conquest and consumption" (ix). Critiques of Western philosophical traditions aren't just coming from within those traditions, but also from Indigenous thinkers who have long maintained care-based relationships with and spoken up for the nonhuman. Kimmerer argues that

it is the English language (as opposed to Potawatami and most other Indigenous languages) itself that encourages the treatment of nonhuman beings as objects. In the English language, the maple tree "is not a *who* but an *it*," and in calling it so, "we make that maple an object, we put a barrier between us, absolving ourselves of moral responsibility and opening the door to exploitation. Saying *it* makes a living land into 'natural resources'" (Kimmerer 27). Potawatomi extends the "grammar of animacy" that English reserves for humans to all living beings and many non-humanmade ones, like rocks, songs, and drums (55–56).

I situate this dissertation within the nonhuman turn as I argue that objects are not just tools to complete pre-existing human goals, but they also always guide and can even determine human action. Whenever humans engage with objects, their use has social, political, environmental, and affective consequences that exceed any individual intention. Despite the importance and influence of nonhuman actors, "almost as soon as they appear in public..., these activities and powers are represented as human mood, action, meaning, agenda, or ideology. This quick substitution sustains the fantasy that 'we' are really in charge of all those 'its'" (Bennett x). Bennett offers instead that humans need to give up the illusion that we have mastery over the nonhuman by "linger[ing] in those moments during which they find themselves fascinated by objects, taking them as clues to the material vitality that they share with them" (17). My own concern is not whether recognizing the agency of nonhumans will slow or stop ecological crises, but how juggling can open space to cultivate awareness of more-than-human modes of living in a damaged world—both for jugglers, through the embodied, collective practice of sustained attention to the precarious rhythms of bodies in relation, and for readers and observers, through the act of thinking and sitting with juggling as an object of study.

Lingering in moments of fascination of objects is something jugglers are deeply committed to in their practice. It is the job of a juggler to examine how objects interact with the human and the other objects and forces involved in the act of juggling. Based on that understanding of an object's tendencies and, if you will, preferences, the juggler investigates what influence they can have on the object, but also what influence the object can have on them. "Jugglers," circus scholar Duncan Wall writes, "are interested in the motion of objects. To train as a juggler is to receive a unique education in the material that surrounds you" (D. Wall 99). If, as D. Wall argues, juggling is a way of interacting with the world, what interactions between human and world does the activity of juggling make available?

To examine that question, I discuss how juggling-as-play cultivates a form of skilled engagement with matter that differs from models of domination and control. After defining juggling as an example of developing a playful relationship to objects, I analyse objects' influence on humans through Brown's thing theory and Davis' update to affordance theory (and my update to her update), using juggling as an example. Throughout the rest of this chapter, I argue that even seemingly "neutral" juggling objects guide human action. If we recognize the scripts of objects, we can promote positive scripts and find alternatives to negative ones. How does something as simple and oft overlooked as a ball afford? How do jugglers creatively alter their relationships with these objects that are so ubiquitous in juggling culture? How do the objects, despite being seemingly abstract and conventional, still script jugglers' manipulations of them? And how might jugglers accept or reject those scripts? By questioning cultural norms of hobbyist juggling in North America, I aim to expand the affordances of the objects we juggle and offer a lens through which to see the other objects we interact with daily. In training ourselves to

engage differently with such objects, I argue, we can practice awareness of our participation in ecological relations and cultivate care for our nonhuman counterparts.

Thing Theory

The object is central to juggling. In this chapter I argue that, because the object is central in juggling, juggling puts you into a state of putting objects first.

Nearly all my interviewees identified the centrality of objects in juggling, but they used a variety of words to denote "object" in their definitions of juggling. "Prop" was the word Stracovsky and E. Moore used when they described juggling simply as "prop manipulation" and Hanneson used it when he described juggling as "a physical relationship between the person and a prop." Stager, Romanowski, and Dresser each used the word "object." Phillips used the more vague and informal term "stuff" to talk about the nonhuman materials central to juggling. Each of these terms have been used by thing theorists and performance scholars as well.

"Prop" is the technical term for objects used in both juggling and theatre. It's the term Andrew Sofer uses in his book *The Stage Life of Props* and Shannon Jackson extends the use of in her book *Social Works: Performing Art, Supporting Publics*. Sofer seeks to distinguish the prop in theatre from other material on stage, defining the prop as "a discrete, material, inanimate object that is visibly manipulated by an actor in the course of a performance" (11). For Sofer, prop is not an intrinsic category of object but something an object becomes when activated through an actor's physical manipulation. This activation—the "triggering" of a prop—distinguishes it from other objects on stage and highlights the conditional, temporal nature of props. Reminiscent of Brown's distinction between objects and things, for Sofer, "a prop is something an object becomes, rather than something an object is" (12). With this framing, Sofer

moves away from the semiotic reading of props as symbols that represent something else in favour of a phenomenological reading of props as things-in-themselves that are defined by their performative interactions with actors. Jackson's theory of props also highlights their temporary status, claiming that "an object becomes a prop in the moment it animates"; however, she builds on this performative understanding of props by extending the term into broader social and relational contexts highlighting that a prop is animated by a *self-in-formation* (80). The prop might be a "non-integral" or "accessory" object, but it can also be a "vital helpmate, one that advances and supports the goals of a larger action" (80). In other words, actors (and subjects of non-theatrical, networked social worlds) do not just animate props through "embodied action over time"; the prop, through its movement, forms the character, resulting in "the precarious realization that the object you hold is also one that holds you" (80). For Jackson, props are not just pragmatic tools but relational actors that underscore the interdependence between people and things; they support and sustain systems—whether aesthetic or social—while also revealing the precarity of those systems when the relational elements are disrupted. In both Sofer and Jackson's books, the prop is a site of dynamic interplay between materiality, temporality, gesture, and meaning, offering a framework for understanding the entangled relationships between human and nonhuman actors this chapter explores.

Sofer's foregrounding of movement and action as integral to the prop—and Jackson's insight that I interpret as: props prop—echoes other threads I'm following in this dissertation. For instance, that Morton, as mentioned in the introduction, attributes movement to the nature of existence in the deviation of all things from themselves and one another. Even Heidegger, a key influence for Harman and Brown, resists a static account of things by treating "thinging" as an event—a dynamic gathering of world, not a fixed object with features measurable by science

(Heidegger 175). James Gibson, discussed later in this chapter, critiques the term "object" as being "so inclusive as to be almost undefinable," and shifts his focus accordingly to the object's relational qualities as they pertain to action—such as an animal's ability to grasp it or its ability to hold water (Gibson 34). Modernist art critic Michael Fried's notion of "objecthood" is likewise relational, as it describes the theatrical condition in which an artwork asserts a kind of stage presence that implicates the viewer in time and space, drawing attention to the encounter itself rather than to any fixed properties of the work. These accounts, despite their disciplinary differences, share a tendency to locate meaning in movement, action, relation, and encounter rather than in stable, self-contained things.[38]

Drawing on Heidegger's treatment of thinging as a dynamic event, Brown coined the moniker "thing theory" in a 2001 *Critical Inquiry* article of the same name to refer to how a person's relationship to an Object shifts when that Object is removed somehow from its typical use/place in the person's life. Objects, for Brown, are the physical stuff that we look *through* (4). Objects become Things when we start looking *at* them. Brown offers the example of a window. Windows, like Objects, are transparent so that we can see through them. In fact, the point of a window is to look through it. If you started looking *at* a window, perhaps because it was dirty and therefore no longer transparent, it wouldn't be functioning as a window anymore, but as something else. That something else is what Brown calls a Thing. Therefore, thing theory articulates "a changed relation to the human subject" when Objects transform into Things, so the term Thing "names less an object than a particular subject-object relation" (4).[39] Whereas

[38] Recognizing Gibson's concern over the over-use of "object" and Heidegger's and Brown's strategic use of the word to differentiate it from things, I will capitalize the word Object (and Thing) in what follows to differentiate it from colloquial uses.

[39] Recall that Sofer makes the same observation about props as Brown does about Things. "Wherever a prop exists, an actor-object interaction exists... a prop is something an object becomes, rather than something an object is" (12).

Objects are windows through which humans look to see/participate in their own "history, society, nature, or culture," Things are a latency (as in "what's that thing called again?") or an excess (as in, "what's that THING on your face?!") that forms when Objects don't work for us or leap out at us (4-5).

Living only in a world of Objects risks the "Earth-destroying" instrumentalization and exploitation that Bennett and Kimmerer describe above. So, I argue, it is important to seek out scenarios when Objects become Things. In Latour's words, "specific tricks have to be invented to *make them talk*, that is... to produce *scripts* of what they are making others—humans or non-humans—do" (*Reassembling the Social* 79). Latour offers four scenarios in which Objects become Things. Firstly, the workshop of any innovator, including juggling innovators, is the domain of Things because the objects they use each have "a clearly multiple and complex life through meetings, plans, sketches, regulations, and trials" (80). When innovation is complete, the Things "disappear from view" and become again what Brown calls Objects (Latour, *Reassembling the Social* 80). Because objects are themselves the workshop for a juggler's innovation, jugglers are very good at transforming Objects into Things. Secondly, one person's Objects become another person's Things when they are distanced in time, space, skills, or even understanding. If a juggler's props have become mere Objects to them, those same props are likely still Things to many audience members who do not have familiarity with these specialist tools. Also, as will be discussed in depth later in this chapter, beginner jugglers interact with Things, not Objects, because they are distanced from them by a lack of juggling skill. Thirdly, Objects become Things in the cases of "accidents, breakdowns, and strikes" (81). Things can break down *because* they were treated as Objects (Stager's discussion of rings later in this chapter is a good example of this), which is why I argue that we need to engage with things as

Things more regularly *before* they break down. Fourthly, Objects can be brought "back to light by using archives, documents, memoirs, museum collections, etc., to artificially produce... the state of crisis in which machines, devices, and implements were born" (81). This fourth Thingification is where I locate the power of storytelling and theatre, which is perhaps an extension of the arguments I present in this dissertation.

As a juggler, I engage with Things, rather than Objects, when I devise a new juggling prop or pattern. Audiences of non-experts tend to see Things on stage at my juggling performances. Juggling, then, can teach us about the intentional Thingification of Objects. However, even jugglers become accustomed to the props they use until, perhaps, they break or drop. A ball or club or ring that might stand out as a Thing to a non-juggler, is often just another Object to a juggler. In fact, to execute difficult patterns perfectly, it's almost necessary to Objectify the prop and see through it in favour of the juggling itself. I know this from personal experience, but also from a panel on "The State of the Hobbyist Juggler" at the 2021 International Jugglers' Association Festival when I asked the panelists how the state of the hobbyist juggler impacts the state of the professional juggler. Professional circus juggler Gena Shvartsman Cristiani said that professionals must "focus on perfecting the routine," but they also "get stuck in that routine"; when hobbyist contributions are visible, though, she claimed that professionals get an "explosion of inspiration and tricks that we have never seen before" (IJA Jugglers, sect.1:13:03-1:13:35). I attribute this "explosion" to a difference between hobbyists and professionals: hobbyists have the luxury of constant experimentation in juggling if they so desire, whereas professional performers eventually need to be so good at juggling they can ignore it in favour of performing. This means that hobbyists can make previously unnoticed relations visible between the human and nonhuman, or even between nonhumans themselves. Hobbyists can sit

with the Thing longer than professionals, or even indefinitely. As soon as a hobbyist gets so comfortable with a pattern that they don't need to consciously acknowledge the props, they can move on to something less familiar because their livelihood doesn't depend on their comfort in a pattern. Props can be toys, not tools; play, not work.

When talking about pushing the edges of creative and technical juggling, it sounded to me like my interviewee Mike Moore actually sees this Thingification of props and patterns as part of his ethical responsibility as a hobbyist juggler:

> One of the things that drives me in certain directions [of juggling practice] is if I think something has a lot of potential but I don't think other people are going to do it. Because I want to see it done, and I don't care so much if it's me. Like, I did not really like practicing squeeze catches.[40] But I kinda felt like I had to do it cause no one else was. And it was an interesting area of juggling. So, I put out, you know, a couple videos on squeeze catches and eventually other people started doing it and I was like, great, I never have to do a squeeze catch again… squeeze catches are not something I enjoy, but it was something that I felt like had to be done. And I kind of feel this way about in-air collisions as well. Especially with the big, swiss ball. Because that's just one of those things that you would not want to [develop technical skills exclusively] for that purpose, but I have so many of the prerequisites that I'm well positioned to do an act like that that I don't think other people would do.

Moore is constantly creating the "explosions" of tricks that Cristiani refers to above. Moore's technical skill allows him to investigate surprising interactions between people and props.

[40] Squeeze catches are not a juggling technique I have trained in, so I won't add a glossary entry, but this is when you catch more than one ball in the same hand at the same time, so you have to squeeze them together. This is easier to do with lightly-filled bean bags, which is what Moore tends to juggle with.

Collisions in particular, especially when performed with an object as unusual to juggling as a Swiss exercise ball, are investigations of how props interact not just with the human, but with each other.

When I told Phillips that "I think hobbyists are contributing to the development of what juggling is and can be in a way that professionals aren't," he responded,

> Yep. And I think that's because hobbyist jugglers want to work at the edge of what they can do. And if you're a seriously talented hobbyist juggler, then you are pushing the envelope of what is physically possible. Take a very recent topical example, Maximilian Kuschmierz, German juggler, who did the series of "here's 100 different siteswaps of five balls run for 100 catches; now I'm doing 100 different siteswaps of six balls that run for 100 catches." Like, most of those siteswaps had never been juggled by a live human being ever.[41] And some of them are super pretty and deserve to be on stage. Some of them were boring and crappy looking, but nobody would've discovered them if Max hadn't spent literally years beating the edge of the technical envelope.

Like Moore, Phillips also articulates the envelope-pushing of hobbyists as an almost ethical obligation towards the discovery of new human-nonhuman relations by saying that certain juggling patterns "deserve" to be on stage. Dresser told me that he thinks his brother, also a juggler, feels what Dresser terms a "moral responsibility" or "moral imperative" to create new props that "want" to exist. "I feel like he feels like he kind of has to," Dresser told me; "He's obligated to. It's not that he really wants to be doing it, but, like, if nobody else is doing it, he

[41] Phillips' phrasing of "a live human being" is not just for emphasis; it's a necessary specification. Many jugglers create new juggling patters not with their bodies, but with a juggling simulator. In one of the most popular juggling simulators, Juggling Lab, a user can enter an obscure siteswap, even ones that are not physically possible to "a live human being," and an animated stick figure person will perform the pattern. This is a way that jugglers treat siteswap itself as a Thing to experiment with it and explore siteswap as an object in itself.

kind of has to be the one to do it." What is at stake in these accounts is not ethics as an external rule-system applied to juggling, but the way obligations to material, to community, to the practice itself emerge within practice as part of ongoing relations between practitioners, materials, and movements within juggling.

So, jugglers (particularly hobbyist jugglers) deal with Things, not Objects, but ultimately the juggler's goal (particularly professional jugglers) is to re-Objectify those Things. For instance, I look through apples as Objects every day when I eat them at breakfast.[42] Most days, to me, apples are a means to an end. However, when I take up an apple within the context of juggling, it becomes a Thing. I investigate its properties beyond what is necessary for an apple's conventional manipulations. I throw it, roll it, bounce it, and, yes, bite it. Eventually, though, as I become used to juggling the apple in a particular way, as I master juggling it, I start to look through the apple again as a means to an end. Except instead of the end being fuel for my body, the end is a tool for juggling. Sometimes this mastery is desired, because to juggle sustainably, especially with more props, the props need to leave your conscious mind so that you have a softer focus on the pattern as a whole. Sometimes this mastery is undesirable, though. If a juggler's (or any craftsperson's) goal is to learn new manipulations, or to create unique manipulations, then they need to recognize and disrupt the moment their prop-Things have become Objects. Moore is an expert at developing new manipulations, but he also sees the value in sustainable juggling and will create stage performances with his innovative techniques. "One of the nice things about not performing for money: I have no reason to perform unless I think there's something important to perform," Moore told me. And something that is important to perform live (rather than on video as most new juggling techniques are shared today) is

[42] And when I first purchase them at the store where the apple's value appears as an objective relation between things, which actually mask the many human social relations that went into its commodification (Marx).

something that at first seems impossible to sustain. “If I want people to go into collision patterns,” Moore explained, “then I kind of have to perform it to show them that it’s not some fluke. And I’m not trying to flex my consistency here, I’m trying to prove the concept that it *can* be consistent and that you should learn it too.”

Treating everything around us as Objects can be dangerous because Objects simply “manifest, respond to, or transmit meaning that originates in humans,” which means that Object use simply animates existing problems in human society (Bernstein 69). Human manipulations of Objects are performative in the Butlerian sense: Objects are seemingly a fact of our world that goes unquestioned, and they are constantly reinforced as Objects through our actions. Objects exist as such because their status as Object is subconscious and secondary to their use, which is normative and citational. Objects are therefore also performative in the Phelanian sense because they disappear from our recognition. In Phelan’s theory, our culture’s privileging of the man, marked by the phallus, “reproduces one sex and one gender”; in thing theory, our privileging of the human reproduces one type of being: human (151). Despite, or more likely because of, the nonhuman’s hypervisibility in our world, Objects appear to us as self-evident tools and/or commodities—carriers of human meaning. Through correlationism, the nonhuman becomes a metaphor for the human. Objects *are* human desire. In this way, metaphor seeks to maintain a certain belief structure about beings and their value, “it works by erasing dissimilarity and negating difference; it turns two into one” (150).

Alternatively, Bernstein argues that human manipulations of Things are performative in the Austinian sense, meaning “they *do* something: they invite humans to move” (70).[43]

[43] Although Bernstein argues that, “The ontological distinction between things and objects is that things hail,” as do I, ultimately, we are using the word differently because she claims things hail us “when we think about them and when we do not,” whereas I use “Thing” to denote mainly when we are thinking about things and “Object” to denote when we are not (73). But the boundary I articulate between objects and things is blurry and open to discussion.

Extending Bernstein, I argue that when this manipulation-thinking is skilled and deliberate, it can become juggling. But things don't just invite humans to move; they are not just the act of thinking. They also physically act on us and other objects. As I juggle a 3-club cascade, I may not consciously recognize the individual objects, but their impact still leaves red marks along my forearms. Objects, ultimately, are *not* just correlates to human consciousness, helping us think, scripting our actions. They are societal actors.

Davis' update to Gibson's affordance theory, discussed in the next subsection, makes visible the ways that objects script our actions. "Technologies don't *make* people do things," through their affordances, Davis emphasizes, but they do "push, pull, enable, and constrain" us (emphasis in original, 6). When objects go unquestioned and unnoticed, when they remain Objects for us, they are likely to push/pull/enable the politics of the privileged and powerful. Objects script human actions, but many Objects' scripts are written by those same humans. Since, as Davis writes, "humans and technologies are inherently co-constitutive... technologies themselves embody human values and politics in their design, implementation, and use... this means technologies will, by default, reflect and reinforce existing inequalities" (15). I find Davis' mechanisms and conditions framework for analysing *how* things afford instead of just *what* they afford useful for understanding the role of objects in juggling.

So, when Brown asks me, as he does in the epigraph of this chapter, what habits have prevented me from thinking about and sharing my thoughts about objects, I have many answers. Some are outside of my control, like my language, habitus, performativity, history, culture, etc. But some answers are more within my control. For instance: convenience. Since I am a straight, White, educated, able-bodied, neurotypical, right-handed, English-speaking, settler woman, most objects around me were made for my use. They "hail" me in the ways that they were intended to

by their designers. I am not confronted by a staircase in the same way that a wheelchair user might be. Looking past the Objectness of many objects is also convenient for me in that if I stopped to consider those objects, I would realize how unethical their production and consumption is. If I truly analysed the scripts of many objects, I know I would be uncomfortable engaging with those objects in the same ways I used to; for instance, disposable plastic products which damage the environment in more ways than one, or the ground beef in my dinner last night which likely resulted from the unethical treatment of a cow. Analysing an object's script means I can no longer claim ignorance of that object's ethics or my complicity in co-constituting that ethics.

Another habit that prevents me from thinking about Objects is embarrassment. Dwelling in the Friedian objecthood of things—giving them the same attention as we do people, as Kimmerer does—is often perceived as a childhood behaviour. As an adult, I have been taught that objects are tools not toys (to paraphrase what my dad always told me about the home telephone growing up). I have turned "a living land into 'natural resources'," and to re-immerse myself in a world where nonhuman nature is thought otherwise would be to shirk my adult responsibilities (Kimmerer 57). The cultural normativity of objects' uses are upheld by their materiality—as in the case of scriptive things—and, in Sara Ahmed's words, "the 'contract' of the social bond"; when the scripts of "normative existence" are not followed, Ahmed argues, shame can be experienced ('Shame Before Others' 107). Ahmed defines shame as a "feeling of negation, which is taken on by the subject as a sign of its own failure" typically "experienced before another" whose regard the subject values, causing the subject to "seek to hide from that other" (103). This is what happens when an object breaks or is difficult for me to use and therefore asserts itself into my conscious mind: I feel shame because I imagine another whose

opinion matters to me registering my misuse. I hide the fact that my relationship to the object has shifted, leading me to try to solve problems on my own, rather than asking for help with them. The juggling community offers a kind of alternate social contract defining itself around a particular vernacular practice that celebrates non-normative play with objects. Even there, though, embarrassment persists and hobbyists, Phillips told me in our interview, have "got to be willing to fail repeatedly… in public because if you're going to be a hobbyist juggler… you're going to be juggling with or around other people."

So, to Brown's point, countless habits have prevented me from thinking about Objects and countless others have prevented me from sharing my thoughts. Thinking about Things, though, and sharing those thoughts, can have a great impact on the world. Firstly, it encourages us to interrogate how the use of Objects could be made more accessible to wider populations. Secondly, it forces us to confront our complicity in unethical actions. Thirdly, it opens us up to receive help when we need it. And fourthly, thinking intentionally about Things through their manipulation can be extremely fun. If thinking about Things can be framed as play/fun, rather than framed as a childish/embarrassing, or even shameful activity, I wonder how many more people would seek to Thing-ify the world around them. Juggling, I suggest, is an ideal activity through which to practice the Thingification of objects. The *how* of Thingification is the focus of the next subsection of this chapter.

Thus far, this chapter has addressed how certain lines of Western thought have theorized nonhumans as passive and humans as having mastery over them. This philosophical tendency developed in tandem with capitalism's objectification and commodification of human labour and the nonhuman world as an economic necessity. This has resulted in a correlationist Western culture that looks through objects as a means to an end, instead of ascribing them a "grammar of

animacy" as most Indigenous cultures do. It may not be possible to break out of this correlationist habit through a changed relationship to the Object as a Thing since commodification is a structural, economic, and social process, not only a philosophical one. However, correlationist habits of perception and attention are part of what enables people to live with objectification day-to-day without needing to confront the extraction, exploitation, and disposability it entails. It's at the level of daily, embodied relation that juggling intervenes. This happens already in the innovator's workshop, with distance, after an accident, and through storytelling, but by taking up the practice of a juggler, we can rehearse an embodied attention to Things in daily life. Furthermore, it's not enough to just acknowledge a thing because Objects come with existing politics that humans engage through their use. Playing with Things instead means to question and experiment with them—and this is true even of a juggler's own props, most of which are mass-produced commodities.[44] Sociologist Jenny Davis' update to affordance theory gives us a framework to conduct that experimentation that is not dissimilar to what jugglers already do.

Affordance Theory

I have just sketched out why there is a danger in not recognizing the way nonhumans structure and create opportunities for human action. What's more, it is not enough to simply acknowledge that things enable and disable us, with no revisions, because we risk reenacting problematic human-thing dynamics. To appreciate the socio-political and ecological implications of the influence of things, we need to examine *how*, and perhaps even *why*, things afford certain

[44] I think, for example, of how Wes Peden in his juggling film *Throw Joy* and Zak McAllister in his juggling film *DIY Doomsday* each use packing tape to modify their plastic juggling props for new, surprising manipulations between the prop and body or between the props themselves.

actions. To use the words of Gibson, the originator of affordance theory, we need to (re)interpret what our "environments" offer us as "organisms."[45] In Gibson's theory, when an animal engages with an environment, what they perceive is not a representational image that mediates their perception of the environment. Rather, the animal has a direct perception of the opportunities for action presented by the environment, without mediation by internal representations (139). For Gibson, an affordance is a relational property—neither purely subjective nor purely objective—emerging from the "complementarity" of an organism's capacities and features of its environment (119). So, when I perceive a thing, that thing is not solely an image to interpret, but rather a set of affordances that enable co-constitutive action. A **bounce juggling** ball affords bounce juggling, but a Russian juggling ball does not.[46] In Gibson's view, that affordance exists regardless of who encounters it, but it becomes perceptible and actionable for me because I have trained in bounce juggling. For someone without that training, the affordance may remain unperceived or unusable. Affordances are therefore not static qualities of objects alone, but relational possibilities that emerge through embodied encounter.

In her update to Gibson's affordance theory, Davis observes that affordances are often interpreted in binary terms—either an affordance exists in an object, or it does not. Rather than rejecting Gibson's ecological account, Davis refines it by introducing the "mechanisms and conditions framework," which accounts for why affordances may be differentially perceived, accessed, or acted upon across bodies and contexts. Davis's framework is especially useful for performance studies because it accounts for how affordances emerge through training,

[45] See Gibson pages 3-4 for a description of "organism" and "environment."
[46] A Russian juggling ball typically has a hard shell and is partially filled. While "Russian ball" is the historical term for the prop, it was actually invented in Ukraine and members of the juggling community, including Cathedral Juggling Equipment where I source my own balls, have renamed them to "Kyiv Balls" in response to Russia's aggression against Ukraine at the time of this writing.

embodiment, and social context, rather than presuming a universally accessible perceptual field. Her framework offers a set of action verbs that describe how things afford (the mechanisms) and how those affordances vary depending on who is perceiving the thing and under which circumstances (the conditions). Davis identifies six mechanisms of affordance—request, demand, encourage, discourage, refuse, and allow—which describe the intensity and direction with which an object solicits action. For example, a bounce juggling ball is perfectly spherical and made of hard, unyielding rubber, while a Russian juggling ball is also spherical, but it features a thin, more malleable outer shell that is partially filled, often with sand or salt. Under these material conditions, a bounce ball *encourages* bouncing, whereas a Russian ball *refuses* it. Davis's conditions of affordance—perception, dexterity, and cultural and institutional legitimacy—further account for how access to affordances is unevenly distributed. For example, my *dexterity* in juggling allows me to *perceive* the affordance of bounce juggling in any round, bouncy object, but bounce juggling would be prohibited in a glassware store, so the affordance is conditional on an action's *cultural acceptance*. Although these categories of affordance sound comprehensive, Davis is adamant that they are "neither rigid nor determinative" and that "the designation of one category versus another remains always up for debate" (13). Both mechanisms and conditions function as flexible analytic tools rather than fixed categories, and affordances are contingent, contested, and subject to change.

The flexible nature of affordances is important to Davis because her framework assumes that "technologies are political" and that "if left unchecked, technologies will arc toward privilege and normality" (14). Davis' framework helps me interpret how jugglers interact with their props, but more pressingly, juggling helps me illuminate the flexibility of affordances because a creative juggler's goal is to identify and expand upon the affordances present in their

relationship to objects. If a juggler approaches an object that has not been designed for the purpose of juggling it through the lens of juggling their manipulations are always already non-normative because the object is not normally used for juggling. In this way, affordance theory, in the hands of a juggler, can be used to promote diverse, inclusive, sustainable manipulations of things.

Take, for instance, the simplest juggling shape: a ball. I personally prefer to juggle Cathedral's Russian juggling balls.[47] As described briefly above, Russian balls have hard shells and are partially filled, usually with sand or salt. Cathedral's Russians specifically use ball pit balls that are pressurized so that they are waterproof and always maintain their spherical shape. I like them because I find they fly more predictably and smoothly in the air and are soft to catch, so they *allow* me to juggle more balls in more complicated siteswaps. Because they are partially filled, they don't roll away when I drop them, which *allows* me to practice patterns that are more challenging for me. However, when dropped from a height over a hard surface, they tend to crack, lose some of their pressurization, and leak salt. So, that aspect of the ball's materiality both *discourages* me from making high throws with Russians over concrete and *encourages* me to juggle them over soft surfaces if I'll be dropping a lot. Because they stop quickly when dropped they also *allow* **stalling patterns**, in which the ball lands on a part of your body and is held there. Because of the partial fill and pressurization, these balls *refuse* bouncing, which is something other balls are designed to *demand*. In general, it is not my sense that balls *request* very much of their users, which is why they are an ideal juggling object, because the opportunities for manipulation are never-ending.

[47] I interviewed Jacob Tichenor, founder of Cathedral Juggling Equipment for my short-lived podcast *Props to That!* Across two episodes on balls and then rings (Anderson, 'Cathedral Juggling').

My Cathedral balls only *allow* me to juggle them in complicated siteswap patterns because 1) I have knowledge of siteswap and can therefore *perceive* that affordance in them, 2) I have the skill and *dexterity* to execute siteswaps, and 3) siteswap is the *cultural norm* of ball juggling in the juggling community, so it is easy for me to imagine balls being manipulated in that way. A non-juggler might approach the balls differently because they do not have the same knowledge of siteswap, skillset, or cultural influence. In fact, someone who is not familiar with juggling might be open to a wider range of manipulations because they lack knowledge of juggling culture. As Damkjaer says in her lecture performance on "The Teacher as Student: Learning Practice Through Theory," "former knowledge is not only a help, it is the grid through which this new material is seen and which might obscure" (dochcloseencounters). Although the ways a ball can be manipulated by a human should be infinite, I still often find myself at a loss for what new manipulation I could try because I am indoctrinated into a particular set of cultural conventions from the Western toss juggling tradition, which is now reinforced at scale by social media. Dresser, in our interview, articulated something similar saying, "simply by distancing yourself from the juggling cultural tradition, it actually makes it easier to express a larger diversity of things."[48] Read through Davis's framework, this example demonstrates how affordances are not only enabled by perception, dexterity, and cultural legitimacy, but also limited by them: the same conditions that allow certain actions to emerge can simultaneously discourage or refuse others.

The seemingly limitless potential for manipulation of balls is extended even further in the case of clubs, whose shape and orientation introduce additional affordances that are unavailable

[48] The tradition I interpret Dresser's comment to be directed at is one associated with the circus and an image of the juggling clown, perhaps at a child's birthday party. Dresser perceives the dominant image of juggling in the public's mind to be "sort of fun and happy," making it difficult to "communicate serious things with juggling," unless it is divorced from the typical patterns or props the public associates with juggling.

to spherical objects. Read through Davis's framework, clubs not only *allow* a wider range of actions, but actively *encourage* certain micro-manipulations while *discouraging* others. Some jugglers, like Jackson, prefer clubs to balls because, as he said in our interview, "there are micro-manipulations you can do with clubs where [you can ask] 'what if I do just this little knob thing here?' Or, 'What if I do this little spin here?,' that just don't translate to balls." A ball, Jackson says, "unless there is some decor to it, like some kind of spiral or strap or something, it never changes in an orientational sense." From Davis's perspective, the club's elongated form, differentiated ends, and axis of rotation *request* and *encourage* exploratory handling in ways that a ball, by virtue of its symmetry, largely *refuses*. Yet despite these expanded affordances, most club juggling remains dominated by single spins, suggesting that single spins are the most accessibly afforded manipulation of clubs, but also in some contexts, that conditions of cultural legitimacy and training norms continue to delimit which possibilities are perceived as viable, desirable, or even legible within juggling practice.

So far, I have examined juggling as a seemingly apolitical activity that affordance theory can help analyze. Indeed, many jugglers themselves perceive juggling as the apolitical manipulation of objects.[49] The mechanisms and conditions framework, though, is "ill-suited" for "methods that assume political neutrality or ignore the political element... because they leave little space for critical consideration of production, implementation, distribution, and use across subjects and circumstances" (106). Davis argues for an "agentic asymmetry between human subjects and technological objects," contending that "although humans and technologies

[49] I witnessed many comment threads in the "Juggling Home" Facebook group, while I was still in it, to the effect of, "Don't bring your sexuality into this group, juggling should be a neutral space free of politics," in response to juggling videos promoting lgbtq+ jugglers, for instance. These Facebook groups are international juggling community gathering spaces, so there are people of very diverse political and social realities in them. That aside, as evidenced by some responses to my interviews, many jugglers believe that the activity of juggling, if not the culture/community, is "pure" and politically neutral.

mutually constitute each other, the weight of responsibility falls to people" (46). In other words, whereas both people and things have efficacy—"the capacity to effect change"—only people have agency—"the capacity to inflict will" (46). It is this agentic asymmetry that makes Davis' affordance theory politically charged, because it *encourages* humans have accountability for their actions.[50] Because Davis has situated her theory of affordances within the field of design, she focuses primarily on encounters between humans and human-designed nonhumans, where the affordances of an object are shaped both by the intentions of its designer and by the capacities and social positioning of the user. Interactions between humans, among nonhumans, or with natural objects are not the primary focus of her framework. Although I admire Davis' critique of the political neutrality of technology, her approach to affordances is methodologically human-centered, which I ultimately find politically limiting for analyses that aim to account for the agency and entanglement of nonhuman actors.

Unlike new materialist accounts that refuse preexisting categories altogether, Davis deliberately preserves a human–technology distinction as a methodological choice, allowing her to track how inequality and normativity condition what actions become possible or prohibited. Who/what we consider to be a human or a technology, though, has shifted over time. In the context of circus history, for instance, moguls profited from blurring the line between person, animal, and thing, as in the case of William Henry Johnson, nicknamed by P. T. Barnum the "What-is-it?" and the "Man-Monkey." In an era of rapidly evolving AI, I question how far Davis' claim that technologies lack "the capacity to inflict will" can be applied (46). Her framework acknowledges that humans cannot act without mediation by objects and emphasizes the political significance of objects, but it remains human-centered. This limitation becomes

[50] Here I imagine affordance theory itself functioning as an affordance by using the terminology "encourages."

especially urgent in the context of climate change because many of the interactions that impact the climate are independent of direct human perception or design. A framework that focuses primarily on human-technological mediation risks underestimating or obscuring nonhuman agency in ecological processes. Harman's object-oriented ontology articulates why segregating humans from nonhumans is limiting: it ignores the interactions and effects in the world that occur outside of human perception or use, and it risks reducing nonhumans to efficacy rather than acknowledging their independent existence.

Take the example of a plastic water bottle. After opening, plastic water bottles are easily dented and cracked and are difficult to clean, so their design *encourages* us to throw them away after use. Bennett argues that materials like the plastic water bottle are "not entirely reducible to the contexts in which (human) subjects set them, never entirely exhausted by their semiotics" (5). Because of its "vital materiality," the water bottle "can never really be thrown 'away,' for it continues its activities even as a discarded or unwanted commodity" (6). As it fragments into microplastics, it enters waterways, bodies, food systems, and ecosystems, producing effects that exceed the intentions of its designers and users. Davis' framework would likely locate responsibility in the human systems of design, use, and regulation that produce plastic waste—and those are important systems to attend to. However, through Bennett, I also want to point to the vitality of matter, its "thing-power" as it takes action in the world's events. The point being not to absolve humans of responsibility, but to complicate the image of passive matter awaiting human direction. While affordance theory productively exposes how power operates through human-technology relations, its asymmetrical and methodologically anthropocentric framing cannot fully account for the distributed agencies and ecological entanglements that concern this dissertation.

In my update to Davis' update of affordance theory, which I will work with for the rest of this chapter, I treat all humans and nonhumans as equally agentic and efficacious. In Chapter Two, I extend my understanding of agency into something distributed across "assemblages" or "networks" of both humans and nonhumans before collapsing the distinction between the human and nonhuman altogether.

When nonhuman agency is taken seriously, Davis' mechanisms-and-conditions framework becomes more politically complex. I am tempted to ask: Is the Earth *allowing* humans to extract oil from her? Or, with the climate changing to become inhospitable for humans, is she *discouraging* us? These questions, though, risk anthropomorphizing the Earth as a unified subject with intentions. Thinking through Bennett's assemblages, if agency is distributed across assemblages composed of heterogeneous actants whose combined effects exceed any one component, then rather than asking whether the Earth allows, discourages, or refuses oil extraction, we might instead ask how particular assemblages—rock strata, bitumen, soil chemistry, drilling technologies, labor practices, regulatory regimes, capital flows, and atmospheric feedback loops—collectively afford or constrain extractive action. Thinking at the level of assemblages clarifies how nonhuman responses unfold unevenly and often beyond human-readable timescales. What appears as refusal—rising temperatures, unstable ground, contaminated water, infrastructural failure—is not the expression of a unified will but the cumulative effect of interacting forces whose capacities shift over time. This perspective also allows affordances to operate between nonhumans themselves. Jugglers are often attuned to these inter-object dynamics, attending not only to how things afford action for humans, but to how things condition, redirect, or resist one another within specific material arrangements.[51]

[51] For example, a trampoline floor *demands* that a Russian ball bounce, even as a concrete floor *refuses* it; the affordance emerges not from either object alone but from their relation.

Davis' affordance theory helps articulate what jugglers already know in practice: that objects do not simply permit action, but request, encourage, or refuse it depending on who encounters them, how, and under what conditions. Juggling makes visible how affordances are learned and sometimes obscured by expertise. Yet when juggling is read ecologically, affordances can no longer be understood as primarily human-facing. Balls, floors, gravity, and time already act upon one another without us. To think within the context of affordances seriously is therefore to recognize not only how humans manipulate things, but how things—and assemblages of things—manipulate each other due to their mechanisms and/or the conditions under which they are engaged. Before further analysing how hobbyist jugglers approach the technique of juggling considering affordance theory, I first examine how contemporary circus jugglers have reconfigured relationships between jugglers and props on stage. These performance practices provide context for my own inquiry because they question a framework of pure virtuosity in juggling. However, my focus remains on how hobbyist jugglers develop relationships with objects outside the conditions of stage performance.

Contemporary Circus Approach to Objects

Having set up the language of thing theory and affordance theory that I will use in the rest of this chapter, I want to re-examine the correlationist/mastery model of understanding the nonhuman, this time within the specific context of juggling and circus. Training in the circus is a practice of mastering particular physical techniques to become a virtuoso in a discipline. Lievens and Paycha write that traditional notions of virtuosity in the circus imagine the circus body as one "that masters the laws of nature, the animal kingdom, and the trajectories of objects and other bodies" (21). They write, similar to Singh as cited earlier in this chapter, that in this

formulation of mastery, it "always means the capture and control of someone or something else" (21). Because of this, circus artists are sometimes considered to have a sort of freedom: freedom from societal norms and freedom from natural laws. This perception is likely due in part because of the historical marginality of circus performers themselves. Often staged as itinerant and socially unconventional figures, their apparent distance from ordinary life allows them to function as cultural symbols of escape, autonomy, and transgression.[52] Not only are circus artists traditionally considered to be separate from both nature and culture,[53] but also, by extension, they represent society's desire for that same freedom. Circus has been articulated by circus historian and designer Pascal Jacob as representing "the ultimate quest of humans: the desire to be free of worldly constraints" (34). In this view of circus, then, the circus apparatus (the juggler's props, the aerialist's lyra, etc.) is theorized by circus artist and psychoanalytic scholar John-Paul Zaccarini as an approximation of the object of human desire—a "medium, mediator, metaphor" (22). These interpretations of circus artists and objects speak to an understanding of circus practice, inclusive of juggling practice, as a desire to separate the human from the world and that treats the nonhuman as a correlate to the human.

Lievens, though, argues that the virtuoso circus body is not "free." Although circus artists have been used in popular culture to represent the fringes of society (people run *away* from society to join the circus), in Lievens' formulation, "the virtuoso trained body incarnates the

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[52] Lievens is also quick to point out in her *Open Letters to the Circus*, though: "When we zoom in more closely on the context in which American nomadic circus arose, we see that – in spite of the myth – it was not born from the quest of a handful of outlaws searching for the ultimate romantic freedom. On the contrary. Nomadic circus is in fact an extreme outgrowth of a 19th Century belief in Progress. Caravans and tents were strategies in the push for capitalist expansion… travelling simply brought in more money. The aesthetics of physical risk also sprang from the desire for money and growth, as the competition between circuses played out in the ring as a struggle to present the most spectacular act."

[53] Separate from nature because they are superhuman and not bound by the natural laws of the rest of us. Separate from culture because they run 'away' to the circus to be on the fringes of society and not bound by cultural guidelines. The bearded woman might be an example of a circus artist not following either so-called natural or cultural rules.

ideal of the useful body. Through exercise and repetition... a circus performer is not an individual who deviates from the norm, but is an ideal incarnation of the norm: strength, time and space are not wasted, but perfectly optimised" (Lievens, 'The Myth Called Circus'). Ante Ursić similarly argues that the traditional circus can be seen "as the spectacle of the biopolitical regime, because it is concerned with the theatrical staging... of life through disciplined, docile, obedient, and trained bodies" (44). So, the modern circus isn't apolitical, but rather "has served as an apparatus of verification: it verifies, centre stage, the dominant prevailing discourse of human exceptionalism... In this political fiction, the white, male, heterosexual body is superior to other subjects in relation to it, which are feminized, exoticized, and racialized" (Ursić 44). Although circus artists may traditionally seem to be free due to their marginalized position in society, and that freedom may even seem productively politically subversive, skill and travel in the circus are results of a capitalist system that relies on staging particular ideals of discipline and human mastery.

How might circus artists and thinkers rethink the capitalism-driven anthropocentrism that seems inherent to circus? Although circus artists do need to "master the technical skills that are the language of the art," for this art form to be legibly expressive and enact change, Lievens argues that we can redefine what virtuosity means in circus ('First Open Letter'). This is necessary for the same reasons it is necessary to alter our relationship to Objects. When we use Objects without question simply to accomplish some task, we reinforce that object's normative use, for better or worse. In circus, when artists train their bodies in a specific way without question, they become "obedient machines whose bodies... show us who satisfies the norm and who does not" (Lievens, 'The Myth Called Circus'). This is why "it is necessary to experiment with other relationships to virtuosity," because it might open space to "say something interesting

about the things, dynamics and mechanisms that discipline our present-day bodies" (Lievens, 'First Open Letter'). This dissertation aims to open a space within the virtuosity of jugglers to use juggling as a way of thinking about our everyday incarnations of object manipulation.

To redefine virtuosity in the circus, Lievens argues, we must recognize that the skills circus artists employ in their performances are not meaningless or mindless. Rather, they express/attempt something specific:

> What the circus body does on stage... [is] always part of an attempt to overcome some physical limit. The circus body constantly pushes the limits of the possible, and incessantly displaces the goals of its physical actions, such that it never attains these goals and limits: they are always moving to be just out of reach. What is expressed through the forms of circus is not the old vision of mastery, then, but an understanding of human action that is fundamentally tragic. ('First Open Letter')

This notion of the virtuoso body as ultimately and forever short of a receding horizon of mastery is compelling to me because it mirrors Focquet's solution to the same problem. Focquet describes the traditional juggler as anthropocentric and representative of the "domineering relationship between humans and their environment" (Focquet et al. 42). Focquet's solution is called "humble juggling," which is "a type of circus in which the human deliberately vacates their dominant position to seek out a more deferential relationship to the circus object" (45). The humble juggler could also be seen as a tragic figure who recognizes the fundamental "unjugglability" of things. Focquet reimagines circus objects as hyperobjects, which he claims are "untameable," meaning they are "impossible to comprehend... or overcome through human subjectivity" (47). Interpreting circus objects as hyperobjects, Focquet argues, removes the ontological hierarchy between humans and things because "objects are no longer reassuring—

passive, at the service of, and subordinate to, humans—but are suddenly disturbing, active and nearby" (47). To acknowledge this, Focquet writes, some contemporary juggling creators are already engaging in virtuosity as "a sensitivity to the characteristics of environments, and the physical ability to relate to these in a variety of ways" (48). Most directly related to Focquet's argument, and his primary case study, is the work of Ménard through her explicit "break" from conventional understandings of virtuosity, which in her words, "consisted in not choosing objects that allow me to be virtuoso, but instead taking things that would contradict my virtuosity. And the first thing I took to juggle was a cactus" (Lavers et al. 37).

Ménard's work is worth pausing on here as she created what Lavers calls "limit-text works" in that they went beyond perceived limits in her discipline of juggling to open new lines of questioning (63). Ménard, who studied under Jérôme Thomas, created the influential work *Transformation P.P.P.* (*Position Parallèle au Plancher*, or "Parallel Position to the Floor") in which she juggled "balls of ice that freeze [her] hands so [s]he can't move them, and as the balls of ice melt, and change size, they slip and become uncatchable" (65). This work tested the limits of juggling and juggler because it is clear to the spectator that ice cannot be fully controlled by the human body—it melts, breaks, and burns the juggler's skin as they try to juggle it. Considering not only the transformation of circus at the time of *P.P.P.*'s performance, but also Ménard's own bodily transformation from male to female, the work conveys a "sense of impermanence and flux in relation to the body and the emphasis on the body in process with an ability to affect and be affected by its environment, is potentially highly politically charged, as the notions of permeability and process, both in body and identity, challenge the concept of a fixed and stable identity on which societal control is based" (66). Notions of unstable, emergent

identities and material permeability or mutability appear throughout this dissertation and Ménard was a foundational artist-thinker in these readings of juggling.

Other practitioners produce unjugglability without necessarily renouncing virtuosity but rather by taking up objects that make sustained mastery structurally impossible, regardless of the juggler's skill. The Institute of Jugglology's sand-filled props leak continuously during manipulation, so that failure is no longer a discrete event but an ongoing condition of the prop itself while the jugglers' technical ability is still on full display. In Stoptoï's *Loop*, which I saw performed live at TurboFest, a hobbyist-friendly juggling festival in Quebec City, seemingly ordinary juggling rings are twisted into knotted, spring-loaded shapes that explode into motion unpredictably—not dissimilar to how the randomly leaking props do in *Mandala* (Stoptoï). In *Loop*, jugglers Gonzalo Fernández Rodríguez and Neta Oren set up these tensions and wait for the rings to act before they rush to catch them; with the rings initiating the human action they resemble active co-performers rather than passive props. Jo Kamm's porcelain juggling props, which I've juggled myself and can be viewed in the short film "Dangerous Games," offer a related dynamic (noslowerdna).[54] Although the props are elegantly crafted and most entertaining to watch when handled by a skilled juggler that can emphasize their fragility through moves like foot stalls, the promise of their fragility isn't fulfilled until the juggling fails, making that failure a satisfying release from the anxiety of watching them juggled. Similarly, in Gandini Juggling's *Smashed*, apples and tea sets are used as props that the performers progressively eat, beat, and shatter until juggling becomes materially impossible. *Smashed* complicates the human/object

[54] For more on juggling with ceramics in a French context, see Cyrille Roussial's "Vers des jonglages post-anthropocentriques : étude de variations de la collection CHINA SERIES de Julian Vogel." I was unable to consult this source directly, as I do not read French, but flag it here for readers who do.

framing further still: performers also strike one another mid-juggle, disrupting each other's juggling-ability, or the prop's jugglability.

Perhaps most radically, some jugglers locate jugglability or unjugglability not in a single object's resistance but in an entire environment's possibility or hostility for juggling. To return to Ménard, in her work *L'Apres-Midi d'un Foehn*, "she has moved the performance of control of the juggling pathways away from the human, to external forces to create a new form of juggling... as the audience sees the wind juggling with these small twisting human figures fashioned from plastic bags" (Lavers et al. 13). Environmental juggling is also evident in some of Eric Longequel's work, including in the short film "Neige," where he juggles in the cold and snow, and "Dans ma piscine" where he juggles underwater and the water itself manipulates the props, like a balloon animal and VHS tape (*Neige*; *Cie Ea Eo*). Another French juggler, Adrien Mondot, who is also a computer scientist, combines his circus knowledge with software in shows with visual artist Claire Bardainne like *Pixel* which combines, "the poetics of the human body with projection-mapped augmented realities to weave optical illusions and new fictions" (Mondot and Bardainne). Mondot does not define the circus apparatus as necessarily a physical thing, like juggling balls, but rather as "the structure of play with forces," and so, "apparatus is what allows us to act on forces" (Lavers et al. 42). For Mondot, the apparatus is a digital workspace manipulated live and projected on a scrim that human bodies perform behind, in part because he didn't want to "present things that could be seen as dated in juggling" and amateurs just have so much more time to work on the practice in its traditional sense (43). When Mondot felt the limits of juggling, he asked how the virtual space could make the unjugglable jugglable—for instance, by juggling with "time" or "abstractions" (44).

Contesting mastery over the apparatus is a common trend in contemporary circus, but just as often as mastery is contested, there is a contestation of that contestation. In a footnote to Focquet's main article text, contemporary circus artists (Ruben) Mardulier and (Michiel) Deprez ask, "how much can you stage yourself to be affected by things?... If we are designing our own humility, how much control are we really giving away?" (Focquet et al. 51). What's more, there is a paradox inherent in a juggler staging their lack of control because, as Lavers, Leroux, and Burtt point out, "mastery of the apparatus is, in and of itself, a pre-requisite—a vital element of the performative process of being able to effectively problematise the notion of mastery" (9). Because of this, it can be difficult to imagine human-nonhuman relations in circus outside terms of mastery. Even performers that highlight their dependence on objects as vibrant matter through unjugglability (by manipulating/being manipulated by ice, barbed wire, wind, cacti, etc.) are shaped by their technical knowledge and training. Attempting to manipulate the unjugglable may contribute to a narrative that the world has an impact on humans; at the same time, it is impossible to deny that humans have an impact on the world. Perhaps foregrounding unjugglability in performance is humbling in that it suggests control is just one type of interaction, equally attributable to humans and nonhumans, among many ways of relating.

As a hobbyist juggler, I am particularly interested in juggling as a form of play. While many contemporary circus artists have challenged narratives of mastery through performance, my concern is less with what juggling represents on stage than with what it feels like to practice as an everyday activity. I juggle because it is self-actualizing to see my own abilities develop through training. It develops my awareness of my own body, the world around me, and my understanding of the movements of objects. It teaches me how I relate to other bodies. Similar to my reasoning for conducting academic research, I juggle because it is fascinating and reveals

things about the world around me, even though I have no idea whether that information or those actions will be "useful" to humans. Gilligan argues that "there is something more to juggling besides skill, difficulty, or risk" (Åberg and Gilligan, sect.1:30:55). He does not believe that mastery or virtuosity is central to circus, rather, the fundamental value of juggling is something more like wonder with the world and how objects interact, and how that makes us feel. Wonder is also a kind of humility, without necessarily needing to find things disturbing or unjuggleable.

I argue that we don't need to change juggling objects or juggling aesthetics at all to counter an anthropocentric understanding of the juggler. This belief arises from the interviews I conducted with hobbyist jugglers. In the rest of this chapter, I draw from new materialist circus studies and Indigenous scholarship to analyze my interviews with hobbyist jugglers to posit a different type of juggling, one where humility is present but not its dominant feature.

Common Issues That Make Juggling Unsustainable

When I first learned to juggle a three-ball cascade and could maintain the pattern for six or more catches,[55] I encountered four main issues that made my pattern unsustainable. First, instead of trusting each ball to fall into my hand, I reached my hands up to catch each ball. Second, instead of using the ball's momentum to move my hand downward during the catch, I would grab the ball with force, stopping its momentum abruptly. Third, instead of throwing the balls up and to the side, I threw the balls up and away from me so that I had to walk forward to

[55] In the juggling community, to say that you're able to juggle any given pattern, it is commonly accepted that you can make twice as many catches as there are balls. So, juggling a 3-ball cascade requires at least six catches. This definition of a "juggle" doesn't transfer easily to styles of juggling without recognizable "patterns," so it's not a strict rule. However, it is used by the Young Jugglers Academy, a branch of the IJA, to determine when a new juggler gets the pin for accomplishing a certain pattern.

catch each ball. And fourth, instead of putting equal force into the throw of each ball, I threw harder with my right hand than my left so that I was spinning in circles while juggling. Each of these movements, and especially all of them put together, caused me to drop the balls and the pattern to end. In the next four subsections I explore the solution to each of these issues and consider what we can extrapolate from them to develop more sustainable relationships with other objects.

Resist Reaching Upward

I reached up for the ball as a beginner because I felt like I didn't have the time or attention to wait for it to complete its path toward my static hand. As soon as I'd thrown a ball, I felt an urge to immediately catch the one I'd thrown before it for fear that I would lose track of it or run out of time to catch the next incoming ball. Gravity felt too slow, so I used my own force to pull the balls quickly down. There were a few mutually constitutive issues with this approach. I caught the ball really high in its arc because I felt like I didn't have time to wait for it to fall lower. I also didn't feel like I had time to pull the ball all the way down each time, which meant that I threw each ball from a greater height with each throw. I am only so tall, so eventually the pattern would break because I physically couldn't reach higher. What's more, the higher I reached, the less momentum I could give each throw, so the throws got gradually worse. One of the ways I solved this issue was by tying my arms to the side of my body at the elbows, so that I was forced to wait for each ball to fall into my hands. As I gained experience in the three-ball cascade, I learned to trust that the balls would fall equally at the speed of gravity, meaning I didn't need to speed up their motion. I trusted that the ball wouldn't *refuse* my *request* for it to fly in an arc between my hands. I gave up some of my control to gravity.

In the previous subsection I discussed how circus has traditionally been framed as a way of transcending the constraints of nature. Some contemporary jugglers have responded by demonstrating how human virtuosity can be limited by the laws of nature. Those jugglers stage the juggler as incapacitated when faced with the vastness or elusiveness of the natural world. Phillips when I interviewed him, contested this notion in a different way, saying:

> In juggling, [as opposed to flow arts] a lot of it is determined by physics that are completely out of your control. Cause if you're swinging poi around in a circle,[56] you can swing it slow, or fast, but when you throw a ball up, its [trajectory is] determined by gravity. You hear it all the time: 'jugglers against gravity, jugglers defeating gravity since blah blah blah'; to which I, as someone who has half a degree in physics, says 'bullshit!' If there was no gravity, you wouldn't be able to juggle. It's not about defeating gravity; it's about cooperating with gravity.

In another interview, Wyman took this a step farther, saying:

> I think it's really interesting because [in] physics you take like a year to learn how to calculate the trajectory of a thrown and falling object and [in] juggling you do it intuitively in a split second. And I think it's so cool that the wind factors, the weight of the ball, the trajectory—all of the factors about how you throw it might be almost impossible to calculate the, like, multifactor environment and its impacts on your pattern, but you can just do it in your head without thinking about the physics. Because obviously physics is not a thing that is inherent to the universe. It's a way that we describe it. And I think it's a fun little reminder that all of physics is fake, none of it is real.

[56] Phillips is opposing juggling to flow arts here to express how juggling is uniquely a collaboration with gravity, even when compared to similar arts. In the flow arts, the manipulator's prop often doesn't leave the support of their body in some way.

Stemming from Wyman, we are not just humans—cultural subjects cooperating with gravity, a natural force—rather humans are already embedded within the same physical systems that govern falling, momentum, and rhythm. If we relinquish domination in favor of attunement, we allow gravity to do its work and respond to it rather than attempting to override it. I get the word "attunement" from Morton who uses it to describe "how the mind becomes congruent with an Object"; it is a mode of being open and responsive to other entities (human, nonhuman, and more-than-human) that replaces mastery with coexistence (*Hyperobjects* 171). This attunement is a form of "thinking-with," as Puig de la Bellacasa emphasizes, drawing on Haraway, to suggest that even in conflict—such as when juggling is experienced as a fight against gravity—we must cultivate practices of care toward others within our more-than-human webs (73). As Barad puts it, "we know because 'we' are *of* the world. We are part of the world in its differential becoming" ('Posthumanist Performativity' 829). The juggler doesn't stand apart from gravity as an external force to be calculated and fought; the juggler participates in the same material processes the juggling ball's trajectory is shaped by. This stands in contrast to scientific paradigms that, as Kimmerer writes, are "rigorous in separating the observer from the observed, and the observed from the observer" (42). Kimmerer's own approach to science has always been "to see relationships, to seek the threads that connect the world, to join instead of divide" (42). Juggling offers an example of this relational epistemology: knowing where and when to catch the ball is not detached measurement, it is embodied participation in a shared system. The lesson of juggling, then, is to trust in one's belonging within nature, rather than attempt to control it.

Listen to Props with "Soft Hands"

Even if a juggler trusts gravity to send the ball back towards their hand, a beginner might not trust the prop to stay put in their hand once it lands there. The most effective juggling technique is to let each ball land loosely in your hand and even let the ball push your hand downwards a bit before you force it back upward. Sometimes, though, Dresser reminded me in our interview, a beginner will "GRAB" the ball so that "they have 100% control over that ball. And then they release it again until they GRAB it and take 100% control over the ball again." Dresser posits that, "If the ball was a gosling, or like, a brick, nothing would change. They're just exerting 100% full control over what they're doing at the time." This is an issue for the juggling object, especially if they happen to be a gosling. It's also an issue for the juggler, especially if their prop happens to be a brick. Moreover, this attempt at full control over the prop's motion is an issue for the juggling pattern. Letting your hand be pushed downward by each ball before throwing it is an important moment in many juggling patterns, including the cascade. As more balls are added to the pattern, the juggler must throw each ball higher to sustain the pattern; the balls hit the juggler's hand with more force and the juggler needs more force to send them to the appropriate height. Exerting full control over the balls becomes harder for the juggler and hurts their hands more. A better pattern for both the juggler and the props is one in which the juggler accepts the *request* from the prop to push their hand downward, slowing its momentum. When learning to juggle, my interviewee Joshua Hanneson trained with objects that would more obviously *request* for him to follow their downward momentum with his hands, ensuring he didn't exert too much control over his props. "If you're using bean bags when you first start out, maybe you're like hitting them really hard against your hands," Hanneson told me, so instead his father suggested learning with rocks, "because they teach you to use soft hands when you catch."

The need for a juggler to follow their prop's momentum as it reaches their hand is perhaps even more prominent in club juggling. Here is Phillips again to explain his experience:

> When I catch a club, the club has rotation, it's got... mass, it's long so it's got a leverage effect. And when I catch the club, there's a point in time before I really control the club. I control the club, but it's also controlling me because it's got a bunch of movement that's inherent. And that's true with any prop, but it's way more obvious with clubs and so, there's a transition between where the object is controlling me to where I'm controlling the object to where we have independent lives that are gonna get back together again in a little period of time.

When a juggler tunes in to the *request* of a prop to move their hand and the juggler *allows* it, juggling "no longer looks like a battle in which the circus artist attempts to tame their object," like Focquet's humble juggling strives for (Focquet et al. 48). I have only been referring to the single person cascade with balls so far. Listening to the prop is perhaps even more important when you start making different types of throws with clubs or receive a prop from somebody else so you can't predict how to catch it based on how the throw felt. As Phillips says, in partner juggling "you can get some really wonky throws that you just have to somehow adjust to, and the club is in charge for that split second until you get control over it." This interplay of having control and being controlled, especially in the context of club passing, is something I discuss further in the next chapter.

Although in typical club juggling the juggler does not flat out *refuse* the club's momentum, they still *discourage* it from continuing. In Davis' affordance theory, the terms encourage, discourage, and refuse describe how technologies condition or constrain human action within particular social and material arrangements. Here, I invert this orientation by using

these verbs to name the human juggler's response to the object's momentum. This reversal marks a key departure from Davis' framework in order to attribute greater animacy and agency to nonhuman things than her design-centered model permits. Dresser explains how the juggler responds to the prop when he tells me that, "In the default club cascade, [for] every throw, you're taking that momentum, you're stopping it, and you're starting it in the opposite direction." That *refusal* to maintain the club's momentum "doesn't respect the way that the clubs want to move" in Dresser's opinion. Dresser justifies this claim by describing a club pattern that does seem to respect the rotational momentum of clubs. Phillips cited a similar pattern, which he attributed to the juggler Ameron Rosval:

> It's a 4-club fountain, but every throw he's catching the club and throwing it in a shoulder throw like this [Phillips demonstrates]. In every other club pattern, you catch the club then you have to fight with it and reverse its direction. In that pattern, the club is coming down rotating this way, you catch it, follow it around, and it keeps going, so the club makes this continuous, beautiful motion with no reversals of direction and it literally looks like the juggler could step away from the pattern and the pattern could keep going.

"Thinking about what the prop wants," Dresser adds, can "inform what you do next," so cooperating with props by listening to their desires (*requests*) enhances the creative potential of juggling. Respecting what the prop wants and offering it to the prop does perhaps require humility on the part of the juggler. It means silencing your own ideas and listening or tuning into the prop. I call it sustainable because it sustains the prop's momentum and, as Phillips said, it almost appears as though the juggler could walk away and the pattern would remain on its own. In this collaborative approach to juggling, the juggler is not the focal point of the pattern, they are simply the force sustaining it, perhaps no different from the way gravity contributes to a

juggling pattern. I relate this sustainable approach to Kimmerer's research method of listening to plants. She writes that "an experiment is a kind of conversation with plants… but since we don't speak the same language, I can't ask them directly and they won't answer verbally" (158). Plants respond to our questioning "in their physical responses and behaviors," and so do juggling props (158).

American juggler Jeremiah Johnston calls the sustainable style of juggling exemplified in Rosval's pattern the "conservation of energy" in juggling patterns. On his *YouTube* channel Juggling With Jeremiah, Johnston teaches viewers how to juggle patterns that "conserve" the prop's own "energy" through the interaction between juggler and prop. Rosval's pattern, in Johnston's framework is considered "fully conserved rotationally," because the club's momentum is "conserved on the catch and throw while always maintaining the direction of rotation" (Juggling With Jeremiah, sect.16:04-17:21). Not only does gravity pull the club downward, he explains on his channel, but also the body of the club "wants" (note the same language that Dresser used) to swing towards the juggler's body because they caught the club. In Rosval's and Johnston's juggling, a club's energy is preserved and an act of care and maintenance is taking place. In their special edition of *Canadian Theatre Review* on "Acts of Preservation," Kimberley McLeod and Edward Whittall "highlight the relationality at play in any act of preservation" (5). They draw on Schweitzer's call to understand "preservation as an active call-and-response," which also describes Johnston's and Dresser's approach to juggling (5). The juggler is not absent from these conservation patterns; they do intervene and in so doing an ethics of care plays out. If the juggler never interacted with the club, it would remain motionless. And if the juggler didn't interact with the club again after throwing it, the club would crash into the ground and its momentum would be abruptly halted. To create a sustainable juggling pattern, the

juggler must interfere with the club's movement while being conscious of how they are conserving its momentum, which the juggler can do to varying degrees.

In highlighting the ways jugglers cooperate with their props, I argue that human intervention in the material world is not always reducible to domination or extraction. This can be a difficult idea to articulate within a Judeo-Christian culture whose predominant creation story results in humans sinning when they eat a fruit from the Earth, seeming to position human action and ecological flourishing as fundamentally opposed. Contemporary environmental crises provide many reasons to be suspicious of human attempts to control or improve the world. Kimmerer, though, reminds us that not all forms of engagement are extractive. In *Braiding Sweetgrass* she tells the story of her graduate student Laurie who pursued the Indigenous wisdom that "sustainable harvesting can be the way we treat a plant with respect, by respectfully receiving its gift" (165). Laurie studied why the sweetgrass plant was experiencing decline in certain regions but flourishing in others. She found that the regions where sweetgrass has historically thrived have been "clustered around Native communities, particularly those known for their sweetgrass basketry," meaning that, "sweetgrass thrives where it is used and disappears elsewhere" (165). The use of sweetgrass must be respectful, though. And respectful use of another's resources means listening to the needs of that other. Both taking too much control and taking too little can result in an unsustainable relationship between people and things.

Juggling takes place largely within a human-made realm of manufactured props, gymnasiums, and learned techniques. However, jugglers often describe their practice in ways that echo this logic of attentiveness. Rings are a notoriously frustrating prop for jugglers. They are thin, so when they land in the webbing between your thumb and pointer finger, they can feel very sharp. Some ring jugglers tape their hands for this reason. Many other jugglers avoid rings

entirely. One of my interviewees, though, Naomi Stager, loves rings for reasons I will discuss shortly. When I asked Stager to describe the relationship between her and her rings, she immediately said "Oh, I love them." However, she quickly followed that up with, "Rings kill your hands. That's probably a great place to start." She went on to explain some of the reasons *why* rings "kill your hands," and I was surprised to find that she did not hold the rings responsible for causing pain but rather held jugglers responsible for the way they treated the rings. "You act upon them, and they act upon you," Stager told me. When you drop rings, she said, "they hit the floor on the bit that is going to hit your hands later," so if you drop rings on concrete and the plastic gets scratched, that lifted piece of sharp plastic is going to scratch your hands later. Stager pointed out that it is not just the edge of the ring that matters, either. "The surface that is the flat part matters too," Stager told me, "People will step on rings in the gym because they're flat, but no one will step on your balls or your clubs, right?". Stepping on the flat side of a ring can cause it to warp so that it flies less consistently and again makes a juggling pattern less sustainable. Stager's account does not concern ecological stewardship in the sense Kimmerer describes, nor are plastic juggling rings equivalent to sweetgrass, but in juggling, relationships are sustained through responsiveness rather than unilateral control, demonstrating that ecological thinking is not only learned in nature, it can also emerge through caring engagement with manufactured objects. In this limited sense, Kimmerer's observation that "our flourishing is mutual" offers useful language for understanding why jugglers attend to the material conditions of their props (166).

I took a workshop at the Limestone City Juggling Festival in 2023 in which the Ontarian ring juggler Ryan Chen told workshop participants that ring juggling doesn't have to hurt. He demonstrated how you can catch rings on the thick, muscular part of your hand under your

thumb, instead of in the thumb's webbing. He also taught participants ways of juggling rings that don't require catching the edge of the ring at all, like with **pancake throws** in which the ring is held parallel to the ground and rotates almost like a club. If we listen to our props, we can learn to treat them with respect, and they will respect us in turn.

Different props respond differently to human manipulation, so conserving their energy and treating them with respect differs. The more objects that a juggler has tried to understand and trained themselves to respond to, the more affordances new objects present to the juggler. Recently, Presberg has been re-entering the beginner phase of juggling by learning contact juggling and other flow art forms. He is doing this to expand his vocabulary of movement and, in his words, "learn how to manipulate objects in a different way so I can do more and new things and combine them in hopefully unique ways." He recognizes that different objects afford different styles of juggling and that his own *perception* and *dexterity* create new affordances with old props. As we expand our vocabulary of movement with objects, their desires become more legible to us, meaning we can juggle them in even more respectful ways. As an example, he mentioned contact juggling specifically, which is often practiced with only a single ball. Whereas a bounce ball *encourages* dropping because it is bouncy, a contact ball *discourages* dropping because it is made of transparent acrylic which could get damaged or damage other things. The contact ball also *discourages* throwing because throwing makes dropping more likely. What's more, the look of the contact ball is beautiful when moving slowly or staying in one place, rather than flying through the air, so they are often rolled along the body or rotated by the hands. Even without a *cultural knowledge* of juggling or the *dexterity* to execute certain juggling techniques, these affordances might be *perceptible* to someone who encounters the contact ball and encourage them to manipulate it differently than a bean bag or bounce ball. If a

juggler listens to the contact ball—interprets and heeds its affordances—they will train a unique *dexterity* that can then be translated to other objects that at first glance *discourage* contact ball techniques due to the juggler's *perception* or the lack of *cultural legitimacy* for those techniques with other props. In this way, creativity and innovation in juggling truly is the result of a collaboration between the juggler and the prop.

In this subsection, I discussed how experienced jugglers can sustain their patterns more effectively if instead of *refusing* the affordances of gravity and their props, they *allow* them to affect the way they manipulate their props. An attitude shift can't transform the political and economic structures driving ecological crisis but juggling opens a practice-based space to explore how material conditions enable and constrain possible action. Ecological relations aren't respected when we seek "100% full control" over fellow beings within our systems. Singh warns that such aims at mastery are ultimately self-destructive, because it depends on denying one's own material dependence on the very bodies and systems being dominated.

Emergent and Disappearing Properties of Props

In the last subsection, I discussed props' physical properties that impact how we manipulate them and are manipulated by them; in this subsection, I look to properties of props that disappear as properties of props but that become given over time and repetition. Namely, the colour of props.

Presberg, who often juggles complicated patterns with many balls, is known for "**colour coding**" his siteswaps.[57] When juggling is colour-coded, patterns that are visually complex or

[57] See Presberg's colour coding here: https://www.youtube.com/watch?v=0GIMiy8CFcU

boring can become more legible and interesting. By changing the colour of the props, his technique doesn't change, but the patterns he is interested in manipulating does. When colour coding his patterns, he works on, as he told me in our interview, "new sets of numbers and new sets of throws… more seriously." The colours of the props dictate which patterns he practices.

This is an important insight from Presberg because in juggling performance white props are often used so that they are more visible under lights, against a typically black backdrop. Because juggling props are treated as abstract shapes, they are often assumed to carry no cultural baggage; the material used to create the art is not meant to intrude upon the art itself, which is understood to reside in technique and pattern. This thinking is historically contingent; the technical, abstracted form now most recognizable as juggling—what historians have called "pure" or "straight juggling," or the "ability to throw… objects into the air and alternatively catch them"—did not emerge as dominant until the early twentieth century, popularized by Rastelli (Truzzi and Truzzi).[58] Nineteenth century juggling featured styles in which the props were anything but neutral, like in the cases of kraft jugglers who juggled heavy objects and weights and salon jugglers, also called gentleman jugglers, who juggled "such objects as… cane[s], gloves, top hat[s]… and articles to be found in the drawing room such as flower bouquets, billiard balls, and cues" (Truzzi and Truzzi). The idea of white props as neutral, then, is not an inherent property of juggling and this relatively recent turn in juggling reminds me of the modernist aesthetic orientation articulated by Fried in "Art and Objecthood," where shape is central but only insofar as it is absorbed into the work rather than asserting itself as a literal

[58] A note on references cited from Truzzi and Truzzi in this text: Many of the facts in their article are inaccurate; however, Marcello Truzzi is the son of Massimiliano Truzzi, who he wrote the article with, and Massimiliano trained under Enrico Rastelli. So, although some pre-modern historical facts may be inaccurate and possibly sourced from oral histories, their content about modern juggling styles, etc. cited here likely comes from first person accounts of professionals working at the time.

object. For Fried, modernist painting must defeat or suspend its own objecthood in order to remain art rather than mere object. Some technical jugglers similarly treat props as elements that should disappear into the aesthetic field rather than confront the viewer as Things. White, spherical props function like Fried's successful modernist shapes: they enable perception without demanding attention. Coloured or symbolically loaded props risk reintroducing objecthood, confronting the spectator and shifting juggling toward theatricality.

It is assumed and becomes "'real,' material and lived" that white props will not communicate any added meaning to an audience member's interpretation of a juggling performance (Ahmed, 'A Phenomenology of Whiteness' 150). White props do not lack meaning, though; rather, they disappear into cultural norms.[59] Like whiteness itself, they are unmarked and "lived as a background to experience," in this case the experience of the juggling pattern and technique rather than of the props themselves (150). From a critical whiteness studies perspective, white props are not only white but are made white by a juggling culture that prioritizes virtuosic technique over beauty, symbolism, or legibility.[60] Whiteness operates like Brown's Object before it becomes a Thing: materially structuring the conditions of experience while remaining perceptually invisible because it doesn't get in the way of the orientations of those already aligned with it.

To relate this back to the broader concerns of this dissertation, the human is also an unmarked category, orienting our perception of the nonhuman as inert and powerless. The myths of industrial modernity figure air, oceans, and land as neutral staging for human action rather than as responsive scene partners. Juggling offers alternative myths of the human relationship to

[59] In the theatre context, the same might be said of neutral mask, which practitioners and pedagogues have critiqued or altered their approach towards due to an "impossibility of neutrality" (Kundin).
[60] See also Peggy Phelan's *Unmarked* for how the unmarked exercises power by structuring the field of representation/appearance.

nonhumans, namely as a shared materiality, where the materiality of a juggler cannot maintain a responsive role in the system by ignoring gravity, a prop's momentum, fatigue, or even the colour of a prop. Re-attuning to difference, even of colour, may be an aesthetic exercise, but Harman argues our only access to "real" objects—closer to what Kant calls noumena—is through their sensual qualities, and this access has an aesthetic structure through metaphor. Harman's OOO argues that objects withdraw from access by another entity, even oneself. But metaphor, "does not try to give us thoughts or perceptions about an object, since these would merely give us an external view of the thing in question. What metaphor gives us, instead, is something like the thing in its own right: the infamous thing-in-itself" (86). Props come with cultural baggage when perceived, but it is in this perception of what a prop seems to be that we can have the most direct experience of the prop. So, not only must we imagine the different coloured balls as completely different objects, even though the technique to juggle them might be the same, attuning to the aesthetics of things gives us a greater understanding or appreciation of them because it exposes the limits of our access while still allowing encounter.[61] Attending to such differences resists the tendency to reduce objects to interchangeable instruments for human purposes. This attentiveness may not generate political change, but it can cultivate greater sensitivity to the material relations through which both everyday practices and larger social systems are constituted.

Resist Alienating Things

[61] The way it does this according to Harman is through the production of a new object consisting of the perceiver as object and the qualities the metaphor imposed on the original object.

Even after resolving my distrust of gravity and the props themselves, I would still throw my juggling balls away from me when juggling. The longer my pattern was maintained, the farther away from myself I would throw the balls and the faster I'd have to dash forward to catch them again, as if they didn't want to be juggled and were trying to escape. Or, more likely, I was afraid the balls would hit me, so I pushed them away. To overcome this fear, I practiced juggling in front of a wall, which prevented me from running forward and taught me that it's okay if the balls hit something (me, the wall) on their way back into my hands.

E. Moore, an experienced juggler in multiple disciplines, also found that when she was learning to juggle, she was afraid of her props. She alienated them because they might hurt her. She realized that to improve at juggling, she needed to develop a healthier relationship with the props. She advised me on this topic in our interview:

> You have to get over a barrier, especially with clubs. I remember I started with these plastic, one-piece, hard clubs. They hurt, right? I wasn't progressing very much until I really saw the clubs as not scary anymore. I can get hit... I can do patterns where I deliberately hit the clubs. I can do more body-integrated patterns and stuff. I think that helped me get over the sense of pain or whatever with clubs... You have to be connected with the props when you're juggling. If you alienate it, things just tend to not work very well.

Jackson, an experienced juggler who has competed with his juggling on the world stage, also alienated his props long after he learned to juggle because he got angry or exhausted and the juggling became unsustainable. He realized he had to recognize when he was no longer in tune with the props and was therefore hurting both the props and himself:

> Historically, I've had a lot of anger issues when it comes to drilling a given pattern or trick for too long. I exhaust myself and then I get frustrated when I can't hit a trick. And then I take it out on the props. I throw them down, I yell... Like I've bitten beanbags just out of rage. And I don't practice that way anymore because it's not good for the soul and it's not good for the props. Now I am getting to the point where I recognize fatigue has truly set in and nothing more can be accomplished by juggling because I'll just be drilling bad technique at a compromised, you know, body state. Best to just put them away, and I feel happier for it.

My takeaway from this is that the juggler's pain hurts the object and hurting the object hurts the juggler's ability to use the object. Fear leads to avoidant behaviour which only makes your ability to play with the object less possible.

In contrast, if you like your props, even though nothing has changed in the prop, juggling can become easier. For instance, Stracovsky told me:

> Conceptually I do like using my props more just because I am used to them. But I couldn't really give you a very good reason as to why I like my props more than other props. I just spent a lot of time picking them and I use them all the time, and so I like them... Even if I juggle [my friend]'s gBallz, which are literally the same model as mine, it's like, 'Okay, but those are *his* gBallz, so a little bit different' [laughs]. Sometimes I'll mess up a trick that I'm doing with his gBallz and my brain just thinks, 'if I was using mine I would have been able to do it better.' But it's like the same gBallz, it doesn't even matter... It doesn't really make much sense, but that's how I feel!

Jackson, Moore, and Stracovsky's examples express that affordances are not just a matter of what a prop makes physically possible, but of what becomes perceptible, viable, and sustainable

within a particular affective and embodied state. Fear, anger, and attachment function as conditions of affordance alongside dexterity, perception, and cultural legitimacy—or perhaps they make us more or less dexterous or perceiving. Fear of a prop and anger towards it can narrow a juggler's perception of affordances, whereas care for a prop can expand their perception. Sustainable juggling, like sustainable human–nonhuman relations more broadly, depends not just on technical ability/dexterity, but also on a relational/affectual attunement.

My interviewees said that, when juggling goes well they feel as though their props are an extension of themselves. Their comments recall Clark and Chalmers' influential account of the "extended mind," in which the mind cannot be fully contained within the human body but rather emerges through active engagement with the material world. Similar to Bernstein's conceptualization of scriptive things, Clark and Chalmers argue that the movement of objects by humans "is not part of action; it is part of thought" (10). The lived experiences of the jugglers I interviewed resonate with this claim and reinforce my own broader argument that juggling unsettles clear distinctions between body and object—even if that unsettling relies on an anthropocentric frame, which I will disrupt further in the next chapter.

Chen told me that when he throws a prop, or anything for that matter, because he has trained in juggling, he maintains a sense of awareness in the prop even when it is not within his control. When asked what his relationship with his props is like during the act of juggling, Chen said:

> I guess a sense of awareness would be the honest answer... any time I throw something, I... have this funny awareness of exactly how the motion is gonna go and visualizing it in my brain even when it's out of my view… if you tried to draw a picture while your eyes are closed that's how I would see a juggling ball that's not in my view, but is in my

> awareness of things… my brain is still tracking it, maybe not with my eye balls, but it exists there and it will reappear... in my hand when I catch it…

This extension of the juggler's mind or body was a common experience among my interviewees. Jackson said of his props that, "when they're in the air... I think of them as an extension of my own body... I kind of feel it all the way to its apex. And then I, my body, responds to accept it as it's coming back down. So, when you are really in the zone, it feels like an extension." Instead of alienating her props, E. Moore's alternative is "to treat [the props] as part of your system when you're juggling." She also noted that the "awareness of where [the prop] is in your space" is specific to the type of prop you're using. Moore juggles with flower sticks, which is a long stick with frills at either end that is manipulated by two shorter sticks held in the juggler's hands. She commented that in juggling disciplines like diabolo, devil sticks, and flower sticks, "where you're using hand sticks, it's like you've grown an extension of your limbs. You're not using your hands anymore. You're using this additional prop to manipulate the prop." Moore explained that there are direct physical benefits to that extension of self into the prop because, for instance, she has a skin condition that makes her hands very chapped in the Winter:

> But those are props that I can do wearing gloves. So, I've been in parades doing flower sticks, wearing gloves. It's great, you're not using your hands. You're using sticks. And so... you have to sort of treat it as, no matter what [prop] it is, kind of an extension of yourself.



Figure 4. Emily Moore juggling flower sticks. Photo by Mike Moore.

Moore's body extended by her flower sticks is also what Canadian disabled circus artist and coach Erin Ball calls an "adaptive body" in order to highlight the body's ability to "positively adapt to new situations as they arise" (Ball et al. 35). The extended body is explicitly adaptive in that "its potential and its appearance are modified by the imaginative and innovative non-naturalistic prostheses" (40).[62] Ball prefers the term "adaptive" to "differently abled" in part because everybody is differently abled. Moore's body is adaptive because she has trained in

[62]Ball et al. are especially interested in inventors working today to move prosthetics beyond the mere representation of naturalistic bodies which end up being in the "uncanny valley" and instead imagineering prosthetics to be new conceptual ways of understanding the body altogether (41).

diverse juggling disciplines and can therefore adapt to winter conditions that prohibit her body from ball juggling by altering the prop she manipulates.

Other jugglers said that the props feel like an extension of their own body, or an extension of, as Stager said, their "kinesphere," a term originally coined by Rudolf Laban to describe the personal sphere of movement surrounding one's body and extending as far as they can reach (Wahl). Stager told me that when teaching juggling she will train this sense of awareness of a juggler's entire sphere of influence, including wherever the prop goes. She will tell trainees:

> Think about the top of your head and the soles of your feet at the same time. And then kind of like, fill that space... Okay, now throw me [a prop]. Where is the top of your pattern? Okay, do it again. But *that's* yours, right [the space through which the prop travelled]? ... If you are energy from [where the throw happens to the apex of the prop's trajectory], you are the whole thing, this whole system is you.

Several of the jugglers I interviewed emphasized the importance of focus during the act of juggling, but to use Jackson and E. Moore's words, a "general focus" that extends to all props in the pattern at once. In my experience of juggling, if you focus on any individual prop, you are likely to lose track of the others. This seems to go against what I said earlier about treating the props as unique individuals to not take for granted their individual importance. How does one both respect the individual while blurring their focus to include a whole system? This is something I discuss in a later chapter but can be partially answered now. As phenomenologists have long observed, skilled bodily practices often blur the distinction between body and tool;[63]

[63] Because this dissertation is primarily situated within new materialist, performance, and Indigenous relational frameworks, I do not engage phenomenology in depth here. For a foundational discussion see, for example, Maurice Merleau-Ponty's 1945 book *Phenomenology of Perception*.

juggling offers another example of this: if juggling props become incorporated into the juggler's bodily awareness, then the distinction between subject and object becomes experientially less stable. The juggler becomes entangled with their surroundings and must attend to them as they would their own body. I depend on each of my fingers to support my action of grasping, and I wouldn't want to lose any of them, but when I do grasp something, I am not thinking about each finger, I'm thinking about my hand as a coordinated whole. None of my fingers is taken for granted, because they are each necessary in the task of grasping and to hurt any of them would be to hurt my whole person.[64] So, both claims can be true: we can value the individual, while still valuing the system. If props are part of the self, then harm, neglect, or domination of them becomes ethically significant. Juggling is not just distributed cognition, as Chalmers and Clark describe, but also a practice of relational care, a force that is "distributed across a multiplicity of agencies and materials and supports our worlds as a thick mesh of relational obligation" (Puig de la Bellacasa 20). Indigenous relational ontologies arrive at similar ethical conclusions without passing through cognitive science, emphasizing that responsibility emerges from participation rather than control (Kimmerer; Simpson, *Theory of Water*). To harm our props is not just to inflict external damage, but to harm the relations that make action possible. Clark and Chalmers nod towards this ecological dimension when they write, "It may be... that in some cases interfering with someone's environment will have the same moral significance as interfering with their person... once the hegemony of skin and skull is usurped, we may be able to see ourselves more truly as creatures of the world" (18).

[64] See also Jane Bennett who writes that agency is distributed across an assemblage and each member of the assemblage matters because they contribute differently.

Elevate Skill for Increased Affordances

The final issue I had as a beginner was to throw higher and farther with my right hand than my left so that I ran in circles, trying to catch up with my own juggling. Whatever I threw from my right hand, my left hand would have to respond to and compensate for. When a throw is made inconsistently, the other hand must catch it in a strange way, then compensate for the strangeness of where it's throwing from. In the words of my interviewee Stager, if you "give good, you get good." A sustainable juggling pattern requires both hands to give consistent throws. If one hand throws inconsistently, the other hand is forced to throw inconsistently and eventually the pattern will fall apart. This effect is even more pronounced in passing, when one juggler throws a prop to another juggler. Eventually, once the problem with a juggler's pattern has been identified to them, they can focus on their error and correct it.

What if the problem can't be trained out of someone's technique, though? What if a juggler really cannot become more dextrous and therefore have more affordances available to them, as in the case of disability?

Usually, when juggling a three-ball cascade, jugglers are taught to keep their elbows against their sides at a ninety-degree angle, with their palms facing up. Stager, a highly skilled technical and creative juggler and juggling teacher, is unable to juggle balls in this way because of radioulnar synostosis, a condition in which the two forearm bones are fused, limiting her ability to rotate her forearm from palm-down to palm-up. She is not, however, *refused* from juggling a three-ball cascade entirely; rather, she is *discouraged* by the cultural legitimacy afforded to a particular bodily configuration of juggling, with arms resting at the sides. Her cascade looks different from other jugglers' because her elbows are spread out to the side. So, what is refused is not juggling, but a particular configuration of juggling that has been

naturalized as correct. This is what disability scholar Rosemarie Garland-Thomson calls a "misfit": "an incongruent relationship between two things" in which the "problem… inheres not in either of the two things but rather in their juxtaposition" ('Misfits' 592–593). Garland-Thomson's theory of misfitting is a materialist feminist understanding of disability grounded in performance theory, meaning a misfit materializes through performance, in brushing up against the Thingness of the world ('Misfits' 594). Disability is not an inherent bodily deficit but emerges "in experience and meaning when our body-minds encounter a misfit" ('What Misfitting Makes' 7). In this sense, disability resembles Brown's thing theory: a body's changed relationship to an object—here, a juggling technique—specifically one that it doesn't "fit" with.

Affordances are conditional, not universal. It is not Stager's body that poses a problem, but rather the social expectations of jugglers. Just as white balls are not neutral, neither is "proper" form in juggling. Stager's misfitting cascade productively demonstrates that a cascade is not a fixed object but a flexible assemblage of gravity, hands, throws, and cultural norms. At the same time, this misfit has not been painless. Stager describes feeling as though she was "bashing my head against the wall around movement stuff," underscoring that misfitting often entails frustration, exclusion, and exhaustion. Yet the analytic value of misfitting lies in how it materializes the cultural norms that produce these exclusions—norms that, once made visible, can be altered.

Garland-Thomson cautions against framing disability solely as a problem to be eliminated, arguing instead that "there may be benefit in conserving rather than eliminating the human variations we think of as disabilities," since "witnessing, recognizing, and sustaining disability can be a source of human connection and virtue" ('What Misfitting Makes' 14). This became evident during the audition process for a ball-passing dance performance Stager applied

for. She recalled feeling that she "had to hide the fact that I couldn't turn my hands over." In ball passing, though, most patterns involve groups of three dancers, creating six passing sites, making her physical difference difficult to conceal from her partners. When her inability to rotate her hand caused difficulty for the group, Stager drew on her juggling expertise to coach her partners in adapting their throws so that her disability no longer functioned as a barrier. "Don't worry about the catch," she told them. "Just keep your hand right there and focus on giving really, really well." This moment exemplifies Garland-Thomson's claim that connection and learning doesn't occur when we go through the world smoothly, but rather when misfits offer "unbidden opportunities for unexpected resourcefulness or flourishing" ('What Misfitting Makes' 15). As another example, in their article "Unreal Limbs" with Erin Ball, Katie Lavers and Jon Burtt document Ball's experience performing circus with artificial legs and highlight this resourcefulness by noting that because Ball can change her legs for different parts of her act, her weight distribution is also changing, so she has to adjust to the new centre of gravity each prosthesis creates: "This requires her to be truly adaptive in that she has to recalibrate her centre of gravity each time to allow for the changes in size and the inert weight of the various prostheses" (46). Ball found that performance gave her a "space to control how she presented herself and how she was seen by others," which, in my experience of watching her perform, is as a highly physically and technically innovative and capable circus artist (37).

Disability theory refuses the fantasy of a universal norm. Instead, it asks how practices, including their environments and expectations, must change to accommodate difference. Climate change can be read through this lens as a widening misfit between inherited human systems and planetary processes that no longer align with them. Disability theory teaches us that misfits are not simply obstacles to overcome, but diagnostic sites where norms, power, and responsibility

become visible. As a precarious, patterned, and movement-based practice that requires continuous engagement, adjustment, and attunement with others—both human and nonhuman—to exist, juggling offers a metaphor for the necessity of adjustment not as a precondition for stability, but as an ongoing activity.

Conclusion

Across this chapter, I have traced four ways in which my juggling pattern was unsustainable as a beginner, revealing how sustainability in juggling depends less on human control over the nonhuman than on attunement to the nonhuman's affordances and embracing an ethics of care. First, rather than allowing the balls to complete their arcs, I attempted to intercept them by reaching upward, disrupting the rhythm of the pattern; this resolved once I learned to attune to gravity and to practice what Puig de la Bellacasa calls a "thinking-with" the more-than-human forces involved in juggling. Second, instead of receiving the balls by yielding to their momentum, I halted them abruptly by grabbing them; this resolved when I began to preserve their momentum and listened to what the props wanted. Third, I threw the balls away from my body meaning I had to chase the pattern; this resolved when I instead treated the props as extensions of myself and my network or assemblage and understood emotions as conditions of affordance. Finally, I threw with more force from one hand, causing my body to rotate as I juggled; while this asymmetry can be trained out of my pattern given my relatively symmetrical body, for jugglers with disabilities it may instead require embracing a misfit with a prop or pattern and adapting technique accordingly, rather than imposing a normative form of juggling onto their bodies. Sustainability depends less on mastering the world than on learning how to listen to it: neither excessive control nor neglect are sustainable. Disability theory demonstrates

that a lack of "fit" with our environment is not a failure of our bodies or environments, but an opportunity to reveal how industrial modernity has oriented humans to treat the Earth as a stage for human action rather than a vibrant assemblage of actors in her own right, of which humans are a part.

By suggesting the name "Anthropocene" for our current geological age, scientists have made it clear that humanity's impact on the planet matters and, in turn, that the climate impacts us in potentially humanity-destroying ways.[65] This reality runs counter to many Western philosophical traditions, like Cartesian Dualism and Transcendental Idealism, which suggest that humanity has unique access to the world. No longer, though, can we pine for "a luminous dawn that cleanly separate[s] material causality from human fantasy," a desire contemporary circus scholars have critiqued the traditional circus of representing (Latour, *We Have Never* 35).

Could the hobbyist juggler offer a more sustainable, ecologically conscious myth for humanity's relationship to objects? As a hobbyist juggler, I have never imagined my practice as a metaphor for human domination over nature. I have never wanted to defy physics or biology and become superhuman. If anything, I juggle because I long for a deeper sense of belonging with the world, my own body, and my fellow jugglers. I desire to be in a "flow state," or a state of optimal experience in which I feel a sense of oneness between the world and my body. The goal of juggling is not only to ask how much bigger, faster, or higher humans can push their physical limits, but also to develop "a sensitivity to the characteristics of environments, and the physical ability to relate to these in a variety of ways" (Focquet et al. 49). Juggling, yes, can be understood as a metaphor for human domination over the nonhuman world. However, it can also be a way to answer the question: What can I give back? This club has fallen at this angle, in this

[65] Critiques of this term are explored in chapter three.

spot, with this rotation—how can I meet it where it's at, with the body I have, and reciprocate that force?

CHAPTER TWO: AGENCY

"I'd say you're more than just an object," Dex said.

The robot looked a touch offended. "I would never call you just an animal, Sibling Dex...

We don't have to fall into the same category to be of equal value."

— Becky Chambers, *A Psalm for the Wild-Built*

First, you must understand that everything is stories: money, manners, civilization. It's all just little tales we tell each other, little collective hallucinations. A set of rules so that we can all play pretend together.

— Alexandra Rowland, "One Atom of Justice, One Molecule of Mercy, and the Empire of Unsheathed Knives"

In 2017, author Alexandra Rowland took to Twitter to propose a literary genre that would be the opposite of "grimdark," which focuses on pessimistic, amoral, and violent responses to a world in crisis. The term she offered was "hopepunk." In hopepunk, characters face the same world crises, but instead of pessimism, they respond with hope and care for their fellow beings. "Whether the glass is half full or half empty," Rowland writes of hopepunk, "what matters is that there's water in that glass. And that's something worth defending." Hopepunk picked up in popularity in 2020 when the pandemic hit and escalated multiple global crises—viral, environmental, economic, social.[66] A time when people felt hopeless. A time when my Performance Studies peers and I asked ourselves (and each other), "If my research isn't

[66] Hopepunk as a genre began producing works in 2018 and 2019 when Nebula's science fiction and fantasy awards conference hosted a panel on the topic and then the BBC allocated funds to hopepunk podcasts.

contributing directly to finding solutions for these many and overlapping crises, what's the point?" Hopepunk was there in reply to my hopelessness, and it said, as Rowland does, "It's about doing the one little thing you can do, even if it's useless: planting seeds in the midst of the apocalypse, spitting on a wildfire, bailing out the ocean with a bucket. Individual action is almost always pointless. Hope and strength comes from our bonds with each other, from the actions we take as a community, holding hands in the dark." This resonates with Bennett's distributed agency, which is central to this chapter and discussed shortly, and Latour's call to shift social theory from a theory of individuals to that of a "collective"—perspectives through which I read juggling in this dissertation. Juggling may not directly contribute to solving global crises, but it might offer some gentle guidance toward orienting oneself in the midst of those crises with flexibility, dexterity, and imagination.

One of the leading examples of the hopepunk genre is Becky Chambers' *Monk and Robot* duology, which begins with *A Psalm for the Wild-Built*, published in 2021. The book is set on the moon of Panga, where humans created AI robots that helped them develop an urban, industrialized society. One day, those robots gained consciousness, and humans faced a moral dilemma: if they kept using the robots to maintain their industrial society, robots would become slaves to humans. Instead, the humans let the robots decide whether they wanted to stay in human society to serve them or move into undeveloped lands to begin their own societal (collective) journey. The robots chose the latter and robots and humans lived separately for hundreds of years. That is, until one day, Dex, a nonbinary tea monk, went into the forest in their own journey of self-discovery and encountered a robot named Splendid Speckled Mosscap.[67] As they're getting to know each other, Dex hesitates to use the pronoun "it" when referring to

[67] Robots name themselves after the first thing they see when they awaken and because they'd been living in the wilderness for so long, they are typically named after animals or plants.

Mosscap because they typically reserve "it" for objects and in Dex's society, objects are considered lesser than humans. Mosscap, in response, resists this assumed hierarchy—not by seeking elevation to Dex's level, but by rejecting the notion that difference necessitates inequality. In this passage, then, Chambers argues that although entities possess their own modes of existence and significance, they nonetheless exist equally and can share equal footing on an animacy hierarchy.

When Mosscap's kind lacked a consciousness akin to humans' own consciousness, the humans on Panga had no qualms about using robots for their own comfort and sense of progress. They used the robots to abuse the ecosystems that sustained them because the environment also lacked a human-like consciousness. It wasn't until the robots were legible as people to the humans that they respected them as equals, with interests and agency, that deserved autonomy from humans. "When you forget someone is a person," Rowland writes, "being monstrous to them *feels good*." Hopepunk argues that we should take care of each other, no matter how different we seem, simply because we exist. Not because it will vanquish all evil, like the "Noblebright" subgenre of speculative fiction suggests, but because there will *always be* evil and all we can do is our best, every day, to fight it back through care and acceptance and hope.

Rethinking ontology is not just the work of fiction or a philosophical thought exercise. As Rowland writes in the epigraph of this chapter, everything is storytelling. And the thing about stories is that they can be told differently. This chapter explores how shifting the story of the human/nonhuman divide requires reworking assumptions that sustain hierarchical separations between them. I argue that juggling offers those who attempt it an opportunity to rehearse this ontological shift. Primarily, I explain the flattened divide between jugglers and props using the example of siteswap, a notation for juggling that can be used to both represent juggling patterns

and produce them and allows for near infinite inclusion of actants in the emergent categories of "juggler" and "prop."

New materialist scholars critique certain strands of Western philosophy as anthropocentric, tending to privilege human perception and agency in ways that position the nonhuman world as secondary. This orientation is historically entangled with broader political, economic, and technological developments associated with industrial modernity, in which human and nonhuman relations were increasingly reorganized through extraction and mechanization. These processes—intensified in a late capitalist world that strives for "innovation for the sake of innovation" (Espinoza)—led to the Anthropocene, the (contested) name suggested for our current geological epoch, which is characterized by the planetary-scale effects of human activity on climate and ecosystems. In the Anthropocene, (so-called) human actions—such as deforestation, agricultural practices, and the burning of fossil fuels—affect the environment just as significantly as (so-called) nonhuman activities—such as forest fires, volcanic eruptions, and ocean currents. This has made clear humanity's entangled participation with nonhumans in "ecological evolutionary developmental earthly worlding and unworlding" (Haraway, *Staying with the Trouble* 97). This chapter therefore turns to (k)new philosophical approaches that remove ontological hierarchy between humans and nonhumans, not as direct solutions to environmental crisis, but as ways of rethinking the conceptual frameworks through which such entanglements are understood.

The arguments in this chapter proceed as follows: The division between the human and everything else emerged alongside racial categorization, causing hierarchization even between humans themselves. To rethink these relations, this chapter turns to Western scholars who attempt to flatten that ontology and Indigenous scholars that never abandoned foundations of

equality and reciprocity in their thought. Juggling offers a small but embodied way to reimagine the relationship between the human and nonhuman: mastery without domination; individuality alongside collectivism. The objectivity of academia has the same extractivist logic I seek to disrupt here: the illusion that we can be a distanced outsider whose research doesn't affect the communities we study or ourselves as researchers. This chapter posits a flatness of being and a lack of separation between being and knowing. In it I reflect that perhaps juggling is "the one little thing you can do, even if it's useless" (Rowland).

Why Flatten Ontology?

Mosscap's perspective above aligns with the core principle of flat ontology: that no entity—human or nonhuman, organic or mechanical—holds inherent primacy over another. The goal of grounding philosophy in a flat ontological framework is to resist animacy hierarchies that privilege (White, male, able-bodied) human cognition or agency over other forms of being. In the following subsections, I articulate the problem with an ontology that divides the world, offer less hierarchical alternatives in flat ontology and agential realism, and then turn to Indigenous perspectives that deepen and critique Western ideas of flat ontology.

The Problem with Hierarchical Ontology

In contemporary North American settler cultures, within which I, myself, am situated, when humans engage with the nonhuman world, it is often perceived merely as an extension or representation of ourselves. It is a representation that "reproduces the Other as the Same" (Phelan 3). Within this cultural framework, the nonhuman is frequently reduced to a metaphor

for the human, and "Metaphor works to secure a vertical hierarchy of value and is reproductive; it works by erasing dissimilarity and negating difference; it turns two into one" (150). The Western, anthropocentric, human supremacist worldview values able-bodied, cis, white, male humans as productive and autonomous, seeing them as the epitome of liveliness and agency and rendering them as the unmarked, standard state of being. Conversely, any perceived passivity or dependency is marked and attributed to those considered Other (not only the nonhuman but also the differently-abled, trans, darker-skinned, and female), reinforcing a dichotomy where the Other is always seen as passive, dependent, and inhuman. This perspective marginalizes and devalues the nonhuman—and the humans associated with it, like racial minorities, nonmodern cultures, and disabled bodies—associating them with a lack of agency and liveliness compared to the dominant group.

The process of Othering, or the marking and mastery of certain groups, allowed White settlers in the "New" World to initiate extraction practices that contributed to the Anthropocene. In *A Billion Black Anthropocenes or None*, Kathryn Yusoff argues that, "the racial categorization of Blackness shares its natality with mining in the New World… the idea of Blackness and the displacement and eradication of indigenous peoples get caught and defined in the ontological wake of geology" (2). Racialization, Yusoff argues, emerged alongside "the division of matter… into active and inert," where humans marked as racialized were categorized with the nonhuman as passive "and able to be activated through the mastery of white men" (2–3). The racialization of humans alongside the classification of nonhuman matter as inert and available provides the ideological justification and material foundation for the violent original accumulation of capitalism, the idea that capitalism is founded through processes of expropriation of land—"stealing church estates, fraudulently claiming and snatching up state lands, seizing communal

property"—and uprooting of "proletariats without rights" who were therefore free to work and punished if they couldn't (Marx 669). These processes aimed at growth and development externalize their social and ecological costs onto racialized, gendered, disabled, and otherwise marginalized communities, making it clear capitalism is not only anthropocentric and classist as we see in Marx, but also intrinsically racist, sexist, ableist, and homophobic. Scholars of racial capitalism, a term coined by Cedric Robinson to refer to the "development, organization, and expansion of capitalist society… [in] essentially racial directions," demonstrate that, "the creation of the Negro… was an effort commensurate with the importance Black labor power possessed for the world economy" and the relationship of the slave trade and slavery to capitalism was "historical and organic" (2–4).

Ideological hierarchical distinctions between humans and nonhumans emerge from material relations that historically enabled and continue to authorize capitalistic extraction, dispossession, and oppression. The distinction between an active, autonomous human subject and a passive, available nonhuman world also enables racialization, gendering, ableism, and other forms of differentiation, which establish a hierarchy where difference is a basis for the uneven distribution of agency, value, and liveliness across bodies. Challenging this hierarchy requires more than expanding recognition to those positioned lower within it; it requires questioning the hierarchical organization of being itself.

Latour, Bennett, and Harman

I contend that a "flat ontology" offers a framework for rethinking human exceptionalism by challenging hierarchical distinctions between human and nonhuman beings and attending to the relational conditions within which all forms of being exist. Many, though not all, scholars

within the nonhuman turn embrace this non-hierarchical approach and search for alternative approaches to the traditional divide between human and nonhuman. Originally theorized by Manuel DeLanda, "flat ontology" is described by philosopher Levi Bryant in his blog as "the refusal to treat one strata of reality as the really real over and against all others" (Bryant). In contrast, much of modern Western philosophy is structured through hierarchical divisions. In Descartes' dualism, thought is epistemologically definite and ontologically prioritized, while bodies, objects, and the material world are secondary and knowable only through mediation. Similarly, in Platonic idealism, art is ontologically and epistemologically diminished because material objects are copies of ideal forms, and artistic representations are copies of those copies, further removed from truth and being. In both cases, materiality is considered derivative and therefore does not participate in meaning-making.

Harman, in his object-oriented ontology, reinforces the flatness of flat ontology stating that "all objects must be given equal attention, whether they be human, non-human, natural, cultural, real, or fictional"—at least initially (9). Harman argues that philosophy should not only to tell us what features belong to all things, but also "the differences between different kinds of things" (55). He argues that modern Western philosophers are too quick to jump to the second task of dividing things into categories. He proposes an object-oriented philosophy to encourage philosophers not to "cave in to our personal prejudices about what is real or not" (55). As such, Harman argues that what all things have in common—even fictional things and complicated things—is that they are all objects. They exist. This makes OOO a flat ontology, even if Harman goes on to explain the ways that different types of objects differ.

Harman and other speculative realists praise Latour for his actor-network theory as a precursor to speculative realism because, in an ontological take on ANT, he collapses the

distinction between nature and culture to argue that all actants have the same basic task: to form connections and strengthen the networks they're a part of. Latour argues that "The continuity of any course of action will rarely consist of human-to-human connections... or of object-object connections, but will probably zigzag from one to the other" (*Reassembling the Social* 75). This is why Latour uses the term "actant" to refer to anything that is the source of an action (be it a human, nonhuman, or "hybrid" of the two), because it removes asymmetry between the human and nonhuman in social science discourse ('On Actor-Network Theory').

Drawing on Latour's "actant" terminology Bennett also presents "human and nonhuman actants on a less vertical plane than is common" (ix) with her "vital materiality" in which "the status of the shared materiality of all things is elevated" (13). Even before Latour or Bennett used the terms hybrid or actant, feminist science studies scholar Donna Haraway used the term "cyborg" in her posthumanist field-defining essay "A Cyborg Manifesto" to challenge the boundaries between animal and human, human and machine, physical and non-physical ('A Cyborg Manifesto'). The cyborg symbolizes the inseparability of humans and nonhumans to advance a more intersectional, flexible, and ontologically flattened theory of identity. Behar critiques flat ontological theories that focus on connection and liveliness as "vivophilic" and anthropocentric. She argues that theories that flatten things by arguing for the liveliness of nonhumans "are poised to smuggle anthropocentrism back into the game" ('Facing Necrophilia' 124). She advocates for a necrophilic ontology of plastic—understanding plasticity after Catherine Malabou to mean that which both gives form (as in plastic surgery) and destroys form (as in plastic explosives)—and therefore suggesting "that the self as object is both moldable and resistive" (Behar, 'Facing Necrophilia' 129). For Behar, an ontology that privileges only

liveliness and connection—plastic as an ability and willingness to adapt—reproduces the neoliberal ideal of flexibility without resistance by treating participation as inherently desirable.

This necrophilic approach leads to another critique of flat ontology: that it risks collapsing distinctions necessary for ethical and political responsibility, namely animacy. If all entities—human and nonhuman, animate and inanimate—are granted equal ontological status, then how do we determine responsibility, causality, and ethical obligation? Anthropologist Eduardo Kohn resists flat ontology, arguing that, "not all nonhumans are equal; some exhibit forms of semiosis and responsiveness that demand ethical consideration" (32). In an article on new materialist approaches to the Anthropocene, philosopher Arianne Conty observes that, "Where Latour was able to account for climates and rivers by not distinguishing between animate/inanimate agency, Kohn accounts for them by including them amongst the living," semiotically (85). Tim Ingold, drawing on Gibson's affordance theory, rejects the premise of flat ontology by arguing that the environment is not a level field of objects but a world that unfolds in relation to the perceptual and practical engagements of living beings (Ingold 14). A concern for anthropologists like Kohn and Ingold is that by flattening all distinctions, flat ontology could lead to a form of determinism where objects, environments, and humans are treated as equally causally significant, thus eroding the basis for human agency and accountability because, as Conty explains, "flat ontologies that conflate animate and inanimate materialities have made it impossible to take into account causality and value judgments that ensue from experience over time" (Conty 75). If objects are not responsible because they lack animacy, then by the same logic, humans—also reduced to mere material entities—might not be responsible either, leading to a world where ethical accountability is meaningless and determinism prevails.

However, this critique assumes that flat ontology necessarily erases all meaningful distinctions rather than merely rejecting rigid hierarchies. New materialist scholars contend that responsibility and agency do not need to be tied to a fixed notion of animacy but can instead emerge relationally. Latour argues that morality is made up of things happening outside of individual actants, so it cannot "be understood as an intrinsic quality of the human being achieved in the inner recesses of a rational mind" (Conty 77-8). Rather, morality is a property of networks built from connections between human and nonhuman interactions. With her notion of "distributed agency," Bennett asserts that "bodies enhance their power"—and their responsibility—"in or as a heterogeneous assemblage" (23). Although Latour posits that actants work together to arrive at agency and Bennett posits that actants have competing ends and conflict with each other, both perspectives articulate responsibility not as a property inherent to humans alone but something that emerges through human and nonhuman interactions. In this way, a flat ontology need not lead to determinism but can instead support an ethics of entanglement, where responsibility is distributed but not erased.[68] For some scholars, the stakes of ontological or moral flattening are grave: "until our moral obligations are extended to the climate and the forest," Conty argues, "we will not be able to exit the ecological crisis we find ourselves embroiled in" (79).

Not only does a flat ontology offer a way of rethinking ecological relations by recognizing nonhumans as participants in what Western society often considers the human domain of politics and humans as participants within supposedly natural systems; it also challenges assumptions of hierarchy that have historically shaped relations among beings.

[68] For Bogost, these seemingly flattened theories do not go far enough. He critiques the idea of flatness itself, preferring a "tiny ontology" in which all being is collapsed into the dot, rather than a plane. The dot has infinite density, it is spacelessness and one-dimensionality (*Alien Phenomenology* 21). Even "being itself is an object no different from any other. The withdrawal of being is… a feature of… it's very self" (22)

Bennett argues that vital materialism sets "up a kind of safety net for those humans who are now... routinely made to suffer because they do not conform to a particular... model of personhood" (13). A flattened ontology offers one way of questioning the frameworks that make some bodies more available to exploitation than others. Climate justice points to an asymmetry in who suffers from the impacts of climate change and emphasizes the need for equitable solutions (M. Robinson x). This asymmetrical suffering emerges through long histories of colonialism, racialization, and economic systems that have organized certain communities and environments as resources for others, resulting in those with the smallest carbon footprints tending to suffer most from industrial activities and the environmental harm that comes along with them. Capitalist extraction has intensified these relations by expanding systems of resource use and accumulation, but the hierarchies that enable domination exceed any single economic system. The Athabasca oil sands in Alberta exemplify this, impacting Indigenous communities like the Cree, Dene, and Métis, who face health risks, environmental degradation, and a loss of their way of life. According to the Fort Chipewyan Dene citizen Mark Mercredi, "'We are the land… So when you're destroying that land, when you're committing ecocide, you're committing genocide'" (Kusnetz and Inside Climate News). Despite resistance from Indigenous nations and environmental activists, the Albertan government and certain business groups spoke out against stronger federal emissions regulations (Weber). Thinking through ecological crisis therefore requires attention not only to environmental processes but also to the histories and power relations that shape whose lives and environments are protected or placed at risk. Philosophies starting from a flat ontology may not resolve these inequalities but reframe the relations and assumptions through which beings are unequally valued and rendered vulnerable.

Before diving into a more in-depth discussion of Indigenous perspectives akin to flat ontology, I will introduce one more Western scholar of the non-human turn whose theories are integral to the way I understand juggling in the rest of this dissertation.

Barad

While Bennett's concept of distributive agency illuminates the shared vitality and influence of human and nonhuman entities within assemblages, Barad's performative metaphysics pushes this idea further by shifting the focus from the entities themselves to the phenomena—or what Barad terms intra-actions—that bring them into being. In Barad's framework, agency is not an inherent property of individual entities but an emergent property of phenomena—which are "constitutive of reality"—meaning there are no distinct entities whose ontology we can flatten ('Posthumanist Performativity' 817). This perspective reframes agency as an ongoing process of materialization, where beings are not pre-existing actors interacting with each other but instead are co-constituted through their intra-actions. By centering phenomena, Barad understands agency as inseparable from the processes that produce the very conditions of existence; "the world *is* intra-activity in its differential mattering" (817). This understanding of being, where phenomena are the basic units of being, is a kind of flattened ontology because it doesn't highlight the equal existence of actants, rather it emphasizes their equal potentiality; therefore, for my argument Barad's agential realism offers the strongest philosophy through which to escape a binary of control.

Judith Butler, in their essay "Performative Acts and Gender Constitution," writes that "the body… is a materiality that bears meaning… the body is not merely matter but a continual and incessant materializing of possibilities" (272). In other words, the body materializes as, for

instance, a particular gender, through repeated actions. Those actions are not performed by a subject that pre-exists those actions. It is the actions—performances—themselves that constitute the subject. This is a performative, rather than representational or theatrical, understanding of gender. I flatten Butler's use of the word "body" in their theory of performativity to include the bodies of all things—nonhumans included. The body materializes into possibilities through "the stylized repetition of acts through time"; in other words, the body's "constructed identity" is simply an act which its "social audience" comes to believe in (271). By including the bodies of nonhumans in Butler's discussion of identity as performative, I hope to show how even the categorizations of "human" and "nonhuman" are an act we've come to believe in. I use Butler's argument about gender to assert that the human "is in no way a stable identity or locus of agency from which various acts proceed; rather, it is an identity tenuously constituted in time" (270).

Barad's posthumanist performativity is inspired by Butler's theory of gender performativity and extended to question the boundaries between "human" and "nonhuman." The category of human in Barad's theory is not a given, static thing, but rather a phenomenon. "A posthumanist account," Barad argues, "calls into question the givenness of the differential categories of 'human' and 'nonhuman,' examining the practices through which these differential boundaries are stabilized and destabilized" ('Posthumanist Performativity' 808). Just as in Bennett's distributive agency where "effects generated by an assemblage are... emergent properties" of the assemblage, so too in Barad's performative metaphysics is agency an emergent property of phenomena (Bennett 24). Phenomena, then, enact what Barad calls an "agential cut." As opposed to the Cartesian cut of Descartes' mind-body dualism, an agential cut occurs when otherwise indeterminate ontological boundaries are resolved through phenomena, which Barads refers to as "intra-actions" (815). Agency emerges from intra-action.

Barad's performative metaphysics offers an alternative to Phelan's resolution of the hierarchical power structures inherent in representation. Phelan critiques metaphor as a tool that erases dissimilarity and negates difference, enforcing a vertical hierarchy of value by turning "two into one." For Phelan, performance offers an escape from this hierarchy by embracing disappearance, existing outside the reproductive mechanisms of representation. Her argument, though, that "Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations of representations," has been critiqued by scholars like Rebecca Schneider and Philip Auslander who argue for a more "porous" (Schneider, *Performing Remains*) or "contingent" understanding of time in performance (Auslander). Butler's, and by extension Barad's, theory suggests that the repetition central to performativity does not lead to disappearance but instead generates a material stickiness that both stabilizes and rematerializes concepts like gender. Barad challenges the representationalist framework that assumes an ontological gap between the thing represented, the representation, and the person representing, instead arguing that these distinctions are a product of intra-action. What we take to be representation—such as language or measurement—is not separate from reality but is an active part of its materialization. Just as wearing pink does not signify a pre-existing femininity but rather enacts it, so too do representational practices actively participate in the realities they seek to describe.

This is why Barad calls their theory "agential realism." It is a *realist* philosophy because they argue that the physical world has an active role in shaping reality, rejecting purely representational approaches that treat the material as secondary or derivative and idealist philosophies that prioritize human perception or discourse. Barad's realism acknowledges that the world is not fully reducible to human interpretation. Their realism is *agential* because of the

way reality emerges from the agential cut of intra-actions that stabilize boundaries between otherwise indiscriminate ontologies.

To further elucidate this concept, Barad gives an example from the world of physics: the wave-particle duality paradox. In the early twentieth century, research showed that "light seemed to behave like a wave, but under different experimental circumstances, light seemed to behave like a particle... Remarkably, it turns out that similar results are found for matter: under one set of circumstances, electrons behave like particles, and under another they behave like waves" (*Meeting the Universe* 29). It was the way that light or matter was measured that stabilized it into being a particle or a wave. So, measurement is not a neutral or distanced act; it is how things settle into being. Measurements are agential cuts, or as Barad offers as an alternative framing, "part of the universe making itself intelligible to another part in its ongoing differentiating intelligibility and materialization" ('Posthumanist Performativity' 825).

Although Barad's work seems very current as it draws on recent revelations from theoretical physics, Magnat demonstrates that Indigenous thought had already accepted the premise of agential realism: that humanity is implicated in natural phenomena and cannot extricate itself (36–37). Rather than viewing observation as a detached act that reveals pre-existing properties, Indigenous epistemologies understand that knowledge emerges through relationship—through the active engagement between observer and observed within a living, responsive universe. "The Indian principle of interpretation/observation," Vine Deloria Jr., theologian and Indigenous rights activist of the Standing Rock Sioux Tribe, writes, "is simplicity itself: 'We are all relatives.'" (34). Both Barad's agential realism and Deloria's theory of relativity (relatedness), reject the notion of observation as neutral measurement of independent entities and instead understand knowing as a participatory process. However, Barad frames this

as an insight emerging from twentieth-century quantum physics, while Indigenous peoples have practiced it as foundational epistemology for millennia. As Deloria emphasizes, Indigenous peoples "never had a need to posit the existence of a 'real' reality beyond the senses" because they understood the world as fundamentally relational—"an organic whole" rather than "distinct" dimensions requiring theoretical unification (39). The agential cut, then, is not a recent theoretical innovation but an articulation of what Deloria calls "the major principle of relatedness" that has "always remained as the critical interpretive method of understanding phenomena" in Indigenous thought (38).

(K)new Materialisms

Deloria illustrates the Indigenous methodology of relatedness for obtaining knowledge through the example of the Pawnee people, an Indigenous people of the Great Plains who observed the maturation of milkweed seed pods to determine when their corn would be ready for harvest. This recognition of relatedness is an understanding discernable through "observation or by information given to them in a ceremony" that "corn and milkweed had about the same growing season" (35). The Pawnee didn't need to abstract or mathematize this relationship to use it practically; "recognizing the universe was alive," they participated in the rhythm of the natural world and accumulated knowledge "about how every other entity behaved in various situations" (38). This approach differs from Western scientific approaches that attempt to isolate variables and offer generalizable explanations because it values the relationships through which knowledge is produced.

In Western philosophy's current turn towards the nonhuman, we grapple with a seemingly irreconcilable opposition in how agency is distributed: either humans are imagined as

autonomous agents who act upon a passive nonhuman world, or human agency is diminished as humans become subject to the forces they seek to understand. Despite recognizing the limitations and destructiveness of this opposition, Western thought struggles to imagine human relationships with nature outside this binary of domination and submission. The Pawnee example helps offer a third possibility, that science and technology studies scholars have also come to, of reciprocal observation and participatory knowledge that involves neither controlling nature nor being passively controlled by it. Relatedness complicates a flat ontology because, rather than placing all beings on an undifferentiated plane, it asks us to attend to the specific relations and obligations that connect beings to one another.

Kimmerer, a Potawatomi environmental science professor, identifies this conceptual limitation in her students. When she asked two hundred students in her General Ecology class at an American university to rate their understanding of negative interactions between humans and the environment, they responded with confidence. But when asked to rate their knowledge of positive interactions between people and land, the average student "could not even imagine what beneficial relations between their species and others might look like" (6). This inability to imagine reciprocity, Kimmerer argues, stems from being raised on the Christian creation story in which a woman is punished for tasting the fruit of a garden, rather than on Indigenous creation stories like that of Skywoman, who "created a garden for the well-being of all" (6–7). Where the Pawnee observed milkweed to know when to harvest corn—participating in rather than controlling natural rhythms—the dominant Western narrative frames human knowledge-seeking as transgressive. The Indigenous story offers instead a model of "co-creation" with the land, a relationality that transcends the control binary entirely.

The story of Skywoman is an example of how Indigenous knowledge offers a sustainable way of understanding human and nonhuman relationships; the Haudenosaunee Thanksgiving Address, which likewise emphasizes humanity's interconnectedness with the Earth, animals, plants, and the sky, is another. However, colonial, industrial, and capitalist systems that have prioritized extraction and profit over ecological balance have disproportionately affected Indigenous communities with adverse effects, despite their having long upheld relational models of being in relation that foster sustainability. As TallBear summarizes:

> …considerable damage has been done to both indigenous people and our nonhuman relations, as we have been displaced from traditional lands; have had our communal land-holding disrupted; been subjected to related assimilationist policies, including forced conversions to Christianity and the imposition of a state/religion spirit/material divide that fundamentally misunderstands indigenous ontologies; and finally, had our traditional lands subjected to the environmental degradation that accompanies colonial appropriation. (193)

It is by dismissing Indigenous worldviews that we perpetuate problems—like environmental degradation—that Indigenous thinkers have already solved; or rather have never previously encountered because they never accepted the "modern" ways of Western knowing. In "modern" society it is difficult to accept the interdependence of humans and nonhumans that is innate to Indigenous epistemologies. To be modern, Latour explains, is to purify beings into "two entirely distinct ontological zones: that of human beings on the one hand; that of nonhumans on the other" (*We Have Never* 10), which results in what Rachel Qitsualik, a Nunavut-born Inuit-Cree scholar, calls the "great fantasy" of independence. "Modern" is also a temporal term that celebrates its own maturity or advancement, while disavowing all that came before. Qitsualik

expands upon this disavowal, writing that "the majority of writers (all non-Inuit) tend to dismiss the [pre-colonial Inuit] culture as overly mystical and prone to supernatural hysteria. At best, Inuit are regarded as naive children of the snow, with a charming tendency toward 'animism' (the belief that all natural objects possess a life of their own)" (25). Inuit and other Indigenous knowledges, which blend the natural and the social, have been dismissed by the Academy as not rigorous or objective enough. In contrast, settler scholars writing on so-called "new" materialism—aiming to dismantle hierarchical dichotomies between nature and culture towards a hybridization of the human and nonhuman—are welcomed into the Academy. This acceptance is likely granted because their scholarship is framed as a response to *modern* thought, meaning it follows a satisfyingly forward-marching temporal trajectory.

Indigenous scholars do not need to "flatten" their ontologies, because they were relational to begin with. Rather than using the terms "modern" and "pre-modern" to label different attitudes towards the division (or not) between Society and Nature, Qitsualik uses the terms anthropogenic (AN) and non-anthropogenic (NAN). An AN mind, Qitsualik writes, believes that "human will almost exclusively shapes reality" (27). This mindset is evidenced in Western Continental philosophy's "focus on discourse, text, culture, consciousness, power, or ideas as what constitutes reality," which can be found in the continental philosophies like "phenomenology, structuralism, post-structuralism, deconstruction, and postmodernism" (Bryant et al. 2). The NAN mind, Qitsualik goes on, was never anti-realist, but rather "relies upon responsiveness to a reality outside the human condition" (27). This may make people of the NAN perspective seem passive and, in fact, controlled by the whims of the nonhuman as we saw in the critique of flat ontology as deterministic above. However, Indigenous thought posits an alternative to the subordination of either humans or nonhumans to the other. "The NAN,"

Qitsualik explains, "is an active participant in a dynamic system; and therefore not striving against any perceivable chaos, but rather working with and within an acceptable whole that has little to do with human absolutism" (28). These concepts are echoed by speculative realist scholars who emphasize a return to realism and new materialist scholars who emphasize agency as distributed across a shifting assemblage/network made up of many vital materialities/actants.

It is not just in its origins that flat ontologies in Western philosophy differ from Indigenous ones. Magnat writes that where Indigenous philosophy truly differs "is its spiritual dimension, foregrounded by Deloria, Cajete, Kenny, Wilson, and many other Indigenous scholars… although new materialism and posthumanism strive to address the limitations of post-structuralist perspectives, this particular shortcoming remains conspicuously overlooked" (31). Magnat critiques new materialist scholars—particularly Barad—for leaving the agency of spirituality out of their theories of distributed and emergent agency. Where the Pawnee understood their relationship with corn and milkweed as part of an animate, spiritually responsive universe, Western scholars tend to be bound by secular assumptions. Hobbyist jugglers I interviewed were similarly secular,[69] even in moments that gestured toward the spiritual. Andrew Romanowski described the sphere as a pure shape, "embedded into the universe," but excluded his own prop from that cosmic purity, since it was "molded in a factory," so I interpret this as a conceptual way of thinking about juggling rather than emerging from a relationship to the specific material juggled.[70] For Deloria, "religious experiences and dreams" indicating "other dimensions to life" are "regarded as part of an organic whole and not as distinct

[69] This discussion should be read as referring to specifically settler-secular practitioners, not about the absence of spirituality in juggling by Indigenous practitioners or all Western hobbyists.

[70] As another Western juggling point of reference, Ménard, a professional circus artist whose practice explicitly resists virtuosity, feels that "juggling is a cosmic act, that juggling round balls, is playing with the cosmos," which is perhaps closer to a spiritual dimension in the practice of juggling (Lavers et al. 37).

from other experiences, times, and places" (39). This spiritual dimension is not supplementary to Indigenous relationality—it is constitutive of it.

The Independent Lives of Props

I argue that juggling offers an embodied rehearsal of ontological flattening, but not a flattening that erases difference or reduces all beings to equal entities. As relational ontologies identify, being emerges through relationships and shared responsibility, and many of the jugglers I interviewed articulated this in how they understand their practice, although not in the same words. Many of their reflections on practice reveal an embodied knowing that troubles easy binaries—of control and submission, subject and object—that Western thought struggles to escape. The jugglers' language revealed not just metaphorical thinking but lived experience of agential realism and distributed agency—of being in co-creative relationship with props, or being able to function as props themselves, rather than only subjects manipulating inert objects.

Considering the *n*+1 definition of juggling discussed in my introduction, I was surprised when some of my interviewees responded to my interview question "What is juggling?" by assuming a more horizontal ontological perspective. When I asked Wyman this question, they replied that, although the "traditional definition" of juggling is "throwing and catching objects in a skillful way," they felt like "throwing and catching have flexible definitions." The type of connection formed between juggler and prop might be anything—which is not to say that everything is juggling, but just that the type of connection formed does not dictate what juggling is. They went on to argue that "'objects' maybe has flexible definitions" as well. For Wyman, the normative description of juggling is not as restrictive and exclusive as it appears on the surface:

WYMAN. I was thinking about, like, if you're an acrobat and you're doing things on a trampoline with other acrobats. Is that juggling?... I dunno, there's been fun stuff with people like sitting on the floor juggling like a ball and their legs, just like throwing stuff.

MORGAN. So, would you say they're juggling their legs?

WYMAN. Yeah, I think so.

Wyman also brought up passing patterns where the props move between jugglers, but the jugglers also move between props. In the passing pattern called the Shooting Star, for instance, jugglers stand at four points of a five-pointed star formation and take turns running into the constantly shifting empty fifth location. "The people are juggling," Wyman explained, "but also the people are being juggled."

For circus artists, giving up some anthropocentrism and regarding the apparatus as a creative partner in devising and performance can be productive. Circus scholars Lievens and Paycha argue that "When you consider yourself a bit less anthropocentrically, and slightly more as an object, new things may arise and old things might collapse" (25). What's more, they argue, taking on the object position can be empowering if we "escape the binary thinking that frames the object as passive, in opposition to the subject as active" (24). In the Shooting Star juggling pattern, the person who is *not* juggling—who must run across to a location that opened for them, in a similar way to a juggler's hand becoming open for an object to land in it—has arguably the most exciting and enjoyable role in the pattern. And that person is far from inactive; even though they are not the ones juggling, their move across the circle is still necessary to sustain the pattern. Patterns like the Shooting Star encourage jugglers to adopt a less anthropocentric perspective of objects as passive resources for human production and consumption and perceive juggling more

as "a collaboration between humans and objects in which causality flows in both directions" (Focquet et al. 46).

Wyman's definition of juggling extended the status of prop to humans but didn't suggest the human could be removed from juggling entirely; another interviewee did, though. Jackson told me that, within a certain definition of juggling, the movement of the planets might be considered juggling. This runs counter to conventional descriptions of juggling as the intentional manipulation of objects by human agents. By suggesting humans don't need to be present for juggling to occur, Jackson resists privileging human intentionality over nonhuman causality and gestures towards the kinds of relations that become visible when human intentionality is no longer treated as the sole condition for action. Jackson's comments also address Harman's and Conty's critiques of Latour's actor-network theory, which only accounts for hybrids of human and nonhuman agency, rather than accepting object-object relations—the idea that nonhumans exist for each other even when a human isn't around—as Harman does in OOO. "If [juggling] isn't what that is," he asked me, "then what would you call [the movement of the planets]? Would you just say it's gravity at play?" Previously Jackson told me that, "juggling is no more or less than an application of manipulation. And it comes in every kind of incremental form from one tiny part of your body to your whole body and to what else you're involving with your body. I think the main thing is your body has to be involved."[71] So, I pressed him on the idea that

[71] Upon reflecting after our initial conversation, Jackson questioned his points here, that the body has to be involved, because, as he told me in an email exchange, the act of manipulation that constitutes juggling might even be "social in nature," as in when we say someone is "juggling" in the "practice of maintaining… daily tasks" or when one person applies social force on another to make them manipulate some object. Ultimately, Jackson wrote to me, "I want to meditate more on the forces of gravity and the overcoming of inertia as the foundations of juggling, and where in nature can we see these at work." So, his quotes here should be interpreted as his (and all of my interviewees') thoughts and perspectives from a particular moment in time that may change with further experiential reflection.

planetary movement was juggling, because the human body is not (directly) involved in that movement. He replied:

> It doesn't have to be the human body. There's a particular perspective we have on what juggling is to us, how we perceive it. Juggling to be a kind of—it's an exploration of gravity within ourselves and without ourselves, whereas [celestial bodies] are not exploring beyond sort of falling through space with some level of predetermination, with variance. They're not deciding to do it. I am deciding to pick up a ball and throw it. So, if you wanted, you could argue that there is intent and intent is kind of all you need. I wouldn't be so much of a stickler to say that the planet moving isn't also juggling… I think you can point to a thing and say, 'that's juggling' regardless of its intent to be juggling. Two people playing catch—Oh, that's juggling. Or two planets falling through space near each other—that's also juggling. I think I would land on that side of the perspective, that it doesn't require specific intention, but that you can describe the interaction as being some form of juggling being taken. I think that's how I would fall in like what is juggling.

After reflecting on his original words, Jackson clarified for me in an email that in his perspective, "Juggling is the human label given to the exploration and understanding of truths surrounding gravity, mass, and inertia, as it relates to physical and non-physical concepts." Either way, Jackson's expanded definition of juggling is in tension with my own understanding of juggling in this dissertation as a specific collective, embodied vernacular practice. However, by treating juggling as a broader site through which to explore questions of relationality, Jackson's comment does help illuminate what my dissertation hopes to reveal: that even human juggling isn't solely an expression of individual intention.

That said, as discussed in my previous chapter, juggling is an interplay of control, and for control to be passed back and forth between juggler and props, the juggler and props need to be—at least in some moments—distinct individuals. Considering this, it makes sense that one thing my interviewees considered integral to juggling was a separation between the juggler and the thing juggled, regardless of whether those categories were filled by humans or nonhumans or some combination of the two. Stager said, the thing that makes juggling different from anything else is "the level of integration or not. Between the thing and you" because "juggling implies some form of separation between you and the thing. Like, it's a cyclic experience of separation between you and the thing." Presberg told me, "I think there's a difference between what is doing the manipulating and what is being manipulated." The separation between jugglers and their props was not necessarily a physical separation for Presberg but rather grounded in a lack of ability to control the other. In many of my interviews, juggling was differentiated from other sport and art forms by the fact that the juggling props had to be actors in their own right—have "independent lives," to use Phillips' words from the previous chapter—never fully controlled by the juggler.[72] This is why Presberg accepted that his own hands could theoretically be juggling props, but argued that they wouldn't be very *good* juggling props because, he asked, "Can I actually concede full control over my hands?" Conceding control to the object is an integral part of juggling.

[72] Other sport and art forms related to juggling in some ways that came up as ultimately distinct from juggling because they don't require a release and regaining of control over the props were cup stacking, sleight-of-hand magic, flow arts like poi or dragon staff, and more. While other practices also involve moments of relinquishing control—a baseball pitcher releases the ball, for example—these moments typically culminate in the object's departure from the practitioner's immediate engagement, rather than starting a cycle of giving up and regaining control. Conversely, in practices such as basketball dribbling or volleyball passing, where the object repeatedly returns to the player, relinquishing control is subordinate to another aim, such as advancing play or maintaining possession. In juggling, the repeated interplay of control constitutes the practice itself.

This necessary separation—this acknowledgment that props have "independent lives"—offers a model of flattened ontology distinct from both hierarchical thinking and from new materialist frameworks that risk collapsing all distinctions. What my interviewees articulate resonates with what Dwayne Donald, a Beaver Hills Cree scholar of Indigenous wisdom traditions, calls "ethical relationality": "an ecological understanding of human relationality that does not deny difference, but rather seeks to more deeply understand how our different histories and experiences position us in relation to each other" (6). Donald emphasizes that ethical relationality "does not overlook or invisibilize the particular historical, cultural, and social contexts from which a particular person understands and experiences living in the world. It puts these considerations at the forefront of engagements across frontiers of difference" (6). Applied to juggling, this means recognizing that flattening ontological hierarchies does not require erasing the differences between juggler and prop, human and nonhuman. Instead, juggling enacts a reciprocal relationship that maintains distinctness to enable exchange. A prop's materiality—its weight, momentum, trajectory—is not subsumed into a juggler's intentions but honored as a separate set of capacities that must be negotiated with. The juggler's embodied knowledge and responsiveness is not diminished by acknowledging the ball's agency but rather defined through relationship with it—an agential cut, in Barad's terminology. Juggling models a flat ontology that is relational: entities are ontologically equivalent not because their differences don't matter, but because those differences are what make meaningful intra-action possible. Juggling makes distinct actors intelligible to each other through the embodied practice of letting go and catching, controlling and conceding; juggling is a practice of observation that participates without dominating, echoing the relational knowledge practices Deloria, cited above, describes in Indigenous contexts.

Juggling as "Reciprocal Causality"

The control/controlled binary—a manifestation of Western philosophy's foundational split between active subjects and passive objects—hampers effective action because it allows no room for reciprocal relationships. Binary thinking structures relationships as unidirectional: one entity acts, another is acted upon; one controls, another is controlled. How can we alter the story of human-object relations to escape this dynamic? One solution presented in this subsection is to reconceptualize agency not as something that belongs strictly to one entity, but as distributed across an assemblage or network.

Bernstein, a central figure in my first chapter, calls this shared agency "co-emergent"; however, Bernstein still attributes agency and animacy to the human exclusively, writing that while "Things invite us to dance," on the dance floor those things only "*appear* to become animate" (70, emphasis added). Schneider notes that most performance scholars (as of her writing in 2015) seem to think that if humans aren't present at a performance, then they at least influenced the things performing, that they are the "ones to ultimately bear agential responsibility for the actions of objects or animals or plants," because things couldn't and aren't doing it by themselves ('New Materialisms' 9). But Phillips, in our interview, told me that although he is "the one who imparted that movement on it," once a prop is out of his hand, "it really feels like it's got a mind of its own, its gonna do its own thing." Yes, he's partly responsible for its opening trajectory, but he's never totally in control of it. Presberg said the same thing of his own hands. As I conveyed above, he noted that he can never fully concede control over his hands, but he added that he never *has* full control over them either. His hands are part of an assemblage that is driven by intentionalities besides his own.

So, we need an understanding of agency that doesn't depend exclusively on intentional human subjectivity. Bennett writes that, although "Humans... can experience themselves as forming intentions and as standing apart from their actions to reflect on the latter," our "intentional reflexivity" is always only the result of the "intricate dance" we perform with nonhumans (31). To accommodate for this dependency on the nonhuman on the dance floor, Bennett advances a theory of agency as distributed across assemblages of diverse ontologies:

> [B]odies enhance their power in or as a heterogeneous assemblage. What this suggests for the concept of agency is that the efficacy or effectivity to which that term has traditionally referred becomes distributed across an ontologically heterogeneous field, rather than being a capacity localized in a human body or in a collective produced (only) by human efforts. (23)

Bennett's concept of "assemblage," drawn from Deleuze and Guattari, refers to an open-ended collective composed of diverse elements; however, unlike Latour's collective or network in which actants work together through connections, in Bennett's conception of the assemblage, "each member-actant maintains an energetic pulse slightly 'off' from that of the assemblage" (Bennett 24). This maintenance of distinction within relation resonates with Indigenous articulations of distributed agency (Kimmerer; Deloria; Qitsualik; Donald): whereas Bennett describes matter as possessing "liveliness," TallBear writes, "we Dakota might say 'alive'," and whereas Bennett identifies a vital materiality that connects all things, TallBear offers, "we Dakota might say, 'We are all related'" (199). Both frameworks reject the notion that relationality requires sameness or that collective agency erases individuality. Bennett's conception of distributed agency parallels Puig de la Bellacasa's formulation of care as "a force distributed across a multiplicity of agencies and materials and supports our worlds as a thick

mesh of relational obligation" (20). Therefore care, like agency, "is not only ontologically, but politically ambivalent... it is not a notion to embrace innocently" (7). Assemblages lack a central governing force; instead, their effects arise from the emergent properties of the elements interacting with one another (Bennett 24). We need to be more aware of the energetic pulses of the elements (human or nonhuman) in the assemblages we take part in—to recognize, as TallBear does, that "Understanding these things can help transform how we humans see our place in the world, and therefore how we act" (199).

Juggling offers this training in awareness; attending to the "energetic pulses" within a juggling pattern—including the juggler's own—is necessary to the maintenance of a juggling pattern. Being an object or prop within a pattern does not need to mean passivity, dependence, or giving up one's individuality/personhood. The jugglers I interviewed treat props as individuals with the ability to alter the juggling pattern in ways that might compete with the juggler's own intentions or energy. So, "agency in circus," Lievens and Paycha explain, "is maybe more a matter of mapping and performing the many ways in which objects, nature and other bodies affect us and are affected by us, instead of showing how well we master and control them" (27). Because ultimately, when human behaviours are viewed as part of assemblages with distributed agency, a one-sided human control of the nonhuman is a myth. Juggling makes this apparent because it requires reciprocity rather than mastery. Stager explains that this reciprocal exchange is what makes juggling—specifically club passing—enjoyable:

> It's very like, I act on this object which also acts on me, which is now going to act on you…. And some people get frustrated because the pattern goes [awry], but like, if I knew it was going to be perfect, I don't think I'd do it. So, I know that it's not going to be perfect. It's interesting because the variability of the system is what makes it interesting.

If the nonhumans involved in juggling were exclusively controlled by their human counterparts, juggling would be predictable and boring—and it would cease to be juggling as several of my interviewees define it. Stager claimed that this inherent imperfection, variability, lack of total control results from the "reciprocal causality" of juggling. She explained, "I want it to be a push-pull dually-causative relationship between me and the thing, right? Like, I [impart] causality on this object and it [imparts] causality on me, right? Because now I am responsible. Responsibility feels like the word. I have a responsibility to it later." Phillips described juggling as a "mixed initiative system, where sometimes I'm in charge, and sometimes the other thing is in charge, and sometimes we're just doing our own thing waiting for each other to come back together again." This is an ethics of reciprocity: neither the juggler nor the prop dictates the pattern alone.

The dynamic interplay of humans with each other and their nonhuman counterparts in juggling serves as a metaphor for the broader relationships humans have with ecosystems. Just as jugglers must embrace the agency of their props to sustain the variability and vitality—and therefore enjoyment—of their pattern, humans must recognize their interdependence with nonhuman agencies in ecological systems and adopt an ethic of reciprocity towards them. The loss of variability/variety of beings in Earth's ecosystems, expressed through accelerating biodiversity loss, demonstrates the consequences of disrupting the complex relations that sustain life. "Since the beginning of human civilization," American-Canadian environmental policy academic William Leiss writes, "83 per cent of wild land animals and 80 per cent of marine mammals have disappeared... A single species is well on its way to crowding out most of the other wild animal life on the planet" (28–9). The loss of biodiversity disrupts the "variability of the system" that sustains life on Earth. Juggling offers an embodied analogy for distributed

agency, making tangible a way of thinking about interdependent ecological relations among different forms of being.

The unpredictability and co-creation inherent in juggling demonstrate how agency emerges not from isolated individuals but through interactions that blur the boundaries between subject and object. In fact, "object," as imagined by a Western, capitalist ideology, is bereft of meaning in much new materialist ideology because it was only defined in opposition to a human subject who possesses the agency that I argue is not ontologically dependent.[73] Put another way, the passivity once associated with the nonhuman is also attributable to the human, depending on the assemblages they enter into. To extend from that claim, the properties of actants are not inherent, but rather emergent as those actants enter into assemblages with others. Those assemblings are what Barad calls "intra-actions" in her performative metaphysics. The next section investigates how a deep commitment to performativity can further disrupt human-centric views of agency because Barad's work invites us to rethink not only agency but also the very boundaries that define entities.

Juggling as Intra-action

In this section I offer juggling as a tangible example of measurement. My goal is to advance my use of Barad's theory and offer a direct connection between their physics-based theory and the performing arts—not just performance theory, which is already embedded in agential realism. Understanding juggling as a form of measurement also opens new possibilities

[73] This argument concerns the philosophical construction of the object in dominant Western metaphysics rather than the way cultures attribute liveliness or agency to objects or commodities, as in the social practice of animating objects (Silvio) or the fetishization of commodities (Marx).

for enhancing, expanding, and making jugglers' practices more accessible. This is clearest to me in the context of siteswap.

Siteswap is a juggling notation in which a string of numbers represents a juggling pattern. In its simplest form, called vanilla siteswap, siteswap assumes that props are alternating between left and right hands. Each number represents how many beats later in a pattern a throw will be thrown (or otherwise dealt with). For instance, in the three-ball cascade, after I throw the first ball, I need to get the next ball out of my other hand on the next "beat" in the pattern and only then can I catch the first ball I threw—about one and a half beats after it left my hand—because my other hand is now empty. I will then hold that ball for one and a half beats (while my other hand does the same throw-catch sequence) and throw it again on beat three. The same can be said for each ball I throw. So, the siteswap of a three-ball cascade is "333" or simply, "3." Another way to conceptualize the numbers, albeit a less accurate one, is to imagine the numbers as heights. The throw corresponding to "5" is higher than the throw corresponding to "3." For

example, in the pattern "**531**," you throw balls at three different heights so that they look stacked in the air.

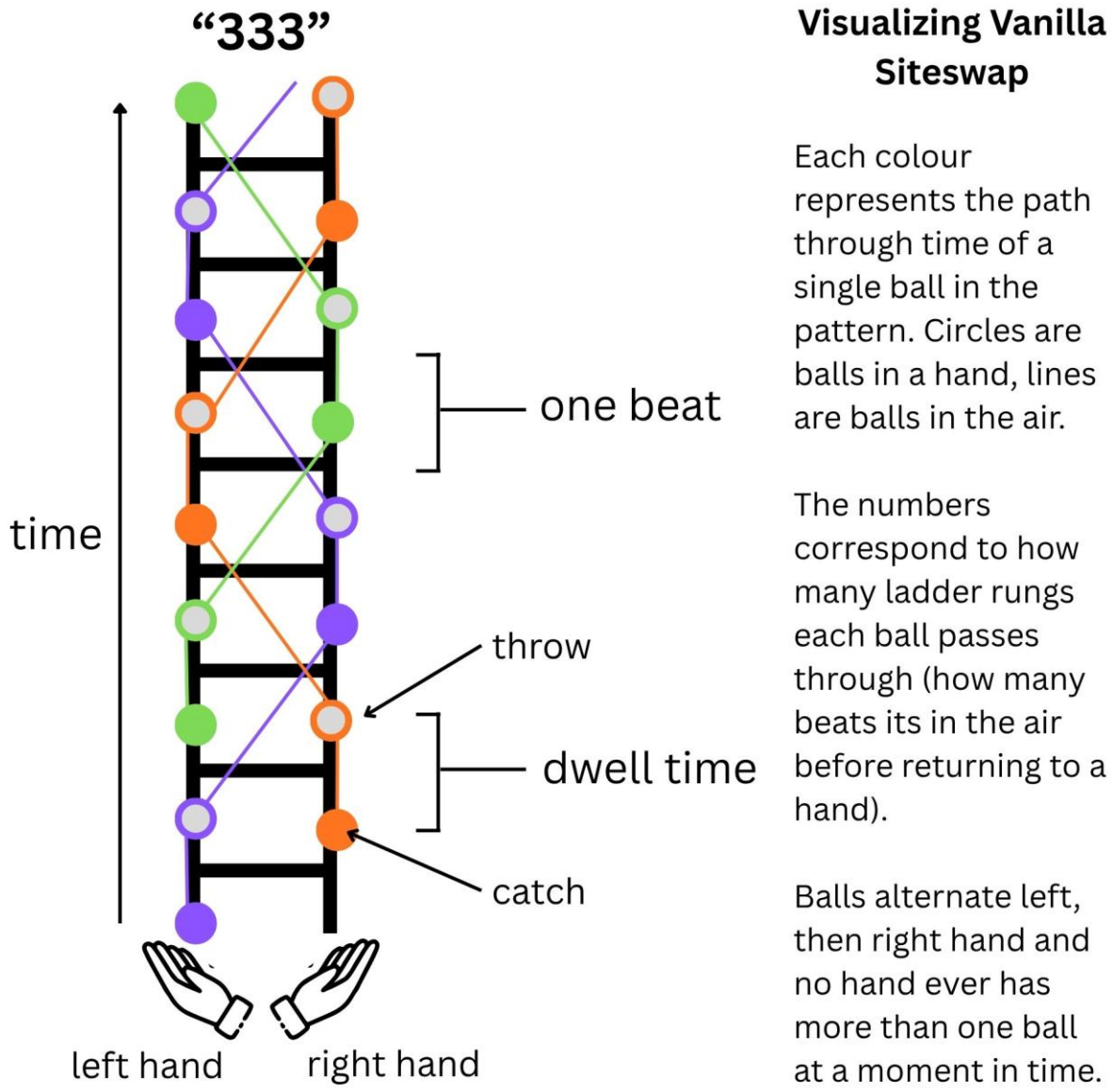


Figure 5. Visualization of vanilla siteswap. Diagram by author.

Siteswap does not dictate how or where or by whom/what props are thrown; as Phillips explained it in our interview, "siteswap is… a mathematical model of juggling that leaves out almost everything that is interesting about a juggling pattern. It's super constrained, it's

answering one tiny little question." The question siteswap answers is: how many beats later does each prop need to be dealt with to maintain the pattern? In fact, as will become more relevant in the next chapter, "dealing with" a prop doesn't even need to mean throwing it. It could be rolled, dropped, or otherwise manipulated and still be a siteswap—the name of patterns that are valid within the notation—if it is dealt with again a specific number of beats in the pattern later. As music theorist William Sethares explains,

> The beats (successive timepoints) in juggling are analogous to beats in music since they provide a rhythmic frame on which all activity is based. All of the well known juggling notations are symbolic since they specify only the most important events (the throwing and catching of the balls) and do not specify the exact hand positions, the activities of the hands. (40)

So, the siteswap 3 accurately describes the three-ball cascade, but it also accurately describes many other juggling patterns; for instance, the **three-club cascade**, **three-ring cascade**, **three-[insert-any-object-here] cascade**. Some patterns whose movements look totally different from a three-ball cascade, like **Mills Mess**, **reverse cascade**, **half shower**, and **juggler's tennis**, are also represented by "3." In all those patterns, three objects are thrown by two hands so that the objects alternate hands and each object is dealt with three beats of the pattern after it is thrown. Now that you hopefully have a basic understanding of siteswap and what it represents, the next section discusses three ways I think siteswap exemplifies Barad's concept of intra-action.[74]

[74] Siteswap was originally called quantum juggling, which sounds like it should have something to say about Barad's physics-based theory, but this is a bit of a red herring. Bruce Tiemann (Boppo), who originated the term siteswap, commented on Paul Klimek's original juggling notation called "quantum juggling" in a Google group about the origin of juggling patterns and tricks. Boppo said, "the Quantum Juggling interpretation was crafted in analogy to atoms, with a nucleus (the juggler) surrounded by great clouds of electrons (e.g. balls), each in a specific quantum level. How many balls you have corresponds to your atomic number - e.g. lithium is 3, boron is 5. Etc. Electrons could go up, or down, quantum levels (which is usually accompanied by the absorption or emission of light), but, so too could the balls go up or down. Some tricks involved "the ground state" in which all balls were at their lowest possible level of excitation. (That is, they all have the same excitation, which is the lowest, e.g. "5" even

As a reminder, intra-action is the idea that phenomena are the primary units of reality, meaning no entity pre-exists a relation to another, they emerge and their properties become discernable through material-discursive practices. What something *is* depends on how it is entangled with others. This concept undermines human exceptionalism, making it harder to treat the nonhuman as inert material for human use, and shifts responsibility from individuals to assemblages that can be re-formed. Reading siteswap through Barad's concept of intra-action allows me to show how agential realism is already reflected in a specific performance practice, which can then be extrapolated towards a more just understanding of other human-nonhuman intra-actions.

The Creative Potential of Siteswap

Because siteswap is mathematical and humans are organic, siteswap is never achieved exactly when performed. Although a siteswap informs a juggling pattern, the pattern never 100% accurately implements the siteswap. A siteswap, theatre theorist David Wiles would argue, is not rhythmic, because rhythm "never quite coincides with the 'beat' produced by a machine. Instrumentalists can train using a metronome, but they need a human conductor to create rhythm in performance, for we do not apprehend time with the precision of a machine" (ch.3).[75] A performed juggling pattern might be informed by a siteswap, but a different and unique siteswap will emerge from the intra-action between juggler and props when performed. The siteswap that emerges is constantly shifting, contingent, and is indeterminate prior to the phenomena of

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though other tricks entail throws less than 5.) Actually the way quantum mechanics works is sort of unlike the way juggling works, and furthermore, the analogy has some shortfalls." The atomic analogy of juggling described by Boppo is too rigid to relate to Barad's agential realism because it doesn't capture the unpredictability and creativity of phenomena.

[75] Whereas Wiles is talking about the "precision of a machine," I'm talking about the precision of mathematics. I wouldn't necessarily say machines can't produce rhythm or are necessarily precise.

juggling. Juggling—an intra-action between juggler and prop(s)—is the measurement tool that determines the siteswap. And each time a siteswap (for instance **441**) is juggled, the siteswap that actually results will be different (because it won't be exactly, mathematically, five, then three, then one beats later that each prop is dealt with). In juggling, sometimes the measurement tool is my hands coming together with three balls. Sometimes it's a different juggler coming together with three clubs. Barad's concept of intra-action offers a way to understand why a mathematically defined siteswap—an idealized juggling pattern—never materializes exactly as written when performed; because phenomena (including juggling patterns) are not pre-existing entities translated into performance. Siteswaps do not merely represent juggling patterns; they emerge through the ongoing intra-action of jugglers, props, gravity, and timing.

Tied up in the idea of intra-actions is the idea that matter is creative. Siteswaps are also creative in that they are what Phillips calls "generative models," meaning siteswaps not only describe juggling patterns (albeit not accurately when translated into performance) but also generate them. When a juggler uses siteswap notation, through its rules and constraints it opens a space of potential patterns that might never have been discovered through intuition alone. The generative nature of siteswap connects to Barad's agential realism because neither system is merely about passive recording or representation but are active, creative—performative—processes that bring new possibilities into being. Phillips explained that in the humanities, we "often build models, theories, ways of understanding things, but they are descriptive… 'here's a way of understanding, describing something,'" whereas siteswap, as a model, is generative. Generative models, Phillips explains, not only help "you understand something you're seeing, they let you generate new things that you might never have heard of before." Phillips went on to explain how and why siteswap was generative:

And that was one of the earliest things that happened with siteswap; I think the first generated pattern was 771. Which is a 5-ball pattern. Nobody had thought it might be possible until people were just playing around with lists of valid siteswaps and stumbled on it and the reason it wasn't stumbled on is because it's not a pattern you can get to directly from a cascade—it's a non-ground state pattern, so you have to throw some transition throws to go between a 5-ball cascade and 771. Which means that if you're just messing around with a 5-ball cascade you're not going to stumble on that pattern because there's a key you need to unlock that pattern, and the key is not obvious. So that has been super cool at unlocking new things that people can do and new places you can go. Now part of the problem is that unless you're a super physically skilled juggler, there actually aren't that many interesting siteswaps because there's only so many siteswaps that you can throw with three or four balls that don't require really high throws, so they become really physical demanding really fast… as long as you only have two hands… but as soon as you have 4 hands, the point of entry is four objects with four hands and most people, you're juggling five, six, seven objects. And the space of patterns that are accessible and have throws that are at reasonable heights—the space of patterns at four hands because basically anything you can do with five, six, seven, possibly eight objects that doesn't involve a siteswap 1 or a siteswap 3, everything else you can throw—the space is huge and that's just so much fun to play with. My friend Christian Kästner, pretty much every Pass Out [juggling festival] he teaches a workshop [called] "5-club patterns you probably can't do yet" and every time he teaches the workshop, it's a different set of 5-club patterns cause there's so many of them.

Phillips' account demonstrates that siteswap is not simply a descriptive notation system but a generative tool that expands the space of what juggling can become. Many mathematically valid siteswaps—especially non-ground-state patterns—would be nearly impossible for a human to discover alone. Siteswap notation reveals previously unimaginable patterns that require transition throws, extreme heights, or multiple jugglers. In this sense, creativity is not located solely in the human mind or body but emerges through intra-action. Barad argues that "virtual possibilities are material explorations that are integral to what matter is," insisting that matter is not static substance but an ongoing experimentation with becoming ('TransMaterialities' 410). They also argue that matter's creativity involves a "radical undoing of 'self'," emphasizing collective and distributed processes of becoming. Similarly, when multiple jugglers coordinate their bodies and props, new siteswaps become possible that no juggler could realize alone, echoing not only the concept of intra-action, but also Stengers' ecology of practices where practices sustain their own forces while creating "an experimental togetherness… a dynamics of pragmatic learning of what works and how" (195). In this way, juggling as a community of hobbyists creates opportunities for new aesthetic forms and collective action that may not have direct political force, but is certainly an enjoyable and empowering form of connection, belonging, and creativity.

For Barad, agency is not located in a subject making decisions; it emerges as matter tries out possibilities. They give the example of lightning, which, through stepped leaders, maps a field of possible futures before one trajectory is actualized ('TransMaterialities' 408). For each lightning strike, there is no single "correct" path; the environment (humidity, charge distribution, terrain) participates in shaping which path becomes real: "the electric body—at all scales, atmospheric, subatomic, molecular, organismic—is a quantum phenomenon *generating* new imaginaries, new lines of research, new possibilities" (411, emphasis added). Like lightning's

stepped leaders, which explore multiple contingent pathways through the atmosphere, siteswap traces a field of potential trajectories through the space of juggling. Neither are plans imposed on matter but exploratory processes through which matter tests futures.

Balls are Hands and Hands are Balls

As mathematician Burkard Polster explains, in juggling "what we really do is juggle balls and hands" (xi). It is not until balls are juggled by hands that a siteswap emerges, but also that balls and hands emerge, depending on whose perspective the juggling is happening from. Two hands juggling three balls that alternate hands results in the siteswap 3. And if our perspective changed and the roles were reversed—if the two hands were considered balls and the three balls hands—then the resulting siteswap is different. In an email exchange with Phillips (who taught me siteswap in my undergrad), he explained to me what this means for juggling:

> There's an entire system of "hand siteswap" (HSS) that can be layered on top of regular "object siteswap" (OSS) and has exactly the same rules. In normal one person vanilla OSS, the assumed HSS is 2, which means each hand throws every second beat. If you take the **normal three ball cascade and flip the HSS with the OSS**, you get a pattern for three hands and two balls, where each ball is thrown to the hand two further along in the ordering.

Because of this, Polster makes the argument that we don't just juggle balls, but balls *and* hands: "while we are juggling uniformly we are juggling both balls and hands in the same sense" (97).[76] Polster calls this the "principle of duality" in juggling because any uniform siteswap is also, automatically, another uniform siteswap. During a juggling pattern, a siteswap, my hands are functioning as both the thrower, the active participant in the pattern, and the prop, the passive

[76] By juggling "uniformly," Polster means the dwell time and flight time of balls, and vacant time of hands are constant.

participant in the pattern simultaneously. When juggling a siteswap pattern, we are both juggler and juggled simultaneously, like an atom is both a particle and a wave simultaneously, until measured.[77]

This interpretation of props—that things always have the potentiality of being props and emerge as such when measured a certain way—was echoed by some of my interviewees. "Prop," Hanneson told me, "is not a static category, it depends on its use. An orange is a prop when you start juggling it." Juggling, in Hanneson's example, acts as a measuring device, affecting the status of the orange and in this way juggling participates in the onto-epistemology of the orange. Dresser discussed the shifting, contingent definition of a prop similarly:

> When does the apple become a prop? When you're doing the Eat the Apple trick? Is it when you buy the apple? Is it when you, like, take the first bite? I don't know… I think there's a gradient. Like, when I pick up eight eggs in one hand because it's convenient for me to do so. And because I'm a juggler, I have confidence that I can do that without dropping them. Like, are the eggs props in that moment? I think there's very reasonable arguments in both directions. They're certainly prop-ier than they were sitting in the egg carton.

Those arguments in both directions, I suggest, are the measuring devices that alter the ontology of the apple. Dresser extended this line of thinking, about the gradient—or as I posit, simultaneity—of a prop's status as a prop and not-a-prop, to objects specifically manufactured to be juggling props. He gave the caveat that this was thinking out loud and maybe not what he wholly believes, but said,

[77] I'm isolating this discussion to the scope of siteswap itself—of course, human hands have already settled into an existence as hands through intra-actions in other contexts, even if they're functioning as balls in a juggling pattern.

> When you take a pile of clubs and you just like jam them in a pile in a closet… that's also kind of not what they want. Like, they want to be props even when they're not being juggled and putting them in a closet reduces their prop-iness. And so, when I feel good about my prop storage, much of this is aesthetic, I do like them to be laid out in a way that is aesthetically pleasing and perhaps they become props more as the props on a set… than juggling props. But they're still like decorative objects.

Props are not something a being *is*, they are a phenomenon that occurs when matter is arranged in a certain way.[78] This has resonance with Sofer's *The Stage Life of Props* in which he argues that for an object to become a prop, it must be "triggered" by an actor through manipulation or movement (11). This is extended into more Baradian territory when read alongside Jackson's *Social Works*, in which she argues that the prop also props up the subject: "the world of props constitutes a theatrical re-animation of the object world on which the constitution of subjectivity rests. In this world, an object becomes a prop in the moment it animates and is animated by a self-formation… The vitality of the prop comes in the precarious realization that the object you hold is also one that holds you" (80). So, both the prop and the actor trigger their statuses as such in each other. In Barad's theory of intra-action, bodies participating in an action are not pre-determined individuals—they emerge through the action itself. In siteswap notation, what counts as a "ball" or a "hand" is not an inherent property of matter but a role it assumes through the act of juggling: props emerge through intra-action. Within the juggling pattern, I may find myself

[78] In fact, manufactured props are simultaneously not-a-prop in many ways, including when reading them as commodities. This line of thought echoes Igor Kopytoff's cultural biography of things, through which he demonstrates how "the same thing may be treated as a commodity at one time and not at another… [or] seen as a commodity by one person and as something else by another" (64). Chen in our interview stumbled onto the commodity identity of the juggling prop when he asked, "why do people buy props?" He answered his own question by acknowledging props are a business expense and necessity for performers, but as a hobbyist he bought a set of props that he touched only a handful of times over a period of years. "I don't know why I did that," he told me, "a desire to try new things, retail therapy." In that case, props are less "prop-y" and take on more characteristics of a commodity and of capitalist desire.

acting as an "object" being manipulated by the system or as a "subject" exerting control over it, but these roles are only determined through the act of juggling itself. So, in the context of performing a mathematical juggling notation, I am in a quantum state of indeterminate ontology until the juggling (a material-discursive practice) occurs and defines my boundaries. Juggling, therefore, in this theoretical space of notation-as-world, functions as a kind of measurement tool for subject/object ontology, materializing distinctions through its practice.

The Illusion of Distance in Academic Research

According to Barad, the very act of measurement—what she terms "agential cuts"—renders parts of the world intelligible to others, meaning that research methods and writing do not simply record reality but actively shape it. Even in fields that pride themselves on objectivity, the researcher and subject are inextricably entangled; there is no "outside" perspective from which to observe the world. As Barad argues,

> Practices of knowing and being are not isolatable, but rather they are mutually implicated. We do not obtain knowledge by standing outside of the world; we know because 'we' are *of* the world. We are part of the world in its differential becoming. The separation of epistemology from ontology is a reverberation of a metaphysics that assumes an inherent difference between human and nonhuman, subject and object, mind and body, matter and discourse. *Onto-epistem-ology*—the study of practices of knowing in being—is probably a better way to think about the kind of understandings that are needed to come to terms with how specific intra-actions matter. ('Posthumanist Performativity' 829)

Acknowledging that researchers are participants in the phenomena they study encourages academics to reconsider the traditional separation between observer and observed in academic research. This is not only important methodologically to produce more accurate research, but it also resists anti-ecological logics: the division of being into subject and object and the relegation of nature to the object side, to be extracted, studied, and controlled. As Kimmerer writes, in her graduate degree she recognized that "science is rigorous in separating the observer from the observed, and the observed from the observer," and she strove instead to see relation (42). By embracing an onto-epistemological approach, strands of academia have begun to dismantle these hierarchies, paving the way for more responsible and emergent research methods.

When this dichotomizing of subject/object happens in (or because of) academic research, it also results in what Dorothy Smith terms a "bifurcation of consciousness," meaning "the splitting of affective involvements from the researcher's experience" (Puig de la Bellacasa 62). To treat something as the "object" of our research it is historically expected in Western academic tradition to also distance yourself emotionally from that object. In an article co-written by five women from fields as disparate seeming as Spanish, sociology, philosophy, economics, and health, Burchard et al. acknowledge this trend writing that, "Knowing, under this model, works by separation of self from the object to be known and is articulated in visual metaphors. To know is to see, and in order to see, there must be a distance (a separation) between the knower and the known. What is to be known, then, cannot be a part of the knower, but must be (at least conceptually) distinct" (97). Haraway calls this visual metaphor for knowledge a "god trick" that results in "unregulated gluttony." Haraway offers "feminist objectivity" as an alternative because it emphasizes "limited location and situated knowledge, not… transcendence and splitting of subject and object. It allows us to become answerable for what we learn how to see" (*Situated*

Knowledges 583). Puig de la Bellacasa echoes this need to acknowledge the situatedness of knowledge and offers the metaphor of touch to invoke a researcher's *feelings* about an object of research. She suggests that "making affective engagements an explicit part of the representation of things disrupts these habits of thinking" that distance the researcher from the world (63). She does this to "problematize epistemological distances" between researcher and researched, knowledge and world, science and politics, etc: "touch expresses a sense of material-embodied relationality that seemingly eschews abstractions and detachments that have been associated with dominant epistemologies of knowledge-as-vision" (20). She argues that thinking "in the world" requires connectedness, so we can never have an outsider's or god-like perspective of the world. In Burchard et al.'s words, "Connected knowers see their knowing as part of the social construction of self and world, recognizing that the process they use brings them together with the thing they would know, and that consequently both they and the known are to some (however small) extent changed by the relation that such knowing constitutes" (99). To remove care and love and feeling from the "objective" world is not to make it more real or true, but rather to ignore ourselves—which means ignoring a part of the connection that we form with others, and therefore part of reality. Ultimately, "touch's unique quality of reversibility, that is, the fact of being touched by what we touch, puts the question of reciprocity at the heart of thinking and living with care" (Puig de la Bellacasa 20).

Indigenous scholars, like Dylan Robinson in his theory of hungry listening, confirm Haraway's argument that a distanced, "objective" interpretation of knowledge gathering is gluttonous and reciprocity and care need to be at the heart of research practices. Robinson compares extractive knowledge practices to "resource extraction upon the lands and waters of Indigenous peoples across Canada" (Carter et al. 209). He calls for settler scholars to "stop

instrumentalizing Indigenous world views, language, or stories for what they help you say, treat them as the incommensurable things that they are rather than things that might be easily applied to your work" (229). He invokes the verb "are" which demonstrates that knowledge is something we are, not just a representation of the world. The manipulation of knowledge is real and has real impact—both on the researcher who is instrumentalizing it and for the thought itself which is skewed to meet colonial needs. This is particularly important to note in this dissertation, written by a white settler scholar within the colonial temporal, cultural, and political frameworks Robinson critiques. I am able to participate in a social order organized around an understanding of time as progressive and independent individuals as the basic unit of social life by suppressing or enduring the ways capitalism disciplines my time and isolates me as an individual. These notions that are not compatible with or possible within many others' lives, though, and certainly not with Indigenous temporal and relational structures. I critique these understandings of time (chapter three) and the individual (chapter two) by choice, but my Indigenous peers and their ancestors have faced genocide, oppression, and intergenerational trauma from these same ideas when violently imposed by colonial forces like residential schools, broken treaties, and extractive practices leading to environmental devastation of ancestral lands. My relative structural insulation from the ecological and human harm Indigenous populations face means I approach Indigenous theory from a distance I cannot fully close within this institutional and disciplinary context. Still, Indigenous scholarship has genuinely changed how I understand relations to the nonhuman world, particularly how knowledge cannot be divorced from embodied relational practice; how taking care of others in the way they need, rather than my own way imposed on them, ensures everyone's flourishing; and how a "polyculture" of knowledges is not only possible, but necessary for a more just, equitable world (Kimmerer, Simpson). In my theoretical

framing, I have tried to honour Indigenous knowledge in itself, not just as instrumentally useful to my work, by trying not to collapse Indigenous cosmologies and new materialist thought and pointing out where they diverge not just where they conveniently align. In my methodological framing, I have tried to call upon my own embodied practice as theory in this text, resisting the position of detached observer. But I also recognize the deeper engagement Robinson calls for, engagement that must go beyond the limits of this single-authored academic dissertation with its disciplinary and institutional constraints. I name this limit here to frame this piece as a beginning, not an end, and to remain accountable to the ongoing work it opens.

Circus semiotician Paul Bouissac argues that Western culture is glottocentric, "an epistemological attitude that takes language as the absolute model of reference" (57). When "discourse… is institutionalized as a performance of a linguistic nature and... the verbal component is emphasized," this also leads to anthropocentrism and ethnocentrism (56-7). The move away from discourse as solely linguistic is important for Bouissac as a tiger tamer because although we tend to anthropomorphize animals' responses to human training, there is a very different, non-human "situation that is experienced and negotiated by the animals within their own biosemiotic system" (52). It is only by opening himself up to non-linguistic discourse that he can develop a reciprocal relationship of respect, love, and care with them. Barad moves away from this anthro-, ethno-, and glottocentric approach to discourse by arguing that intra-actions—the ongoing becoming of the world—are "material-discursive" phenomena. "Discourse," Barad asserts, "is not a synonym for language" ('Posthumanist Performativity' 819). "'Human' bodies are not inherently different from 'nonhuman' ones" (823), and if "human" is essentially just a property of being that emerges when measured and could have emerged differently, then humans are not ontologically different from nonhumans and "the notion of discursivity cannot be

founded on an inherent distinction between humans and nonhumans" (818). Rather, discursive practices are "boundary-making practices" meaning they are a part of the intra-action "through which phenomena come to matter... materiality is discursive... just as discursive practices are always already material... matter and meaning are mutually articulated" (822). Barad landed on their notion of onto-epistemology—the idea that how we become is identical to how we know, since intra-actions that define ontological boundaries are also measurements that create and reveal the world—because they were curious about "how even the very atoms that make up the biological body come to matter" and why "it is difficult to imagine how psychic and socio-historical forces alone could account for the production of matter" (810). Whereas representationalism separates the world into *matter* and *meaning*, agential realism collapses this distinction arguing that matter is meaning and vice versa. Categories like human and nonhuman, juggler and prop, are themselves material-discursive phenomena, emerging through accumulated practices and histories of production, commodification, circulation, commercialization, exploitation, colonization, use, naming, law, scientific inquiry, staging, performance, education, and more, as discussed earlier and developed further in the next chapter. The category of human is both the world making itself intelligible, while also being of the world itself.

Because matter and meaning are mutually constituted, "disciplinary habits of tracing disciplinary-defined causes through to the corresponding disciplinary-defined effects" means we risk missing all the intra-actions that cross disciplinary lines (810). Barad's call to move beyond disciplinary confines resonates with calls to value feminist perspectives rooted in subjective, embodied experience and Indigenous worldviews rooted in a deep care for and entanglement with the land. Matter does not stay within disciplinary boundaries, rather "Matter is promiscuous and inventive in its agential wanderings: one might even dare say, imaginative" (Barad 2015

387). As I have demonstrated in this chapter and the previous, juggling offers an example of the agential cut of intra-actions and can train us to see the meaningful reciprocal relationships we have with other matter.

Conclusion

Hierarchical separations—between humans and nonhumans, thought and action—underpin practices of mastery that contribute to environmental exploitation. Dismantling these hierarchies is not a mere academic exercise; it is essential for reimaginings of what it means to live alongside one another in a damaged world. A flattened ontology offers an important philosophical base for contesting a mastery mindset because, as Singh argues, "the very notion of the human relies on and is totally unthinkable without mastery" (13). So, replacing a mastery approach to nature "requires either a radically different understanding of what it could mean to be human or perhaps a thinking of the human that would not be human at all" (14). This chapter offers Barad's agential realism, as a performative approach and Deloria's relativity as a relational approach to knowing and being. Barad's concepts of intra-actions, agential cuts, onto-epistemology, material-discursive practices, and the creativity of matter challenge the dominant, detached objectivity of academic research that divorces feeling from knowing and instrumentalizes Indigenous thought. However, Barad themself is also indebted to uncited Indigenous scholars that came before them and those Indigenous perspectives offer more sustainable and holistic environmental interactions. In particular, the idea that, "One of our responsibilities as human people is to find ways to enter into reciprocity with the more-than-human world," which can be done "through gratitude, through ceremony, through land stewardship, science, art, and in everyday acts of practical reverence" (Kimmerer 190).

I offer juggling as an act that could be used as a rehearsal of respect for the nonhuman, either conceptually, or quite literally if done intentionally for that purpose. Juggling encourages practitioners to engage in what Stager calls a "reciprocal causality," through mutual responsibility between juggler and prop. Taken further, jugglers and props come into being from previously indeterminate ontological boundaries through intra-action, so, taken as a philosophy, jugglers are responsible for props, but they also may rematerialize *as* props. Although a more progress-oriented, mastery-minded philosophy underpins the typical Western approach to juggling, I suggest that juggling could instead serve as a metaphor for interconnectedness and reciprocity among matter and meaning. Incorporating the ethos of juggling into societal practices can cultivate a mode of engagement where care, reciprocity, and shared responsibility with the nonhuman world become central. Embracing material-discursive practices and eliminating the separation of knowing and being encourages us to imagine less exploitative models and toward more sustainable forms of existence, even if just momentarily and within a specific community of practice.

CHAPTER THREE: TEMPORALITY

Calendars and clocks exist to measure time, but that signifies little because we all know that an hour can seem an eternity or pass in a flash, according to how we spend it. Time is life itself...

—Michael Ende, *Momo*

What's the rush? Why is it necessary to kill all mammals on this earth in the next 50 years? What is this great plan?

—Lawrence Paul Yuxweluptun Lets'lo:tseltun

In the previous chapter, I argued that a flattened ontology—one that refuses hierarchical separations between subject and object, human and nonhuman—provides a way of thinking through the relational conditions that shape all forms of being. Juggling is a practice where skill, repetition, and control are central; but that skillful control, what might be called mastery, is developed through intra-action as a material becoming, not through division and domination. Drawing on Barad's agential realism, I explored how concepts like intra-action, onto-epistemology, and the material-discursive nature of meaning challenge dominant modes of knowledge production that prioritize detachment, progress, and control. I gained much from reading Indigenous scholars like TallBear and Deloria who outline a method of understanding phenomena through a foundational principle of relation within a world that was always whole—what I previously called nonmodernism after Latour. I suggested that while Western approaches to juggling often reflect mastery logics—privileging technique, spectacle, and individual skill—juggling also contains the potential to model a different, reciprocal ontology. This chapter extends that claim by turning to questions of time: if a flattening of being is necessary, then so too is a rethinking of temporality. Latour chose to use the word "nonmodern" to articulate

thinking that doesn't separate nature and society into two distinct ontological poles. He does this, in part, to distance his framework from modernity's temporal logic—the notion that we have made a definitive break with the past and that history progresses linearly forward. Terms like "pre-modern" and "post-modern" reinforce this temporal rupture, suggesting distinct periods separated by clean breaks. "Nonmodern," by contrast, acknowledges that a purification of nature and culture was never actually achieved—we have never been modern—and thus requires a different understanding of temporality altogether. I ask how juggling—as both practice and metaphor—might help us reimagine time as cyclical, relational, and co-authored, rather than linear or commodified, offering an alternative to the chrononormative temporalities that drive social and ecological harm. In this chapter I ask: How might the rhythmic, repetitive, contingent temporality of juggling challenge chronormative notions of time and make perceptible the interdependent relations through which collective human-nonhuman worlds emerge?

The first time I remember grasping the notion of "chrononormativity" (long before I read *Time Binds* where Elizabeth Freeman coined the term) was after reading the light fantasy novel *Momo* by German children's author Michael Ende. In the novel, a young girl named Momo lives on the outskirts of a city where men in grey begin persuading people to save time by cutting out all the "non-essentials"; for instance, community, rest, storytelling, and play. Although people forget the men in grey as soon as their encounter is over, they remember the urgency with which they must "save time." The more time people save the less they seem to have, and the greyer their lives become. Only Momo, with her capacity for deep listening and her resistance to urgency, can confront them. The men in grey literalize the invisible pressures we in the West (or at least me personally) feel to do more in less time. The citizens' forgetfulness represents the habitus that is chronormativity.

In the quote from *Momo* in the epigraph to this chapter, Ende argues that although "calendars and clocks exist to measure time," they don't do an adequate job (55). This resonates with Barad's argument that measurement devices are not representational, rather, they are an integral part of the phenomena they seek to measure. Clocks don't measure time; time emerges through the intra-action between clock and clock reader.[79] The same could be said of siteswap. Although siteswap notation might appear strict in its temporal framing, in this chapter I demonstrate how, understood as a measuring device (as opposed to a notation), it opens up multiple and diverse temporalities. When Ende writes that, "An hour can seem an eternity or pass in a flash, according to how we spend it," I am reminded of disability theorist Alison Kafer's notion of crip time—the idea that time expands or contracts depending on its embodied context—which this chapter explores (Ende 55). Juggling also lets the juggler—and their audience—experience or harness unique temporalities, in part by tapping into the "parabolic time" of circus, which exposes minoritarian temporalities that are typically repressed in the narrative temporality of stage realism (Zien). Finally, Ende writes that, "time is life itself." He ultimately argues that time is found in the human heart, but in this chapter, I extend temporality away from the human's individual, masterful control to posit that time rather emerges through relationality between bodies. Time then is not abstract; it is a material-discursive phenomenon emerging from intra-actions. This is why juggling is such an effective method for experiencing strange temporalities that emerge only through human and/or nonhuman relations. As I wrote in my first chapter, to learn to juggle is to learn to use soft hands so you can sense the weight of futures being set in motion and to negotiate movement with diverse others toward ongoing,

[79] And because the clock reader brings their own subjectivity, they may not accept the premise of clock time at all. Using terms from the first chapter, the clock ALLOWS certain reading of time and not others depending on the viewer.

collective care. In this sense, juggling is a metaphor for more just temporalities, but also a rehearsal of them.

While *Momo* revealed to me the theft of time through the allegory of the men in grey, the stakes of temporal violence are not metaphorical for Indigenous communities. Lawrence Paul Yuxweluptun Lets'lo:tseltun, a Cowichan (Hul'q'umi'num Coast Salish) and Okanagan (Syilx) painter and sculptor, asks in the epigraph to this chapter a question that exposes the temporal absurdity at the core of extractive capitalism: "What's the rush?" He is not just criticizing the pace of environmental destruction, a theme that runs through his paintings, but pointing to a deeper disconnection from temporalities of care—a mode of attention that extractive capitalism, in its acceleration toward ecological collapse under the guise of progress, cannot account for. Simpson offers an affirmative counterpoint to this temporal logic. To live in a Nishnaabeg present, she writes, is to collapse "both the present and the future," and in that context, rushing toward something—as the men in grey do, as Western settlers do—does not make sense (*As We Have Always* 2). In *The Theory of Water*, Simpson expresses that, in her experience of Nishnaabeg thought, time passes non-linearly and emerges through the movements of both living and non-living systems on the land; in other words, time is produced through relationality. This is a different orientation from the temporality of behavioural accumulation and citation developed in some strands of performance studies, which Colbert, Jones, and Vogel argue in *Race and Performance After Repetition* has "rendered minoritarian subjects as frozen in the past, lagging behind, or perpetually on the threshold, even as historical traumas erupt in the present" (8). Their anthology's move from "restored behavior" toward "behaved restoration" helps situate what Yuxweluptun and Simpson are articulating within a broader conversation about race, performance, and the limits of repetition as a framework for making sense of time. Juggling's

relationship to time is similarly irreducible to linearity and repetition, despite a juggling pattern's structure as a cycle of throws. Like the relational temporalities Simpson describes, juggling time is emergent, produced through the movement of bodies, objects, and attention in relation to one another, and it is this quality that this chapter sets out to explore.

In what follows, I first attempt a definition of temporality and then offer an overview of how temporality has been thought in the fields of theatre and performance studies. I then discuss why temporal framings matter in the context of climate change and why current temporal framings are lacking. I then give an overview of alternative temporalities that address issues with how Western science tends to think about climate change, including crip time, queer time, and Indigenous temporalities. Finally, I examine juggling as a temporalizing process, what temporalities it makes accessible, and why time is integral to understandings of juggling.

Capitalist Time

Temporality is the embodied experience of and relationship to time. Discussions of temporality highlight the idea that time is not an objective, fixed entity, but rather "is the result of certain processes: of perception, measure, experience and worlding" (Grant et al. 3). This connects to Barad's agential realism: the act of measuring time fundamentally alters it. Temporality is a measuring device that stabilizes time into a discernible category with defined boundaries. Time is performative in the Butlerian sense; it gains its apparent stability through repetition. Just as categories like "woman" or "human" seem fixed because they are associated with performances that are consistently re-performed, our understanding of time as linear and experienced only in the immediate and ever-disappearing present seems fixed. Temporality is fundamental to how we construct our worlds and realities.

When left unexamined, the temporal frameworks of privileged groups inevitably dominate. Elizabeth Freeman argues that time "binds" people into collective experiences, creating shared rhythms that can either unite or oppress. She notes that "people are bound to one another, engrouped, made to feel coherently collective, through particular orchestrations of time" (3). This binding leads to what Freeman calls "chronormativity"— "a mode of implantation, a technique by which institutional forces come to seem like somatic facts" (3). Everyday temporal structures—"schedules, calendars, time zones, and even wristwatches"—function as "manipulations of time [that] convert historically specific regimes of asymmetrical power into seemingly ordinary bodily tempos and routines, which in turn organize the value and meaning of time" (3). What seems like natural, neutral time is actually a system that privileges certain experiences while marginalizing others.

As such, to understand the temporality of juggling in the context of neoliberal capitalism, it is first necessary to historicize capitalist time itself. As Nigel Thrift argues, the rise of industrial capitalism involved a "gradual diffusion of a new type of time" in the social consciousness, traced from the fourteenth century to 1880, and moving from time organized around tasks, seasons, and embodied experience toward time based in "calculative rationality" (105–106). In medieval rural contexts, Thrift notes, time was "rhythmic rather than measured," and signified through "visual, aural and physiological references," plus recurring events like meals, not through standardized units of duration (107). "Temporal reference points" were experienced as self-enclosed "islands of time" rather than a continuous line, so punctuality and perception of past and future would have been blurry (107–108). As certain occupations required more timekeeping, like metal working, more precise measurement of time was needed and "the time of the merchant" gradually displaced "the time of the church," as working habits led to

social acceptance of time being regular and an increasingly cash economy needed more precise calculations (108-111). With industrial capitalism, clock time became central to organizing labour, so both work time and leisure time became measurable and exchangeable, allowing "labour power to become a commodity" measured in units of time (114). Industry required workers be disciplined so they could be instrumentalized to work precisely alongside machines, and schools became sites of time disciplining (115). With industry, school, and entertainment all aligned to a new time consciousness, capitalist time, with its measurability, exchangeability, commodification, and future-oriented calculation became part of every person's habitus. Ende's men in grey were as thorough in our world as they were in Momo's, such that we now live in what Jonathan Crary calls "24/7 capitalism." Crary argues that capitalist time has moved on even from being a mode of operating in a "social world" and is now rather "a non-social model of machinic performance and a suspension of living that does not disclose the human cost required to sustain its effectiveness" (9). Today, capitalist time has no relation to the material environment; it is, in Crary's words, the perception of time as uninterrupted, indifferent, suspended, and limitless.

Juggling enters this history from a strange position. Although it can be practiced within capitalist temporal structures—through strict training regimens, as a commodity in performance economies, and through future-oriented skill accumulation—it also contains temporal experiences organized around cycles and emergent material relations with self and others. It's uselessness causes "incalculable losses... in production time, circulation, and consumption," so, like Crary's sleep, it will also always be in some ways at odds with 24/7 capitalism (9). This makes juggling an ideal performance discipline through which to explore alternate temporalities, but far from the only one. Also writing within performance studies, fellow York alum Megan

Johnson highlights how harmful the capitalist time consciousness described above is to the disability community in particular. Johnson references disability performance artist Hanna Cormick's relationship to time as "destructive… for disabled bodyminds" due to "the culture of strict deadlines, time-scarcity, and over-work" (213). This recognition leads Cormick to distinguish between capitalist time, described as "rigid and constantly accelerating"—and a more "spacious time" which allows for "time around things" as a way "to not feel that restlessness of speed and stress" (213). Puig de la Bellacasa deepens this analysis, warning that capitalist time operates through a relentless "productionist pace" driven by "technoscientific futurity." Technoscientific futurity emerges from the "persistence of a modern paradigm that associates the future with progress, with an ethico-political imperative to 'advance' that remains the orientation of linear, 'progressivist,' timelines—while the past acts as a discriminatory signifier of development delay" (174).[80] Promissory capitalism relies on "taking risks and acting fast," but the action is always oriented towards a future-to-come; it generates "an ongoing sense of urgency and crisis calls us to act 'now,' while the present of action is diminished, mortgaged to an always unsure tomorrow" (175).

Indigenous scholars describe temporal frameworks that are grounded in relation to land, community, ancestors, and the more-than-human, offering different orientations from the abstract, accelerated temporality of capitalism. These relational temporalities are also embodied in Indigenous performance practices like Native American hoop dance where the hoop itself symbolizes "the circle of life, in which there is no beginning or end" and which medicine men and women used to see future visions and cure ailments (Zotigh). Hernandez, the previously

[80] Barbara Kirshenblatt-Gimblett complicates the idea of past as only a signifier of delay or backwardness by demonstrating how it is used by heritage industries as a mode of present-day cultural production to serve economic and political goals, becoming another resource to be managed and exploited. See her book *Destination Culture*.

cited hoop dancer, explains the dance as having a direct effect on time, believing that every hoop that passes through the body adds an hour to one's life, with the dance itself representing a person's journey through life and relation to all the plants and animals encountered (Chabra). Drawing on the work of Deloria Jr., Simpson writes that while Western metaphysics are organized around time with history, development, and progress as central structuring forces, Indigenous metaphysics are grounded in space with the land as central to being and ethics (*Theory of Water*). In this view, a day is not an abstract unit of time, but rather emerges from spatial relationships, like the rotation of the Earth around the sun, meaning time is lived through relation, space, and movement. Building on this, settler scholar of queer and Indigenous studies Mark Rifkin describes how settler colonialism imposes its own temporal formation, "settler time," a framework that displaces Indigenous people into the past and assimilates them into a sanitized present, all while maintaining settler histories and geographies as normative. This denies Indigenous temporal sovereignty, to use a concept from Rifkin, by rendering settler experiences of time as the only ones that matter. In Canada, this manifests through policies that embrace Indigenous culture (language, art, ceremony) because it "is compatible with settler colonialism" in that it "fits within an inclusive narrative of Canada as a multicultural society," but only when divorced from Indigenous politics (Simpson, *As We Have* 50). However, as Simpson and others insist, Indigenous culture and politics are inseparable, because Indigenous politics are lived through practice, unfolding in temporalities incompatible with capitalist time or colonial governance. Indigenous resurgence means accepting interconnected and embodied ethics, politics, and ontologies that are inseparable from land, movement, and collective care.

In this chapter, I oppose the linear, future-oriented timescape of promissory capitalist time and offer "strange temporalities" as an alternative that don't follow capitalist time's

"productionist pace."[81] My own contribution to the field of strange temporalities is drawn from the temporality of juggling, which I offer as an embodied practice that can open a temporary space of resistance to or freedom from the temporal hegemonies that structure and constrain our lives and harm the ecosystems that sustain us, even as it remains situated within the capitalist temporal structures I use it to question.

Temporality in Theatre and Performance

In their book *Performance and Temporalisation*, Grant, et al propose that "the affective, inconsistent, living, multiple, relative, perceptual dimension of time has traditionally been the domain of artists perhaps even more so than philosophers" (7). Not only are the arts wrapped up in debates over the temporal nature of their mediums (the rhythm of music, the liveness of performance, the doubling of theatre, the out-of-timeness of painting, etc.), but artists are often exploring time and temporality through their work (the temporhythm of Stanislavski, the time pressure of Tarkovsky, etc.). As Grant, et al. put it, "Performance is the art of making time" (8). Schneider argues that theatre doesn't just exist in time; it is a "temporal medium in the crease or fold of its own condition," meaning temporality is itself the medium of theatre (*Performing Remains* 89). Wiles says something similar when he writes that, "plays are neither *in* time nor *about* time, but are *of* time" (ch.1). Theatre doesn't just occur within temporal boundaries or comment on the nature of time—time itself emerges from an audience's relationship to theatre.

[81] Puig de la Bellacasa uses the word "timescape," drawing from Barbara Adams' sociology, to refer to the performative normalization of time through repetition that results in an embodiment. She defines timescapes as "devices to think epochal time, in terms of their everyday actualizations, resistances, and contradictions. In other words, epochal, practical, and embodied timescales are entangled" (173). By framing promissory capitalist time as a timescape, Puig de la Bellacasa "allows space for thinking practices as time-making and envisioning what doings and agencies could be disrupting the overpowering atmosphere of ecological anxieties so consistent with the hegemony of future-oriented timelines in technoscientific societies" (174).

Theatre embodies Barad's agential realist principle that the act of measuring time (for instance, through the experience of watching theatre) fundamentally alters it. Theatre makes visible the performative process through which temporal boundaries are defined and stabilized.

This is not to say that theatre is a positive or even neutral vessel for temporal experience. Theatre's temporality is always already political. The linear temporality of stage plays, with a beginning, middle, and end and well-timed reveals, has a long history, dating back to Aristotle's formulation of complex plots in *The Poetics* through to realist theatre and well-made plays today. Zien argues that the conventional, Western realist theatre, which I'd situate from the late-nineteenth century onwards with the onset of psychological realism, suggests to audiences they have the "capacity to 'know' the other onstage," which fixes existing stereotypes of minoritarian subjects as "stagnated" or "frozen in time" (146, 147). Against this product of realist theatre, theatre and cultural studies professor Katherine Zien articulates the parabolic storytelling of circus and juggling by calling on the parable and the parabola—the shape made by bodies/props in the air in circus. To experience storytelling parabolically, is to glide "purposefully over, under, and around the central conceits of conventional realist parable," and by not filling in the details of the Other on stage, audiences are held in a present-tense state of productive active interpretation of difference, unable to fully know those on stage (Zien 146). When the work and perspectives of BIPOC creators are considered, and all minoritarian identities, as in Zien's example, many more temporalities might constitute theatre and performance and in doing so, confirm Grant et al.'s claim that "performance is the art of making time." Colbert, Jones, and Vogel offer a list of temporalities made available within/as performance when we move beyond repetition as the field's organizing grammar: "restoration, activation, accumulation, stasis, concurrence, simultaneity, prolepsis, leak, anticipation, projection, dream, doubling and

dedouble, duration, swerve, multiplication, emergence, dark reparation, natality, gestation, prognosis, hesitation, hiccup, time travel, decline, glitch, pararepetition, interval, continuation, concern, and care" (Colbert et al. 24). This list describes theatre and performance's temporal abundance; my analysis of the temporality of juggling will further extend this list.

Phelan was instrumental in spurring debates around the temporality of theatre and performance. She solidified what Schneider refers to as the three main tenets of temporality in performance: "first, that performance disappears and text remains; second, that live performance is not a recording; and third, that the live takes place in a "now" understood as singular, immediate, and vanishing" (*Performing Remains* 87). As with the scholars above, Phelan theorized that performance is a temporal medium; however, she specifically argued that "performance's only life is in the present. Performance cannot be saved, recorded, documented… once it does so, it becomes something other than performance… Performance's being… becomes itself through disappearance... Performance occurs over a time which will not be repeated" (146). She argues that performance is fundamentally different from recorded or mediatized forms; it is immaterial and therefore disappears.[82] Performance for Phelan, then, is aligned with liveness, immediacy, and ephemerality. Schneider challenges this association of immateriality with disappearance. She interrogates the presumed isolation of the theatrical moment: "Is a 'maniacally charged present' not punctuated by, syncopated with, indeed charged by other moments, other times?" (92). Perhaps performance's immediacy is constituted through temporal entanglement rather than temporal isolation; this would certainly make theatre and performance more viable mediums through which to theorize and address ecological worldviews

[82] It's worth noting that Phelan's point is not just ontological, it's also political. Because performance cannot be fully preserved or reproduced without becoming something else, it resists the logics of accumulation, circulation, and commodification that characterize capitalist economies.

as liveness, ephemerality, and immediacy are anthropocentric notions that don't apply as neatly to geological time or the threat of climate catastrophe, discussed in the next section.

Like Schneider, Wiles also argues that the apparent "nowness" of theatre is an interplay of past, present, and future. An audience's investment in any seemingly singular and disappearing dramatic moment paradoxically depends on the audience having absorbed what came before and anticipating what might follow. Wiles illustrates this through a scene from *The Seagull* in 1898 when "actors and audience alike were totally absorbed in the now" as Medvedenko exhaled tobacco smoke (ch.1). The audience's immersion in the present moment, Wiles writes, "depends on their mood, which involves a remembering of the preceding soundscape, and upon the anticipation that [Medvedenko's] exhalations will turn into pent-up speech… [the audience] cannot inhabit a 'now' without thinking both backwards in time and forwards in time" (ch.1). Juggling shows' audiences are invested in any given moment because of the possibility that the prop will not be caught a moment later. For audiences to theatre and juggling, the so-called present is very much informed by the so-called future. Wiles' observation challenges Phelan's theory: "if 'now' strictly does not exist"—because it is always punctuated by "then" and "to come"—"it becomes problematic to speak of theatre being 'ephemeral' by comparison with forms like painting, poetry and cinema" (ch.1).

Schneider pushes this overlap of times further, comparing nonrepresentational time—"real time" or perhaps the "live"—to theatrical time. The very concept of real time implies the existence of its opposite—unreal, artificial, or pretend time. Theatre operates simultaneously in both: the actual passing minutes of performance and the fictional temporality of the represented world. This double-nature of theatrical time creates what Schneider, drawing on Gertrude Stein, calls "syncopated time": "the warp and draw of one time in another time—the theatricality of

time" (*Performing Remains* 6). We suspend our disbelief in time when we go to the theatre. And this suspension is productive; it lets us see time otherwise. It lets us ask how our real time, live actions impact and are impacted by other times, or are happening simultaneously to other times, or inherently *are* other times. Perhaps ephemerality and syncopation can exist simultaneously. Theatre's ephemerality—its unfolding in real time—does not contradict but rather amplifies its ability to represent multiple temporalities at once. In their book *Post-colonial Drama*, Gilbert and Tompkins note that numerous Indigenous and non-Western societies "categorically reject the view that history is merely contiguous with the present but not enacted in it," asserting instead "a notion of 'ambiguous' time in which the boundaries between past and present, and ultimately future, are permeable" (139). They argue that theatre lends itself particularly well to temporal ambiguity: "Even though a performance is a linear event in real time... it allows for the representation of different temporal moments simultaneously," thus challenging linear "narratability" and "forcing a recognition of the role of the present in constructions of the past" (139). By experiencing theatrical time, audiences can question the linearity and singularity of what is considered "real time" and perceive how our present actions entangle with multiple temporalities. This perspective resonates with Barad's quantum understanding that "electrons are always already untimely" because their existence encompasses infinite predictions of what *could be* as an inherent component of what *is* ('TransMaterialities' 401). Theatre, through its syncopated and ambiguous temporality, makes perceptible the quantum entanglement of times that physics suggests is fundamental to reality itself.

However, for representations/the double of theatre to exist, the spectator seemingly needs to be a distanced and separate observer. This presents an apparent contradiction with my argument in Chapter Two for onto-epistemology in which I claimed that knowledge is not gained

through distanced observation. The distancing of theatre is well-theorized, from Brecht arguing that an audience can be alienated or defamiliarized from what is happening on stage to Fried writing that the theatricality of literalist art is obvious because, "the largeness of the piece, in conjunction with its non-relational, unitary character, distances the beholder—not just physically but psychically." For Fried, distance between subject and object constitutes theatricality itself. How can we maintain a commitment to onto-epistemology while benefitting from the politically productive concept of theatrical time when read through the lens of performative posthumanism?

Perhaps what Fried identifies as "distance" might be reframed as an agential cut; a measurement that temporarily make boundaries between audience and stage action visible. Spectatorship, then, is a way of being with or "of" rather than apart from theatre. When we attend a performance, we aren't outside looking in but participating in what Barad might call an "intra-active becoming" of the theatrical event. An audience's attention, breath, silence, or laughter are elements that contribute to theatre's creation. In my previous chapter I introduced the metaphor of touch, rather than vision, as a way to understand knowing. Theatre is the "touching of time against itself" (Schneider, *Performing Remains* 16). Audience members don't observe theatrical time from a detached position; they feel it, embody it, resonate with it as a part of the real. Audiences come to know theatre not by standing outside it but by being affected by it, to repeat Fried's terms, "not just physically but psychically."

This reframing of distance between actor and audience also helps reframe spectatorship through a posthuman lens that resists anthropocentrism. Rather than individual spectators observing a separated/distanced performance, theatrical events involve assemblages of bodies, affects, technologies, histories, and spaces coming together in intra-active becoming. The performance doesn't exist prior to this engagement but emerges through it. When Schneider

describes “bringing time again and again out of joint into theatrical, even anamorphic, relief,” she points to how theatrical temporality disrupts the very notion of linear, progressive time on which subject/object distinctions depend (*Performing Remains* 16). In this disruption, there are possibilities for knowing where “the real, the actual, the raw and the true” emerge not through distanced observation but through “the zigzagging, diagonal, and crookedly imprecise returns of time” that entangle spectator and performance (16). The theatrical event, with its complex temporalities and embodied engagements, offers an example of Barad’s onto-epistemology in practice.

Disability theatre artists are especially attuned to the crooked zigzagging of time. Petra Kuppers writes, “Performance is time-based: it takes time, rehearses time, restructures time, overlays time, creates multiple presences and absences” (8). Likewise, Johnson writes, “Performance is an apt site for this temporal exploration, given its ontological status as a durational or time-based medium” (214). For disability artists, performance can represent, explore, and enact crip time’s slowness, recurrence, and precarity, and share those experiences with audiences. I return to crip time and other “strange temporalities” after a brief detour into the temporalities that climate change makes visible—one instance of the damaged worlds juggling time helps us inhabit differently—because marginalized and non-normative temporalities most productively illuminate what juggling time is and can do.

Climate Change Forces Us to Think Differently About Time

Like theatre, climate change forces us to think differently about time because its effects do not unfold in a straightforward cause-and-effect sequence like capitalist or settler time would have Western subjects believe. Unlike immediate environmental disasters, where destruction

follows directly from an event—a hurricane, a wildfire, an oil spill—climate change operates on a delayed timeline. As Leiss explains, "Delayed impacts are a part of the intrinsic nature of global warming, because some GHGs emitted into the atmosphere, primarily carbon dioxide from fossil-fuel use (coal, oil, natural gas), do not disappear or quickly fall back to earth again; some considerable part of them stay there for long periods of time, creating the 'greenhouse effect'" (7). Greenhouse gas emissions released today will not immediately translate into higher atmospheric concentrations or perceptible warming. Instead, "some of these delayed impacts of global warming are… centuries in the making" (7). This "temporal drag," Freeman's term for the anachronistic "pull of the past on the present," means that the consequences we experience now are the result of emissions from decades past, while the full effects of today's emissions will not be felt for years (62). The slow, accumulative nature of climate change disrupts conventional ways of understanding responsibility and urgency. If we wait for devastation to become obvious, we will already be locked into far worse consequences. Addressing climate change, then, requires a shift in how we conceptualize time—moving away from short-term, event-driven reactions toward long-term, anticipatory action.

What's more, the trauma experienced by environmental devastation is not isolated to the time in which it appears to occur: "Analyses of environmental racism and settler colonialism offer potent examples of how violence upon bodies and land reverberates across generations, moving at multiple temporalities to debilitate and disable" (Kafer, 'After Crip, Crip Afters' 428). A temporal formulation that names this reverberation of violence through time is the notion of "afterlife," articulated by scholars of race and performance. Afterlife contests the idea that time is divided into distinct generations or traumatic events but instead consists of "an ongoingness" that "construes this persistence of the past in the present not as a repetition but as a continuation"

(Colbert et al. 16). Acknowledging the continuation of the past in the future, the Haudenosaunee seven generations principle ensures decision-makers in the present consider the impact their choices will have seven generations in the future, encouraging sustainable relations over time.

Temporal Concerns with the Idea of the "Anthropocene"

The term Anthropocene, which I've used throughout this dissertation, carries several flaws that complicate its usefulness in discussions of climate change. The term acknowledges human impact on the planet at a scale comparable to nonhuman forces, which Morton points out is productive for ecological awareness because it "names two levels we usually think are distinct: geology and humanity," and "binds together human history and geological time in a strange loop" (*Dark Ecology* 7–8). However, this also means it still assumes a conceptual divide between humans and the world, attributing planetary destruction to humans as a species, rather than to specific human practices, like the extraction and burning of fossil fuels for private profit. This distinction has led some scholars to propose alternative terms, such as the Capitalocene, which was originally coined "to reflect the capitalist politics of *some* humans" that play a role in environmental devastation (Puig de la Bellacasa 176). Others argue that Anthropocene shouldn't be used to refer to humans per se, but to anthropos as an ideology—the human-centered thinking that legitimates and reproduces the capitalist social relations the Capitalocene names, and that continues to limit our responses to the climate crisis (Loveless, *Why Research Creation*). Despite its limitations, the term Anthropocene does accurately point to anthropogenic causes of climate change. As Leiss notes, "analyses have shown that there is a robust 97 percent consensus in published climate-research studies that human-caused GHG emissions are the primary cause of recent global warming and of expected further warming in the coming years" (44). However, not

all humans contribute equally to this crisis. The Anthropocene framework risks flattening responsibility, erasing the disproportionate role of industrialized nations and capitalist interests in environmental devastation.

The temporal structure of the Anthropocene also raises concerns. As Nordblad observes, "the Anthropocene… evokes long-term, geological, or deep time" (331). Geological epochs are typically named long after they have passed, but the Anthropocene was named *during* the Anthropocene, from an imagined perspective millions of years in the future. This framing can have a paralyzing effect, making irreversible climate change feel like an inevitable geological process rather than an ongoing, political crisis with many opportunities for harm reduction. Nordblad warns that such framing suppresses political action because "it suggests that the future is already determined" (335). If we conceptualize the future as pre-determined, we leave no room for imagining alternative futures: "For political possibility to be discernible, some sense of openness of the future is required" (330). The future, then, should not be treated as an object of prediction, but as "a project of imagination and deliberation of a plurality of alternatives" (344). Perhaps this is why I am drawn to speculative fiction texts like *Momo* in the writing of this dissertation as a methodological tool.

Haraway offers an alternative to the paralyzing effect of the Anthropocene in her term "Cthulucene" and methodology of "staying with the trouble." Haraway agrees that one of the most destructive responses to the horror of the Anthropocene is "a position that the game is over, it's too late, there's no sense trying to make anything better, or at least no sense having any active trust in each other" (*Staying with the Trouble* 3). This too late-ness is a response to the temporal condition of the Anthropocene. Haraway's alternative, the Cthulucene, names a

different “timeplace for learning to stay with the trouble of living and dying in response-ability on a damaged earth… infusing all sorts of temporalities and materialities” (2).

Another temporal issue with the terming our present moment the Anthropocene is that it is often used to produce a kind of Verfremdungseffekt, like Brecht’s historicization—placing the narrative of environmental devastation in another time so that we are defamiliarized from it and can think critically about it (Nordblad 332). The hope is that this critical thinking will result in shock over humanity’s awful power to destroy ourselves and our planet. This perspective aligns with Morton’s concept of hyperobjects—entities that are “massively distributed in time and space relative to humans” (*Hyperobjects* 1). Climate change is a hyperobject because it is so vast, so overwhelming, that it escapes comprehension. While this defamiliarization can highlight the urgency of the crisis, it can also be “a dangerous way to frame the global-warming discussion, one that risks instilling a sense of pessimism and weakening human hope, will, and sense of efficacy” (Boulton 778). If climate change is positioned as a vast, impersonal force caused by humans but beyond human intervention, then the very possibility of meaningful action is undermined.

The temporal framing of the Anthropocene contributes to a sense of detachment from the urgency of climate change. By positioning the crisis within deep geological time, it distances the problem from immediate human experience, making it difficult to perceive as an urgent political issue. As environmentalist and science communicator George Marshall highlights, “politicians constantly describe climate change as a long-term issue and a threat to future generations” (59). Consequently, when asked whether climate change will impact them personally or future generations, “a large majority… say that it will *not* affect them personally. And a large majority… say that it *will* affect future generations” (59). This disconnect fuels complacency,

allowing the problem to be endlessly deferred rather than confronted. The Anthropocene's emphasis on deep time compounds this tendency, positioning climate change as a slow-moving, geological inevitability rather than an immediate consequence of human action—one that demands urgent intervention. If the future is always positioned as the primary site of climate catastrophe, then action in the present is perpetually postponed. As I wrote earlier, chrononormativity seems natural to those it privileges—but future beings affected don't have a voice in this argument!

Taken together, these concerns suggest that how we narrate climate change temporally shapes what responses we can imagine—and which actors we recognize as capable of participating in those responses. This is not to suggest that rethinking time is sufficient for addressing the climate crisis, or a substitute for material and political action. But when dominant temporal framings privilege human agency within a linear, productionist narrative, the agencies of nonhumans are structurally rendered invisible—and with them, the kinds of distributed, relational responses that ecological survival may require. Puig de la Bellacasa's reconceptualization of care as sustainability highlights its temporal dimension "as the fostering of the endurance of objects through time (maintenance against breakdown)," which a capitalist time consciousness does not prioritize (171). Recognizing temporal diversity—that not all matter conforms to singular, linear chronology—is not itself transformative action, but it is a precondition for recognizing the full range of actors and timescales that transformative action must account for. As Puig de la Bellacasa writes, for instance, soil emerges through entangled temporal processes:

> Soil is created through a combination of the long, slow time of geological processes such as those taking thousands of years to break down rock—that Stephen Jay Gould qualified

> as “deep time” (1987)—and by relatively shorter ecological cycles by which organisms and plants, as well as humans growing food, decompose materials that contribute to renew the topsoil. Both micro and macro timescales at stake in ecological relations involve different time-frames than those of human lifespan and history. (176)

Soil’s heterogeneous timescapes require multiple temporal perspectives for their understanding. The pace required for the ecological care of soil as a slow-renewable resource is in tension with “the accelerated linear rhythm” of technoscientific intervention and productionist urgency (173). Reimagining temporality, as Puig de la Bellacasa suggests, means “time is not an abstract category, or just an atmosphere, but a lived, embodied, historically and socially situated experience. Time is not a given; it is not that we have or not time but that we make it through practices... Temporality is not just imposed by an epoch or a dominant paradigm but rather made through sociotechnical arrangements and everyday practices” (175). Attuning to these alternative temporalities allows for a more expansive recognition of agency, care, and endurance beyond the human. Such attunement can also become a form of political intervention, as movements for climate action challenge the temporal arrangements through which capitalist societies organize everyday life. For instance, Greta Thunberg’s Fridays for Future movement disrupts the chrononormativity of the school and work week, refusing the assumption that climate activism belongs only to leisure time outside the productive routines of capitalist life. By occupying time normally reserved for labour, the movement suggests that climate crisis cannot be contained within existing temporal norms and instead demands a reorganization of collective priorities and rhythms.

Strange Temporalities

Contemporary performance philosophical notions of time hold "the underlying, unstated… assumption that time belongs to the human" (Grant et al., 7). Grant, et al. simply mean that time is subjective, but to express this, they implicitly assume that only humans can be subjects. However, if agency is distributed across the juggler-prop assemblage, then time is not only dependent on human experience, but also their relationship to things. And, if we extend correlationism to all nonhumans as well, then things have their own relationship to time. Imagining humans are the only keepers of time encourages us to imagine time on human scales, which cannot accommodate for hyperobjects like the climate. Humans become the men in grey, stealing time from other beings for their own benefit.

Disability scholarship, or crip theory, is integral to this conversation because crip time, as Alison Kafer first defined it in her field-defining book *Feminist, Queer, Crip*, is "a reorientation to time" (27). Crip time "requires reimagining our notions of what can and should happen in time, or recognizing how expectations of 'how long things take' are based on very particular minds and bodies" (27). The bodies this dissertation is interested in, of course, are not only ones human ones. Crip time offers "a challenge to normative and normalizing expectations of pace and scheduling"—expectations that are deeply entangled with the temporal demands of industrial capitalism (27). Capitalist chrononormativity organizes life according to rigid temporal expectations: efficiency, deadlines, life stages. Kafer, drawing on Jack Halberstam's work in queer studies, reminds us that "time is foundational in the production of normalcy, such that engaging in particular behaviors at particular moments has become reified as the natural, common-sense course of human development... normative narratives of time presume a linear development from a dependent childhood to an independent adulthood defined by marriage and

reproduction" (35). The temporal scripts we are expected to follow (education, work, marriage, reproduction) are not natural or inevitable but historically produced and enforced. Crip time exposes the constructedness of these scripts and makes room for temporalities that are non-linear, non-productive, and non-normative, which offers a powerful framework for resisting the chronologies that have made the climate crisis possible.

My goal is not to suggest that the Earth or climate is at risk of becoming disabled, or that climate change will "cripple" humanity because doing so would perpetuate the idea of "disability… as the agreed-upon limit of our projected futures" (27). And yet, in many ways, this so-called crippled future is already here. Rather than viewing this as a terminal condition to be feared or "cured," I ask: what might disability scholarship, read alongside the playful logic of juggling as a practice in precarity, offer for living curiously and interdependently in what Tsing calls a "life without the promise of stability" (Tsing 2)?

Envisioning a future that is "cured" of disability is tied to fantasies of mastery over bodies and time (because if we live long enough, we all become crip). People with disabilities are often viewed as "obstacles to the arc of progress" or simply "out of time" entirely; however, "once rehabilitated, normalized, and hopefully cured, [they] play a starring role: the sign of progress… the triumph over the mind or body" (28). This cured body, like the virtuosic numbers juggler in the Western tradition, becomes a symbol of overcoming and of transcendence, but it is the material practices legitimated by this logic of mastery (the extraction, exploitation, and control of land, bodies, and nonhuman life) that have driven the ecological crisis we face.

Rather than hoping for a "cure" to climate change, Kafer's political/relational model of disability asks what ideologies underpin our desire for such a cure and encourages us to think futures otherwise—not just so that we might survive the future, but so that we might live in it. A

more just future may necessarily move at a slower pace. In that sense, we will need not only more time, but crip time: nonlinear, adaptive, care-oriented, and collective. As Kafer writes, "imagining different futures and temporalities might help us see, and do, the present differently" (28). Kafer's is also an intersectional crip theory as she points out that queer, racialized, and poor temporalities have long been framed as sick, pathological, or contagious—temporal "deviations" that are targets of the same ableism her work seeks to dismantle. If, as Kafer argues, "disabled children are not part of this privileged imaginary [of the future] except as the abject other," then neither are queer, racialized, or poor children (33). A future free of ableism—one that affirms multiple embodiments and temporalities—is, ultimately, a future that is better for everyone.

Anything outside the normative experience of time Kafer refers to as a strange temporality; including but not limited to, queer time, care time, temporal lag or drag, afterlife, and, centrally, crip time. Each of these temporalities disrupts dominant expectations of productivity, linearity, and forward momentum. As Kafer explains, "Theories of crip time address how illness, disease, and disability are conceptualized in terms of time, affect one's experiences of time, and render adherence to normative expectations of time impossible, for example, timeliness, productivity, longevity, and development" ('After Crip, Crip Afters' 428). Crip time reveals how these expectations are unattainable for many and in so being are violent, exclusionary, and built on the erasure of different ways of moving through the world. Kafer emphasizes that crip time is not simply a matter of being out of sync, but of resisting sync altogether by refusing to conform to normative temporal demands. In this way, crip time generates new affective relations, new rhythms, and new ways of orienting oneself in time. Strange temporalities, then, are generative. They help us imagine alternative futures and more

liveable presents that are not built on cure, mastery, or speed, but on inclusivity, interdependence, and care.

While Kafer and others in queer and disability studies theorize "strange temporalities" as refusals of normativity, not all non-normative temporalities emerge from or sit within the same genealogies. Indigenous temporalities compliment but do not neatly align with the frameworks of crip or queer time and shouldn't be absorbed within those rubrics. Doing so would risk further colonial assimilation/oppression. Rather than being "strange" within dominant frameworks, Indigenous temporalities are grounded in long-standing, place-based ways of being that colonialism has worked to erase or reorder. These temporalities carry with them different rhythms that emerge from fundamentally different political/ethical/ontological commitments. By discussing Indigenous conceptions of time here, I don't seek to assimilate them into the same category as crip time, but to hold space for their specificity and sovereignty. Indigenous peoples are the original and continuing caretakers of the lands I now inhabit, whose temporal practices have been honed through generations of place-based reciprocity. If we are to imagine non-dominating, sustainable relationships to land as part of resisting climate collapse, we must learn from the temporalities embedded in these practices and the knowledge systems that sustain them.

It is challenging for me as a settler to disentangle my own temporal assumptions, though, because the very terms colonizers use for Indigenous peoples, like "Indigenous," "Native," "Aboriginal," frame them as peoples that came "before" the land now called Canada, which imagines Indigenous presence as something past rather than something ongoing that settlers arrived to replace or erase (Murphy 32). As Rifkin argues, "Native peoples occupy a double bind within dominant settler reckonings of time. Either they are consigned to the past, or they are inserted into a present defined on non-native terms" (vii). The logic of settler colonialism has

attempted to reorder Indigenous time through policy and law—such as the Indian Act—in ways that align with non-Native timescapes of expansion, ownership, and dispossession. Against this, Rifkin proposes the concept of temporal multiplicity to acknowledge Indigenous continuity and change on their own terms, opening space for what he calls "temporal sovereignty": the right of Indigenous peoples to inhabit, define, and enact their own temporal relations.

Also, as Jacqueline Shea Murphy, author of *Dancing Indigenous Worlds*, emphasizes, Indigenous temporality cannot be reduced to a single definition or stabilized into a single category called "Indigenous temporality." Rather, "Indigenous" should be understood through embodied practices that have persisted despite the colonial political histories that made the term necessary. As Simpson writes, "Practices are politics. Processes are governance. Doing produces more knowledge" (*As We Have Always* 20). The idea that thinking or fields of thought, like metaphysics, alone can produce knowledge is a basic premise of Western academics rejected in Nishnaabeg praxis. For Simpson, "The only thing that doesn't produce knowledge is thinking in and of itself, because it is data created in dislocation and isolation and without movement" (20). This is evident in Indigenous temporal practices, like the Anishinaabe 13-moon calendar traced on the turtle's back, which tracks time through ecological change and lunar cycles and can be felt in the bodies of those who menstruate (*Theory of Water*). Taking seriously this prompt to live philosophy in movement, through mistakes, "stories, ceremonies, and the land itself," I now turn to my own embodied juggling practice to ask what temporal theory it might reveal (23).

Juggling as Temporalizing Process

Many current performance theorists argue, as evidenced by the introduction to the *Performance and Temporalisation* anthology, that time "is somehow dependent on and

conditional with human perception, experience and knowledge, rather than being an objective condition of things" (Grant, et al 7). I suggest that to think within a damaged world we need to understand time not as occurring within human perception, but in the relation between beings that are not always or only human. This is where juggling comes in. Firstly, to build an argument that human is not a pre-existing category (covered in the previous chapter) and secondly, to develop a temporality that doesn't emerge strictly from human perception.

Current Western understandings of juggling define it by its physical expression; for instance, throwing and catching more objects than we have hands. However, this definition necessarily excludes some humans from the experience of juggling, like those with motor control, coordination, or other physical disabilities that restrict rhythmic throwing and catching. If juggling is only conceived of as throwing and catching, then it is temporally restricted by the pull of gravity. When I offer to teach someone to juggle, most often their response is that they are "not coordinated enough," which suggests that they perceive juggling requires natural talent. Juggling also gets defined based on whether or not the person witnessing it can personally do it. I am familiar with this value-based argument for art having worked in a contemporary art gallery; I have heard people say "my kid could do that," which somehow restricts it from being called art. A similar thing happens in juggling. Bringing up the difficulty of juggling, though, Gilligan and Åberg argue, brings up how one *values* juggling, rather than what juggling is. Ugly juggling, they argue, is still juggling.

This physical expression or technique-based defining of juggling is a problem because it restricts diverse lived temporalities and physical abilities from participation. The benefits of juggling for human brains are significant, so it's unconscionable that the dominant narrative of juggling discourages access for many people. Since juggling globally activates the human brain

and can "be a positive tool for the rapid development of new communication structures within the brain," it is important that its accessibility is widespread (Quat 17). Defining juggling by its physical expression limits that accessibility. As Presberg put it in our interview, "I think that object manipulation and juggling are vastly underutilized in that and that there's many, many forms of juggling and object manipulation that could be life changing to many, many people. And that trying to make people aware that is an option… can get more people into juggling and can change people's lives and make the world a better place." Stager went so far as to say that, as an Occupational Therapist, she believes that "exercise and movement" is a Basic Activity of Daily Living (BADL) no less important than eating, sleeping, or hygiene. "I brought circus to an acquired brain injury unit at a health center," she told me, "And there's a lot of therapeutic rehabilitative potential for it… Circus is a really great inclusion vector to build physical literacy in people."

Craig Quat, creator of the juggle board, whose goal is to increase the accessibility of juggling for everyone, offers a solution: define juggling not by its physical expression, but by the experience of it. Juggling, Quat writes, is harmonised by space and time because "its tempo (or frequency of action) is not determined by a juggler, but rather, by the relationship that a juggler forms with the juggling" (13). If juggling is not defined by a specific and finite representation, but instead as a particular intra-action between juggler, prop, space, and time, then juggling can be found from a diverse array of embodied, rhythmic, playful activities that centre objects but do not necessarily manifest as throwing and catching. Quat writes that, "for whatever motion a person is able to produce, there is always going to be a way to correspond that motion to the sequencing of a relationship with space and time, and thus juggling can be created by anyone" (22). Quat created the juggle board to accommodate diverse expressions of juggling; I frame the

juggle board as a new tool of juggling measurement. A juggle board can be made from a variety of materials and Quat offers an open-source guide to its construction on his website—my own juggle board was 3d printed by a friend of mine. Typically, it is a thin board made of wood and has five lanes on which balls can be placed. Working on their own or with other jugglers, a juggler can lay the board flat or angle it upward to roll balls along the tracks. The juggle board can also be combined with other forms of movement, like throwing and catching, to create an infinite array of patterns. The balls still leave the juggler's control and collaborate with the juggler's force on them and gravity to determine the pace of their return, but the board *allows* the juggler to adjust the pacing to their own lived temporal abilities. Because the balls are supported by tracks and *discouraged* from falling to the ground, the juggler can manipulate them in a variety of ways. The juggle board makes the timing and physical expression of juggling flexible. It acknowledges, as disability scholars do, that "different ways of organizing time engender highly divergent experiences and uneven material consequences" (Johnson 215). It makes it possible to stop time or slow time or move time backward when necessary. And it is no less juggling because the balls are on tracks instead of in the air, because the juggler has the same relationship to the props as one does in toss juggling.



Figure 6. Video still screen capture from the QUAT PROPS YouTube video "MEET THE JUGGLE BOARD by PLAY."

The juggle board is not "assistive" in the same way that sticks and string aren't "assistive" to the diabolo.[83] They are constitutive of the prop. The juggle board is a method of juggling that is equal to, if visually different from, toss juggling. And the juggle board opens new techniques and timings that are valuable to the practice as a whole. As Kafer writes:

> disabled people… can no longer be cast as modeling a cyborged existence that nondisabled people have yet to achieve. Such a move strengthens the abled/disabled binary, suggesting that disabled people are fundamentally and essentially different from nondisabled people… disabled people are not alone in the cyborgian realm. Cyborg theory could then turn itself to interrogations, for example, of why the very same technology is alternately described as 'assistive' or 'time-saving' depending on whether a

[83] The diabolo is a prop in which a large yoyo is manipulated on a string that connects two sticks. The sticks are typically held in each of the juggler's hands and the yoyo is rolled across and tossed from the string.

> disabled or nondisabled person is using it… 'cyborg' becomes an opportunity for exploring or interrogating the abled/disabled binary. (*Feminist, Queer, Crip* 118)

In our interview, Chen acknowledged this as well, saying that his definition of juggling is partially inspired by Quat's work with the juggle board: "you roll a ball to one side and the intuitive thing is to roll it back and of course, that's juggling. You create a gap for something and you have to fill it with the next motion, the next ball, the next thing … that to me is one of the foundations of juggling." The juggle board allows for the separation of juggler and prop I established as constitutive of juggling in chapter two.

"Juggling," Quat argues, "involves the mild distortion of our relationships with space and time," and the juggle board allows more humans to access this productive distortion of their relationship with space and time (14). Because juggling distorts a juggler's relationship to time, how we understand time can alter a juggler's technique. Juggling, like theatre, is a temporal medium; it structures our experiences of time (Åberg and Gilligan, 'Episode 4', sect.1:00:00-1:01:32). The book *Performance and Temporalisation* refers to dance as being an exemplary instance of performance as making time; I argue that juggling is as well and in a similar way. The main difference being that dance is not always as explicitly/visibly dependent on the time of the nonhuman (of course, the dancer is always also dependent on the forces of gravity, the force of the floor pushing them upward, etc.), whereas juggling always is. In juggling, we must not only attend to the subjective time of our own bodies, but our bodies in relation to the timings of nonhumans—props—and more-than-humans—gravity, etc. Juggling is a temporalising process between juggler and prop. Juggling, then, could be defined by the time(s) it allows us to experience. What times does juggling make accessible?

The rest of this chapter attempts to answer that question.

Siteswap is Inclusive Because it Allows Unique Temporalities

In siteswap notation, a 3 does not indicate a fixed duration, but a spatial-temporal relationship between successive throws. Siteswap notation structures juggling through "beats," but these beats are not governed by a metronome or clock. A beat is subjective to the juggling pattern itself. Recall that the cascade pattern is called 3. The numbers in a siteswap represent how many beats in the pattern later each prop will be released. Let's say I'm doing the pattern 3 with a blue, pink, and yellow ball and am counting throws. First, I throw the blue ball from my right hand. Once it's out of my hand, we start counting the beats: next, I throw the pink ball from my left hand (one), then I throw the yellow ball from my right hand (two), and then I throw the blue ball with my left hand (three). It is on that third beat after throwing it that I throw the blue ball again. And it is on the third beat after throwing it that every ball in the pattern is thrown again. If I juggle the siteswap 3 very slowly, or very quickly, it's still siteswap 3. The beat emerges from within the practice; it's not imposed from outside. Therefore, it resists standardized time. Juggling's temporality is internal to each juggler's body; each body defines its own metric.

At the risk of undoing what I've just argued/explained in order to nod towards siteswap's ability to account for diverse and emergent scenarios: according to juggle.fandom.com there are 12 ways to notate the cascade, including 3. The others are: "[(4x,2)*], **[522]**, [(6x,2)(2,2)*], [(6x,0)*], [72222], [720], [(8x,2)(2,2)(2,2)*], [(8x,2)(0,2)*], [9222222], [92022], [900]" ('Siteswap Synonyms'). Each of these is a cascade, but different numbers represent different heights and dwell times. In the pattern [72222], for instance, my blue ball would leave my grasp for a relatively long time (the 7) while the pink and yellow balls are held in waiting (the 2s)—

they have a long dwell time. This creates a slower feeling pattern for me. What's more, "If higher throws, uneven rhythms, or varied throw heights are allowed, then there are even more ways to write the pattern, such as [b22222222], [5520], and [722520]" ('Siteswap Synonyms'). So, not only could siteswap be used to argue that all experiences of the cascade are valued equally/equitably, because they are all represented by 3, siteswap also has the flexibility to individually and equitably notate a cascade to represent the diversity of its manifestations.[84]

The temporal integrity of a juggling pattern is not only subjective to an individual juggler's temporal reality, but also, jugglers of different physical abilities can perform the same siteswap pattern, even if they look different from each other, allowing for a shared experience across difference. A siteswap does not need to be physically executed through throwing and catching in a traditional sense. If my blue, pink, and yellow balls in the cascade pattern were rolled along a track (like they are with Quat's juggle board) or bounced on a trampoline, or if I moved my hands around while I juggled them (as in Mills Mess), the siteswap would still be 3. Siteswap only describes a pattern's (subjective, contingent, emergent) beats, not how it looks. As such, the numbers don't even correspond to heights or the location of the sites, except in how those heights and sites relate to each other. The important thing is the reciprocity—the cycle of giving and receiving between the juggler and the prop. This opens space to think of juggling not as an event-driven task, but as an attunement (to use Morton's term) or a dance (to use Bennett/Bernstein's term) of mutual responsiveness.

This aspect of siteswap juggling is reminiscent of crip time, as described by Kafer: crip time "requires reimagining our notions of what can and should happen in time, or recognizing

[84] Actually, one of my favourite juggling acts of all time is one that Wes Peden performed at the IJA solo prop competition. He juggled three clubs for three minutes in a cascade. But his variations on the pacing and movement of the cascade were so diverse and creative that you almost couldn't tell they were all the same siteswap.

how expectations of 'how long things take' are based on very particular minds and bodies" (*Feminist, Queer, Crip* 27). The beats in juggling align with this logic by allowing for a temporal mode that honours difference. In juggling, a full cycle of a pattern, called a "period," will take different times for different people and therefore look different, even as the notation of every pattern remains the same. So different jugglers can share an experience of being in relation to the object world but can designate their own sites and perform it at their own pace. E. Moore commented on this inclusivity of juggling, which I do think is partially inherent to the practice, but also likely a result of the community both Moore and I are involved with:

> Before I started juggling, I definitely didn't think of myself as a physical person… I don't really enjoy sports and I didn't want to be competing against other people. But if I can express myself through motion, through different shapes—props—there's a certain amount of creativity there that you can come up with yourself and I think people are more accepting to that. There aren't really norms with juggling; there isn't a template… I appreciate juggling because you're not held to certain standards: you can do whatever you want.

Chrononormative time demands synchronicity, standardization, and output. Crip time involves a reimagining of what counts as "on time," what durations are valid, and how time is lived across diverse bodies (Kafer, *Feminist, Queer, Crip* 27). Juggling, I argue, also celebrates diverse, asynchronous, and embodied rhythms where what matters is ongoing relation, which can help with healing, community-building, and inclusion in a harmed and harmful world.

Juggling Takes into Account Nonhuman and Collective Temporalities

Although in the previous subsection I said that each juggler can perform the same pattern but at their own pace, I must now confess this is not entirely true. Jugglers are also always limited by the pace of their props and the substrate through which they juggle (air, the board they roll balls along, the physics of the VR video game they juggle in, etc.). Juggling's tempo is also shaped by the materiality of the prop—its weight, shape, or bounce. These qualities require responsiveness and emergent relationality, not the dominance implied by sayings like "juggling is a fight against gravity." In partner juggling (e.g., club passing), temporal negotiation becomes more explicit, or at least more visible to Western thinkers, because timing emerges from mutual responsiveness also between humans with none of them exerting unilateral control.

Juggling offers a metaphor for, and practical example of, relational time. In juggling, time is shared and distributed across vibrant assemblages, between actants, and emerges from intra-action. A juggler's goal is to investigate a prop's movement patterns/abilities and meet them with the juggler's own capabilities—similar to Davis' mechanisms and conditions framework discussed in chapter one. Dresser, who I interviewed for this project, designed a prop—a clear tube through which a ball could be rolled or tossed—that explicitly played with temporal pacing. By changing the angle of the tube, Dresser could speed up, slow down, or even reverse the ball's trajectory. Dresser called this, "playing around with time" and commented that "the fact that you can roll a ball arbitrarily slowly through the tube is interesting. The fact that you can do tube-plus-ball lets you blend contact staff—which tends to be very slow and fluid—with toss juggling—which is much less so. The ability to combine those things I certainly find appealing." This prop encourages an exploration of non-normative temporality: it doesn't force the experience of time into a fixed pattern, but allows it to emerge variably, in response to the

ball's materiality, the pull of gravity, the tube's angle, and the juggler's intention. Dresser recalled other explorations of time/duration from other jugglers:

> The two things that come to mind here for me are—do you know MCP?—old-school contact staffer, but they have a video of them doing a contact roll with a ball filled with molasses or honey or something.[85] And the ball is just very slowly crawling down their arm. And then did you see the video… of a guy balancing a broomstick on his sternum for 3 hours? He's laying on the ground and balances a broomstick on his sternum for 3 hours. That is an example, I think, of stretching time.

For Dresser, "focusing on the relationship between things is something that I've taken from juggling," and that, in my reading, includes the relationship between matter and time.

If, as Puig de la Bellacasa writes, care is "the fostering of the endurance of objects through time" and entails getting "involved with a diversity of timelines," then an attunement to the unique temporalities of things is necessary to foster caring relations between beings (171). Juggling happens in emergent time: juggling is improvised within a structure and drops are responded to in real-time. No two sequences are identical. This undoes an illusion of control and predictability and prioritizes adaptability and co-creation. The collective temporal authorship of juggling rejects the capitalist fantasy of human mastery over time, because as we juggle with others—human and nonhuman—we learn to move with the world's rhythms.

Siteswap as the Overlapping of Time: Juggling Happens in the Future

[85] Learn how to make your own slow rolling honey ball on Michael Caden Pike's (MCP) YouTube channel: https://www.youtube.com/watch?v=KuwTeZL_gzk

Juggling is reciprocal not only in body-object relations but in its temporal logic: the juggler is always throwing toward the future while acting with awareness of the past. Siteswap, for instance, indicates how many beats into the future a ball will be thrown again, not what is currently occurring. A 3 does not describe the present but predicts what will happen to a prop three beats from now. Time in juggling is displaced, or "porous" to use Schneider's term. Juggling requires inhabiting this delay—a constant throwing-into-the-future that must also remain responsive to past actions. It undermines the idea of a singular "now" or a fixed present.

Kafer also highlights the overlapping of time, writing that there "is a literal projecting of one's body *as a body* into the future even as one inhabits one's body in the present" (*Feminist, Queer* 39). In other words, she writes, "the present moment must often be measured against the moment to come: if I go to this talk now, I will be too tired for that class later" (39). This reminds me of jugglers projecting bodies forward in time with their mind given only the information in the "present" at the peak of the pattern, or even at the moment the ball is thrown. For instance, when I juggle five balls, I cannot look at each ball when I throw or catch it. Instead, I look at the top of my pattern so that I can see in brief where the ball was and where it's going. This lets me understand where the ball will be and I can move my hand there accordingly. There are also juggling patterns in which you can't visually see the props at all after releasing them, for instance, because they're thrown behind your head. Chen told me in our interview that, even when he can't see the prop, "my brain is still tracking it, maybe not with my eyeballs, but it exists there, and it will reappear." So, the present overlaps with the future in a juggler's attention. As in crip time, the "present moment" must be "measured against the moment to come," but also the moment that has just passed (39). This is perhaps one reason juggling is often used as a metaphor for multitasking; it evokes a simultaneity of times.

There is a simultaneity to the temporality of juggling that my interviewees described as resulting in a "general focus" on the pattern as a whole. This general focus of the whole situation, so that the past or present are not given more weight than the future, or rather that there is no difference between these seemingly disparate times, encourages a sustainable juggling pattern. Beginner jugglers often drop because they cannot yet soften their focus and translate their knowledge of the past and awareness in the present moment into an action that creates a sustainable future. Instead, what they might do is reach up and grab the ball, pulling it down, which (to use words from my interviews) "disrespects the prop" by exerting too much "control" as they cut the prop's trajectory short. In disability studies, Kafer describes this project as a form of "self-care," and in juggling I suggest this is a method of caring for others (the props, ensuring they don't drop). Care work "requires attention and fine-tuning to the temporal rhythms of an 'other'" (Puig de la Bellacasa 201). Although in the Western context juggling is often thought of as unidirectional in its activity—as in, it is the human manipulating props and not also the other way around—I argue that we can reimagine juggling as an interdependent model of care.

Greenhouse gas emissions demonstrate the complexity of this temporal overlap because emissions from actions taken in the present persist in the atmosphere for decades, affecting futures we cannot yet perceive. Juggling offers a small-scale, embodied encounter with a similar structure of temporal relation. To juggle well, sustainably, is to respond to the Other, to the past and future, with care, attentiveness, and reciprocity. It is "in these relations of care the present is dense, thickened with a multiplicity of entangled and involved timelines rather than compressed and subordinated to the linear achievement of future output" (Puig de la Bellacasa 203). Juggling makes perceptible the density of the present at the scale of human-object relations through responsiveness to temporal interdependence.

Siteswap has a Temporality of Unfolding/Falling/Cascading

If greenhouse gas emissions reveal the ways in which our present is thick with futures, then the unfolding nature of climate change highlights just how precarious and irreversible some of those futures may become. Nordblad writes that climate change must be understood within "a temporality of unfolding, a mode in which game-changing events have taken on their own momentum and proceed beyond human influence, let alone human control… hardwiring the political future of future generations for more climate change" (340). Because climate change does not always move "gradually and in proportion to the emissions," Nordblad explains, its changes can be "abrupt, dramatic, and impossible to undo" (340). Even radical cuts in emissions may not halt certain processes once they have begun. While human actions still matter, the time of climate change is not entirely ours to control. Sometimes, a single action initiates what I'm calling a temporal "cascade"—a chain of consequences that, once set in motion, can no longer be reversed. In vanilla siteswaps, before a pattern begins the juggler has nearly infinite options. But once a throw is made, the possibilities narrow. A throw of 5, for instance, means the next few manipulations must fill the time of 5 beats. The future becomes partially determined, even if some choice remains. Like the climate system, or Barad's untimely electrons, juggling reveals that time unfolds in relation to prior actions and "engagement with all others" ('TransMaterialities' 401). Not all options are always available, and certain decisions can set a pattern in motion that cannot easily be altered.[86]

[86] Although a good juggler could diverge from vanilla siteswap by making improvisational/emergent choices like doing squeeze catches and multiplexes to redirect the pattern based on how the props are falling!

To appreciate this aspect of juggling more deeply, it is helpful to compare it to other embodied practices that could be notated using siteswap but aren't driven by the same temporal imperatives. Siteswap can be used to represent any sequence in which objects (or even body parts) move to specific locations in a pattern. Braiding hair or hand clapping patterns, for instance, can be documented as a siteswap notation. However, the temporal relationship in these examples is different from that in toss juggling as its not necessarily rhythmic. In braiding, a particular crossover might be described by a "3" or a "1," and that move may be constrained by previous motions, but the timing is dictated by the human hands involved. You could cross the hair now, or 10 minutes from now, and the pattern would remain the same. The hair itself is largely not motivating your hand to braid it, nor are forces other than your hand motivating the hair to reach the next site in the pattern .[87] In juggling, by contrast, gravity dictates how fast the props come down and the props motivate the hand to catch them. There is no way to stop the pattern in time without breaking the pattern. Juggling is a micro-embodiment of the temporality of unfolding/cascading, revealing that present actions are not neutral/innocent towards the future, but rather are narrowing future possibility and potential for action.

While practices like braiding allow for a pausing of time, where human hands fully dictate the rhythm and the pattern can wait indefinitely, juggling resists this pause. With each throw the temporal pattern unfolds/cascades and the juggler must respond in real time to a pattern that cannot be delayed or altered without consequence or perhaps great knowledge, skill, and attunement. This inability to suspend or halt time leads me to another temporal reality of juggling: dropping.

[87] Not entirely true because all matter is creative and has pulses slightly off from the others in an assemblage. For instance, my hair often slips through my fingers as I'm attempting to braid it, triggering me to reach and catch it in "real" time. In the end, we have always been jugglers!

According to Kafer, “Tom Boellstorff offers ‘the time of coincidence’ as another queer temporality, one in which time ‘falls rather than passes’” (*Feminist, Queer, Crip* 36). As in “May 1st falls on a Wednesday.” This concept finds “a way to move beyond strict linear time” because you’ve got Wednesday as a normal cycle/passage of time and May 1st as falling onto that normal cycle of time, so “it allows for two cycles of time... to be running simultaneously yet not perfectly parallel, creating circular moments of coincidence rather than straight... lines of forward movement” (36). Of course, Kafer asks of this, “What is the time of falling, and how might we read disability into this focus on coincidence, on simultaneity? Or how might we read the distinction between falling and passing time as a distinction between falling and passing *in* time?” (36). To “pass” in time, is to pass as able-bodied or as straight, blending into normative temporality. Whereas to “fall” is to out yourself as disabled or queer—just like falling on the sidewalk would expose a disabled body, which might exist in crip time and/or queer temporalities.

In juggling, we also use the word “passing” to discuss patterns where jugglers exchange props with each other. So, I could argue that in solo juggling, passing is the exchange of props with yourself. If a juggling pattern was perfectly executed, those passes would happen on an exact beat. So, in juggling, passing means not only the continuous movement and exchange of props, but also mastery of a pattern. When a prop is dropped, meaning it “falls,” this interrupts the passing of the pattern, in both senses of the word. A drop renders visible the human’s lack of complete control and the prop’s material agency; it reminds us of the entangled and diverse temporalities involved in juggling. What’s more, even when a pattern is passing, it is never perfect. As discussed earlier, the rhythm of juggling is not like the ticking of the metronome, it never happens exactly on the beat represented by a siteswap. A pattern may be passing as a

certain siteswap—it may be legible as a particular, notate-able pattern—but it is never exactly that siteswap. Every juggler is always "dropping" a little bit with every throw.[88]

In the context of climate change, we might read tipping points and feedback loops as ecological moments of "falling" time that results in a cascade or unfolding temporality. They are instances when one temporal system—slow atmospheric accumulation—suddenly intersects with another—glacial collapse—creating cascading consequences that cannot be undone. Like a juggling drop, these moments defy pause or reversal, disrupting the expectation of continuous control to reveal the multiple temporalities involved in any system. They remind us that time is not ours alone to pass through; it is a shared field of cascading and dropping. Dropping is rarely the end of a juggler's work; it is instead an opportunity to reflect on what's changed and adjust accordingly. Thinking through falling shifts attention away from fantasies of perfect control towards practices of ecological care and responsiveness in conditions that are beyond any individual's control.

Conclusion

Juggling is a small-scale practice through which alternate temporalities can become perceptible, offering a brief break from a capitalist time consciousness. It offers a metaphor for navigating the temporalities of the climate crisis through its responsiveness to cascading consequences and embracing of diverse, entangled temporalities, as well as its demand for patience, persistence, and embodied attunement over time. Learning to juggle teaches the juggler to appreciate a temporality of progress on a much longer time scale than many other pursuits. It's

[88] In juggling, a "drop" is also any disruption of a pattern, even if the prop doesn't fully fall to the floor.

"something where you do long term physical practice and you see very slow, incremental gains," Phillips explained in our interview. The timescale of learning in juggling is so long that, as E. Moore told me, "When you're in the middle of it, you might not notice it, but it does pay off." This temporal drag of the feedback loop requires a certain trust in the future (and past) because progress is visible only in hindsight; it is, after Haraway, a staying with the trouble. To recall the epigraph of chapter two, juggling is hopepunk. "No output," Puig de la Bellacasa writes, "no growth into the future, no innovation, is possible without a commitment to everyday care" (211). Learning in juggling, Moore said, is about "slow progress, but slow and steady." Juggling is a practice of everyday care, maintenance, and tuning. "Temporal imaginings," like juggling, in the way that I theorize it here, "that make time for care time contribute to enact a multiplicity of interdependent temporalities, fostering alternatives that challenge the predominance of antiecological timescapes" (Puig de la Bellacasa 215). As a sport, it's possible to participate and progress on whatever timeline suits one's own embodied temporality and experience.

CONCLUSION: TRAJECTORIES

> *To speak of humans and nonhumans allows only a rough approximation that still borrows from modern philosophy the stupefying idea that there exist humans and non-humans, whereas there are only trajectories and dispatches, paths and trails.*
>
> —Bruno Latour, "The Berlin Key, or How to do Words with Things"

In this dissertation, I have discussed juggling as a measurement device that stabilizes previously indeterminate ontological boundaries between juggler and prop, revealing the categories of human and nonhuman, subject and object as contingent on the coming together of beings through performance. I have offered juggling as a case study for various theories in the nonhuman turn—Davis' affordance theory, Bennett's distributed agency, Barad's agential realism—to reframe juggling as a playful, systems-based collective vernacular practice with an ecological sensibility in that it relies on horizontal interdependence across multiple scales of being, cultivating an attentiveness to our own and the world's material becoming. My three chapters mirrored the three balls of the juggling cascade, each pointing to an aspect of new materialist thought—objects (as opposed to things), (distributed, intra-active) agency, and (strange) temporalities—that I thought juggling might usefully deepen.

Juggling is an activity full of contradictory and counterintuitive ideas. It is distinctly relational, even as it relies on separation between the juggler and prop. It can be mathematically notated to great generative potential, even as it never fully achieves its notation in performance. As a hobby, it is "useless" in the eyes of free-market capitalism, even as it provides great value to those who practice it. It requires great technical skill acquired through disciplined practice, even as its ecological form resists simplistic notions of human mastery over the nonhuman. It is

simultaneously an art and a sport and an embodiment of mathematical and scientific interrogations. Most notably: to keep props in the air, they must drop. Sustainable juggling relies on performing within the contradiction. The counterintuitive logics of juggling mirror the tensions of trying to live responsibly within a colonialist, capitalist society on a damaged planet. Juggling offers a practice of ongoing relational care by attuning to props, staying with the trouble, and living in a contradictory position without paralyzing us to a response.

This dissertation did not centre on the stage performance of juggling; however, during my MA and PhD coursework, I thought and wrote about many juggling performances and even performed a few myself, including one at Waterloo's Pinch Cabaret in January 2023, which is accessible to view in Appendix C of this dissertation. This was a hybrid juggling lecture-performance that interrogated what juggling is and could be through hat juggling performed to a recorded, fictionalized interview based on actual responses I received in my interview process. As I attempted to trouble binaries between "serious" academic scholarship and "playful" science fiction in this dissertation, so too did this performance trouble associations of juggling with popular, low-brow performance culture. In the lecture-performance I said that what I do as a juggler is "build relationships to the object world" and I don't think I could put the juggler's work any more succinctly now. I also said in that lecture-performance that, "I want to give back to the juggling community… I wanted to create a dissertation that they might want to read, that might be relatable to them, that had some of their ideas in it." I hope my research encourages other jugglers to see their practice as a space of philosophical and political inquiry, where technical experimentation and relational attunement already model alternative ways of being with objects, environments, and one another. I also hope, as I know they will, other jugglers will

productively contest my arguments and continue to debate what juggling is and could be. These debates make our shared practice deeper and more interesting.

Another hybrid lecture-performance I did during this degree was even more hybridized. It was a juggling-lecture recording filmed remotely by me and professional juggler Dawn Dreams in our respective cities, then broadcast live at the Circus and Its Others conference in 2022. In the video, Dawn uses contact juggling techniques to manipulate 3d printed English alphabet letters and I analyze her work through performance theory and video editing techniques. The presentation's title, "How to Do Words with Things," was drawn from J. L. Austin's 1962 book of lectures *How to Do Things with Words* and Bruno Latour's 1993 essay referenced in the epigraph of this concluding chapter, "The Berlin Key or How to Do Words with Things." By referencing Austin's work, I argue that utterances are actants in that they are not descriptive but performative; as Latour writes, they are the source of an action (Austin 6).

In the lecture, after a demonstration of Dawn's juggling with 3d letter-props, I respond by suggesting that "if Austin's work says words can do things and Latour's work says things can do words, then Dawn's work says… words *are* things… They can be juggled, manipulated, thrown, caught, flipped, rolled, dropped, broken."[89] Some contemporary circus artists expose the anthropocentrism of the traditional circus by demonstrating the unjugglability of nature—the ways it exceeds humanity's grasp. However, in Dawn's work with letters, she undoes mind-body dualism by revealing the *jugglability* of *culture*, collapsing the nature/culture divide from the other direction. "Letters are objects, tools, technology," I say in our video lecture-performance. As technology, letters are subject to Davis' mechanisms and conditions framework for design;

[89] This glosses over what Latour actually argues, which is that if you "Consider humans… you are by that very act interested in things" ('The Berlin Key' 20). In my statement, I conflate "humans" with the culture side of the nature-culture binary and interpret words as a part of human culture, so words is a metonym for humans.

letters afford different manipulations based on their user's dexterity, perception, and the letters' cultural legitimacy. Dawn's letters are understood not only as material objects, but also as discursive units whose meaning changes through manipulation. Her work demonstrates, then, that matter and meaning are not distinct, they are co-constituted through intra-action and in this case, the act of juggling.



Figure 7. Video stills from "How to do Words with Things" Circus and Its Others conference presentation, 2022.

As I speak in the video, footage of Dawn appears on the screen in which she juggles the word "metaphor" into the words "morph," then "mate," "mother," "earth," "art," and "heart." Dawn's lists of words "perform real philosophical work"; however not quite in the way that Bogost argues lists perform (*Alien Phenomenology* 40). Bogost argues lists offer "disjunction instead of flow"—a "rebuff [to] the connecting powers of *language* [and] *being itself*" (40, emphasis in original). This is true to an extent in Dawn's work, which highlights the individual lives and possibilities of each letter separate from its fellow word-formers. But Dawn's work

also emphasizes the transformative relationships between letters and words—by rearranging "metaphor" it becomes "mother" "earth." In the seminal cognitive linguistics book *Metaphors We Live By*, which Dawn and I read in preparation for our lecture, George Lakoff and Mark Johnson write that, "if ideas are objects, *we can dress them up in fancy clothes, juggle them, line them up nice and neat*, etc." (13, emphasis in original). Lakoff and Johnson also argue that concepts can only be categorized through experience, or "interactional properties" (121).

To adapt and extend Lakoff and Johnson's argument in Dawn's work, the concept of a letter can also only be categorized through performance. By rotating a capital L just 90 degrees it becomes a capital I. By rotating a capital P 180 degrees, it becomes a lowercase d. Dawn's props become legible as letters when her manipulation of them intra-acts with an audience's perception. Dawn comments towards the end of the lecture, "I really like sharing *me* with the letters and how they are their own thing, but as an interaction, we make a new thing. That's where the poetry lies." It's ambiguous in the presentation whether Dawn is sharing herself with an audience by manipulating the letters or whether who she is is shared with the letters, and I think that ambiguity productively reveals agency and identity as shared and emergent in performance. Who I am as a juggler is shared with my props, even "in the equivocal status of the prop as a means of support that is 'temporary'" (Jackson 80). All means of support are temporary in that they only exist as such when certain phenomena occur to make them legible as support. All things, not just props are "something an object becomes, rather than something an object is" prior to phenomena (Sofer 12). If support is conceptualized as an event and not an inherent property of certain beings, then environments do not simply "support" human life by default; they become supportive or unsupportive through particular configurations of relation, care, and collective action. To juggle is to participate in the ongoing, precarious work of making and

maintaining support possible between juggler and prop and across the entangled scales of being. Kimmerer and other Indigenous thinkers demonstrate how this participation requires "reciprocity with the more-than-human world" (Kimmerer 190). The juggler who feels in their body the distributed, contingent, emergent nature of all support through their juggling is already practicing at least a temporary ecological awareness and hopefully finding relief from the chrononormative pressures of a colonial-capitalist time consciousness.[90]

We all have the potential to become jugglers. And we always have. I hope, in this dissertation, I have expanded jugglability to be inclusive of diverse embodiments and ways of relating to objects. I have made this throw as precisely as was afforded to me at this time, considering my perception of the fields of performance, circus, and new materialist studies, dexterity with the words and ideas I sought to present, and what I thought would be considered culturally and institutionally legitimate at the time of writing. I did this in the hopes that other scholars might catch this dissertation, or some part of it, and throw it back to me, or to a fellow juggler, with care.

[90] These jugglers might be said to have "earthed" their training space, after Ben Spatz in his *Performance Research* article "Earthing the Laboratory: Speculations for doctoral training": "An earthed laboratory is a place of making grounded in relations of deep reciprocity, in which local micro events can be connected with translocal, transnational and global or planetary (but not universal) contexts; in which interpersonal and material ethics are short circuited to social, cultural and economic politics; and in which the flow of documents is orchestrated to serve the care and thriving of living beings."

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APPENDICES

Appendix A: Video Glossary of Juggling Terms

Preface to Video Glossary

This appendix provides a video glossary of key juggling terms referenced throughout the dissertation. Each entry links to a short video demonstration, allowing readers to see the pattern, technique, or concept in practice without leaving the ecosystem of this dissertation. These videos are included as a convenience and are not intended as comprehensive instructional resources or original contributions to knowledge; their purpose is to provide a visual point of reference for readers who may be unfamiliar with juggling terminology. Readers interested in exploring juggling in greater depth can find resources available online, like community-maintained databases and siteswap animators such as Juggle Wiki at juggle.fandom.com, the *Library of Juggling* at libraryofjuggling.com, and the desktop and mobile app Juggling Lab where you can enter any siteswap to visualize it. See the entire glossary here: https://drive.google.com/drive/folders/182IX8c0hxVQkJsMnAFfLvmY15-KQUerh

Video Glossary of Juggling Terms

3 or 333: See Cascade. https://drive.google.com/file/d/1jB116CzG5Y5kSQq8JF-ipp1ET0goHyE8/view?usp=sharing

441: A three-object siteswap consisting of two same-side throws (4), and a quick horizontal transfer (1) directly to the opposite hand. In Juggling Lab, enter 441 in the Pattern field. https://drive.google.com/file/d/1XwqqKVsvBhfQ1DgUzyYiClR_5UaaQTjE/view?usp=sharing

522: A three-object siteswap that appears similar to a standard cascade but includes alternating high throws separated by moments in which two objects are briefly held. In Juggling Lab, enter 522 in the Pattern field.

https://drive.google.com/file/d/1yjBwm7h0CuANzlYLSLS1_yFl04lGRLiI/view?usp=sharing

531: A three-object siteswap consisting of a high throw (5), a standard-height throw (3), and a quick horizontal transfer (1) directly to the opposite hand. The low transfer becomes the next high throw, creating a continuously rotating pattern. In Juggling Lab, enter 531 in the Pattern field. https://drive.google.com/file/d/1cwJ-cK933B8C8Gppzx97Ee_ilxEOIrQG/view?usp=sharing

Bounce Juggling: A style of juggling in which balls are bounced against a surface rather than thrown entirely through the air. Bounce juggling is often combined with conventional toss juggling. https://drive.google.com/file/d/1DjddtN6MI-J5VQL0A5UV1u7egEKtLrwa/view?usp=sharing

Cascade: A juggling pattern for an odd number of objects, in which each object is thrown alternately from one hand to the other in intersecting arcs. Erik Åberg describes the cascade as the "default form" of juggling, and it is typically the first pattern learned by beginning jugglers. In Juggling Lab, enter 3 in the Pattern field. https://drive.google.com/file/d/1jB116CzG5Y5kSQq8JF-ipp1ET0goHyE8/view?usp=sharing

Colour Coding: Assigning specific-coloured props to specific throws in a siteswap so that the structure of a juggling pattern becomes more visually legible to an audience. https://drive.google.com/file/d/1i1cMRMsQlwsCp51H47zFe-pYcKAnfMqH/view?usp=sharing

Foot Stalls: When a juggling prop rests momentarily on the juggler's foot within a juggling pattern or trick. https://drive.google.com/file/d/1M-R3nfNxFCskh-Rek0VPZq4g-6DhhAW4/view?usp=sharing

Half Shower: A variation of the cascade in which one hand consistently throws high crossing throws while the other hand returns the objects with lower throws beneath them. A full shower is when the lower ball is passed directly across to the other hand with no height. In Juggling Lab, enter 3 in the Pattern field and select "half shower" from the Hand movement drop down.

https://drive.google.com/file/d/1lPsTzwpxjPIUWiQ6tF4WWKOYw59J95iO/view?usp=sharing

Juggler's Tennis: A variation of the cascade in which one ball in the pattern is always thrown over the top of the others so that it alternates between hands while remaining visually distinct. https://drive.google.com/file/d/1rB3f38xZvqcsAj56Sn5f7-IPFCwhSuKi/view?usp=sharing

Mills Mess: A variation of the cascade in which the arms continuously cross and uncross, causing each hand to alternate between throwing from the opposite and same side of the body while maintaining the underlying cascade rhythm. In Juggling Lab, enter 3 in the Pattern field and select "Mills Mess" from the Hand movement drop down. https://drive.google.com/file/d/1GgeM09RelZdM8yENAW8NWnQIzBogaXTg/view?usp=sharing

Normal three ball cascade and flip the HSS with the OSS: "HSS" is hand siteswap and "OSS" is object siteswap. The siteswap the hands are doing is notated differently than the siteswap the objects are doing in a juggling pattern. If you swap these notations, you get a new siteswap. This entry demonstrates the result of swapping the hand and object siteswaps of the standard three-ball cascade. In JugglingLab, enter 2 in the Pattern panel and hss=3 in the Manual settings panel. https://drive.google.com/file/d/1-yMMvawlswR1aSAGQn9-DMXc8rqYE2ff/view?usp=sharing

Pancake Throws: When a ring is thrown horizontally to the ground instead of vertically. https://drive.google.com/file/d/1mX2K0NOP4uFOZaTw9k2pSrbHpQRwOiTN/view?usp=sharing

Passing: Any juggling pattern in which objects are exchanged between two or more jugglers. One variation is stealing, in which a juggler removes one or more objects from another juggler's pattern without interrupting the overall flow. https://drive.google.com/file/d/1Vctwts_6r2VEN0t8J96TzhrOQUXy3xGi/view?usp=sharing

Pattern falls apart or collides: Essentially a blooper reel. https://drive.google.com/file/d/1knv9i6i9p-SKGsdKAGr1HCcGiK0ShYwM/view?usp=sharing

Reverse Cascade: A variation of the standard cascade in which every throw travels over the previous throw rather than underneath it. In Juggling Lab, enter 3 in the Pattern field and select "reverse cascade" from the Hand movement drop down. https://drive.google.com/file/d/1rdnaKq-6xWPna1tT6yTEV0F5nzaoz4Sb/view?usp=sharing

Siteswap Notation: A numerical notation system used to describe the timing and relative height of throws in juggling patterns. Each number indicates how many beats later the thrown object will next be caught. Many different patterns can therefore be described precisely using a short numerical sequence. Siteswaps can be entered directly into Juggling Lab to generate animated visualizations. https://drive.google.com/file/d/1AL-AE3eoHtGHOAGb-vfkTMivttYlByqh/view?usp=sharing

Stalls: See Foot Stalls. https://drive.google.com/file/d/1M-R3nfNxFCskh-Rek0VPZq4g-6DhhAW4/view?usp=sharing

Three-club cascade, three-ring cascade, three-[insert-any-object-here] cascade: The cascade is defined by the pattern of throws rather than by the props themselves. The same pattern can therefore be performed with clubs, rings, balls, or many other objects, each producing distinct visual and physical characteristics. https://drive.google.com/file/d/1j9FTZzoLxP7P_Tl5ulx1TFyDRtPhQRPU/view?usp=sharing

Appendix B: Interview Questions

First of all, could you tell me a bit about your juggling journey? How did it start and where are you at now?

- What do you juggle? (props)
- What kind of juggler are you? (hobbyist, professional, technical, flow, artistic, etc.)

What does it mean to be a juggler?/Why do you call yourself a juggler?

Could you describe the relationship between you and your props?

- How is juggling with someone else different from juggling alone?

What do you think is the relationship between juggling and circus? Do you relate at all with circus?

Do you consider yourself a part of a juggling "community"? What is the nature of that community? (Who is it made up of, or how do they interact?, etc.)

In your words, what is juggling? What could juggling not exist without?

How is _____ like juggling? (Insert another practice of the person being interviewed; examples were crafting, chemistry, dancing, etc.)

Appendix C: Lecture-Performance at Pinch Cabaret

Accessible at the following link: https://drive.google.com/file/d/1UaqV52PSmIgLoennFwhPE8190vFsPrIm/view?usp=sharing