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## Language and simplicity: A powers view

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## ABSTRACT

The notion of simplicity is that complex problems are often solved by novel combinations of simple mechanisms. These solutions aren't simple; they're simplex. Language use, as a complex behavior, is ripe for simplex analysis. In this paper, I argue that the notion of powers—an organism's capacity to instigate or undergo change—is doubly useful. First, powers, as opposed to mental representations, are a suitable object for simplex analysis. So conceptualizing languaging in terms of powers gets us one step closer to a simplex analysis of language. But thinking of languaging in terms of powers has an additional payoff. Berthoz asserts that the concept of simplicity is related to the concept of meaning. How they're related is unclear. Conceptualizing languaging in terms of powers injects meaningfulness into lived world of the organism. Consequently, the concept of powers can act as a bridge between the concepts of meaningfulness and simplicity.

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## 1. Introduction

Living beings construct niches; they occupy *Umwelten*. The constituents of *Umwelten* are meaningful for their occupants (Gibson 1966, 1979; von Uexküll, 1934). What is meant by “meaning” will be given in more detail below; but by way of illustration, I take these to count among cases of meaningfulness: pictures of my family in my office are meaningful to me; cricket chirps are meaningful for crickets; butyric acid is meaningful for ticks; buzzing flies are meaningful for frogs.<sup>1</sup> This much is old news.

Like Gibson and von Uexküll, Berthoz (1997) holds that organisms perceive the world as meaningful for them. But what's new is a unifying concept that subsumes the construction of *Umwelten* under a concept that includes other biological tricks like redundancy and specialization. *Simplicity* is the notion that complex problems are elegantly solved by combinations of simple solutions. (This will be discussed in more detail in the next section.) The concept of an *Umwelt* reflects the spirit of simplicity: organisms adapt to biological niches. The niche provides resources the organism doesn't have; and the organism takes advantage of those resources in its push to survive and reproduce. Elements of the niche need what the organism provides; the organism needs what elements of the niche provide. Neither needs to produce on their own what the other offers. A complex problem for survival finds a simplex solution in symbiosis.

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<sup>1</sup> One might worry that there is rampant equivocation on ‘meaningful’ here. There isn't. Space considerations (and authorial inclinations) preclude the development of a theory of meaning, but the starting point isn't Gricean considerations about natural and non-natural meaning. The starting point is much closer to a Gibsonian theory of affordances: environments are meaningful because they afford action.

Embedded in the notion of simplicity is that organisms occupy environments that are meaningful for them. Many empirically-inclined philosophers since at least Hobbes have been uncomfortable with the idea of an environment being meaningful independently of people who would find it meaningful. “How,” these philosophers ask, “how could it be that a non-measurable property like *meaningfulness* could be a feature of an empirical world?” Some, like Hume, say that normative properties are projected by agents onto the environment. Others, like Locke, say that the meaningfulness of environmental stimuli is contingent on the meaningfulness of internal representations. Now, Locke’s solution to the problem is has been frequently adopted with respect to my target: language use. Biotypical human beings live in worlds that are soaked with language. And what has come to be a truism in philosophy of language has one of its strongest expressions in Locke: the vast majority of words in a language’s lexicon are meaningless symbols until life is breathed into them. On the Lockean story, words have *derived* content; thoughts have original (or ‘underived’) content.<sup>2</sup> Words inherit their meanings from thoughts. While Locke’s solution requires assigning meaning to the environment, meaningfulness is no more a part of the extra-mental world than national borders. Since neither exists without humans’ active intervention, neither is a part of the extra-mental world.

The Lockean story is not for the supporter of simplicity. *Umwelten* exemplify the spirit of simplicity, and Lockeanism about meaning is rendered toothless by the notion of *Umwelten*. Abandoning the Lockean myth, we see that the particular sense of an utterance act is directly perceived. And it is directly perceived, in part, due to the interactive engagements of conversational partners. For thinking about what makes environments meaningful for organisms, some have recently argued that a hylemorphic metaphysics—one that depends on matter and structure as basic ontological elements—provides a useful framework.<sup>3</sup> One piece in particular is important for now: the concept of a *power*.<sup>4</sup> Powers are properties of organisms that enable their bearers to initiate or undergo changes. And an organism has the powers it has because of the way its parts (i.e. its matter) are organized (i.e. structured). In this paper, I will argue that conceptualizing languaging capacities in terms of powers has three distinct benefits. A powers framework (i) fits well with a multi-timescale view of language that one finds in distributed approaches to language, (ii) preserves the dynamical character of linguistic interaction, and (iii) begins to unpack the conceptual connections between simplicity and meaning.

Here is how this paper will proceed. First, I will sketch what Berthoz has to say about simplicity and meaning. Second, I will sketch a distributed approach to language that has been developed in detail by Cowley, Steffensen, Thibault and Jensen (among others). Third, I will sketch what has come to be known as the ‘identity theory of powers.’ Fourth, I will describe powers for languaging organisms. Fifth, I’ll show the payoff for my view, and then consider a potential objection.

One small caveat before we begin. This is a paper that shows how adopting a powers view of languaging resonates with Berthozian simplicity. While the notion of simplicity drives the argument, it does a lot of the driving from the back seat. It will pop its head up from time to time, but the strength of *simplicity* for this paper lies in this. Simplex solutions are ubiquitous in nature and the concept *simplicity* is somehow bound up with the concept *meaning*. Scientists have the job of finding those simplex principles and mechanisms; philosophers pitch in by showing that the ubiquity of meaning as a feature of a simplex world is utterly nonmysterious. The aim of this paper is to argue for a way of conceiving of activity that is amenable to empirical investigation (i.e. the notion of a power) and to show that this mechanism is also amenable to the ubiquity of meaning as a naturally occurring property. So while simplicity isn’t always in the driver’s seat, you can be sure that it’s navigating from the back.

## 2. Simplicity and meaning

Just like language, the world is complicated. But sometimes, complicated problems take elegant solutions. Take, for example, Webb’s (1995, 1996) study of cricket phonotaxis. Male crickets make a lot of noise, and the job of the female is to find the male in the midst of a cacophonous, dangerous world. To do this, the female cricket has ears on its head and legs. Whenever the chirps of a male cricket pass by, the female cricket takes a big step in the direction of the noise. Keep this up and she’ll eventually find her way to the male.<sup>5</sup>

The simple rule describing cricket activity is this: legs move towards the sound. And this simple rule is manifested in cricket physiology; legs are built so that they move towards wherever the sound is coming from. We can see how elegant this is by considering a more complicated account that would achieve the same outcome:

1. Orient myself until the signal is equally strong in both ears.
2. Move forward.
3. Check to see that signal-strength is equal in both ears.

<sup>2</sup> This way of putting the matter is found in Adams and Aizawa (2008).

<sup>3</sup> Lassiter (2016).

<sup>4</sup> Hylemorphism is committed to the existence of matter and structure as fundamental ontological elements. In one development (Jaworski, 2016), structure is taken as a property that empowers the structured object. E.g. a diamond molecule as a tetrahedral structure of carbon atoms. We are able to set aside the metaphysical background for now since the target of this paper is an activity in which organisms engage. That is, token instances of languaging are manifestations of a power that organisms have.

<sup>5</sup> Full credit to Tony Chemero for the pithy description.

4. If yes, then move forward.
5. If not, re-orient until signal is equally loud in both ears then move forward.
6. Repeat 3–6.<sup>6</sup>

Just writing that was tiring.

Cricket phonotaxis exemplifies the central suggestion of [Berthoz \(2009\)](#): the world is complex and requires *simplex*, but not *simple*, solutions. Simplex solutions are rich combinations of simple principles that gives rise to complex structures. Ant trails illustrate the phenomenon. Ants in search of food tend to wander about. When they find some food and begin to carry it back to the nest, they drop pheromones along the way. When other ants stumble on the pheromone trail, they follow it, taking to either the food source or the nest. Since the pheromones dissipate, there's time crunch for ants to latch onto the faint trail. When a critical mass of ants finds the same food source, a stable pheromone trail is formed, allowing the ants to move directly from nest to food source. A simplex rule describing ant behavior might be: move randomly until finding a pheromone trail; then follow the trail.<sup>7</sup> It's a simplex solution to a complex problem: how do ants find food and carry it back to the nest with little in the way of perceptual resources? Largely by distributing the labor over the entire colony.

Berthoz offers a number of simplex principles to solve complex problems, including the Detour Principle (“detours” in the organization of physical structures can speed processing) and the Principle of Specialization and Selection (organisms evolve and adapt to their biological and cultural niches). He offers the Principle of Meaning: “meaning can't be superimposed on life; it is life” ([Berthoz, 2009](#), p. 22). The Principle of Meaning bears a special relationship to the other principles. It's more of a guiding rule for thinking about simplicity rather than a heuristic for identifying biological mechanisms. The Principle of Specialization and Selection effectively guides our attention to organism-niche adaptations when searching for biological mechanisms. The Detour Principle tells us to expect some redundancy in mechanisms. The Principle of Meaning, on the other hand, instructs us to think about the character of the world: there is meaning in the world that is discovered, but not assigned, by people. Meaning is life, not superimposed on it.

Zooming out further from a principle about meaning, Berthoz says that the very concept of simplicity includes the concept of meaning (2009, p. 23). Simplex solutions are somehow bound up with the notion of meaning. Since we find simplex solutions all over nature, that makes meaning in nature ubiquitous. The claim that ‘meaning is life’ is philosophically bold. Meaningfulness is a property that's typically associated with human beings, not with living organisms in general. *I* can appreciate a meaningful poem or painting, but I'd bet good money that ants in my yard can't. So what sense can we make of Berthoz's claim?

The first thing to do is provide detail for what Berthoz means by ‘meaning.’ One extended discussion is in terms of the importance of architecture. For example, we find that

...precisely because of its horizontality and its status as a sign of stability, a roof must be dignified. Whether it serves as a reminder of the horizon, which is difficult to glimpse from the depths of the city, or the interface of wall and sky, or is transformed by the setting sun into the border between day and night, a roof — even a flat one — can be exposed to the whims of the wind and light. It can evoke the terraces of Babylon and the streams of the Alhambra ([Berthoz, 2009](#), p. 201).

But there are other suggestions scattered throughout the text. In discussing specialization and modularity, for example, we find:

*An analyzer ... transmits images from the retina to the amygdala to quickly identify the positive or negative value of things seen...* When you meet someone for the first time, you immediately form an impression: “I like her,” or “He frightens me.” This first impression is the result of analysis carried out by the amygdala ... The advantage of this very fast analysis of the environment is that it alerts us to the danger or, conversely, to the presence of a desirable agent. It is not simple; it is simplex. (p. 78, italics in text)

Immediately forming an impression of the person perceived can't be the result of the image transmitted from the retina if described in non-normative terms (e.g. in terms of size, color, etc). There's some emotional valence attached to the perception. With the emotional valence comes normative injunctions: a person ought to be trusted, or someone ought to be avoided.

Here's another example:

Another original property of living organisms is the ability to learn complex sequences of movements. Learning to see entails grasping the order in which the environment must be investigated. Thus, when you work, you must see the tools you're going to use in a certain way (p. 33).

And immediately relevant to this:

<sup>6</sup> Imagining complicated, computational rules is an exercise from [Van Gelder \(1995\)](#). It's a useful kind of thought experiment for considering how Mother Nature might have designed things if she were given to luxury over parsimony.

<sup>7</sup> Cf. [Wilensky \(1997, 1999\)](#) for an agent-based model that allows users to explore this phenomenon. Ant behavior is vastly more complex than what this simple example illustrates. For explorations in this area, see the delightful [Hölldobler and Wilson \(2009\)](#).

For example, when you stand in front of a door, you immediately gauge the likelihood of getting yourself through it without having to take out a meter stick to compare the width of your shoulders and that of the door... Moreover, as also mentioned above, to living creatures, every object has a functional meaning. A slipper can be a warm refuge for a man's foot, a toy for my poodle, Lolita, or a yummy meal for a moth... Applied to our thesis here, these ideas confirm that space is not a calculable or abstract entity but rather a support for arrangements of shapes and objects that are useful to each species and have a particular *meaning for a given action*. (p. 177, italics in text)

Meaning, then, covers at a minimum: aesthetic norms, social norms, and functional norms. Berthoz also helps himself to the notion *affordance*, i.e. information that's present in the world to which properly attuned organisms are sensitive (e.g. Gibson, 1979; Chemero, 2009; Turvey, Shaw, Reed, and Mace 1981). One charitable way to expand on what Berthoz means by 'meaning' is to connect the notion *meaning* with that of *affordance*.<sup>8</sup> A broad and admittedly hazy way to make the connection is to say that 'meaning' picks out some of the value-laden and normative aspects of experience that the environment affords. That is to say: the environment is meaningful because it affords organisms opportunities for action. Those actions range dramatically from climbing a set of stairs to appreciating a roof for its stability and dignity. Meaning is found in the world because the world is the sort of place to be found meaningful by organisms.

All this fits with Berthoz's description of simplicity. Simplex solutions require combinations of simple principles for addressing complex problems. Organisms searching out simplex solutions are doing so in the context of their own biological niche; that is to say—using the affordance-meaning connection—these organisms are exploring worlds that are meaningful for them. This doesn't require crickets or ticks to wax philosophic, but it does require that crickets and ticks occupy *Umwelten*.

### 3. Distributed language

Distributed views of language can be developed in a variety of ways, and what holds them together is a rejection of internal modules and an emphasis on the time-locked sensorimotor mechanisms driving dialogical interaction. One development is the Denmark Distributed Language Approach (DDLA).<sup>9</sup> The central idea behind DDLA is that language is fundamentally a mode of coordination with other agents and the world occurring on multiple timescales, including milliseconds (neural activity); tens of seconds (bodily dynamics); seconds ("moves" and "turns" of conversation); minutes (flow of situated social events); hours (ongoing social events); days, weeks, months (development of novel modes of speech, e.g. slang); years (development of speech by an agent); decades and centuries (cultural evolution); and millennia (biological evolution). Language activity is constituted by activity at these different timescales; events indexed to one timescale affect events indexed to other timescales. As a toy example, coordinated bodily dynamics (tens of seconds) contribute to well-timed turn-taking in conversation (seconds), which in turn leads to better "flow" of social activity (minutes), which contributes to well-timed turn-taking and more precisely coordinated bodily dynamics.

Distributed language focuses on the dynamics of languaging at multiple timescales, which offers a high degree of fit with the tools of ecological psychology, particularly affordances and abilities for picking up on those affordances.<sup>10</sup> Affordances are opportunities for action that the environment offers. Organisms are sensitive to those affordances; i.e. they have the ability to perceive them. For example, my cup affords grasping; it is graspable. And I can take advantage of that affordance because I am enabled to pick up on it; I perceive the graspability of the cup. But even if I fail to perceive that the cup is graspable, it still affords grasping; that's to say, affordances exist even if organisms don't pick up on them.

Distributed language also identifies distinct, but interacting, orders of language. Cowley (2011), for example, suggests that agents 'take a language stance' when we hear words like we see things in pictures. To unpack the analogy, when looking at El Greco's "View of Toledo," the dark, looming clouds, the church steeple, and the bridge are all clearly *there*. You can point them out to anyone; art historians and artists can point out the images as well as they can point out the contrasts between the light and dark clouds. But in another sense, the clouds and steeple and bridge aren't *there*. When you moving your face closer to the painting and squint your eyes, you see smudges of oil on a canvas, not clouds. But what's just as clear as the two foregoing points is that there can't be the clouds and steeple and bridge *without* the smudges on the canvas: take away the smudges and you take away the images.

Similarly, we hear words and sentences; you can point them out to anyone. But when you focus in on those words and sentences—the auditory version of squinting your eyes and moving to the canvas—there's nothing but puffs and vibrations of air. But just the same, there couldn't be words and sentences without the puffs and vibrations of air. Take away those puffs and vibrations and you take away the words and sentences.<sup>11</sup>

<sup>8</sup> Other work in this vein includes: Costall (1995), McArthur and Baron (1983), Schmidt (2007), Cuffari, et al. (2015), Baron (2007), Hodges (2009), Hodges' and Fowler's (2010) specially edited issue of *Ecological Psychology*.

<sup>9</sup> Cf. Cowley (2011, 2014), Thibault (2011), Harvey, et al. (2016), Trasmundi and Steffensen (2016), Steffensen (2013), Jensen (2014), and Pederson (2012).

<sup>10</sup> Distributed language's commitment to the tools of affordances and abilities to pick up on them can come out in a number of different ways. For example, Steffensen (2013) individuates cognitive events as changes in the layout of affordances. That is, a cognitive event begins with some set of affordances that are available to relevantly abled organisms. That event ends when a new set of affordances becomes available.

<sup>11</sup> This is one point with which some researchers in the distributed language tradition take issue. I have no qualms with talking about "words" and "sentences" as long as we're cautious about the underlying ontological commitments. Cowley (2011) and Thibault (2011) conceive of words and sentences as *virtual* objects. Kravchenko (2003) suggests that linguistic and nonlinguistic entities do not belong to different ontological domains.

I mentioned above that languaging is dynamic for DDLA. That means that “speaking persons serve each other as cognitive resources” (Cowley, 2010). When engaged in conversation, the contribution that one person makes is not independent of the contributions made by the other. This is trivially true in the case of topics of conversation (as even Grice observes, conversation is not constituted by multitudes of *non sequiturs*). But it is also true at very short timescales: one speaker’s pitch affects the pitch for others in the conversation. The rate at which one person speaks shapes her interlocutor’s speech rate.

This exceedingly brief overview of DDLA points to two important aspects of languaging. First, languaging is dynamic. Second, it occurs at multiple timescales. These are the two aspects that I will focus on in using a theory of powers to describe languaging. In particular, I will focus on (i) how a theory of powers enables integration of languaging activities across multiple timescales and (ii) how a theory of speech act types is capable of stabilizing the meaning of an utterance act across multiple occurrences.

#### 4. Identity theory of powers<sup>12</sup>

Powers are special kinds of properties of individual things, events or persons. They are properties that enable their bearers to initiate and undergo various sorts of changes. In other words, powers *dispose* their bearers to respond to the environment in specific ways. Those responses are manifestations. Because powers are dispositional properties whose manifestations depend on external conditions, they are best thought of as potentials for their bearers. I have the power to drink coffee and coffee has the power to be drunk by me, but neither of these powers is activated unless the organism is put in the right circumstances.

The philosophical literature on powers is enormous; fortunately, we need only to focus on one small segment: the identity theory of powers. The identity theory says that powers are identical to properties possessed by their bearers. For an object to have a power to X, the object has a set of properties P and the power to X just is the possession of P (Martin, 1996, 1997, 2007; Martin and Heil, 1998, 1999; Heil, 2003, 2005; Jacobs, 2011; Jaworski, 2016).

There are four claims to the identity theory<sup>13</sup>:

1. Powers are empirically-discoverable properties individuals have.
2. The manifestation of every power is itself empowering,
3. All powers have lineages.
4. Powers are always manifested in conjunction with manifestation partners.

Let’s start with (1): powers are empirically-discoverable properties of individual things, events, and persons. First off, how are powers identified? That’s easy: we identify powers in our lived experience. I have the power to drink coffee and I recognize that this is a power because it just shows up that way in my experience. I have the potential to drink coffee and that potential is actualized in the presence of coffee. The manifestation is my drinking the coffee. By anchoring power-identification in lived experience, empirical details about organisms’ powers (whether human or not) depend on how those powers show up in the world for us.<sup>14</sup>

But once a power has been identified, we leave it to the relevant sciences to tell us exactly what goes into having that power. As a simple example, consider the power of sodium chloride to dissolve in water. An NaCl molecule has this power because of the ionic bonds holding together the sodium and chloride ions. When the molecule comes into contact with water, the attractive forces between the water molecules and the ions are more powerful than the bonds between the sodium and chloride ions. The power of an NaCl molecule to dissolve in water for the ions of the molecule to be held together by certain kinds of bonds and for the ions to have a range of electrons in their outer shells that dispose them to bond with water molecules. The process for arriving at this understanding of NaCl’s power to dissolve began with ordinary observations and then developed by the relevant chemical sciences.

Move on to claim (2): the manifestation of every power is itself empowering. Consider a match’s flammability. The manifestation of a match’s flammability is both a new stable manifestation of the match’s power as well as a power itself. An ignited match is empowered to ignite firewood in a way an unignited match is not. And ignited firewood is empowered to toast marshmallows in a way unignited firewood isn’t. Generally, identity theorists claim that every manifestation of a power is “both an actuality of some potentiality and a potentiality for some further actuality” (Jaworski, 2016: 54).

This leads us into claim (3): powers always have lineages. Now here we have to be careful to distinguish between two kinds of lineages. Both are illustrated by means of examples. Take the powers of NaCl. It has the causal powers it has (the power to deice roads, to dissolve in water, and so on) because of the way a certain quantity of sodium and chlorine ions manifested the powers they had to bond with each other. And these ions, in turn, were empowered to bond with each other because of the way in which the electrons, protons, and neutrons that composed them manifested powers they had. The empirical story will fill out the details of the power’s lineage, whatever that story turns out to be. The powers an individual has

<sup>12</sup> This section very much indebted to collaborative work with Joe Vukov.

<sup>13</sup> There are others (see Vukov and Lassiter (ms.)). But these are the ones that are relevant for now.

<sup>14</sup> This makes my view resonate with a view like Chemero (2009). The starting point for an analysis of cognition is careful attention to ordinary experience.

can always be traced to previous manifestations of other powers in this way. The story becomes more complicated, of course, when we turn from a sodium chloride molecule to the powers of complex individuals such as organisms. But the lesson remains the same: all powers have a lineage. This kind of lineage I'll call a 'downward lineage.' The powers of an incredibly complicated entity—like a living organism—are the result of empowered parts of that complicated entity. So in tracing the downward lineage, we inevitably move from more complex parts to simpler parts (but which are also likely to be incredibly complex.)

As a brief aside, note the similarity here between the concept of simplicity and how we've spelled out the downward lineage of powers. Simplicity is the combination of simple mechanisms to generate complex phenomena. A downward lineage of powers identifies which simpler parts, when empowered, enable complex wholes to become empowered. In both cases, complex behavior is explained by appeal to combinations of simpler entities. At this point, there is only this similarity: that simple solutions follow from applications of simple principles and downward lineages of powers identify empowered simpler mechanisms. It is possible that there are deeper connections between these concepts. The notion of a downward lineage might itself be a kind of simple principle; or perhaps both concepts spring from a broader commitment to non-reductionism. Further exploration isn't feasible here. But the analogousness of the concepts of simplicity and of downward lineages is reassuring: simplicity isn't in the driver's seat, but it is navigating from the back.

The next sort of a lineage is a historical lineage. Examples are easy to come by. I can ride a bike now because of past exercises of my power to ride a bike; present exercises of bread-baking likewise depend on past exercises. It's important to note that historical lineages for a power *P* possessed by an agent *A* don't just depend on *A*'s past exercises of *P*. Many powers depend on specific social and cultural conditions. My power to bake bread depends on bread-baking as a power possessed by other agents in my culture's history: that is, my possessing the power to bake bread is contingent on my being a member of a historically bread-baking society.<sup>15</sup>

It is clear that historical and downward lineages are mutually enabling and disabling. For example, my bread-baking powers are a result of being a member of a historically bread-baking society. But my society is of *that* kind because of downward lineages of the powers of my ancestors: they were able to begin baking bread because they have brains, appendages, and digestive systems of a certain sort.

Finally, consider claim (4): powers are manifested only in certain conditions, and only in conjunction with mutual manifestation partners.<sup>16</sup> As Jaworski puts it:

Under the right conditions, empowered individuals manifest their powers by acting the ways towards which their powers are directed: the fragile objects break, soluble materials dissolve. And that's that: nothing further is required for empowered objects to act. They are simply 'ready to go,' as Martin (2007) says. (2016: 57).

This point is crucial: powers are only activated *in concert* with other conditions. Sodium chloride's power to dissolve does diddley-squat in a world without water. But the power remains even in that waterless world; its effects are never manifested. The same goes for a dog's power to dig a hole or a person's power to order an espresso: these powers require a specific set of conditions for the effects to manifest.

The conditions sodium chloride is in, moreover, affect whether and how it manifests its powers. Sodium chloride fails to dissolve in water if the water is hyper-salinated. Likewise, sodium chloride dissolves more quickly in water that is boiling than in water that is room temperature. Generally, "if you vary an object's circumstances, you may affect the way an object's powers are manifested" (Heil, 2003: 93). Why? "[B]ecause the manifestation of a power can be affected, often dramatically, by the presence or absence of other powers" (Heil, 2003: 93).

Manifestation isn't necessarily a two-place relation: it takes more than sodium chloride and water to manifest solubility. Manifestation is the product of an *n*-place relation. To say that, for example, a ball will roll down an incline is to say that the ball has the power to roll down an incline, the incline has the power to be rolled down, and that there are no other powers preventing the manifestation of the ball's power. Let 'R' represent the relation among powers; let 'b' represent the ball's power to roll, 'i' the incline's power to be rolled down, and  $p_1 \dots p_n$  the set of powers that would prevent the manifestation of rolling down the incline. We can represent the previous claim as  $Rbip_1 \dots p_n$ . The powers that would prevent the ball rolling down the hill are many: obstructing objects, sudden loss of gravitational pull, etc. Nonetheless, they are all empirically discoverable. The key point for now is this: manifesting a power relies on a host of conditions, some of which are more salient than others but all of which are necessary. But these many conditions are captured by the expression 'the ball has the power to roll down the hill.' Even though the ball has the power, that doesn't guarantee that the power is manifested.

We could say more about the identity theory of powers, but this will do for now. Let's recap by way of two crucial points. First is that the identity theory of powers provides an empirically-friendly framework for talking about causal capacities. In this case, we're focused on organisms' causal capacities because it is organisms that manifest simple solutions. Second is that

<sup>15</sup> What would we call it if someone were to spontaneously do all the right things for baking bread but without having been a part of a historically bread-baking society? It strikes me that they're still baking bread but they've experienced the short route for learning the skill. If we wanted to be persnickety, we might say that they 'schmake' bread or they 'history-lite-bake' a loaf. Persnicketyness in this case is directly correlated with how essential the history of the activity is to instances of that activity.

<sup>16</sup> Or what C.B. Martin (2007: Chapter 3) calls "reciprocal disposition partners."

the identity theory of powers integrates an organism's history, environment, and biology into an account of how it does what it does. The points are crucial because they are what a theory of powers will need to make sense of languaging as described in §3. They are crucial for another reason. I'll suggest later that the theory of powers helps in connecting the concepts *simplicity* and *meaning* by casting environments as meaningful for empowered organisms.

## 5. Powers and languaging

So far, we've sketched out a view of powers and a view of language. The view of powers is one that emphasizes powers' lineages and the necessity of mutual manifestation partners. The view of language is one in which language is conceptualized as a distributed phenomenon: distributed across timescales as well as individuals. In this section, I'll frame the distributed view of language using the theory of powers. The payoff for this—showing how language is the sort of phenomenon amenable to analysis in terms of simplex principles—will be given in the next section. In particular, I'll focus on speech acts as an activity performed by languaging agents that is the manifestation of agential powers and thus open to simplex analysis.

Powers are identified through observation of, and reflection on, our lived experience. In our experience, *people* talk. It is an activity of human beings, not modules, brains, or Cartesian spirits.<sup>17</sup> What our theory of powers tells us is that there are both historical and downward lineages to any token act of talking that is amenable to description in terms of speech acts. Our discussion of DDLA confirms as much: talking is just one activity that is integrated with a flurry of activity at many other orders. So talking, then, is never just producing sounds; it's also moving one's body in coordinated ways, activating assemblies of neurons, syncing up with others, and keeping expressions in cultural currency.

The languaging events of our lived experiences are tokens of speech act types. Why think this? When we describe in our ordinary dealings what people are doing when they're making noises and gestures at one another, we never describe what they do in terms of soundwaves, synced behaviors, neural patterns, or coordinations. The most useful conceptual framework for describing the goings-on of language is that of speech acts. This is clear when we reflect on how we describe to children what people are doing: the cooking show chef *tells* viewers how to prepare a roast; the police officer *gives directions* to inquirers; the politician *convinces* citizens of a policy. If the speech act description (as opposed to some other action-description) is the most relevant one, that's the one that is given. People's languaging activities show up for us in our phenomenology as speech acts.<sup>18</sup>

There are biological and social conditions that enable the successful performance of a speech act. The biological conditions are in the downward lineage of a languaging power. Among the social conditions, Austin (1975) notes that certain infelicities can cause a speech act to "misfire"—that is, the speech act is attempted but fails. Misfirings happen when necessary conditions fail to be satisfied. Here is Austin (1975, p. 14–15):

- (A.1) There must exist an accepted conventional procedure having a certain conventional effect that procedure to include the uttering of certain words by certain persons in certain circumstances, and further,
- (A.2) the particular persons and circumstances in a given case must be appropriate for the invocation of the particular procedure invoked.

Breaking either of these conditions (along any of four others) will cause a misfiring.

Manifestations of speech act types empower speakers and other agents to act in certain ways. Pronouncing two individuals as a married couple empowers that couple to file their taxes jointly. Assessing an economic policy enables an adviser to recommend it. In fact, *all* speech act types are empowering. While reviewing all categories of speech act is out of place here, it is useful to discuss two examples. The first is the category of exercitives, which involve the exercising of powers possessed by social agents. Examples include commanding, granting, proclaiming, choosing, enacting, vetoing, and ordering (among many others). It's clear that exercising the power to perform an exercitive is itself empowering. For example, commanding a subordinate to file his paperwork empowers the subordinate to file the paperwork<sup>19</sup>; it also empowers the speaker to reprimand the subordinate if the work isn't done in a timely fashion. The second is commissives, which commit the speaker to something. Promising is a paradigmatic commissive and an exercise of a power to promise empowers the recipient of the promise to follow up in certain ways with the speaker: if I promise to bring a cake to a party and fail to do so, the person to whom the promise is made can rightly rebuke me for failing to follow through.

This is enough of a review of speech act theory to get us started on how a powers-framework is useful. Recall that there are four claims I made about powers:

<sup>17</sup> Even mainstream, internalist psycholinguists can accept this claim. What some (e.g. Chomsky 1957, 1965) add is that the talking is the scientifically untractable and uninteresting part. This is a natural move given a broadly Cartesian framework that puts all of the action on the "inside" of the agent, if not in a Cartesian ghost in the machine then in a Cartesian brain.

<sup>18</sup> Cowley (2011, 2014, and personal communications) states that higher-order patterns are virtual. This is one point on which Cowley and I diverge: we both agree that language is distributed, but disagree on the ontological status of higher-order patterns.

<sup>19</sup> It sounds strange to the ear to say that the subordinate is 'empowered' since the subordinate is carrying out commands. But remember that 'empowered' here only means that the power is coupled with the relevant manifestation partner.

1. Powers are empirically-discoverable properties individuals have.
2. The manifestation of every power is itself empowering.
3. All powers have lineages.
4. Powers are always manifested in conjunction with manifestation partners.

In identifying token speech acts in our lived experiences, (1) is satisfied. We've seen in the case of exercitives and commissives how (2) is satisfied. (3) will be considered shortly. (4) is clear from consideration of misfirings. One way in which a speech act can fail is if there is no conventionally accepted procedure of the persons involved are not the right kinds of persons: not just anyone can promise that I will bring a cake; nor can anyone marry two people or command a subordinate. The conventional procedures and the right kinds of persons are manifestation partners for the power to be exercised. Performing a marriage ritual in a place where marriage is not a custom does not result in a married couple; commanding a subordinate where there is none will fail.

Now we're ready to discuss (3): lineages of powers. As I mentioned above, lineages can be historical or downward. Historical lineages are previous exercises of a power that enable the power to be exercised in the here and now: just as I can ride a bicycle now because of previous exercises of powers, I can perform certain kinds of speech acts because of previous exercises of powers. I can command or promise because I've done it in the past. But there's no reason to stop the backwards-tracing lineage to my own exercises of powers. After all, the historical lineage component only says that previous exercises of powers enable the present exercise of a power. Going backwards in time, then, we see that there is a point in speakers' developments that they had to learn how to perform types of speech acts. The natural question is: where did children learn to do this? The most obvious answer is by watching and interacting with others. So others' token exercises of speech act types are part of the historical lineage for the exercise of my speech act power.

Two brief observations about this point before moving to discussion of downward lineages. First, it's clear how this fits with DDLA, for the present position claims not only that the exercise of a power requires a manifestation partner—extending the causal base of the power in space—but also that powers have historical lineages. The causes of the power are thereby distributed in time as well as across social communities. My speech act agent-powers are the product of exercises of historical lineage powers.

Second, in learning to perform speech acts by observing others, we can hear echoes of Berthoz's Principle of Meaning.<sup>20</sup> Very young children are attuned to the behaviors of other people. On a Berthozian view, young children and babies find the behaviors of others *meaningful*. Just as the presence of butyric acid is meaningful for the tick; the presence of pheromones is meaningful for the ant; and the presence of chirping sounds is meaningful for the cricket; communicative behaviors are meaningful for the young child.<sup>21</sup>

Now that we've discussed the historical lineage, we move to downward lineage. So what kinds of powers are part of the downward lineage of agential speech act powers? The typical way of proceeding for an identity theory of powers is to discover powers of component parts the manifestation of which enable the manifestation of some power we're trying to understand. We'll do something similar here. Since we're interested in the everyday phenomenology of speech acts, we'll begin with reflection on obvious cases.<sup>22</sup>

We noticed above that speech acts can misfire. Austin (1975) outlines the ways in which *speech acts* can misfire; but misfirings are also describable in terms of agential behavior. Here is what I mean. Suppose a speaker S issues a command to H in a linguistic community for which there are no accepted standards for issuing a command; S's speech act misfires. But depending on the content of S's utterance, the following subjunctive conditional can hold of S's production of the utterance:

**Subjunctive Success<sub>SH</sub>** If S had produced the utterance U and H had perceived U and the production and perception had occurred in a community with the relevant standards, then S's speech act would have been successful.

What motivates adopting this conditional? **Subjunctive Success<sub>SH</sub>** claims that if certain conditions had been met, then the speech act would have been successful. A natural way to read this claim is to say that S has the *power* to produce the utterance and H has the *power* to perceive it but the relevant manifestation partners were unavailable to them. After all, recall that manifestation of a power is an *n*-place relation among powers. The speaker still has the power to produce the speech act and the hearer has the power to perceive it. But in some cases, powers related to being in a community with the relevant standards are among the missing items for manifestation of a power.

<sup>20</sup> There is another interesting connection here. In observing others' speech acts, I have to take a language stance: I have to see a bit of behavior as languaging. So there are relations holding among observation, the Principle of Meaning, and taking a language stance. Thanks to Stephen Cowley for pointing out this connection.

<sup>21</sup> I think the story here is actually going to turn out to be a lot more interesting than just this. It is likely the case that there is a two-way street here. Babies react to behaviors of their caregivers; their caregivers, in turn, perform those same behaviors because babies react to them. What's the payoff of this view? The soft assembly of many kinds of parent-child interactions within and across social groups.

<sup>22</sup> I'm focusing on utterances only for a few reasons. The first is that focusing on utterances (as opposed to utterances and other paralinguistic behaviors) won't in the end change the analysis: there would be more data to consider and more powers to look at, but the framework would remain the same. The second is a matter of practical necessity: considering other active dimensions of a conversational exchange would require more space than what I'm already using in this paper. Since consideration of other behaviors in addition to the verbal utterances wouldn't change the framework and would only serve to enlarge exposition, I'm omitting discussion of them. Thanks to a reviewer for suggesting I address this.



But notice this: we can rearrange **Subjective Success<sub>SH</sub>** to focus on the utterance produced instead of on the speaker and hearer:

**Subjective Success<sub>U</sub>** If, in a community with the relevant standards, U had been produced by S and U had been perceived by H, then S's speech act would have been successful.

Now why buy into *this* conditional? In at least some cases, the identities of S and H don't matter for S's speech act to be successful. As long as *some* S produced U and *some* H perceives U, then the speech act can succeed. Cases of this comes from the epistemology of testimony: suppose S informs H of some juicy gossip and a bystander B overhears them. B may not know of the identities of S and H and yet B has also been informed of the juicy gossip. (Whether B is justified in believing the bit of gossip is another matter.) The utterance has some set of powers that were manifested because of partnership with B. This suggests that utterances themselves have a range of powers that are manifested under certain conditions. Further evidence in favor of this conclusion is the fact that one can't do just anything with whatever words whatsoever: one can only christen a ship by uttering "I christen this ship..." and one can sentence a prisoner other by uttering "I hereby sentence you..." Of course, in these cases, identity matters; but, the crucial point is that the utterance *in conjunction with other powers* has the capacity to bring about the effect.

**Subjective Success<sub>SH</sub>** and **Subjective Success<sub>U</sub>** suggest three things: first, speakers have the power to produce certain utterances. Second, hearers have the power to pick up certain utterances. Third, utterances have powers. These are interlocking powers in the downward lineage of the speech act powers discussed above. Speaker-powers are those powers that enable the speaker to produce some sequence of phonemes; hearer-powers are those powers that enable the hearer to perceive some sequence of phonemes. Utterance-powers are those powers that enable utterances to be meaningfully perceived and produced. The first two are largely biological matters, so I will set them aside. It is the notion of utterance-powers that I wish to explore.

Utterances have the power to be meaningful independently of their being perceived as meaningful by hearers. An analogy is with affordances of objects: a bottle can hold water even if no one is capable of recognizing that the bottle affords that. The knife affords cutting even if it never cuts anything. In the same way, an utterance U affords some response even if no one picks up that U affords that response. That is all to say, some utterances are meaningful even if hearers do not perceive them as such and if speakers never intended them to be understood as meaningful in some way. All utterances and utterables have at least the capacity to be meaningful. Whether or not that meaningfulness is manifested depends on the relevant manifestation partners. If Charlemagne were to utter "an object's energy is equivalent to its mass times the speed of light squared," the utterance has the capacity to be meaningful, even if its meaningfulness isn't manifested at the time of utterance.

In this section, I've given a view that cashes out languaging in terms of powers. The centerpiece of the view are the downward and historical lineages for a token speech act. The historical lineage stretches back in the speaker's history but also includes the history beyond that of the speaker to include others' speech acts. The downward lineage includes speaker-powers, hearer-powers, and utterance-powers.

One aside about the view I've sketched before moving on to the payoff section of this paper. The Berthozian notion of vicariance is a natural consequence of the view I've developed. 'Vicariance' highlights a dimension of redundancy: if one mechanism fails, there is another that can step in and do the same job. Berthoz's example involves eye saccades:

When the vestibule-ocular reflex fails, the brain uses the saccadic system and pursuit to create pseudo-reflexes. It can replace a defective system with another element of the sensorimotor repertoire (p. 33).

With a metaphysics of powers, a manifestation can be brought about with different partners: salt dissolves in water as well as ammonia. Also, two objects can manifest the same power with the same partner: both salt and sugar dissolve in water. So two utterances can have similar manifestations, one of which can do the work of the other in case the former fails. For example, I can explain some idea in two different ways to a student; these utterances may be different but if the first fails to work then the second can quickly hop in to do the needed work. In both cases, I'm performing the same speech act, but the constituent elements are different. So the failed system is one in which I use an utterance U1 to convey some idea; U2 replaces the failed U1 and the system can carry on.

## 6. Payoff

I mentioned previously that adopting a powers-metaphysics to conceptualize languaging agents has three advantages: it fits with a multiple timescale view of languaging, it is dynamic, and it begins to unpack the conceptual connection between simplicity and meaning.

The first two points are relatively straightforward. Regarding the first, since every power has a history and a downward lineage, manifestations of powers will be the result of these lineages. An account of how agents interact linguistically will require spelling out these details. The history of a power's development is obviously a time-laden notion. The downward lineage is likewise a fundamentally temporal notion: upstream manifestations require downstream activity, so without the precise timing of the downstream activity, the upstream manifestations are compromised.

Regarding the second, manifestations require both powers of some object as well as manifestation partners. A power manifests as it does because of its manifestation partner: a ball's sphericity manifests in rolling downhill when coupled with a plane but it manifests in leaving a concave impression when coupled with wet clay. But the wet clay wouldn't manifest its

power to hold a concave impression without the ball. Each requires the other in order for anything to happen. It is a bidirectional causal coupling. The relation is dynamic.

The final point requires, I think, some more detail. Berthoz claims that the concept of meaning is part of the concept of simplicity. What's special about simplex solutions is that they combine simple principles to solve complex problems. The Principle of Specialization and Selection, for example, tells us that organisms occupy *Umwelten* and make decisions based on the information they have available to them. Accessing more information isn't necessarily conducive to an organism's survival, so the simplex solution is to give them specialized receptors for perceiving the world.

Simplex solutions aim to solve specific, complex problems. In this paper, I've argued that thinking about language in terms of powers provides a way to conceptualize the mechanisms involved with languaging. But the account of powers given is entirely general and can apply to non-language related mechanisms. So biological mechanisms have properties that are powers. Now Berthoz argues that biological mechanisms are described by simplex principles. They are simplex solutions to complex problems. And biological mechanisms are also kinds of powers. Now powers have histories, downward lineages, and manifestation partners, so biological mechanisms have these as well. The aspect of powers that is most useful for connecting the notions of simplicity and meaning is their manifestation partners.

Powers' manifestation partners are whatever it is out in the world that, when conjoined with the power, produces some manifestation. It strikes me as intuitive to say that the manifestation partners are meaningful for organisms in the sense that the partners are significant for organisms. They afford opportunities for action. They are means to ends like survival and reproduction. Some manifestation partners are emotionally significant for some organisms: seeing one's child can manifest feelings of affection. And some manifestation partners are existentially significant for some organisms: a friend's death can make one realize one's own mortality.

So the concepts of *simplicity* and *meaning* are connected by way of manifestation partners for powers: powers are governed by simplex principles and powers require a meaningful world for their activation. Just as powers are inert without manifestation partners, simplicity is empty without meaning.

## 7. Written language bias?

One worry about the account developed here is that it begins to slide into the spirit (though perhaps not the letter) of written language bias: the belief that written language is a more-or-less accurate representation of languaging activity and its products (Linell, 1982). One might marshal two pieces of evidence. First, I freely talk about utterances as objects with powers. But views of language that steer clear of the written language bias tend to view utterances not as things but as processes that are integral to interactivity: witness Denmark distributed language's emphasis on *wordings* and *languaging* (cf. Cowley, 2014, Steffensen 2015). Second, distributed theories of language emphasize the continuity of the body with languaging activity in overt ways. Maturana and Varela (1980; Maturana, 1975, 1978; Varela, 1992) are pioneers in this regard, with Kravchenko (2011, 2014) and Thompson (2007) carrying on similar research projects. My account is not overtly bodily in the way that others are. Again, there's no violation of the letter of the law but questions about the spirit remain.

To take the first issue—utterances are objects—there's no requirement that utterances be treated as word-like entities. For all that a powers-ontology is concerned, utterance tokens have to have causal force. It is however on occasion useful to represent them as linguistic entities: using the token 'move!' to represent a certain command.

The second issue is that considerations of the body are absent when discussing an utterance's powers. This is a feature, not a bug. In at least some cases, speech acts are causally efficacious independently of the identity of the speaker. The speech act on its own is then able to be examined as a causally efficacious unit of force. As a result, much research into speech act theory can be brought wholesale into the powers view of languaging.

## 8. Conclusion

Let me conclude. A powers-view of languaging has much to offer. It takes advantage of insights afforded by Berthoz's notion of simplicity. It is a hard-nosed naturalist view about what empowers agents to engage in languaging. And by emphasizing the importance of the *Umwelten* of living organisms, it begins to offer some conceptual connections between the notions of simplicity and meaning. A powers view of languaging is ultimately a simplex approach to languaging: simple principles about powers explain complex phenomena.

Looking ahead, what can a powers view of language offer to a simplex approach to understanding languaging? There are, I think many, but the strongest reason is one of simplicity. The notion of a power is conceptually elegant. And its elegance is its strength for it has the potential to describe how languaging is a social, cultural, historical, and biological phenomenon. Powers deliver the conceptual framework. Simplex tricks help fill in the empirical details for how we've developed our complex languaging capacities over the course of tens of thousands of years.<sup>23</sup>

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