Runner-up of the ISOS Essay Prize 2022

Social Reality Without Language: Enacted Representations and Institutions in a More-Than-Human World

Pablo Fernández Velasco*

Abstract: According to a popular view, the creation of social reality requires language: social institutions emerge when we successfully declare them into existence. Making language central to institutions deprives the non-human of any claim to a social reality. This is particularly problematic in the light of mounting research showing many animals have social institutions even in the absence of language. In this paper, I will offer an alternative view. I will employ a concept—enacted representation—from the distributed cognition framework of cognitive science to develop a social ontology that does not take language as a requirement to create social institutions.

Keywords: Social Ontology, Language, Distributed Cognition, Cultural Practices

1. INTRODUCTION

From stopping at a red light to catching the 8am train, and from scanning a QR code to leaving a tip, we live immersed in an ocean of social reality. We abide by

10.25365/jso-2023-7111
Published online April 25, 2023

*Corresponding author: Pablo Fernández Velasco, Trinity College Dublin, E-mail: p.fernandezvelasco@gmail.com. https://orcid.org/0000-0001-7563-8170

codes of conduct, recognise private property, hold jobs, go to doctors when we are ill and show our tickets when asked by the rail ticket inspector. You would have to venture alone into the most remote wilderness if you wanted to look around without encountering a plethora of human institutions. But what, if anything, makes social reality? According to a popular view, espoused by John Searle, the answer is language: social institutions emerge when we successfully declare them into existence and then collectively recognise them.

There is an undeniably tight link between language and social reality. Language is ubiquitous in our social world. And the power of declarations–be it baptisms or signing a tenancy agreement–entangle us into a tapestry of rights and obligations. Following one of Searle's examples, if I bring two identical beers to the table and say "this one is for you" it suddenly becomes your beer. But couldn't I have simply pushed the beer in your direction to institute your ownership of it just as well? There are plenty of actions that seem to institute social reality in a way that does not clearly involve language. And what of the social world of non-human animals? Don't chimpanzees have traditions? Don't wolf packs have alpha males and alpha females? Making language central to institutions deprives the non-human of any claim to a social reality. This is particularly problematic in the light of mounting research that shows that many animals have social institutions even in the absence of language. In this paper, I will offer an alternative view. I will employ a concept–enacted representation–from the distributed cognition framework of cognitive science to develop a social ontology that does not take language as a requirement to create social institutions.

In §2, I offer an overview of Searle's account of social reality. In §3, I review experimental and field studies of wolves and chimpanzees to show that they have a non-linguistic social reality, which motivates the search for a non-linguistic analogue to declarations. In §4, I argue that we find this analogue in enacted representations. §5 wards off two main challenges, and §6 concludes with a view on how enacted representations create social reality and discusses the role of language within that view.

2. MAKING THE SOCIAL WORLD

If I am caught jaywalking, it would do little to tell the police officer that there is no objective fact about whether or not I have jaywalked because jaywalking is a mind-dependent social convention.[1] The police officer, like most people, will have the intuition that there is a fact of the matter, just like there are facts about

1 I have never jaywalked in my life, it's just a hypothetical.

whether or not I am of a certain nationality, whether or not I am affiliated to a certain institution, or, in the classical example, whether or not I have a twenty-dollar bill in my pocket. This leads to the apparent contradiction that there can be objective facts about a subjective reality.

I say *apparent* because once we draw one crucial distinction, the contradiction starts to dissolve. The distinction is that between epistemic and ontological senses of objectivity and subjectivity. Ontological subjectivity and objectivity concern the mode of existence of entities, while epistemic subjectivity and objectivity concern the epistemic status of claims (Searle 1993). Fears and stomach aches are ontologically subjective, because they exist only as experienced by a subject. A river and a thunderbolt exist independently of any subjective experience and are therefore ontologically objective. Introducing this key distinction still doesn't give us an account of social reality. Rather, the distinction helps us pose the following question: How can there be epistemically objective facts about a social reality that is ontologically subjective? This is precisely what Searle's social ontology sets out to address.

Searle aims to address the question not just by explaining the workings of the social world but also by explaining how its features are consistent with (and dependent on) what he calls the basic facts, which are given by the hard sciences (he mainly mentions physics, chemistry, and evolutionary biology). There are three key elements in Searle's theory of social reality, as it appears in *Making the Social World* (2010): collective intentionality, status functions and declarations.

Searle starts with intentionality because he claims that intentionality is already naturalised, i.e. already compatible with the basic facts. Thoughts in the mind are also neurobiological processes in the brain, and, Searle claims, such processes have the same logical properties as the thoughts themselves because they are their neural realization. He then moves from individual ("I want a bicycle") to collective intentionality ("we want a bicycle"), with a particular focus on two forms of collective intentionality: collective recognition, and cooperation. Searle argues that for cooperation to work, we-intentions must be systematically linked to I-intentions so that the individual bodies move as a result of collective intentionality. All the while, he makes it clear that we-intention is not always reducible to I-intention, because even if he sees intentionality as necessarily existing in individual brains, this does not preclude the content of that intentionality from existing in a plural grammatical form.

Now, for cooperation to work, each individual must assume that the others in the collective are doing their parts. This is not achieved by the content of each individual intentionality making reference to the content of each of the

other individual intentionalities, which would be cumbersome and potentially lead to a dangerous regression. Instead, there is a reciprocal assumption that each individual will do their part and expect the others to do likewise. This way, there is no need for the propositional content of the intentional state of a given member of the collective to be part of the propositional content of the intentional state of any other member of the collective in order for cooperation to get off the ground.

Cooperation is required for particular transactions within institutions[2] and, in most cases, for the creation of the institutions themselves. However, for the institutional structures to function, what is strictly required is just collective recognition, which, unlike cooperation, does not require collectively intending to cooperate. The collective recognition can be reduced to individual recognition plus mutual belief among the individuals involved. For an institution to exist, what is required is that individuals recognise its existence, and that they assume that others also recognise the same institution. For a given currency to exist, each individual must accept its existence and assume that others in their society are doing the same. And again, even if cooperation is not always required, collective recognition is sometimes not enough. A couple getting married must collectively recognise the institution of marriage prior to the wedding, but the ceremony itself also requires their active cooperation.

Collective intentionality is central to Searle's account of social reality because it is required for the existence of status functions. Status functions involve an entity (e.g. a person or an object) performing a certain function within a society. What sets them apart from other functions is that they work in virtue of the society assigning a particular status to the entity and collectively recognising that status. Thus, status functions require collective intentionality for both their creation and their continued existence. Status functions range from "this is a twenty-dollar bill" to "Joe Biden is the president of the United States." According to Searle, status functions are the glue that holds society together. Not only that—he takes status functions to be the distinctive feature of human social reality, because, allegedly, only humans have the capacity to impose functions on entities in a way that does not depend entirely on the entities' physical structure.

---

2 Institutions are systems of constitutive rules, and they create the possibility of institutional facts. Constitutive rules are not simply regulative rules governing behaviour (of the form "Do X) but rules that make the very behaviour possible (of the form "X counts as Y in context C."). For example, the rules of chess constitute the game of chess, because chess is precisely moving pieces on a board according to those rules. The focus of the present paper is not on all social phenomena but rather on the nature of social institutions.

The way that status functions work is by carrying deontic powers. When we recognise that Joe Biden is the president of the United States (a classical example that has now become unexpectedly contentious), that means we recognise certain rights and obligations, i.e. deontic powers, in the status of Joe Biden as the president of the U.S. We recognise the right of Joe Biden to live in the White House, for instance. And we recognise his obligation to give the State of the Union Address. Assigning a status function to a person or object creates a deontology that extends into the future (four years in the case of the U.S. president). This leads us to the last key element in Searle's social ontology, which will be the focus of this paper: Status Function Declarations, which according to Searle, are the speech acts that create the deontology of status functions.

Status Function Declarations are a type of declarations, which in turn are a type of speech act. Thus, we can see how Searle's account of the social world builds on his previous work on intentionality (Searle 1979a; 1983; 1990) and on speech acts (Searle 1962; 1969; 1979b; for a thorough discussion of how Searle's oeuvre developed, see Smith 2003). Pivotal here is Searle's taxonomy of illocutionary acts (Searle 1975), which he advanced as an improvement on Austin's classification in *How to Do Things with Words* (1962).

To understand Searle's taxonomy, we need first to understand the notion of direction of fit between words and world[3]. Some acts get the words to match the world (word-to-world direction of fit) and some acts get the world to match the word (world-to-word direction of fit). Here is a great example from Anscombe (1957) that can help us illustrate the distinction: a shopper goes to the supermarket with a shopping list, and there is a detective following him and writing down everything he buys on a different list. As they come out of the supermarket, their lists will be identical in content, but not in function. The detective list has the word-to-world direction of fit (i.e. its point is to represent what the shopper has bought), while the shopper's list has a world-to-word direction of fit (i.e. its point is to get the shopping cart to match the list).

Now, here are the five categories in the taxonomy: Representative, Directive, Commissive, Expressive, Declaration. Representatives have a word-to-world direction of fit, and their function is to commit the speaker to the truth of the expressed proposition. The commitment varies in degree, so representatives go from statements to suggestions, and they also encompass boasting or complaining. Directives have a world-to-word direction of fit, and

3 Searle builds his taxonomy on twelve dimensions of variation but going through all of them would be outside of the scope of this paper.

their function is to get the hearer to act in a certain way. Again, they vary in degree and thus range from pleading to commanding. Commissives also have a world-to-word direction of fit, and their function is to commit the speaker to act in a certain way (e.g. "I promise to prepare you a nice dinner"). Expressives have no direction of fit, and their function is to express a psychological state about a state of affairs (e.g. "I am so happy that you will prepare me a nice dinner"). Declarations, which is what really concerns us here, have both words-to-world and world-to-words direction of fit, and their function is to bring about a state of affairs in virtue of the declaration itself being successfully performed (e.g. "you are now husband and wife").

The "magic" of declarations is that they transform reality by declaring a state of affairs and therefore bringing it into existence. And they can bring status functions into existence. The type of declarations that bring status functions into existence are called Status Function Declarations. The basic form of the operator (Searle 2010, 99) that creates status functions is as follows:

> *Status Function Declarations (SFD):* We make it the case by Declaration that the Y status function exists in context C.

Declaring that Y exists in C creates a relation between Y and a group of people, with the corresponding deontic powers that are collectively recognised.

With these three elements in hand—collective intentionality, status functions and declarations—we can properly consider Searle's tripartite thesis in *Making the Social World:*

> First, all of human institutional reality, and in that sense nearly all of human civilization, is created in its initial existence and maintained in its continued existence by a single, logico-linguistic operation. Second, we can state exactly what that operation is. It is a Status Function Declaration. And third, the enormous diversity and complexity of human civilization is explained by the fact that that operation is not restricted in subject matter and can be applied over and over in a recursive fashion, is often applied to the outcomes of earlier applications and with various and interlocking subject matters, to create all of the complex structures of actual human societies (Searle 2010, 201).

3. LANGUAGE AND THE SOCIAL WORLD

According to Searle's thesis, a logico-linguistic operation–SFD–is behind the creation of all the structures of human society. There is some ambiguity in the

term "logico-linguistic." If we follow Searle in considering operations such as neurobiological processes as having a logical form, it might seem that a logical but non-linguistic operation might do the trick. And at times, Searle seems to indicate that a symbolic operation might do, or a pre-linguistic analogue of declarations, which would be a weaker claim. Nevertheless, the stronger claim that language is at the heart of social reality is made explicit throughout Searle's work. Below are some examples taken from *Making the Social World* (2010)

> All of institutional reality is created by linguistic representation. (14)
>
> All institutional facts, and therefore all status functions, are created by speech acts. (11)
>
> Institutional facts are without exception constituted by language, but the functioning of language is especially hard to see. (90)
>
> All institutional facts are linguistically created and linguistically constituted and maintained. (93)
>
> This case, like all institutional facts, necessarily involves language. (95)
>
> "Language is constitutive of social reality." Indeed, I think everybody from Aristotle on would have accepted it. (109)

The aim of the present paper is to argue against the strong version of Searle's thesis exemplified by the quotes above. I take the thesis to have the following form:

> *Language Thesis:* All institutional reality is created by linguistic operations.

We could have expanded this into something like "all institutional reality is linguistically created and linguistically constituted and maintained," but that would mean that at every point in the discussion we would have to cover creation, constitution and maintenance. And "created by linguistic operations" is more precise than "linguistically created." The focus here is on the operations behind the creation of institutional reality, and whether they are necessarily linguistic. The way I take Searle to argue for the *Language Thesis* is as follows:

> (P1) All institutional reality is constituted by status functions.

(P2) Status functions are necessarily created by linguistic operations.

(C) All institutional reality is created by linguistic operations

Implicit in the argument above is that SFD's are the linguistic operations that create status functions. What the current section will do is to present several counterexamples to the Language Thesis, i.e. cases of institutional reality that are not created by linguistic operations. There are two types of counterexamples to the language thesis. First, we could show examples of institutional reality in non-linguistic creatures. Second, we could show examples of human institutions that are not created by linguistic operations. We will cover both cases in turn, starting with institutional reality in wolves and chimpanzees and then moving to what Searle refers to as pre-institutional analogues of status functions in human society.

By focusing too much on language, there is a danger of leaning into anthropocentrism or human exceptionalism (for a discussion of human exceptionalism in cognition research, see Finlay and Workman 2013). This is a danger that Searle himself seemed aware of:

> I sometimes contrast humans and other animals. The point is not to make a plea for the superiority of our species but to analyze the logical structure of some distinctive human phenomena. If it should turn out that some other species also have income tax, presidential elections, divorce courts, and other institutional facts, I welcome them to the club. Their existence would not be an objection to the account but a further subject of investigation (Searle 2010, 7).

The above quote, however, does not address the full scope of the problem. The issue is not that other species should have institutional facts with a similar logical structure to status functions. The issue is the requirement for status functions to be created by language. Non-linguistic logical operations are ruled out. This rules out non-human institutional facts once we look at what Searle takes to be necessary for language. Standard accounts of language tend to involve phonology, syntax, semantics, and pragmatics. Searle is happy to forego phonology (because of non-phonetic cases such as sign language), which would lower the bar for non-human animals (although there is some evidence of phonemes in the chestnut-crowned babbler; see Engesser et al. 2015). What Searle takes to be crucial to language is syntax, which for him involves discreteness (sentences maintain the discreteness of their components), compositionality (the meaning of a sentence is determined by the arrangement

of its components) and generativity (the infinite productive capacity of natural languages).

Since the publication of Searle's book, there has been some evidence for discreteness in non-human communication (Suzuki et al. 2019). For example, Japanese tits make acoustically discrete alarm calls for predatory snakes (Suzuki 2014), and Campbell's monkeys make acoustically discrete types of calls (e.g. "Krak!", "Wak!", "Hok"!) when perceiving specific threats (Ouattara et al. 2009). Not only that, but the monkeys also sometimes add a short "oo" sound at the end of the calls (e.g. "Krakoo"), and they tend to do so in low threat situations. In one interpretation, the "oo" sound combines with the call type and acts like a suffix to indicate low danger (Coye et al. 2015). This and other similar findings point to compositionality also being present in non-human animals (Townsend et al. 2018). Nevertheless, there is so far no evidence for generativity in non-human communication (Zuberbühler 2019). This means that, to the best of our knowledge, only humans have language as defined by Searle.

For Searle, language is what sets humans apart from other animals in their capacity to create social reality. He makes this quite explicit when he discusses "the difference between a human tribe having a recognized leader and a pack of wolves having an alpha male. The leader has a continuing deontic status, an authority represented by and created by language. The alpha male wolf is treated with fear and respect because of his physical strength, but he has no publicly recognized deontology" (Searle 2010, 95).

Searle seems to follow the view of the wolf pack as a group of individuals in a constant dispute for dominance that is prevented by the alpha male and the alpha female (Murie 1944; Mech 1966; Haber 1977). This is certainly the view of wolf social organisation that has seeped into popular culture. Such a view, however, comes chiefly from studies of captive packs (Schenkel 1947; Rabb et al. 1967; Zimen 1982). Captive packs tend to be formed by wolves from heterogenous provenances that are put together exogenously by humans. These captive wolves then have to form dominance hierarchies, which often involves aggression. In the wild, however, the usual wolf pack is a family structure that is quite stable and does not involve intra-pack aggression with the goal of climbing a social hierarchy (Murie 1944; Mech 1988; Haber 1977). The parents are the alpha male and female, but the pups are not beta, omega, etc. Even terming the parents "alphas" is somewhat misleading, because parents are the leader of a family group in many other species. (Mech 1999)

A male wolf is not the alpha because of his physical strength, as Searle suggests, but because of his position in a family. But maybe this just means that

wolves do not have status functions (e.g. they only have biological functions), which would work just as well for defending the *Language Thesis*. There are some cases, though, in which wolf social organisation changes: an unrelated wolf can be adopted into a pack (Van Ballenbergh 1983; Lehman et al. 1992), or an outside wolf can replace a dead parent (Rothman and Mech 1979; Fritts and Mech 1981).

In the case of parent replacement, the outside wolf must be accepted not only by the alive parent but also by the rest of the pack. This acceptance is an act of collective recognition in Searle's terms. Not only that—it involves the creation of a status function. By virtue of the basic facts alone, only biological parents should be alphas. It is the pack that assigns the alpha status to the outside wolf and that collectively recognises that status. And, contra Searle, this acceptance does not come down to physical strength. (Strahler et al. 2002) managed to directly observe and film an unfamiliar male wolf being accepted after the death of the alpha male in Yellowstone National Park. The acceptance process lasted 6 hours, and the interaction involved vocalization, stereotyped behaviours, bodily posturing, courtship with the alpha female, and a game of chase and pursuit with the younger wolves, but no display of aggression on either side.

Furthermore, alpha status is arguably not the only institution in the lupine social world. Wolves have territories. These are not fully determined by the physical environment (even if they obviously adapt to the terrain, e.g. Peterson and Page 1988)—territories are instituted socially. And the way in which they are instituted is primarily through scent marking. As they travel, wolves mark their territory, creating an olfactory grid, since the marks are effective for long periods. On average, there is a marking every 240 meters throughout a wolf territory, but the density is higher along regular travel routes and their junctions (Peters and Mech 1975). And wolf packs leave twice as many marks along the borders of their territories as in the centre, resulting in an "olfactory bowl" (Packet 1991). There is a delicate coordination of behaviour through which wolf territories are created. Moreover, territory recognition is not some rigid stimulus-response mechanism but a flexible social interaction. Along the edge of wolf territories there is a kind of buffer zone (Mech 1977) in which the itineraries of neighbouring packs can overlap for short periods without direct confrontation (Peterson and Page 1988).

The emerging picture is one of wolves inhabiting their own complex ocean of institutional reality:

> A wolf population can be viewed as a highly dynamic system in which breeding pairs hold territories and pump out numerous offspring that travel about, criss-crossing the population and striving to gain their own breeding positions. In this flux, each pack tries to hold its position while competing with neighbors that try to expand their territories as well as with new breeding pairs, local lone wolves, and immigrants that are all trying to leverage themselves into the population structure (Mech and Boitani 2003, 6).

For another example of non-human social institutions, let us turn to the case of chimpanzees. Chimpanzees are most famous for their developed use of tools (for a review, see Sanz and Morgan 2010), but this would not cut it as an instance of status function, because when the chimpanzees see an object as a tool, they do so in virtue of its physical structure, not necessarily in virtue of the society assigning a particular status to the object and collectively recognising that status. There are, however, two elements in chimpanzee social life that indicate the existence of status functions: conventions and prestige.

It is well known that wild chimpanzees have traditions. There are patterns of behaviour that spread socially and that differ from community to community. Here again, different ways of using tools are the most obvious example, and probably the best documented. But there are also arbitrary conventions. Handclasp grooming postures sometimes vary from one community to the next (Nakamura 2002). Certain grooming postures that originated spontaneously in a captive community spread later along affiliative lines, which is consistent with social learning transmission (De Waal and Seres 1997; Bonnie and De Wall 2006). And there is the tearing of dry leaves with their mouths, which in one community is used as a form of sexual courtship and in another is used as an initiation of play (Nishida 1980; Boesch 1996).

Chimpanzees' arbitrary conventions are created collectively and function in virtue of collective recognition. The strongest evidence for the creation and maintenance of arbitrary conventions comes from an experiment by (Bonnie et al 2007). They had two chimpanzee groups, and for each group they put a reward at alternative endpoints of two different behavioural sequences. The sequences consisted in collecting, moving and unloading plastic tokens into either a bucket or a pipe in order to gain food from a separate location. Each behavioural sequence spread in the group in which it was rewarded, and individuals clearly adopted the sequence as shown by another member of the group. The sequences themselves had no logical connection to the

reward and had no meaning outside the experiment, which shows that the chimpanzees had learned both the sequence and its benefits from observing other chimpanzees. In this way, the sequence became a convention.

Once the convention was established, chimpanzees stuck to that convention. A low-ranking individual was rewarded for performing a new sequence, but at that point no other member followed, showing a degree of adherence to the instituted convention that went beyond the obtention of reward. And this connects with the role of prestige in chimpanzee society. In a more recent study, (Perlman et al 2010) developed an experiment to test the existence of prestige. They trained two different chimpanzee models to carry out two separate solutions to a foraging problem. Both solutions were equal in terms of difficulty, rewards and exposure, but one of the models was a higher-ranking chimpanzee than the other model. They observed that chimpanzees tended to copy the solution carried out by the higher-ranking model. The experimenters took this as evidence of prestige-based cultural transmission. Put in the terms of our overarching discussion, prestige (like conventions) is important because it shows that chimpanzees can have a status that is not solely dependent on basic facts but on collective creation and recognition.

So far, we have seen conventions and prestige among chimpanzees and social order and territoriality among wolves as non-linguistic examples of institutional reality. We can find some similarities between these cases and a type of cases that Searle discusses briefly: pre-institutional analogues of status functions. An example he offers is a group choosing a leader on an ad hoc basis rather than through declaration. For Searle, such ad hoc processes are not true examples of the creation of institutions but rather "pre-institutional examples of the same logical form" (Searle 2010, 19). Another scenario that does not seem to clearly involve language is a group that gradually starts considering a line of stones as a boundary:

> We began with an object that performs its function in virtue of its physical structure. But it evolves into an object that performs its function, not in virtue of its physical structure, but in virtue of the fact that there is a collective recognition or acceptance by the people involved, both inside and outside the line of stones, that the line has a certain status and performs its function only in virtue of the collective recognition or acceptance of that status (Searle 2010, 94).

This is akin to wolves instituting territories, and there is no clear way in which it requires language. Searle says that the reason that language is

actually required is that boundaries have a deontology—they carry obligations (reasons for action that are independent of inclinations and desires), which can only be accounted for through language. He contrasts human, language-based obligations with a dog that is punished until he learns to avoid trespassing the boundary. But we have seen examples of institutions (prestige, conventions, social order, and territories) in non-human animals that are not established through punishment, or through aggression, but through collective recognition. And these institutions provide desire-independent reasons for action—they influence the way that the animals behave in a way that cannot be simply explained in terms of their desires and inclinations.

The crux of the issue is: what makes some status functions pre-institutional and not institutional tout court? If one wants to argue for the *Language Thesis,* the answer cannot simply be "language" without incurring in circularity, because this is precisely what the *Language Thesis* proponent is trying to argue for.[4]

The challenge is that in the cases outlined above, there seem to be non-linguistic operations that play the same role as SFDs. That speech acts have logical equivalents that are not themselves speech acts is something that Searle foresaw already in the 70's:

> Differences between those acts that must always be speech acts, and those that can be, but need not be, performed as speech acts. One may classify things, for example, by saying "I classify this as an A and this as a B." But one need not say anything at all in order to be classifying; one may simply throw all the A's in the A box and all the B's in the B box. Similarly with estimate, diagnose, and conclude. I may make estimates, give diagnoses, and draw conclusions in saying "I estimate," "I diagnose," and "I conclude," but in order to estimate, diagnose, or conclude it is not necessary to say anything at all. I may simply stand before a building and estimate its height, silently diagnose you as a marginal schizophrenic, or conclude that the man sitting next to me is quite drunk. In these cases, no speech act, not even an internal speech act, is necessary (Searle 1975, 349).

4 Searle is aware of a similar problem when it comes to explaining language as an institution, because one cannot just appeal to language: "But the sentences of English do not require further linguistic representation to be sentences of English. If they did, it looks like we would get an infinite regress. "Yes," one might say, "But maybe the fact that your view leads to an infinite regress is a refutation of your view, and not a proof of the distinction between language and extra-linguistic institutional facts. You still have not made out that distinction." (Searle 2010, 111).

For a brief passage in the introduction, Searle even seems to be happy to accept the creation of status functions by representations that have the same logical form as SFDs even if they are not speech acts (Searle 2010, 13). But he is very clear throughout that any analogue to SFDs needs to be a linguistic representation. The way I understand him, Searle takes SFDs as the more basic form from which other analogues are derived, just like he takes belief and desire as derivative forms of action and perception, which are more basic forms of intentionality (Searle 2010, 39).

SFDs are quite particular in their lack of pre-linguistic analogue. In fact, he offers a pre-linguistic analogue for all other types of speech act in his taxonomy: for assertives, beliefs; for directives, desires; for commissives, intentions; and for expressives, emotions. All of the other speech acts are derivative from more basic forms of intentionality except for declarations. Declarations, Searle defends, have no prelinguistic analogue and are therefore an exclusive privilege of humans: "There is no prelinguistic analogue for the Declarations. *Prelinguistic intentional states cannot create facts in the world by representing those facts as already existing.* This remarkable feat requires a language" (Searle 2010, 180).

That is where the whole argument hangs. In order to defend Premise 2 ("Status functions are necessarily created by linguistic operations") of the argument for the *Language Thesis,* Searle needs to argue that non-linguistic intentional states cannot bring a state of affairs into existence by representing it as already existing. What makes pre-institutional reality pre-institutional is that it could not be otherwise if language were not involved, because, allegedly, there is no pre-linguistic analogue to declarations. The counterexamples to the thesis presented in this section point to the contrary but do not quite show what the actual pre-linguistic operation that creates status functions might be. What I will argue in the next section is that there is a pre-linguistic analogue to status functions. Not only that, there is a more basic form of intentionality of which declarations are a derivative: enacted representations.

4. ENACTED REPRESENTATIONS

Before the heyday of GPS, navigators at sea used the trick known as the three-minute rule. The point of the trick is to calculate the ship's speed out of distance travelled and elapsed time, which could become a cognitively taxing division to make. They are helped by a bit of serendipity: An hour is 60 minutes, and a nautical mile is very close to 2000 yards, which means that 100 yards is one-twentieth of a nautical mile and three minutes is one-twentieth of an hour.

Therefore, the number of yards that the ship travels in three minutes is equal to the speed of the ship in nautical miles per hour. What navigators do with this serendipitous fact is to plot the positions of the ship every three minutes. If the distance between two positions is 1000 yards, then the navigator knows that the speed is 10 nautical miles per hour. The way this is done in practice is simply to transpose the distance between the two points from the chart onto a yard scale using a divider and ignoring the two trailing zeros (Hutchins 1995, 151). Thanks to the cultural practice known as the rule of three, the navigator is able to see the number on the scale as the speed of the ship without any need of internal calculations. Edwin Hutchins calls this "seeing as" the enacted representation of the ship's speed (Hutchins 2010).

I find nautical examples entertaining, so here is another one: the procedure to fix the position of the vessel aboard the USS Palau navy ship (Hutchins 1995). A group of navigators measured the bearing from the ship to three separate landmarks and plotted a line of position to each landmark using a special tool. The intersection of the three lines formed a triangle within which they assumed the ship was located (for an illustration of triangulation, see figure 1). And the larger the triangle, the less reliable the representation. Seeing a triangle as a position fix (or seeing a large triangle as an unreliable position fix), and even seeing the chart as a depiction of the space in which the ship is located are also examples of enacted representations according to Hutchins.

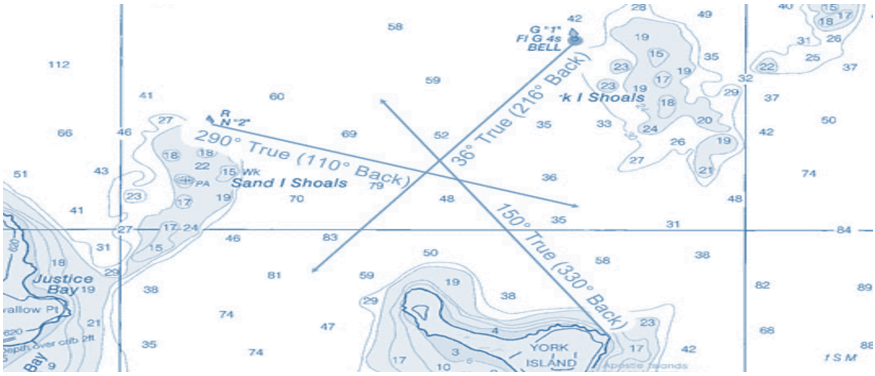

Figure 1. Illustration of triangulation position fixing. Position lines are drawn with respect to three landmarks on land. The vessel is expected to be located within the resulting triangle formed by the intersection of the three lines. Based on an original image by Bryan Hansel.

The above are examples of how bodily practices (often using artifacts, e.g. the transposing of the divider) play a role in the formations of concepts (McNeill 2005; Gibbs 2006). But what is interesting for our current discussion is not just the embodiment of conceptual thinking. What is interesting is the way in which "seeing as" (e.g. seeing the triangle as the position of the ship) emerges out of embodied cultural practices. These are cases in which, according to Hutchins, enacting cultural practices (e.g. the rule of three) produces the object of interest (e.g. speed in nautical miles per hour). Another way to put this is that enculturated humans transform material patterns into representations by enacting their meanings. This is what enacted representations come down to: they are phenomenal objects enacted through cultural practices.

A further example (outside the nautical realm) is queuing. A queue is a spatial arrangement of bodies that maps the order of arrival (Hutchins 2005). If I go to the cinema and there is a queue, I just join it at the end and I can tell who goes after whom, and roughly how long I will have to wait based on the length of the queue and the speed at which it advances. A queue is an enacted representation: I see a physical structure (the arrangement of bodies on a line) as a conceptual structure (the order of arrival). In turn, this affords a host of inferences (order of arrival, estimated waiting time). These examples all point to "our ability to project structure onto things and then modify the world to materialize or reify our projection" (Kirsh 2009, 1103). And not just that—in most cases we don't project first and modify later. We often project structures onto the world by modifying it. The speed of the boat appears once we use a divider to transpose the distance between two points onto the relevant scale. The queue appears once we collectively arrange our bodies in a particular way:

> Seeing an array of people as a queue integrates these elements in a particular way. It is an example of enacting a meaning by seeing the world in a particular way. A physical pattern that is open to many interpretations is "seen as" a particular, culturally meaningful, phenomenal object. The phenomenon of enacting meanings by "seeing" the world in particular ways (Stewart, Gapenne & di Paulo 2010) is absolutely ubiquitous in human experience and is accomplished via cultural practices (Hutchins 2014, 6)

One of the features of enacted representations is that (like external representations in general) they become identifiable and shareable phenomenal objects (Kirsh 2009). With this in mind, let us revisit one of the examples of the previous section: seeing a line of stones as a boundary. Within a given

society, people learn to see a particular line of stones as a boundary. They collectively enact the boundary, and it becomes an enacted representation. The line of stones comes to represent a boundary, and because of that it carries a deontology, just like queues carry their own particular deontology (e.g. one has the obligation to wait for their turn).

The "seeing as" of enacted representations is the pre-linguistic precursor to the "counting as" of SFDs. Think about the number of status functions that are created by just forming a queue. There is a status function bestowed on the arrangement of bodies, but there are also as many status functions as people involved, because each person will be first in the queue, second in the queue, all the way to last in the queue. Each status will have its deontology (e.g. if you are the first in line you get to order your ticket first). On top of that, both the status and the accompanying deontology will change as the queue advances (the last in line will become first in line eventually).

To make matters simple, I will follow Searle's notion of representation. This will ensure that the use of enacted representations is aligned with the rest of Searle's account. Searle uses a functional notion of representation. Anything that has conditions of satisfaction (i.e. that can succeed or fail in the way that intentionality does) is a representation of its conditions of satisfaction. The conditions of satisfaction vary for each speech act according to its direction of fit. Assertives can be true or false, and directives and commissives can be followed or not. Declarations are successful (or fail) if the declared state of affairs comes into existence (or doesn't) with the declaration. Enacted representations are like declarations. They succeed (or fail) if the phenomenal object in question appears (or doesn't) through the enactment of cultural practices. If a line is recognised as a wall by the relevant subjects, the enacted representation has been successful.

Searle had found pre-linguistic, more basic forms of intentionality for all other types of speech act. Enacted representations were the missing piece of the puzzle—they are the pre-linguistic, more basic analogue of declarations. Declarations are a derivative form of enacted representations, just like assertives are a derivative form of beliefs, or directives are a derivative form of desires. And enacted representations are sufficient for creating status functions and by extension, social reality, both human and non-human.

It is not just about a line of people becoming a queue or a line of stones becoming a wall. We can also understand the wolves assigning alpha status to an outsider as an example of enacted representation. Through cultural practices (e.g. vocalization, stereotyped behaviours, bodily posturing […]), the pack enacts the outsider as the leader and collectively recognises him as

such with all of the corresponding deontology (e.g. leading the pack while on hunts, having preferential treatment in the division of food […]). Territories are also enacted through cultural practices (e.g. tessellated marking, howling […]). And chimpanzees enact prestige and conventions. Searle holds that "if the animal has the capacity to produce semantically meaningful events […] then it can represent this state of affairs with the double-level intentionality that I described earlier" (Searle 2010, 77). Some non-human animals have this capacity, but *contra Searle* what they require is not language. Enacted representations can serve to create status functions without the need for linguistic declarations.

5. CHALLENGES

Before concluding, I will discuss two main challenges to the view defended in this paper. The first comes from the tension between internalist and externalist positions. The second comes from looking at the cases in which the analogy between enacted representations and SFDs starts to fray.

The notion of enacted representation comes from work on distributed cognition, a framework of cognitive science that conceives all cognitive processes as distributed at various spatiotemporal scales. This means that the boundaries of the unit of analysis depend on the scale of the process in question. In some cases, the cognitive process is distributed across different areas of the brain, or across the brain and the body. In other cases, the cognitive process can distribute across a navigator, a chart, and a divider, as in the process of applying the rule of three. Or, wider even, across the team of navigators of the USS Palau and their instruments, in the case of the process for fixing the position of the ship.

A critic might point out that there is a tension between distributed cognition and Searle's account, due to Searle's commitment to intentionality necessarily being in the brain. Indeed, Searle names six conditions of adequacy that any account of intentionality needs to meet, and one of them is that "all intentionality, whether collective or individual, has to exist inside individuals' heads." (Searle 2010, 44). As the account of collective intentionality is central to the account of status functions, the worry is that this makes Searle's social ontology antithetical to distributed cognition, and thus incompatible with the notion of enacted representations.

There are at least two ways to dispel this worry. The first is to draw a distinction between internalism about content and internalism about vehicles. The second is to question if the internalist adequacy condition I just mentioned

is actually a necessary element of Searle's account.

Firstly, when discussing whether the mind is "in the head," it is important to clarify if we are talking about mental content or about mental vehicles. Content internalism is the view that the contents of mental states are solely determined by occurrences internal to the brain. Vehicle internalism is the view that the vehicles of mental content (its computational bearers) are exhausted by occurrences inside the brain (or the body in other versions). The opposite views are content externalism and vehicle externalism, respectively. Views about content and about vehicles are logically independent (Rowlands et al. 2020). When Hutchins says that cognitive processes extend beyond the brain and the body, this is a commitment to vehicle externalism. When Searle says that intentionality is "in the head," this a commitment to content internalism (Kòátko 2012). Vehicle externalism and content internalism are compatible views (Bartlett 2008).

When it comes to enacted representations, we do not need to commit to content externalism either. It might seem at first that because enacted representations are most often external representations, the content itself is "out there": "A crucial feature of distributed cognitive systems is that they contain "external representations"; that is, representations of aspects of the world that are not localized in a person's brain or in a computer, but somewhere external to these locations" (Giere 2007, 314). However, there is no intentionality in the external material pattern itself, precisely because there are no conditions of satisfaction without a mind that interacts with it. Hutchins is quite clear in this respect: "Many people seem to assume that the status of external representations qua representations is unproblematic. But what makes a material pattern into a representation, and further, what makes it into the particular representation it is? The answer in both cases is enactment." (Hutchins 2010, 429).

Moreover, it is not even clear that content internalism is required to account for status functions. Content internalism is a personal commitment of Searle, but what it brings to his account of collective intentionality and, by extension, to status functions, is unclear. Searle has independent reasons to make content internalism a condition of any account of collective intentionality. He then manages to construct a content-internalist account of collective intentionality, which is no mean feat, by specifying that we-intentions are located in each individual's head in a plural grammatical form and that they systematically relate to I-intentions. It is certainly a plus to have an account of collective intentionality that does not commit us to content externalism (the fewer commitments, the better!). However, this does not mean

that the account itself commits us to content internalism. Compatibility of content internalism is best understood as a desideratum of the account, not as its consequence.[5]

A second challenge to the proposed account comes from the points at which the analogy between enacted representations and SFDs breaks. Even if an opponent were to grant that the enacted representation of a boundary out of a line of stones has the same logical form as the SFD of a boundary out of a line of stones, she might point out that the analogy does not apply to some of the examples of enacted representations in section 4—enacted representations vary widely and some of its forms are not analogous to SFDs. Hutchins proclaims that enacted representations are ubiquitous in human cognition, but in this case that might be a pitfall rather than a virtue.

Take the rule of three. There is a cultural practice (the rule of three) that makes the speed of the boat phenomenally appear to the navigator. While this is a case of enacted representation, it does not seem to be analogous to an SFD. There is still a double direction of fit. If the rule of three is successful, the number on the scale will represent the speed of the ship (at the relevant representational grain). However, the success of the enacted representation does not depend on collective recognition. All that is needed is that the navigator carries out the measurements and the process correctly all the way to seeing the scale as the speed of the boat. Whether the navigator is alone on the boat is irrelevant to the conditions of satisfaction. In this, the case differs from SFDs, which depend on collective recognition for their success.

The way to respond to this challenge is to show that all we need is for a subset of enacted representations to be analogous to SFDs for the account to hold. The claim is that SFDs are a subset of declarations, which in turn are a derivative form of enacted representations. The structural relationship between SFDs and declarations remains the same as in Searle's original account. And the structural relationship between declarations and enacted representations is equivalent to the relationship between the other types of speech act and corresponding types of intentionality (e.g. assertives are derivative of beliefs).

And the conditions of satisfaction of enacted representation are analogous to the conditions of satisfaction of declarations (even if they are not

5 Furthermore, committing to content internalism is not in itself unproblematic. Fitzpatrick argues that it makes Searle's account self-defeating, because the resulting privacy of social facts denies the public access to the conditions on the basis of which we take collective facts to obtain (Fitzpatrick 2003).

analogous to those of SFDs)[6]. Declarations have a double direction of fit. They bring a state of affairs into the world by their very operation. So much is true of enacted representations. Not all enacted representations require collective recognition. But neither do all declarations. Only SFDs do. This might be counterintuitive because speech acts are paradigmatically public performances. Still, imagine the following scenario: you are solo hiking, and it is getting dark. You reach a spot that is flat enough and sheltered enough and you say, "this is my campsite." It might be uncommon, but there can be such a thing as private declarations ("this is my campsite"), just as there can be private assertions (e.g. guessing the answers to questions out loud while watching a TV game show alone—"The capital is Canberra!"), private commissives ("I am giving up meat for the whole of January") or private expressives ("Home, sweet home!"). Basically, one can talk to oneself and there will still be conditions of satisfaction that apply to the representation in question.

Enacted representations at large will tend to be more private than declarations, just like beliefs will tend to be more private than assertions. And enacted representations will require collective recognition to create status functions, just like SFDs do. A queue is not a queue unless collectively recognised as such. However, this requirement is not down to enacted representations or to declarations but to what it means for a status function to be a status function. The way that enacted representations can be collectively recognised is straightforward enough: people who partake in a cultural practice will be able to recognise the enacted representations. People who know the rule of three will see the relevant scale as the speed of the boat even when another navigator is doing the transposing. And people who are used to queues will recognise a queue if they encounter a series of people in a line when they get to the cinema. Enacted representations are a situated, culture-dependent affair. People in the right situation, cultural and otherwise, will recognise the relevant enacted representation and thereby contribute to instituting the relevant status function (so much is true of SFDs as well, which are culture and context dependent). Enacted representations are at the heart of social reality, but they themselves can only operate within a rich cultural ecosystem.

---

6 An open question is whether enacted representations are conceptual. It is possible that they involve a non-linguistic form of conceptual thinking. Carruthers (2002, 713) takes the ability of some non-human animals to recognise individuals overtime and to track the changing properties of those individuals as instances of non-linguistic conceptual thinking, and the same can easily apply to instances of enacted representation. And following Kirsch, what enacted representations certainly involve is reification (closely related to "seeing as"). Bermúdez (2007) argues that non-linguistic creatures also possess this capacity for reification.

6. CONCLUSION

This paper began by introducing Searle's social ontology and by arguing against one of its central theses—the *Language Thesis*, which states that all institutional reality is created by linguistic operations. I showed how non-human animals that are not capable of language have been found to create social institutions. In the human realm, there are also plenty of examples of institutional reality that do not seem to require linguistic operations. As an alternative, I advanced the view that enacted representations can serve to create status functions without the need for declarations. This alternative view opens the possibility of a social ontology that does not essentially depend on language and that encompasses a wider variety of institution-creating operations in the human and non-human social worlds.

And yet, it seems that language is a pervasive element of human social reality. A priest declares two people as husband and wife, Joe Biden was sworn in as the president of the United States, and a twenty-dollar bill clearly states "twenty dollars" in block capital letters. So how does language fit in with the current account? Searle conceives *written* language as a way of enabling an increased capacity for the creation and maintenance of institutions. The present view takes a similar approach when it comes to *all* language. Language opens up a broad range of possibilities for the creation and maintenance of institutions. Moreover, language also enhances the transmissibility of both institutions and of the cultural practices behind them: "the human uniqueness would not reside so much on shared social practices and conventions, as on cultural transmission modes not available to other species (e.g. speech, writing, radio, Internet)." (Becchio and Bertone 2014, 130). Language is the fuel behind many of our institutions, but not the heart of social reality itself. We inhabit a world of marriage, presidents and twenty-dollar bills. Wolves inhabit a world of intricate social ties and ever-evolving territories. Their world is just as real as ours.

ACKNOWLEDGEMENTS

This work was funded by the Irish Research Council (GOIPD/2021/570).

REFERENCES

Anscombe, G. E. M. 1957. *Intention*. Oxford: Blackwell.

Austin, J. L. 1962. *How to do things with words*. Oxford University Press.

Bartlett, G. 2008. "Whither internalism? How internalists should respond to the extended mind hypothesis." *Metaphilosophy* 39 (2): 163–184, URL

https://doi.org/10.1111/j.1467-9973.2008.00535.x.

Becchio, C., and C. Bertone. 2014. "How objects become social in the brain: Five questions for a neuroscience of social reality." *Perspectives on Social Ontology and Social Cognition*, edited by M. Gallotti, and J. Michael, Doderecht: Springer, *Studies in the Philosophy of Sociality*, volume 4, 125–134, URL https://doi.org/10.1007/978-94-017-9147-2_9.

Bermúdez, J. L. 2007. *Thinking without words*. Oxford University Press.

Boesch, C. 1996. "Three approaches for assessing chimpanzee culture." *Reaching into thought: The minds of the great apes*, edited by A. E. Russon, K. A. Bard, and S. T. Parker, Cambridge University Press, 404–429.

Bonnie, K. E., and F. De Waal. 2006. "Affiliation promotes the transmission of a social custom: Handclasp grooming among captive chimpanzees." *Primates* 47 (1): 27–34, URL https://doi.org/10.1007/s10329-005-0141-0.

Bonnie, K. E., V. Horner, A. Whiten, and F. B. De Waal. 2007. "Spread of arbitrary conventions among chimpanzees: A controlled experiment." *Proceedings of the Royal Society B: Biological Sciences* 274 (1608): 367–372, URL https://doi.org/10.1098/rspb.2006.3733.

Carruthers, P. 2002. "The cognitive functions of language." *Behavioral and brain sciences* 25 (6): 657–674, URL https://doi.org/10.1017/S0140525X02000122.

Coye, C., K. Ouattara, K. Zuberbühler, and A. Lemasson. 2015. "Suffixation influences receivers' behaviour in non-human primates." *Proceedings of the Royal Society B: Biological Sciences* 282 (1807), URL https://doi.org/10.1098/rspb.2015.0265.

De Waal, F., and M. Seres. 1997. "Propagation of handclasp grooming among captive chimpanzees." *American Journal of Primatology* 43 (4): 339–346, URL https://doi.org/10.1002/(SICI)1098-2345(1997)43:4<339::AID-AJP5>3.0.CO;2-Y.

Engesser, S., J. M. Crane, J. L. Savage, A. F. Russell, and S. W. Townsend. 2015. "Experimental evidence for phonemic contrasts in a nonhuman vocal system." *PLoS Biology* 13 (6), URL https://doi.org/10.1371/journal.pbio.1002171.

Finlay, B. L., and A. D. Workman. 2013. "Human exceptionalism." *Trends in cognitive sciences* 17: 199–201, URL https://doi.org/10.1016/j.tics.2013.03.001.

Fitzpatrick, D. 2003. "Searle and Collective Intentionality: The Self-Defeating Nature of Internalism with Respect to Social Facts." *American Journal of Economics and Sociology* 62 (1): 45–66, URL https://doi.org/10.1111/

1536-7150.t01-1-00002.

Fritts, S. H., and L. D. Mech. 1981. "Dynamics, movements, and feeding ecology of a newly protected wolf population in northwestern Minnesota." *Wildlife Monographs* 80: 3–79.

Gibbs, R. W. 2006. "Metaphor interpretation as embodied simulation." *Mind & Language* 21 (3): 434–458, URL https://doi.org/10.1111/j.1468-0017.2006.00285.x.

Giere, R. N. 2007. "Distributed cognition without distributed knowing." *Social Epistemology* 21 (3): 313–320, URL https://doi.org/10.1080/02691720701674197.

Haber, G. C. 1977. *Socio-ecological dynamics of wolves and prey in a subarctic ecosystem*. University of British Columbia.

Hutchins, E. 1995. *Cognition in the Wild*. MIT press.

Hutchins, E. 2005. "Material anchors for conceptual blends." *Journal of Pragmatics* 37 (10): 1555–1577, URL https://doi.org/10.1016/j.pragma.2004.06.008.

Hutchins, E. 2010. "Cognitive ecology." *Topics in Cognitive Science* 2 (4): 705–715, URL https://doi.org/10.1111/j.1756-8765.2010.01089.x.

Hutchins, E. 2014. "The cultural ecosystem of human cognition." *Philosophical Psychology* 27 (1): 34–49, URL https://doi.org/10.1080/09515089.2013.830548.

Kirsh, D. 2009. "Interaction, External Representations and Sense Making." *Proceedings of the 31st Annual Conference of the Cognitive Science Society*, edited by N. A. Taatgen, and H. van Rijn, Cognitive Science Society, 1103–1108.

Koťátko, P. 2012. "Searle's Defence of Internalism." *Organon F* 19: 93–106.

Lehman, N., P. Clarkson, L. D. Mech, T. J. Meier, and R. K. Wayne. 1992. "A study of the genetic relationships within and among wolf packs using DNA fingerprinting and mitochondrial DNA." *Behavioral Ecology and Sociobiology* 30 (2): 83–94, URL https://doi.org/10.1007/BF00173944.

McNeill, D. 2005. *Gesture and thought*. University of Chicago Press, URL https://doi.org/10.7208/9780226514642.

Mech, L. D. 1966. *The Wolves of isle royale*. Fauna of the national parks of the United States: Fauna series, US Government Printing Office, Issue 7.

Mech, L. D. 1977. "Wolf-pack buffer zones as prey reservoirs." *Science* 198: 320–321, URL https://doi.org/10.1126/science.198.4314.320.

Mech, L. D. 1999. "Alpha status, dominance, and division of labor in wolf packs." *Canadian Journal of Zoology* 77 (8): 1196–1203, URL https://doi.org/10.1139/z99-099.

Mech, L. D., and L. Boitani. 2003. "Wolf social ecology." *Wolves: Behavior, Ecology, and Conservation*, University of Chicago Press, 1–34, URL https://doi.org/10.7208/9780226516981-005.

Mech, L. D., S. H. Fritts, G. L. Radde, and W. J. Paul. 1988. "Wolf distribution and road density in Minnesota." *Wildlife Society Bulletin (1973-2006)* 16 (1): 85–87, URL https://digitalcommons.unl.edu/usgsnpwrc/329.

Murie, A. 1944. *The wolves of mount McKinley*. Fauna of the national parks of the United States: Fauna series, U.S. Government Printing Office.

Nakamura, M. 2002. "Grooming-hand-clasp in Mahale M group chimpanzees: Implications for culture in social behaviours." *Behavioural Diversity in Chimpanzees and Bonobos*, edited by C. Boesch, G. Hohmann, and L. Marchant, Cambridge University Press, 71–83.

Nishida, T. 1980. "The leaf-clipping display: A newly-discovered expressive gesture in wild chimpanzees." *Journal of Human Evolution* 9 (2): 117–128, URL https://doi.org/10.1016/0047-2484(80)90068-8.

Ouattara, K., A. Lemasson, and K. Zuberbühler. 2009. "Campbell's monkeys concatenate vocalizations into context-specific call sequences." *Proceedings of the National Academy of Sciences* 106 (51): 22026–22031, URL https://doi.org/10.1073/pnas.0908118106.

Paquet, P. C. 1991. "Winter spatial relationships of wolves and coyotes in Riding Mountain National Park." *Manitoba. Journal of Mammalogy* 72 (2): 397–401, URL https://doi.org/10.2307/1382113.

Perlman, J. E., V. Horner, M. A. Bloomsmith, S. P. Lambeth, and S. J. Schapiro. 2010. "Positive reinforcement training, social learning, and chimpanzee welfare." *The Mind of the Chimpanzee: Ecological and Experimental Perspectives*, University of Chicago Press, 320–331.

Peters, R. P., and L. D. Mech. 1975. "Scent-marking in wolves: Radio-tracking of wolf packs has provided definite evidence that olfactory sign is used for territory maintenance and may serve for other forms of communication within the pack as well." *American Scientist* 63 (6): 628–637.

Peterson, R. O., and R. E. Page. 1988. "The rise and fall of Isle Royale wolves, 1975-1986." *Journal of Mammalogy* 69 (1): 89–99, URL https://doi.org/10.2307/1381751.

Rabb, G. B., J. H. Woolpy, and B. E. Ginsburg. 1967. "Social relationships in a group of captive wolves." *American Zoologist* 7 (2): 305–311, URL https://doi.org/10.1093/icb/7.2.305.

Rothman, R. J., and L. D. Mech. 1979. "Scent-marking in lone wolves and newly formed pairs." *Animal Behaviour* 27: 750–760, URL https://doi.org/10.1016/0003-3472(79)90010-1.

Rowlands, M., J. Lau, and M. Deutsch. 2020. "Externalism about the mind." *The Stanford Encyclopedia of Philosophy (Winter 2020 Edition)*, edited by E. N. Zalta, URL https://plato.stanford.edu/archives/win2020/entries/content-externalism/.

Sanz, C. M., and D. B. Morgan. 2010. "The complexity of chimpanzee tool-use behaviors." *The Mind of the Chimpanzee: Ecological and Experimental Perspectives*, edited by E. Lonsdorf, S. Ross, and T. Matsuzawa, 127–140.

Schenkel, R. 1947. "Expression studies of wolves." *Behaviour* 1: 81–129.

Searle, J. 1990. "Collective Intentions and Actions." *Intentions in Communication*, edited by P. R. Cohen, J. Morgan, and M. Pollack, MIT Press, 401–415.

Searle, J. 2010. *Making the social world: The structure of human civilization*. Oxford University Press, URL https://doi.org/10.1093/acprof:osobl/9780195396171.001.0001.

Searle, J. R. 1962. "Meaning and speech acts." *The Philosophical Review* 71 (4): 423–432, URL https://doi.org/10.2307/2183455.

Searle, J. R. 1969. *Speech acts: An essay in the philosophy of language*. Cambridge University Press.

Searle, J. R. 1975. "A Taxonomy of Illocutionary Acts." *Language, Mind and Knowledge*, edited by K. Gunderson, University of Minnesota Press, 344–369.

Searle, J. R. 1979a. "What is an intentional state?" *Mind* 88 (349): 74–92, URL https://doi.org/10.1093/mind/LXXXVIII.1.74.

Searle, J. R. 1979b. *Expression and meaning: Studies in the theory of speech acts*. Cambridge University Press.

Searle, J. R. 1983. *Intentionality: An essay in the philosophy of mind*. Cambridge University Press.

Searle, J. R. 1993. "The problem of consciousness." *Consciousness and Cognition* 2 (4): 310–319, URL https://doi.org/10.1006/ccog.1993.1026.

Smith, B. 2003. "John Searle: From speech acts to social reality." *John Searle*, edited by B. Smith, Cambridge University Press, 1–33.

Stahler, D. R., D. W. Smith, and R. Landis. 2002. "The acceptance of a new breeding male into a wild wolf pack." *Canadian Journal of Zoology* 80 (2): 360–365, URL https://doi.org/10.1139/z01-223.

Suzuki, T. N. 2014. "Communication about predator type by a bird using discrete, graded and combinatorial variation in alarm calls." *Animal Behaviour* 87: 59–65, URL https://doi.org/10.1016/j.anbehav.2013.10.009.

Suzuki, T. N., M. Griesser, and D. Wheatcroft. 2019. "Syntactic rules in avian vocal sequences as a window into the evolution of compositionality." *Animal Behaviour* 151: 267–274, URL https://doi.org/10.1016/j.anbehav.2019.01.009.

Townsend, S. W., S. Engesser, S. Stoll, K. Zuberbühler, and B. Bickel. 2018. "Compositionality in animals and humans." *PLoS Biology* 16 (8), URL https://doi.org/10.1371/journal.pbio.2006425.

Van Ballenberghe, V. 1983. "Extraterritorial movements and dispersal of wolves in southcentral Alaska." *Journal of Mammalogy* 64 (1): 168–171, URL https://doi.org/10.2307/1380773.

Zimen, E. 1982. "A wolf pack sociogram." *Wolves of the World : Perspectives of Behavior, Ecology and Conservation*, edited by F. H. Harrington, and P. C. Paquet, Noyes Series in Animal Behavior, Ecology, Conservation and Management, Noyes Publication, 282–322.

Zuberbühler, K. 2019. "Evolutionary roads to syntax." *Animal Behaviour* 151: 259–265, URL https://doi.org/10.1016/j.anbehav.2019.03.006.