1. Introduction

A perennial question in the literature on linguistic semantics is whether particular associations between form and meaning are (merely) conventional or are part of the inferential component of linguistic meaning. There are hosts of clear cases: That the phonological string [kæt] in English refers to a certain class of animals is obviously conventional; that an utterance of the sentence “I have to take my cat to the vet” can, in certain circumstances, convey that the speaker cannot accompany the addressee to a movie is clearly inferential. But there are controversial cases: Strong differences of opinion hold regarding presupposition (Cf. Stalnaker 1974; von Fintel 2004; Simons 2001; Simons et al. 2016), scalar implicatures (Geurts 2010; Chierchia et. al 2012), and even pronoun resolution (Stojnić, Stone, and Lepore 2017; Roberts, to appear). An additional case, and the one which will be the illustrative example in our paper, is the case of indirect speech acts (Searle 1975; Morgan 1977; Lepore and Stone 2014).

In these debates, scholars treat the conventional/inferential distinction as dichotomous. One possible source of this understanding is Grice’s work on conversational implicature (Grice 1975), which encourages us to sharply distinguish the conventional (expression meaning) from the calculable (typically, speaker meaning). Following David Lewis (1969), we call an element of meaning conventional if (i) each speaker uses the given form with the given meaning only because everyone else in their speech community does and (ii) the association between form and meaning could have been otherwise.

This second condition suggests an equivalence between conventionality and arbitrariness. The central role of arbitrariness reinforces the Gricean distinction between the conventional and the calculable. Conventional aspects of meaning are arbitrary form/meaning associations, for which no more general account (other than historical ones) is available. These differ from non-conventional aspects of meaning, which are calculable from general principles (in combination with certain conventional meaning facts). This understanding of Grice forces a strict conventional/calculable dichotomy.
The formal analysis of Lewisian convention parallels Grice in suggesting a strict dichotomy between conventions and non-conventional behavioral regularities. In game theoretic terms, conventions are strategies in games with multiple strict Nash equilibria. (The canonical example is represented by Table 1 below.) In contrast, non-conventional behavioral regularities are strategies in games that feature only one Nash equilibrium. (An example is provided in Table 2.) This way of defining convention is a dichotomous concept: either a game features multiple strict Nash equilibria or it doesn’t.

However, as one investigates the properties of different games, one finds that the formal definition masks an underlying continuity between conventions and non-conventional regularities. In the terms we adopt here, we find a continuum from fully arbitrary conventions to highly natural conventions.1 Carrying over this insight to the linguistic application allows us to see that linguistic conventions, too, come with varying degrees of arbitrariness. While some meaning conventions are highly arbitrary, others are natural in various ways and hence admit of a richer explanation than appeal to historical accident.

Recognizing degrees of naturalness in conventions has the potential to resolve tensions in the characterization of linguistic phenomena. In this paper, we discuss the case of indirect requests and show how the notion of naturalness in conventions allows for a more nuanced characterization of their status. Our approach reconciles the conventionality of indirect requests with their pragmatic motivation. By distinguishing between types of convention involved in the practice of indirect speech acts, we show that some aspects of this practice involve highly natural conventions, while other aspects involve entirely arbitrary conventions. We will compare our analysis to that of Morgan (1977) which, while similar in outlook to ours, lacks the benefit of a well-defined notion of convention.2 The conventional nature of indirect speech acts can indeed be understood much more clearly when seen through the lens of the Lewisian notion of convention, appropriately amended with our notion of naturalness. Our approach will provide the vocabulary for asking more nuanced and hence more revealing questions about the nature of linguistic regularities.

2. Lewisian Convention

Let’s begin by establishing the basic Lewisian notion of convention. For a classic illustration of a non-linguistic example of convention, consider Rene and Cathy. Rene and Cathy meet for lunch every Friday. They’ve been doing this for years; no one even remembers when it started. In their small town, there are two restaurants: Fancy Foods and Golden Grill. Rene and Cathy are indifferent between the two restaurants; they like both equally. But they always go to Fancy Foods because it’s what they’ve always done. They don’t talk or make an appointment beforehand, they both just go to Fancy Foods at noon every Friday. Rene wouldn’t consider going to Golden Grill on a Friday because she knows that Cathy expects her to go to Fancy Foods. The same applies to Cathy.

Rene and Cathy’s situation can be modeled in the game pictured in Table 1 below. F represents going to Fancy Foods and G represents going to Golden Grill. Rene is the row player: The rows represent her choices. Cathy is the column player; the columns represent her choices.3 Because neither player prefers one restaurant over the other and both players are happy only if they meet up, both get a payoff of 1 when they meet, and a payoff of zero otherwise.

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1. The term ‘natural convention’ appears to have been first used in approximately our sense in the context of understanding artistic (especially film) conventions by David Bordwell (2007: Chapter 2). Millikan (1998) also uses the term, but in an entirely different sense, to refer to a type of conventionality she distinguishes from the type characterized by Lewis.

2. As Morgan himself remarks at the end of his paper: ‘I have followed hallowed linguistic tradition in carefully avoiding saying what I meant by ‘convention’... I think a clearer understanding of these matters will probably strengthen my case’ (31).

3. In the payoff pairs, the payoff for Rene, the row player, is on the left, and the payoff for Cathy is on the right.
Because Rene and Cathy are both equally happy (i.e. have the same payoffs) whether they find themselves together at Fancy Foods or at Golden Grill, the regularity of going weekly to Golden Grill is equally good as the regularity of going weekly to Fancy Foods. Hence, the actual regularity of going to Fancy Foods is a convention because there is an alternative, equally good, regularity: going to Golden Grill. In game theoretic terms, each of these combinations (Rene and Cathy both going to Fancy Foods or Rene and Cathy both going to Golden Grill) is a Nash equilibrium — neither player has a positive incentive to unilaterally deviate. The state where they both go to Fancy Foods is a Nash equilibrium because, given that one of them is going to Fancy Foods, the other has no incentive to go to Golden Grill. Symmetrically, the state where both go to Golden Grill is a Nash equilibrium. Furthermore, both outcomes are strict Nash equilibria because both would do strictly worse by deviating.

Conventions like these stand in contrast to non-conventional behavioral regularities (Lewis 1969). Both conventions and non-conventional regularities are universally adopted (or nearly so) within a given population. But unlike conventions, behavioral regularities are adopted because they are intrinsically good ideas regardless of others' behavior. Here is an example: Consider two other acquaintances in the same town, Richard and Clark. Richard and Clark are passing acquaintances but not friends (or enemies); they neither like nor dislike one another. Coincidentally, they both love Fancy Foods and hate Golden Grill. And both enjoy a laid-back Friday including lunch at their favorite restaurant. So, like Rene and Cathy, Richard and Clark can be found at Fancy Foods every Friday at noon. They have been doing this a long time; like Rene and Cathy, they expect to see the other at Fancy Foods on any given Friday. However, unlike with Rene and Cathy, these expectations do not affect Richard and Clark’s choices. Richard would go to Fancy Foods whether or not he expected Clark to go, and vice versa.

<table>
<thead>
<tr>
<th>R</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td>F</td>
<td>1,1</td>
</tr>
<tr>
<td>G</td>
<td>0, 0</td>
</tr>
</tbody>
</table>

\[\text{Table 1}\]

Richard and Clark’s situation is represented in a game matrix in Table 2. Here, only one choice of restaurants is best for them. There is no alternative regularity. Richard and Clark could have done otherwise in a metaphysical sense, but doing so would be ridiculous for either of them. Instead, they act identically, not because of one another, but because of their similar preference for Fancy Foods. This renders Richard and Clark’s behavior non-conventional, even though the observed behavior — the choice of restaurant — is identical to Rene and Cathy’s.

Other simple examples of non-conventional regularities include things like brushing one’s teeth, wearing heavy clothes in the winter, and breathing. While all these behaviors are common in most cultures, the reason for adopting them has little to do with one’s expectations of others’ behavior. Absent others’ conformity, we would still follow the regularity.

In his seminal work on the subject, Lewis offers an extensive definition of convention as a subspecies of behavioral regularity. Some parts of his definition are controversial, and discussing those controversies would take us far afield from our central topic. Instead, we offer this pared down set of Lewis’ conditions as necessary conditions for a convention:

4. This definition is close to the definition Lewis offers on (1969: 76) except
Lewisian Convention

A behavioral regularity $R$ in a recurring situation $S$ is a convention for a population of agents if and only if in every instance of $S$,

1. Everyone conforms to $R$.
2. Everyone expects everyone else to conform to $R$.
3. Given the set of alternative regularities $R$, everyone would prefer to conform to $R$ over any other member of $R$ on the condition that everyone else conforms to $R$.
4. Supposing that all but one person are conforming to $R$, everyone prefers that the one person also conform to $R$.
5. There is an alternative regularity $R'$ in $R$ that also satisfies Conditions 3 and 4.

In the case of Rene and Cathy above, their regular behavior of going to Fancy Foods is a convention for the two of them, because:

1. Rene and Cathy go to Fancy Foods at noon every Friday.
2. Rene expects Cathy to go to Fancy Foods. And Cathy expects Rene to do the same.
3. Given that Cathy goes to Fancy Foods, Rene prefers to go to Fancy Foods. The same is true for Cathy.
4. If Rene is going to Fancy Foods, she wants Cathy to go to Fancy Foods as well. Again, the same is true for Cathy.

that we have omitted two of Lewis’ conditions. One condition requires identical preferences over all outcomes (cf. Vanderschraaf 1998). If this condition were present, we could retain the overall structure of our argument although we could not use the examples in Tables 4 and 5. The second is a set of knowledge conditions—it must be common knowledge that many of these conditions obtain. Including this condition would substantially complicate the presentation, but would not alter any of our arguments.

Natural Conventions and Indirect Speech Acts

5. Conditions 3 and 4 are also both satisfied by going to Golden Grill.

In discussing Rene and Cathy’s behavior, we hold fixed some aspects of their behavior while considering alternatives to other aspects. In our story, we assume that, wherever they go, the two friends will meet on Friday at noon. We hold the time fixed and vary the possible locations. This is the relevance of the set $R$ in our definition. In our discussion, we treat $R$ as comprising just two options: going to Fancy Foods on Friday at noon, and going to Golden Grill on Friday at noon.

This is important because some aspects of their behavior might be non-conventional. For example, their choice of Friday at noon might not be conventional at all: perhaps they both work at jobs that don’t allow them to go out for lunch any day but Friday. Given this elaboration of the story, the day of their meeting is not conventional as there are no alternative options. One aspect of their lunch-meeting regularity is conventional but other aspects are not. Thus, even for this simple case, the question “Is their behavior a convention?” requires further clarification. The question must be sharpened to a particular aspect of that behavior and a specification of the set of alternatives under consideration. In our enriched story of Rene and Cathy, we would say that their choice of restaurant is conventional while their choice of day is not.

Rene and Cathy’s behavior can be called conventional under the right framing. This will not be true of Richard and Clark. Their Friday lunches do satisfy Conditions 1 and 2: They both go to Fancy Foods every Friday and they expect the other to do so, too. Richard and Clark would probably satisfy Condition 3, but in a somewhat hollow way. Since Richard prefers to go to Fancy Foods regardless of what Clark does, he would satisfy Condition 3, and similarly for Clark. However, Richard and Clark’s interaction would not satisfy Condition 4: Given that Richard is going to Fancy Foods, he does not care whether Clark is there. Finally, Condition 5 also fails for Richard and Clark. There is
no other restaurant that they would choose on the condition that the other does the same.

In *Convention*, Lewis explains the emergence of and adherence to conventions in a traditional rational choice game theoretic framework. He supposes that conventions might come about from either prior agreement or salience, and that they are sustained by common knowledge and rational decision-making among the various parties to the convention. Brian Skyrms has argued that these strong rationality requirements can be replaced with more parsimonious assumptions about trial and error learning or evolution by natural selection (Skyrms 2010). Much of what is contained in this paper is consistent with either the classical rational choice or the more recent evolutionary interpretations of Lewis’ notion of convention. In the sections that follow, we will try to clarify our definitions for either interpretation.

The straightforward definition of convention that Lewis provides makes being a convention an all-or-nothing affair. Lewis was sensitive to this issue and on pp. 76–80 explores the notion of *degrees of conventionality*. What concerns Lewis in this brief section is the possibility of minor exceptions to participation in the regularity, which should not deprive it of its conventional status. First, he allows that conformity to *R* is required only in *almost all* instances of *S*. This means that, in our example above, if every once in a while, Cathy can’t make it to Fancy Foods for her regular Friday lunch and winds up going to Golden Grill, which is more convenient for her, this would not render the standing arrangement non-conventional. In addition, Lewis allows that Conditions 1–5 need apply to only *almost everyone* in a given population. This means that if, in a linguistic community *LC*, only a sub-community *SC* adopts a particular form/meaning regularity, we can still treat the regularity as a convention in *LC* — in Lewis’ terms, the convention will have a degree of conventionality less than 1.

Indeed, whenever we identify a group as “speakers of American English” or “speakers of Egyptian Arabic”, we are picking out a group that will show all kinds of micro-variations in linguistic behavior, including in the conventions they follow with respect to form/meaning pairings. Within the broad group of speakers of American English, there are different lexical conventions for naming, for example, sweet carbonated beverages (*soda, pop, coke*). While we could use Lewis’ strategy and treat each of these options as a lower-degree convention of the larger language group, it seems most straightforward to simply hold that there are different sub-communities that follow different conventions. The extreme of this situation is the sort of case discussed in Armstrong (2016), who observes that speakers of any language regularly create (and perhaps then discard) local conventions shared sometimes with only a single interlocutor, perhaps only for the space of a single conversation. It would seem odd to consider these highly local conventions to be conventions of the larger language community that have a low degree of conventionality. What all of these cases show is that conventions can vary in the degree to which they are shared by the population that has the potential to adopt them.

Scholars after Lewis have recognized that conventions can come in degrees. Millikan (2005) develops a theory of convention that differs from Lewis’ in some critical ways and would allow for gradations in conventionality. O’Connor (in press) followed up on Millikan’s suggestion and proposed a particular measure for conventionality. Bordwell (2007) has argued that many artistic conventions are more “natural” than alternatives that could have served the same purpose. Bordwell focuses principally on the interaction between human psychology and conventions of film, but the central point could be made more much generally — which is what we aim to do in the following sections.

Along with these authors, we note that conventions differ from one another not only in terms of how widespread they are in a population, but also in terms of the properties of the underlying coordination problem to which they provide solutions, and in how they came to be. For Lewis’ purposes, these differences “wash out” once a particular
solution becomes conventional. As he puts it on p. 84, "a convention created by agreement is no … different from one created otherwise: it bears no trace of its origin". We do not dispute Lewis' claim about the important formal properties shared by all conventions. However, in the exploration of linguistic phenomena and social phenomena more generally, we desire to know more about the origins and maintenance of conventions. There is much to learn in unpacking some of those differences that Lewis was at pains to smooth over.

In the sections that follow, we explore three ways that conventions might vary. We pay particular attention to how convention is continuous with non-conventional behavioral regularities in important ways. In that respect, we show how distinctions between the "natural" and the "conventional" parts of language may be more difficult to tease apart than is usually supposed.

3. Naturalness in Conventions: Three Dimensions

3.1. Variation in Alternative Quality

Lewis makes clear that in a coordination problem — the problem that underlies a convention — the various equilibria need not be equally good in terms of the payoff (see e.g. p.10). Any equilibrium point represents a possible convention, even if in some sense there are "higher quality" solutions. But in a game with equilibria of differing quality, coordination on the highest quality equilibrium is a less arbitrary, more "explicable" convention.

To illustrate, let’s return to Rene and Cathy’s choice of lunch meeting spots, but now let’s tweak the story. Suppose now that Rene and Cathy agree that Fancy Foods is superior to Golden Grill in all respects. However, the inferior quality of Golden Grill is not so bad as to make their meeting unpleasant. They would prefer a meeting at the Grill to missing the meeting altogether. (This is important, because it distinguishes their choice from Richard and Clark’s. If, for some reason, Rene thought that Cathy was going to the Grill, Rene would go to the Grill as well.)

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<thead>
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<tbody>
<tr>
<td>F</td>
<td>1,1</td>
<td>0,0</td>
</tr>
<tr>
<td>G</td>
<td>0,0</td>
<td>x,x</td>
</tr>
</tbody>
</table>

Table 3

In this game, whenever \( x > 0 \), both F and G are strict Nash equilibria, and hence are potential conventions. But suppose \( x \) is very small, say \( 1/1000 \). G remains a potential convention despite it being a very unappealing alternative. Intuitively, the closer \( x \) gets to 0, the more likely it is that the players would arrive at a convention to meet at Fancy Foods. Beyond our intuitions, many models of cultural evolution or learning in game theory underwrite this intuition with mathematical proof: Players are more likely to converge on F rather than G (Sandholm 2010).

The conventionality of Rene and Cathy’s behavior thus has a different character depending on the value of \( x \). When \( x \) is close to 1, the players’ choice to make Fancy Foods their meeting place is a fully arbitrary solution. In both an intuitive and a formal sense, they could just as well have chosen the other alternative. But as \( x \) gets smaller, F becomes a more “natural” and less arbitrary choice, one that can be explained at least in part in terms of the preferences of the agents. We
characterize this feature of a convention as its \textit{quality}. In our terminology, if one solution \( S_1 \) to a coordination problem has higher quality than a second solution \( S_2 \), then a convention to do \( S_1 \) is more natural than the competing convention to do \( S_2 \).

Many language scholars have suggested that one should exclude the possibility of \( G \) entirely by advocating that one only consider Pareto superior Nash equilibria (Benz and van Rooij 2007; Clark 2012; Parikh 1991, 2000, 2001). In the context of our discussion, this would amount to adding a condition to Lewis’ definition requiring that in order for a regularity \( R \) to be conventional, the alternative regularity \( R' \) (from Condition 5) could not be Pareto inferior to \( R \). While there is some appeal to the Panglossian belief that people will naturally choose the Pareto superior option in coordination games, we believe it is unreasonably optimistic. Models of evolution and learning suggest that populations learning to play games can get “stuck” in Pareto inferior equilibria (Skyrms 2004), even in games that model language (see for example Huttegger et al. 2009; Skyrms 2010; van Rooij 2004). Experiments on human beings demonstrate the same (Battalio et al. 2001; Cooper et al. 1990; Straub 1995; although see also Bruner et al. 2014). Since people can, and sometimes do, end up choosing a Pareto inferior equilibrium, it would be a mistake to exclude them from consideration.

In keeping with Lewis’ central idea that conventions are regularities that could have been different, we see no reason to exclude a priori the possibility that things might have been different and worse (or better). We think it is more helpful to view Pareto superiority as one way that a convention can be more natural than another. So, we would agree that in the example from Table 3, \( F \) — the Pareto superior convention — is more natural than \( G \). However, Pareto superiority is not the only criterion of naturalness. Even Pareto superior conventions could be less

natural than their inferior counterparts. We will present an example of this in the next section.

3.2. Variation in Stability

Condition 3 of the definition of convention entails that all conventions are Nash equilibria. Nash equilibria are central to coordination because they exhibit a certain kind of stability called “stability in expectations”. Consider the canonical convention pictured in Table 1. Suppose that Rene plans to go to Fancy Foods and Cathy plans to do the same. If we inform Rene of Cathy’s plan, Rene will not alter her plan to go to Fancy Foods. Nor will Cathy if she is informed of Rene’s intentions. Thus Rene’s choice is stable to learning what Cathy plans to do. So, too, is Cathy’s. This is one way to characterize a Nash equilibrium.

In this description of Nash equilibrium, we assume that Cathy and Rene are informed with certainty about what the other one will do. Often, though, we are uncertain about another’s intended actions, and Nash equilibria can be more or less stable in the face of this uncertainty. Returning to Table 1, suppose that both Rene and Cathy are planning lunch at Fancy Foods. Now imagine that we introduce uncertainty into that judgment. Suppose, in particular, that Rene is uncertain about what Cathy is going to do; perhaps Rene thought she saw Cathy drive off in the wrong direction. The question of interest now is: How much uncertainty could Rene tolerate before she switches her behavior?

In the case of Table 1, even if we introduce a small degree of uncertainty in Rene’s mind, she continues to want to play \( F \). So long as Rene believes that Cathy will play \( F \) with probability of at least one-half, Rene should still play \( F \). Thus \( F \) in the case of Table 1, is a stable convention. Now consider the variation on our story, where \( F \) and \( G \) differ in payoffs, as shown in Table 3. As \( x \) approaches 0, the stability of \( F \) increases. Consider the case where \( x = 0.5 \). Given the higher payoff from coordinating on \( F \), Rene should continue to go to Fancy Foods as long as she holds the probability of Cathy doing so to be at least 1/3. Rene can assign a relatively low probability to Cathy obeying the

6. Although van Rooij initially appeared in favor of this assumption, he is now skeptical (see van Rooij 2004, 2008). While Clark includes Pareto as a consideration, he also includes other considerations that might pull people away from the Pareto superior equilibrium (see §3.2).
Unlike the case of the conventions in Table 1, the Fancy Foods convention in Table 4 is relatively unstable to uncertainty. So long as Rene thinks that it is more likely than 0.75 that Cathy will go to Fancy Foods, Rene will opt to play $F$. But if her uncertainty grows and she assigns a slightly lower probability to Cathy going to Fancy Foods — 0.70 will do it — Renee will opt for her safer choice of going to the Golden Grill.

The alternative convention of Renee and Cathy going to the Golden Grill is not unstable in this way. Suppose that Rene and Cathy have the habit of going to the Golden Grill every week. Now suppose that on one particular week, some uncertainty is introduced into Rene's mind about where Cathy is going. For some reason, she thinks Cathy might go to Fancy Foods. Even if Rene is maximally uncertain — she assigns a probability of 0.5 to Cathy following their convention — Renee will stick to the regularity and go to the Golden Grill.

In fact, we can make the convention to go to Fancy Food's more and more unstable. Consider the game pictured in Table 5 below.

![Table 4](image)

**Table 4**

Suppose that Rene and Cathy both go to Fancy Foods every Friday and share the cheese fondue. This behavioral regularity satisfies all of our conditions for convention. The alternative convention would be for them to meet at the Golden Grill. The food would not be as good there, and therefore this convention would be worse in terms of quality. But it would be a convention nonetheless.

![Table 5](image)

**Table 5**

For any $7 > e > 0$, $F$ is a potential convention. But, as $e$ gets smaller, the $F$ convention becomes less and less stable. The degree of certainty required by Rene to go Fancy Foods grows as $e$ shrinks. Once $e < 7/3$, $G$ becomes more stable than $F$. As $e$ approaches zero, the minimum probability in order for $F$ to be rational approaches 1. As the degree

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7. Lewis (1969: 26–27) discusses the effect of uncertainty on the attainability of a given equilibrium. He notes that “we can imagine cases in which so much mutual confidence is required to achieve coordination at an equilibrium that success is impossible.”
of certainty required for $F$ to be rational increases, the stability of the convention of doing $F$ decreases and the stability of the alternative convention increases.\(^8\)

So far, we have described stability in terms of uncertainty. How uncertain can Rene be about Cathy’s action before she decides to abandon the convention to go to Fancy Foods? But we can express the same concern differently. Suppose a large community of people regularly interact with one another in a way modeled by one of these games. Every day, each person will be paired with another anonymous member of the population and forced to choose a strategy in the game. How many deviants could this community support before the convention to play $F$ collapses? Note that this way of characterizing stability has more obvious bearing on the case of linguistic convention, where the conventions apply across a large population, and the central question is whether a speaker can rely on a convention in addressing a new interlocutor about whose linguistic habits she has no prior information.

Mathematically, these two ways of describing the situation are equivalent.\(^9\) A population playing the game in Table 4 can tolerate up to 25% of the population deviating before the convention to play $F$ collapses. Similarly, in Table 5, as $\epsilon$ approaches 0, the convention to play $F$ requires greater adherence in order to be stable. For very small values of $\epsilon$, the convention to play $F$ would require near universal adherence.

Game theorists have formalized this notion in various ways (see, for example, the notion of stochastic stability in Foster and Young 1990).

Conventions whose alternatives are unstable to even relatively small perturbations are unlikely to arise. When they do, they are likely to collapse and be replaced by an alternative, more stable, equilibrium (Foster and Young 1990, Sandholm 2010). Experiments on humans also confirm the theoretical models (with a few caveats, see Battalio et al. 2001; Straub 1995). We thus characterize more stable conventions as falling higher on the naturalness scale than less stable conventions.\(^10\)

3.3. Variation in Availability

The “population interpretation” that ended the last section also points to another way in which conventions might differ: some might be easier to settle on than others. Both psychological and structural features of social situations might lead to some conventions being more available than others.

Human psychology can make people more likely to choose one convention over another. Schelling (1960) found that in situations with multiple equilibria, people were nonetheless able to settle on a convention very quickly. For a classic example consider this question:

You were told the date but not the hour of [a meeting with one other person]; the two of you must guess the exact minute of the day for meeting. At what time will you appear at [a predetermined meeting place]? (1960: 56)

Although this situation was novel for his subjects, “virtually all of them” chose noon (1960: 55). In the game described by Schelling, there are 1,440 potential Nash equilibria, all equally good in terms of payoff. This makes for 1,440 potential conventions. But in this problem, they are not all created equal; one in particular is what Schelling called a

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8. Games of this form are often called Stag Hunt or Assurance Games. They present a contrast between the desire for Pareto efficiency and risk dominance, which is a type of safety consideration (see Clark 2012 for a discussion in the context of language). Notice that in these games the Nash equilibrium where everyone chooses $F$ is Pareto superior to, but is more unstable to uncertainty, than $G$. This game therefore provides the strongest argument against those who would restrict conventions only to Pareto superior outcomes.

9. In both cases, the player is uncertain about what the other player will do. Under the first description, Rene was uncertain about what Cathy will do. Under the second description, the first player was uncertain who would be her partner and was therefore uncertain about that partner’s action.

10. As we hope we have made clear, we use the term “natural” as contrasting with “arbitrary”, the intuition being that a natural convention is one where the choice among the alternatives can, to some degree, be explained. “Natural” does not, for us, necessarily mean explainable in terms of cognitive or cultural predispositions. See the discussion in the next section for cases of the latter sort.
focal point: Something about the cultural setting, and perhaps shared cognitive biases, makes this particular solution uniquely salient.

Herbert Clark has emphasized the importance of focal points in solving coordination problems that lack a conventional solution, including linguistic coordination problems (Clark 1996: 62–81). He proposes a Principle of Joint Salience, which states that “the ideal solution to a coordination problem among two or more agents is the solution that is most salient, prominent or conspicuous with respect to their current common ground” (67), and argues that interlocutors implicitly rely on this principle in solving the non-conventional coordination problems that are ubiquitous in linguistic interpretation (e.g. the problem of identifying the referent of a pronoun). Clark also notes, echoing Lewis, that salience can be the basis for a signaling system (75). This is the crucial point for us here: In the case of a recurring coordination problem, the most salient solution (whatever the nature of the salience) will provide the most natural conventional solution. Conventions that are focal points will arise more often than conventions that are less salient. (The question of what makes a solution salient is, of course, a research question in its own right.)

In addition to human psychology, structural features of conventions might make one more likely to arise by a process of cultural evolution than another. Some conventions are established at a particular moment, as when, for example, a specialist invents a technical term. But these circumstances are relatively rare. Most conventions arise out of a process of slow cultural evolution. Depending on the underlying situation, certain types of conventions might be more likely to emerge than others. For example, consider the example in Table 4. Not only is the convention G more stable to changes in expectation, it is also more likely to evolve by a process of cultural evolution.11

11. To fully underwrite this claim, we must specify a model of the process of cultural evolution. In the replicator dynamics (Taylor and Jonker 1978), a popular model of cultural evolution, the convention G (from Table 4) is three times more likely to emerge from a randomly chosen population than the convention F.

3.4. A Continuum of Conventionality
Each of these three dimensions characterizes conventions that run from almost-non-conventional to fully conventional and totally arbitrary. For a particular convention, the quality of the alternative can be as good as the current convention — driving on the right- or left-hand side of the road is the classic example. But as the alternative becomes less and less attractive, the current convention will seem less and less arbitrary. One might imagine someone saying, "Yes, of course we could have done otherwise, but doing so would be such a bad idea."

A similar continuity exists for variations in stability. At one extreme are two potential conventions, both of which would create equally stable social arrangements. As one potential convention becomes less and less stable, it loses its plausibility as an alternative. In this way, the current convention might seem far more natural: “Of course we could have done differently, but it wouldn’t have lasted very long.”

Finally, conventions can change in terms of their availability. Some conventions are as available to communities as their alternatives. In other situations, one potential convention picks itself out as a far more obvious choice or likely outcome than its alternative. At the extreme, one convention is so unavailable that one might not even imagine it as an alternative possibility: “I suppose we could have done that, but who would have ever thought of trying it?”

Each of these dimensions can be understood in either psychological or evolutionary terms. Some conventions may be, for whatever reason, the more likely choice for people when attempting to solve coordination problems. Furthermore, if groups of individuals are attempting to form a social convention, they may be more likely to arrive at (or stay with) one convention relative to another. Whatever the underlying causal process, conventions will come in degrees.

We are not concerned here with the technical question of explicitly ranking sets of conventions on a single scale of naturalness. Because we have identified three different ways that conventions vary, we have, formally, three different scales. When all three scales render similar
verdicts, one convention is clearly “more natural” than another. However, when the properties pull in different directions — when one convention is of higher quality but is less stable than another — we would need to identify a method for weighing the different considerations. We suspect that in practice, as in the example we will develop in detail below, the three properties will often vary together. For current purposes, we’ll continue to talk about a single scale of naturalness, even though we have not developed such a scale.

All of our examples discussed so far are pedestrian, non-linguistic conventions. But the same variation in quality, stability, and availability will be present in more complex conventions, including linguistic conventions. Many debates in linguistics and philosophy of language are clarified by recognizing these degrees of conventionality. We now turn to one such debate.

4. Linguistic Applications: Indirect Speech Acts

Much of linguistic behavior is conventional. The meanings of individual terms, for instance, are clearly conventional. But this is not true of all aspects of meaning. As noted in the introduction, Grice (1975) argued that some aspects of utterance interpretation are the outcome of reasoning by a rational interpreter: This is what we call calculated meaning. Because this reasoning is triggered by non-conventional principles — principles purported to arise from basic rationality (Grice 1975) or from underlying cognition (Sperber and Wilson 1986) — scholars do not regard this aspect of communication as conventional. Despite broad agreement that interpretation has these two components, there remain many difficult cases where it is unclear whether the behavior should be categorized as conventional. It is here where our notions of naturalness will be most helpful.

While there are many potential domains for application of these distinctions, we will focus on the case of indirect speech acts. This debate provides fertile ground for analysis using degrees of naturalness.

4.1 Background: Calculation vs. Convention in Indirect Speech Acts

For our purposes, an Indirect Speech Act (ISA) is an utterance which accomplishes a speech act whose force is distinct from that usually associated with the linguistic form uttered. There are many potential nuances, but as our goal here is to investigate conventionality, we will sidestep them by focusing on the case of Indirect Requests (IRs). Given that requests are a type of directive, and that imperatives are the canonical linguistic form for issuing directives, we will consider any utterance of a non-imperative form that communicates a request to be an IR.

IRs have been a locus of the debate about conventionality versus calculability because there are compelling observations on both sides. Approaching this debate armed with the notion of a natural convention, as well as a more careful framing of the debate itself, can resolve this apparent impasse in a way that accommodates all the relevant observations. Our approach to IRs is informed by three previous proposals: Searle (1975), Morgan (1977), and Clark (1979).

Searle (1975) offers what is now the canonical pragmatic approach to IRs and other indirect speech acts. According to the account, the sentences whereby indirect speech acts are performed have their usual, literal meanings. Their use, though, can accomplish an additional speech act which is recognized through general Gricean reasoning, supplemented by knowledge of the felicity conditions on the performance of different types of speech act. The account is attractive in its simplicity. It does not require us to posit any linguistic ambiguity, which is hard to locate; and it is extremely general, allowing for parallel accounts of a wide range of indirect speech acts.

12. O’Connor (in press) has suggested using Shannon entropy as a measure for the degree of conventionality. Those conventions that are ancestrally likely to arise would have a low degree of conventionality, while those which are unlikely to emerge have a high degree of conventionality. We find this proposed measure interesting, but space will prevent a complete discussion of it here. All of what we say in the next sections is compatible with O’Connor’s proposed measure.
The generality of the account also constitutes its primary difficulty. The Gricean inferences that underlie ISAs on Searle’s account are driven by observations about the content the speaker has expressed in a given context. Such conversational inferences are supposed to be (in Grice’s terminology) non-detachable — that is, non-detachable from the content expressed. Expressing the same content in a different way is supposed to generate the same conversational inferences. Yet this is not quite how things work with ISAs. Searle puts the point like this:

The single biggest problem with the foregoing analysis is this: If, as I have been arguing, the mechanisms by which indirect speech acts are meant and understood are perfectly general [pragmatic ones] … and not tied to any particular syntactical form, then why is it that some syntactical forms work better than others? Why can I ask you to do something by saying Can you hand me that book on the top shelf? but not, or not very easily, by saying Is it the case that you at present have the ability to hand me that book on the top shelf? (75)

Searle not only identifies the problem, but also suggests a solution, albeit sketchily:

The theory of speech acts and the principles of conversational cooperation do, indeed, provide a framework within which indirect speech acts can be meant and understood. However, within this framework, in any given language, certain forms will tend to become conventionally established as the standard idiomatic forms for indirect speech acts. (49)

The apparent conventionality of certain forms underlies the alternative to Searle’s pragmatic approach, which is to posit an ambiguity. On ambiguity views, when the sentence Can you help me with this? is used to make a request, it simply expresses that request and does not express the meaning of a question about ability. There are two variants of this view. One is proposed by Lepore and Stone (2014), who claim that “The word can simply has two distinct but closely related meanings, both of which English speakers must learn” (98).13

The more standard variant of the ambiguity view is that the structure Can you VP has an interpretation as an idiom. (Morgan 1977 discusses this view as an alternative to Searle’s but without attribution.) An idiom is a syntactically complex expression which is interpreted non-compositionally, but which may undergo syntactic modification. A standard case is kick the bucket, meaning ‘die’. Clearly, no knowledge of the meanings of the component expressions will enable an interpreter to arrive at this meaning: One must simply learn that this chunk carries this meaning. The association of the meaning with the complex expression is an arbitrary convention of meaning, just like the association of the word bucket with a particular kind of container. As illustrated by kick the bucket, give X a hand, keep tabs on Y, idioms can be syntactically incomplete, as would be the case for the Can you… idiom. As noted, on this account, a speaker who says Can you help me with this?, intending the utterance as a request, has not literally asked a yes/no question; just as a speaker who says I’ll give you a hand has not literally or in any other sense said that he will give the addressee any physical object.

Both of these ambiguity views fail to explain the well known fact that it is natural and quite standard to respond (linguistically) to the question meaning of an indirect request formulated as an interrogative, as a prelude to, or while, responding in some practical way to the request. For example, one might respond to Can you help me with this? with Yes, I can. Let me see what you need. (See Clark 1979 for extensive evidence based on elicitation in conversational contexts.) Ambiguity views also have difficulty explaining why indirect requests can in fact be performed in a wide variety of ways. Table 6 gives some illustrative examples (see also Searle 1975, 65–67).

13. These authors do not, however, give any specifics of the meaning for can which would allow for compositional derivation of the request meaning.
4.2. Searlean Strategies as Natural Conventions

Searle’s argument is that all the means that perform indirect requests (including but not limited to those shown in Table 6) can fulfill this function because of the Gricean reasoning that connects expression of the particular content in a given situation with the intended effect. Acknowledging the Gricean basis for the interpretation does not prevent us from treating these strategies as conventional, however. Admittedly, thinking of the means as conventional seems antithetical to Searle’s conception: Isn’t the point of the pragmatic account that it makes it unnecessary to posit any established convention? What we will demonstrate here is that the adoption of Searlean strategies is conventional in Lewis’ sense; but the pragmatic foundations of these strategies makes their use a highly natural convention.

In any complex regularity, linguistic or otherwise, some elements may be conventional and others not; so it is important to isolate these elements and investigate them separately. Recall from our story of Cathy and Rene and their weekly meetings on Fridays at noon that the question of the conventionality of their choice of location is independent of the question of the conventionality of their choice of meeting time. In the case of Indirect Requests, we need to investigate separately whether particular means are conventional and whether particular forms are conventional. But prior to both questions is whether the choice to use any Searlean strategy for the performance of an indirect

<table>
<thead>
<tr>
<th>means ↓</th>
<th>form →</th>
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<tbody>
<tr>
<td>Asking about ability</td>
<td>Can you help me with this?</td>
</tr>
<tr>
<td>Asking about willingness</td>
<td>Would you mind helping me with this?</td>
</tr>
<tr>
<td>Assertion of appreciation</td>
<td>I’d be grateful if you could help me with this.</td>
</tr>
<tr>
<td>Asserting need/desire</td>
<td>I want/need some help with this.</td>
</tr>
</tbody>
</table>

Table 6

In this set of forms, there is a gradation from forms that seem robustly conventional (like the Can you… and Would you… forms), to forms that seem fairly creative (Getting help with this would be great). It is open to the ambiguity theorist to posit that some indirect requests involve forms which have become idioms, and hence are truly ambiguous, while others are carried out using purely pragmatic reasoning of the sort described by Searle (cf. Morgan 1977). But it would be more satisfying to have an analytic framework that accounts for the observed gradation.

Both Searle and the ambiguity theorists discuss conventionality only in relation to particular linguistic forms. Our own analysis of the status of indirect requests will utilize a distinction due to Clark (1979) between the means of carrying out an indirect request and the form. Clark (1979) demonstrates that both means and form have vary-

14. This distinction is already implicit in Searle (1975).
speech act is conventional or not, and if so, to what degree the convention is natural. This is the question with which we begin.

As in the case of Cathy and Rene, we need to determine what regularity of behavior we are evaluating, and to identify what constitutes the alternatives to this regularity. In English-speaking communities, and many typologically and culturally distinct language communities, some Searlean strategies are standardly used to make requests, and are recognized as being so used. We begin by examining this general regularity. The alternative regularity is to avoid the adoption of any such strategies for indirect requests. To decide whether this regularity is a Lewisian convention, we must determine whether Lewis’ conditions on conventionality are met. For ease of reference, we repeat those conditions here:

**Lewisian Convention**

A behavioral regularity $R$ in a recurring situation $S$ is a convention for a population of agents if and only if, in every instance of $S$

1. Everyone conforms to $R$.
2. Everyone expects everyone else to conform to $R$.
3. Given the set of alternative regularities $R$, everyone would prefer to conform to $R$ over any other member of $R$ on condition that everyone else conforms to $R$.
4. Supposing that all but one person are conforming to $R$, everyone prefers that the one person also conform to $R$.
5. There is an alternative regularly $R’$ in $R$ that also satisfies Conditions 3 and 4.

Let’s restrict our attention here to the use of indirect requests in English-speaking communities. The recurring situation is being part of such a community. The regularity we are investigating is that of treating some Searlean strategy (or strategies) as a way of performing requests. As an alternative, an individual could refrain from treating any Searlean strategies as a way of performing requests. For the moment, these are the only two options in the set $R$. In subsequent sections, we will consider alternative Searlean strategies compared against one another.

We now consider whether the five conditions are met. With respect to Conditions 1 and 2, we will assume they are indeed met, bearing in mind Lewis’ later weakening of the conditions to allow for conventional regularities where not everyone participates.

Condition 3 is also satisfied. This condition establishes the preference for coordination. In communication, coordination is paramount. If everyone else in my language community treats certain Searlean strategies as ways of performing requests, then I prefer to do so, too. If I don’t, I will sometimes fail to understand requests addressed to me; and I will sometimes fail to issue requests in an appropriate way. Note, importantly, that satisfaction of Condition 3 does not require that my only reason for conforming to $R$ is that others do. If I conform to $R$ at least in part because $R$ is an intrinsically good strategy, that’s fine; as long as, were it to be the case that everyone else did something different, I would change my behavior (Condition 5).

If Condition 3 is met, then, we will assume Condition 4 is also met. Assuming that all members of the language community have a preference for full mutual comprehensibility within their group, everyone wants others to conform to the same communicative choices.

Condition 5, perhaps surprisingly, is also satisfied. The alternative regularity under consideration is that of not treating any Searlean strategy as a way of performing indirect requests. If members of the community were observing this regularity, speakers would never utilize their addressees’ pragmatic capacities in a Searlean way to make requests. (They could still use their addressees’ pragmatic capacities in other situations.)

15. An alternative way of modeling the situation would be to arbitrarily choose one particular Searlean strategy and to pretend for purposes of the analysis that it is the only one available.
Why would individuals not want to adopt Searlean strategies if no one else in the population adopts them? Imagine, for example, a language community that refrains from using Searlean strategies to make indirect requests. (Perhaps the community already has a different set of conventional linguistic markers of politeness, respect for the addressee, and so on.) If a single member were to adopt a Searlean strategy as a regular behavior—while the population does not—that single member would be harmed. Suppose Jake does just this: He regularly uses some Searlean strategy to make indirect requests, even though no other member of the population does. Because members of Jake’s community are capable of pragmatic reasoning, he will often be successful at communicating as a speaker. But when speakers use non-canonical strategies or forms in communication, they are often taken to intend something out of the ordinary, and so the possibility of miscommunication would be higher than if he made the request in the normal way. He will be seen as an odd-ball who constantly uses strange phrasing to make simple requests. This might harm Jake socially. Finally, Jake will perform incorrectly as a listener. Should another person inquire, “Jake, can you pass the salt?” (or substitute whatever Searlean strategy Jake adopts), Jake will interpret this as a request when it was not so intended. He will therefore fail to answer a direct question and instead engage in an unwanted or unnecessary behavior.

While none of these harms would be catastrophic for Jake, they are sufficiently negative to outweigh any potential gains from using a Searlean strategy in a community that otherwise does not use them. So, in this community, Jake would prefer to conform to R’. Similarly, given that Jake conforms to R’, he would prefer that everyone else do so as well for similar reasons as those outlined above. As a result, Lewis’ Condition 5 is satisfied: not using any Searlean strategy is an alternative regularity, R’, that would satisfy Conditions 3 and 4.

We thus arrive at what seems like a paradoxical situation. By assuming that indirect requests work in a generally Searlean way, we still find them characterizable as conventions in Lewis’ sense. But what we can now show is that this convention is a highly natural convention, in the terms developed earlier. The alternative of using (some) Searlean strategies is more stable, more accessible, and of higher quality than avoiding the use of any such strategies.

Here is the argument for stability. Suppose our language community has adopted the regularity of avoiding the use of Searlean strategies to make requests. Nonetheless, sometimes requests will be expressed as indirect requests through normal conversational reasoning. For example, several of the Searlean strategies (questions about ability, questions about willingness, and questions about resources) involve asking about whether preparatory conditions for issuing a request are satisfied. Sometimes, there is genuine uncertainty about those conditions. (Consider the case where you want to talk with a colleague who is in their office but who, for all you know, may not have time. In such a case, asking Do you have 10 minutes to talk? is an actual inquiry, but one which also signals to your colleague your desire for that conversation.) Because these types of signals of requests will happen anyway, the regularity of avoiding all such strategies is likely to be unstable: We decide jointly not to use them, but wind up doing it anyway.

The alternative convention, that of treating some Searlean strategies as ways of making requests, is stable because it is supported by our existing pragmatic competence. This is because our pragmatic competence inclines us to “hear” a question about ability as signaling a request in certain familiar circumstances; so avoiding Searlean strategies entirely would require suppressing ordinary conversational reasoning. And of course, our pragmatic competence renders these strategies easily available. No specialized linguistic knowledge is needed either to generate or to comprehend a request using Searlean strategies.

Finally, using Searlean strategies is of higher quality than the alternative of not using them. The existence of a plethora of strategies for making indirect requests is plausibly related to their perceived politeness. Requests are so-called negative face threatening acts—acts that impose on the addressee (Brown and Levinson 1987); indirectness in requests is a means of mitigating the social threat. Now, politeness...
does not require indirectness. Politeness can also be achieved using conventional markers of politeness, such as please. However, a polite but direct request does not decrease the threat to face as much as an indirect request. Moreover, the rich variety of means and forms of indirect requests in English suggests that this variety is itself socially beneficial. It provides us with multiple ways of being polite, and with a great many gradations of social meaning. Again, a language could encode these social meanings by having a rich set of conventional markers; but the availability of Searlean strategies allows the language user to utilize ordinary linguistic forms for this purpose in a nuanced way.

Table 7 represents a plausible model of the choice between Searlean and non-Searlean strategies for making requests. Here, S/~S represent the regularity of treating/not-treating some Searlean strategies as requests.

<table>
<thead>
<tr>
<th></th>
<th>S (~S)</th>
<th>~S (~S)</th>
</tr>
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<tbody>
<tr>
<td>S</td>
<td>10,10</td>
<td>5, 3</td>
</tr>
<tr>
<td>~S</td>
<td>3, 5</td>
<td>8, 8</td>
</tr>
</tbody>
</table>

Table 7

The individual choices for numeric values are for illustration only and have no real meaning. However, the relation between the numeric values plausibly represents the situation faced by communities considering adopting Searlean strategies. Being a member of a population that uses Searlean strategies (playing S against S) is better than being a member of a population not using Searlean strategies (playing ~S against ~S). That S against S secures a payoff of 10 while ~S against ~S secures a payoff of 8 captures the difference in quality described above.

Furthermore, the variation in quality and stability are captured in the two “off-diagonal” payoffs. These represent the consequence of bucking the trend and adopting a strategy not in wide use by the population. In our story of Jake, we illustrated why it is sub-optimal to play S against ~S. Jake would often communicate effectively, but he would occasionally make mistakes.

In the other direction, things are far worse. Suppose that Julie is in a population that regularly utilizes the Searlean strategy, but Julie does not. Even if Julie engages her pragmatic reasoning skills as a listener, she may interpret IRs literally, failing to respond to the intended request. (This is the inverse of Jake’s problem from above.) Even worse, as a speaker, Julie will not have access to that wide range of nuanced social meanings that are communicated via conventional indirect requests. Her requests will be successful, but she may appear demanding or obnoxious. As a result, we think this situation is adequately captured with the payoff for S against ~S (in our case, 5) being higher than ~S against S (in our case, 3). Together these considerations render the convention S substantially more stable and more available than convention ~S.

To summarize this section: adopting Searlean means to carry out requests is conventional—we could have opted to do otherwise—but it is a highly natural convention by virtue of its stability, quality, and availability. We now consider the conventional status of the choice of particular Searlean strategies.

4.3. Conventionality of Choice of Means

What Searle noted as the “single biggest problem” for his analysis was the preference for particular forms: For example, the preference for the Can you…? form over the roughly synonymous option Do you have the ability to…?. Searle should also have noted a further related problem: Not every imaginable strategy for performing an indirect request through Gricean reasoning is utilized, at least not routinely.

Consider, for example, assertions that people sometimes do A. There are imaginable circumstances where such an assertion could, through Gricean reasoning, lead the addressee to conclude that the speaker wishes her to do A. Suppose, say, that we are sitting and talking in a room with closed windows, and the room is unpleasantly stuffy. I say, _People sometimes open the windows in here_. The observation
This reasoning seems analogous to the reasoning whereby a question about the addressee’s ability to open the window comes to be recognized as a request that they do so. So assertions of this sort are equally good candidates for means of carrying out an indirect request as are questions about ability. And indeed, such assertions might sometimes be used to issue indirect requests. But in English-speaking communities, assertions of this sort are not regularly used for this purpose.

Let’s cash this out in Lewisian terms. The background we assume here is that the language community will treat some set of Searlean strategies as means for indirect requests. The community must choose which means to treat in this way. For simplicity, assume there are two possible alternatives. Let regularity R be the regularity actually observed by English speakers in the United States: The regularity of treating the set S of Searlean strategies as means for performing indirect requests. Let R’ be the alternative regularity of treating some set S’$\neq$S of Searlean strategies as means for performing indirect requests.

Regularity R meets the conditions of Lewisian convention. Conditions 1 and 2 are straightforward: Everyone (or nearly everyone) follows R; and everyone expects everyone (or nearly everyone) else to do so. Condition 3 is slightly more complicated. We’ll first articulate an argument for why Condition 3 might not in fact be met; then we’ll argue against it.

Let us assume that there is some fixed set of strategies a linguistic community might use for making indirect requests. For example, in English one might request that someone do something by asking about ability, asking about willingness, asserting a need, etc. Abstractly, we will denote each possible strategy by $S_1, S_2, S_3, \ldots, S_n$. An anti-conventionalist might argue as follows. Suppose that (almost) everyone in a given language community follows the regularity of treating Searlean strategies $S_1, S_2, \text{ and } S_3$ as means for issuing indirect requests. But there are a variety of other Searlean strategies, $S_4 \ldots S_n$ that are not generally recognized by the community as a normal way of making indirect requests. This is regularity R.

Although $S_4 \ldots S_n$ are not generally used by the community to make indirect requests, they are sometimes utilized for that purpose, relying only on the general pragmatic competence of the interlocutors. Now consider i, an individual member of the community. Even if i does not conform to the regularity, she will by assumption still be able to understand indirect requests addressed to her (by virtue of her pragmatic competence), and the requests which she issues will also be understood (by virtue of the pragmatic competence of others). So it seems that the conformity of others to R is not a definitive reason for i to also conform to R. If correct, this argument would undermine our view that the selection of means for carrying out indirect requests is conventional.

We do not believe this represents the situation of actual linguistic agents, however. There is strong evidence that in face to face linguistic interactions, interlocutors have a tendency to coordinate linguistic choices, including lexical choice, selection of referring expressions, and syntactic choices (Brennan and Clark 1996, Niederhoffer and Pennebaker 2002). If a speaker continues to encounter the same linguistic choices by her interlocutors in repeated interactions, that speaker will almost certainly come to adopt the same choices as her normal
preference. Repeated encounters with speakers who utilize questions about ability as a means to express indirect requests simply do, as a matter of fact, lead to adoption of this strategy. So although it is possible in the abstract for a member of a language community to "resist" the regularity, it is not how language users in general behave. Members of a language community simply do prefer to adopt the regularities in the linguistic behavior of the community. Condition 3 is just an encapsulation of linguistic fact. As before, we assume that if Condition 3 is met, then so is Condition 4.

That some strategy is not included in the set $S$ that makes up the regularity does not prevent language users from utilizing that strategy to make an indirect request. Only, in doing so, they are relying entirely on their and their addressee's pragmatic competence, and not on familiarity with any convention. This is consistent with intuition. To continue with the example above, we can make sense of a situation in which saying *People sometimes open the windows in here* can be used to request that the windows be opened; but this request makes no use of any standing request-making conventions. This way of issuing the request seems extremely indirect; much more so than asking *Can we open the windows?*

Satisfaction of Condition 5 is precisely the point illustrated at the beginning of this section. If my language community happened to utilize a different set of Searlean strategies than I currently do, then I would prefer to switch and adopt their Searlean strategies. This claim is supported by the many observations about cross linguistic variation in strategies used for indirect speech acts: Not all language communities use the same set of means, and where there is overlap, communities may differ with respect to which means are most frequent or ordinary, which are considered most polite, and so on (Blum-Kulka 1989).

Despite this variation, the cross linguistic literature suggests some commonalities across languages. In particular, the regularity of treating questions about ability as signals of an indirect request is observed in a number of languages, some of which are typologically unrelated, including British English; American English; French; Argentinian Spanish; Hebrew; German; Telugu (Dravidian); Farsi; and Turkish.\textsuperscript{17}

These observations lead to the following conclusions. As we have already observed, the regularity of treating some Searlean strategy (or set of strategies) to signal indirect requests is itself conventional, but is a highly natural convention. The choice among Searlean strategies is also conventional, but it is a more arbitrary convention. However, to the extent that we find some particular Searlean strategy to be prevalent across language communities, we might conclude that this strategy is more accessible than other Searlean alternatives. The most plausible type of explanation for such a finding would be that there is something particularly salient, in the sense of Schelling (1960), about that strategy: We might expect to find cognitive or cultural reasons why that strategy is available for selection as a regular means of performing indirect requests. Whether any such conclusion is warranted requires extensive cross linguistic investigation, and lies outside the scope of our current project.

4.4. Conventionality of Form

We have not exhausted all the conventional choices of a community by considering whether they adopt Searlean strategies and the conventional choice of means. Even if a community has settled on the use of questions of ability as the means, there remain many forms available to the speaker. A speaker can use the locution *Can you…?* or *Are you able to…?* or even *Is it consistent with the laws of physics that you…?*

We have already seen that there is consensus across the literature that the selection of the forms for carrying out particular speech acts involves some degree of conventionality. This is perhaps sometimes overstated: As Searlè's own lists of examples show, there is a large variety of forms that are used for indirect requests, and speakers can be quite creative. The analysis given here helps us understand this: A speaker who uses a question about ability to make a request is

\textsuperscript{17} Data drawn from Blum-Kulka (1989) and from informal questioning of native speakers by Simons.
participating in a particular convention which she can count on her interlocutor to recognize, whatever form that question might take.

Some of the restrictions on possible forms can be explained by the idiomaticity constraint posited by Searle (1975: 76). We have already noted that Searle observes the distinction between a. and b. below:

a. Can you hand me that book on the top shelf?

b. Is it the case that you at present have the ability to hand me that book on the top shelf?

While a. is a natural way to make the request, b. is not. Searle points out, though, that b. is also not a natural way to ask the literal question about ability. Using the unusual form suggests that one intends something unusual. As making a request by using a question about ability is usual, the unusual form suggests that something else is intended.

Nonetheless, even within the reasonably standard ways of asking questions about ability, the Can you... and Could you... forms seem to be the most common, least marked forms for carrying out the strategy of making a request by asking a question about ability. The related form Are you able to...? can be used to issue a request, but plausibly is a less standard form for doing so.\footnote{Less standard, but still very much in use. A brief investigation on Google on July 6, 2017 turned up plenty of examples of Are you able to...? used as a request. Here are some examples:
(i) Are you able to tell me please, which end of the stadium is the Gee-long end? We are coming over from Perth and want to make sure we are sitting up the right...
(ii) Hi. Are you able to please give me the number for the new lillies quarter practice in hillcrest? [sic]
(iii) Hi, are you able to please tell when Ryan’s book will be released?
(iv) Hi korina, are you able to please let me know what is going on with this order? I havent heard back from you and i have sent you a few msgs since 10/10... [sic]
(v) Hi there, are you able to please confirm the color/colour of the hat, pic looks to be black and white...
Note, by the way, that all these requests are made with the politeness marker please. Some authors argue that please can be attached only to conventionalized indirect request forms, but in fact the constraints on the use of please seem more complicated.}

We posit that there is a regularity of treating the Can you...? form as the standard form for carrying out QAA. The alternatives to this regularity would be to treat some other (idiomatic) form for questions about ability as the standard form (e.g. the form Are you able to...?).\footnote{The word ’standard’ in the formulation of the regularity is required because any idiomatic way of asking a question about ability is, on this analysis, a possible way of carrying out QAA. The point of recognizing one way (or some small number of ways) as standard is that it is possible to use a non-standard way to convey that there is some special feature to the speech act—in the case of requests, this is most commonly that the request is more-than-normally polite. To accommodate the fact that for most speakers, there are multiple standard ways, we could characterize the regularity as involving a mixed strategy over a number of options. Working with a more complex version of the regularity would not change any of the conclusions drawn in the main text.}

This regularity clearly qualifies as a Lewisian convention. Everyone (or almost everyone) in the speech community follows it, and expects others to do so. Because of the general preference for coordination in linguistic choices, everyone prefers to follow the same practice as everyone else (if everyone else used Are you able to...? as the standard form, then I would, too); and everyone prefers that others follow the same practice. (If someone else treats Are you able to...? as the standard form and with what frequency can only be established through extensive empirical investigation, our interest here is in the hypothetical: If, in fact, there were a regularity to use some particular form rather than an available alternative form as the standard form to carry out a particular Searlean strategy, would this regularity count as a convention, and if so, where would this convention fall on the natural-arbitrary scale?

As always, in order to apply the Lewis definition, we need to decide what regularity we are considering, and what its alternatives are. The proposal here is to evaluate the conventionality of forms relative to the Searlean strategies they are used to carry out. For purposes of illustration, we focus on the strategy of making a request by means of asking a question about ability: We will call this the QAA strategy, for short. We posit that there is a regularity of treating the Can you...? form as the standard form for carrying out QAA. The alternatives to this regularity would be to treat some other (idiomatic) form for questions about ability as the standard form (e.g. the form Are you able to...?).
form, when I treat Can you…? as standard, we may fail to coordinate in evaluating one another’s degree of politeness.) But clearly, the form Are you able to…? could just as well have been the standard form for carrying out QAA.

Thus, the selection of the standard form for carrying out a particular Searlean strategy is clearly a Lewisian convention. Moreover, if the alternatives are restricted to linguistic forms that are idiomatic, standard forms for carrying out the relevant direct speech act, then the choice among the alternatives is an entirely arbitrary convention. This is in keeping with the observations from Searle that the pragmatic account is silent on the specific forms used to carry out indirect speech acts.

4.5. Summary: The Conventionality of Indirect Requests
Our position resolves the apparently paradoxical idea that indirect requests are explicable in general pragmatic terms but are nonetheless conventional in the Lewisian sense. We posit a hierarchy of conventions. At the top of the hierarchy is the highly natural convention of treating (some realization of) some Searlean indirect request strategy as a signal of a request. The naturalness of the convention stems from the pragmatic underpinnings of the practice. Any way of implementing the convention — any choice of a particular Searlean strategy — is equally natural and hence the choice among them is (largely) arbitrary. Thus the choice of particular strategies as standard means for indirect requests is, as far as our current analysis shows, an arbitrary convention. However, if further investigation shows there to be certain strategies that are cross linguistically common, it would be worth investigating whether there are cognitive or cultural reasons for some strategies to be particularly available. If so, those strategies would constitute a more natural convention. Finally, given the choice of one or more strategies as the standard strategies for performing an indirect request, a choice may be made as to the form (or forms) that will count as the standard forms to be used for implementing those strategies. Here again, the choice is conventional and is arbitrarily so.

In our account, following Clark (1979), we have distinguished between means and form in the performance of an indirect request, and have offered an analysis in which means is selected by a speaker independently of form. We have adopted this analysis as an analytic description, and are agnostic as to whether the means/form distinction has any psychological reality.

It is an empirical fact that speakers of English actually do very frequently use questions about addressee ability in a wide variety of forms to make indirect requests. A speaker innovating an indirect request in order to express a high level of politeness and to avoid as much as possible the sense of imposition on the addressee is quite likely to use a form which involves a question about addressee ability, maybe involving additional hedges and modifiers (“I was wondering whether you might possibly be at all able to babysit for me tonight.”). However, anecdotal evidence suggests that speakers are often not aware that the forms they are using are literally questions about addressee ability. Nonetheless, we can still characterize these speakers from an analytical perspective as following a convention. After all, most of the rules and regularities governing linguistic behavior are only implicitly followed; speakers are not aware of these rules. The rules have psychological reality only in the sense that, at some level of description, these rules do in fact govern speakers’ behavior. In the same way, we would argue that when speakers select a means for the performance of an indirect request, they are implicitly following a convention; but will often have no awareness they are doing so.

Our analysis of indirect requests aligns with the proposal in Morgan (1977), with the added clarity provided by taking a well articulated view of convention as its starting point. Morgan’s own starting point is the distinction suggested by Searle (1975) between meaning conventions and conventions of use. Searle, in trying to deal with the problem of apparent conventionalization of certain indirect request forms, writes:

It is by now uncontroversial that there is a distinction to be made between meaning and use, but what is less
Morgan's analysis is more fine-grained. He proposes that a convention of use consists of a hierarchical specification of means. Each level of the hierarchy provides one or more specific strategies for carrying out the means specified in the preceding level. Here is the one complete example Morgan provides (with some reformulation). Roman numerals label layers in the hierarchy of means; lower case letters label alternative options at a given level.

I

Upon parting, one expresses one’s regard for the other person.

IIa

By expressing a concern for the welfare of the other person

IIIa

By expressing a wish for their good health

IVa

By uttering May God be with you

IVb

By uttering God be with you

IVc

By uttering I hope God will be good to you

IIIc

By expressing a wish for peace

IIb

By expressing a desire or intention to see the other person again

This hierarchy is not itself a convention of use for Morgan; it is rather a menu from which multiple distinct conventions can be built. For example, there is the convention that consists of I, IIa and IIIa (with no further specification); the convention that consists of I, IIa and IIIb (again, with no further specification), and the convention that consists of I, IIa, IIIb and the further specification IVa. Because Morgan allows that a convention of use need not include a specification of the form, his framework, like ours, allows that a speaker who uses some non-standard form may nonetheless be implementing a convention. For example, the convention which consists of I, IIa and IIIb may be instantiated by an utterance of May God shower you with blessings.

Morgan clearly intends to apply conventions of use to indirect speech acts; this is the declared aim of the paper. However, he does not specify any convention hierarchy for any type of indirect speech act, nor does he discuss the relationship among the many different

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20. Morgan actually calls these conventions “conventions about language”, distinguishing them from “conventions of language”. We revert to (something closer to) Searle’s terminology, which seems more transparent.

21. It is an open question whether conventions of use must be conventions concerning sentences, or could be conventions governing the use of non-sentential expressions. The point doesn’t arise for us.

22. Note that when Searle here mentions conventionality, he probably doesn’t mean it in the Lewisian sense.
means and forms whereby indirect speech acts can be performed. He
does describe informally what he thinks a satisfying account of indi-
rect speech acts should do:

What’s needed is a description that says that in using
“can you pass the salt” to make a request, one is using the
sentence with its literal meaning, with the intention of
conveying a request via Grice’s maxims, but that in do-
ing so one is following a convention about language use;
the convention being, roughly, to request someone to do
such-and-such indirectly, say the sentence “can you (do
such-and-such)?”, with its literal sense. (Morgan 1977: 22)

Morgan here doesn’t recognize that he has at his disposal an inter-
mediate convention not involving a specification of form, and, like Searle,
proposes that the convention should involve a direct connection be-
tween the form and the request interpretation. This is confirmed by
the second half of his footnote 4, where he says that under his analysis
‘it is just the use of ‘can you…’ that has been conventionalized as an in-
direct request. Synonymous expressions work as genuine implicature.”
This is the crux of the difference between Morgan’s account and ours.
On our account, a speaker who says, “I find myself wondering whether
that little car of yours might be able to get me up the hill to my house”
is following a convention of use of English, the convention of utiliz-
ing questions about ability to issue an indirect request. The speaker has
not availed themselves of the convention governing standard forms
for following that convention, with certain rhetorical consequences.

Like Morgan’s, our account reconciles the pragmatic and conven-
tional aspects of indirect speech act production and comprehension.
Indirect speech acts are neither entirely a matter of pragmatics nor
entirely a matter of convention: They are irreducibly both. The roots of
the convention are pragmatic, but its details — the selection of particu-
lar strategies and particular forms for the implementation of the strat-
egies — are conventional. The question of whether indirect speech acts
are pragmatic or conventional thus has no simple answer.

Moreover, the question of whether indirect speech act conventions
are natural or arbitrary also has no simple answer. There is not one
convention but, as we have presented it, at least three. We have ar-
gued that these three conventions differ in their degree of naturalness,
with the top level convention — the convention of using some Searlean
strategy to make indirect requests — being highly natural due to its
pragmatic grounding.

The idea that what begins life as a pragmatically motivated linguist-
ic move grows up to be a linguistic convention is not new (see e.g.
Traugott 2012). Nor is this surprising from a Lewisian point of view.
Lepore and Stone (2014) put the point well: “Conventions are not in-
explicable or unmotivated … [They] evolve from agents’ spontaneous
and improvised successes at acting together.” Our pragmatic com-
petence enables us to spontaneously coordinate on using questions
about ability to make and understand requests; and this underlies a
resulting convention to do so.

But of course, these naturally motivated conventions do not spread
instantaneously in an entire language population. Throughout this
discussion, we have adopted from Lewis’ standard definition of con-
vention the requirement that for a regularity to be a convention in a
given population, it must be followed by the entire population. But
as we noted above, Lewis himself recognized that convention can be
a matter of degree, the degree being dependent on the proportion of
the population for whom the regularity is a convention. In the special
case of pragmatically motivated conventions, the very same usage may
be conventional for some, but involve ad hoc pragmatic reasoning for
others. But given the weakened version of Lewis’ definition, this can
unproblematically be incorporated into the Lewisian picture adopted
here.

5. Conclusion: Adding Natural Conventions to Our Analytic Toolkit

The notion of a natural convention adds an important concept to the
analysis of regularities of behavior, linguistic and otherwise. In elab-
oring this notion, we have identified a middle ground between the
two extremes of behavioral regularities: arbitrary conventional behavior (games with multiple, equally good, Nash equilibria) on the one hand, and on the other, behavior driven entirely by rational or cognitive requirements (games with unique Nash equilibria). In the application to natural language meaning, the notion of a natural convention provides a middle ground between the identification of a form-meaning regularity as an arbitrary feature of the semantics of the language, and its identification as a pragmatic feature arising from general principles of communication or cognition.

This promises to resolve a quandary that faces those who advocate for pragmatic accounts of frequently occurring aspects of interpretation. Arguments for pragmatic accounts are typically based on the idea that the phenomenon in question is non-arbitrary and is explicable in terms of underlying general principles. For theorists of a pragmatic disposition (including one of the authors of this paper), the availability of a pragmatic account of some aspect of interpretation — such as the request interpretation of questions about ability — is a strong argument to avoid an account which takes that piece of meaning to be encoded in the lexical entry of a word or directly associated with a construction. Lexical encoding is, after all, supposed to be reserved for that which is arbitrary in language. Yet pragmatic, inferential accounts seem to commit theorists to claiming that the relevant aspect of interpretation has to be worked out by the interpreter each time it is encountered (or effortfully chosen by the speaker who produces it). This is in tension with the evidence that humans are exquisitely sensitive to statistical regularities and learn complex patterns of association between form and meaning that become part of their linguistic competence. Positing natural conventions allows us to understand how an aspect of interpretation can be both explainable in pragmatic terms and also conventional.

This understanding of natural conventions as emerging from pragmatic competence has an interesting consequence for pragmatic theorizing. The standard picture has been that pragmatic theory deals with whatever is “left over” after semantics has done its job. To some extent, the border wars between semantics and pragmatics are over which phenomena each theory has jurisdiction over. The standard view — that what is conventional is arbitrary and not subject to further explanation — removes the conventional from the domain of pragmatic explanation. Our argument that linguistic conventions may be natural, emerging from pragmatic competence, suggests a new role for pragmatics: that of accounting for natural linguistic conventions.

The recognition of natural conventions provides a new role not only for pragmatics of the Gricean sort, but also for other explanatory accounts of observations about linguistic meaning.21 Linguistic meaning may be underwritten by cognitive or broadly pragmatic principles of many different sorts. To give one simple example, consider the case of compound words in English. It is well known that the semantic relation between the components of compound words in English is highly variable: A “child seat” is a seat for a child, but a “car seat” is a seat in a car. Because the selection of the semantic relation is not constrained by grammar, it appears to be purely arbitrary and conventional. However, it is also plausible that real world knowledge about babies, seats, and cars plays an important role in constraining the interpretation of the compound, or the selection of the compound in question for the relevant meaning. So in this case, too, if we characterize the form/meaning association for the compounds as a natural convention (holding fixed the meanings in English of the component words), we can both acknowledge the role of conventionality, and also recognize that there is a role in the overall explanation for discussion of conceptual knowledge and plausibility of relations. Broadly, then, the recognition of natural conventions allows us to understand better the relationship between, on the one hand, semantic theories concerned with modeling conventional content and, on the other, the variety of theories (pragmatic, cognitive) concerned with explaining how those contents arise. This brings us back to the phenomena mentioned at the very beginning of this paper: presupposition, scalar implicature, and pronoun...

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21. We thank an anonymous reviewer for this observation.

resolution. While the exploration of these is beyond the scope of the current paper, we would argue that the notion of natural convention, which encourages us to think about the possible sources of conventions, will be of value in resolving debates about conventionality in these domains, too.

Beyond linguistic analysis, the identification of more or less natural conventions is important for studying social behavior generally. That a cultural practice is universally adopted is taken as evidence against its conventionality. Our identification of highly natural conventions calls this inference into question. On the other hand, discovering that a social practice is conventional does not necessary show that abandoning such a practice would be easy. If an alternative to a convention is highly unnatural, then the conventionality of a target behavior does not suggest an alternative could be easily implemented. By teasing apart arbitrariness and conventionality, we have enriched the tools of analysis for social behavior — especially linguistic behavior — in a way that offers to enrich our understanding of the social world.

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