Where demonstratives meet vagueness: possible languages

Adam Morton, University of Bristol
adam.morton@bristol.ac.uk
Adam's web page

Abstract: I present three invented languages, in order to support a claim that vagueness and demonstrativity are related. One of them handles vagueness like English handles demonstratives, the second handles demonstratives like English handles vagueness, and the third combines the resources of the first two. The argument depends on the claim that all three can be learned and used by anyone who can speak English.

Note on this archived version : This is the longer version of the paper, with slightly more text, fuller footnotes, and the occasional hyperlink. (See the Contents below.) The shorter version is appearing in the *Proceedings of the Aristotelian Society*, Autumn 1998.

Contents: You may go directly to these parts of the paper.

0. Possible natural languages The philosophy of language relies on examples and intuitions about the natural languages spoken by philosophers. Sometimes the conclusions we get to are then expressed in terms of various artificial languages, which are good for making some distinctions explicit but hopeless as vehicles for ordinary communication. This paper explores a different method. Note 1: experiment in publication It describes fragments of s ome possible natural languages, variations on ordinary English: these are not actual natural languages because no one speaks them and they have not evolved through the operations of the language faculty, and they are not artificial languages because they share the semantic fluidity of natural languages and their suitability for multi-purpose communication. In fact, they are better described as "putatively possible" natural languages, for their role is to fit into arguments of the form: if this claim abou t language is right then the following ought to be a language people could learn and use. Then to take the argument further we have to decide whether the language as presented could in fact be learned and used. Note 2: quasi-natural lan guages

I shall present several claims about demonstratives, vagueness, and the links between them. And I argue that if these claims are correct then it should be possible for a natural language to have certain constructions, which I describe. Then I do not in fact present any empirical or apriori reasons for thinking that a language could have these constructions. I throw myself on the reader's mercy and plead that these do look like speakable languages. (The conclusions must even then be pretty tentative. If the languages are not speakable, though they would be if my claims about demonstratives and vagueness were right, then those claims must be wrong. If they are speakable, then the

claims are supported, but definitely not established.)

1. Vagueness and demonstrativity The core claim is that there are deep similarities between vague predicates and demonstrative referring terms. The point of the paper is in part to reveal and explore these similarit ies, and in part to develop the idea that putatively possible natural languages can be useful in this kind of enquiry. (So the reader might conclude that the claims were false but the device promising.) I shall now very briefly explain these claims, in order to set up the use I make of two possible languages.

Demonstrative singular terms such as *this* and *that* and vague predicates such as *green* and *big* share the very basic feature that their meaning does not determine a precise extension without the intervention of speaker an d hearer. In the case of demonstratives this is near to a defining feature: the speaker has to demonstrate what is referred to. Note 3: Demonstratives, orthodoxy In the case of vague predicates the obvious fact is that the extension is underdetermined by meaning: some objects will be neither determined to be within nor outside the extension. Speaker and hearer can then determine whether for their purposes the predicate is to apply or not to apply to some of these objects, or whether they are to be left as indeterminate. Note 4: Demonstratives, literature

I believe that this partial delegation of extension-setting to the members of a conversation is an essential feature of vagueness. But my belief is not obvious. At any rate in both cases the extension of a word can be refined by speaker and hearer (with the speaker as the dominant partner) within bounds that are given to them by their grasp of the meaning of the word in question. These bounds form a structure characteristic of the kind of word. With vague predicates the structure takes the form of a p attern of degrees: some degrees are determined by the meaning of the predicate to be within or outside the extension of the predicate on any application, and others are left undetermined, subject to the principle that if x has P to degree d and y has P to degree e and e > d in the structure then P is true of y if it is true of x. Note5: degrees With demonstratives the structure takes the form of a set of spatial relations centred on the speaker and the directions her attention can t ake, which I shall refer to as "ostension space". In the paradigm case a speaker says "that" and points, and objects more distant than some inner threshold and less distant from some outer threshold become candidate referents of the demonstrative, subjec t to the principle that if x is off the direction pointed at angle d and y is off it at angle e and e > d then x is a candidate referent if y is. The choice among candidates is then made in terms of relevance to the conversation and similar factors. Note 6: relevant factors (Both structures can be applied by analogy or transformation. Bigger and smaller can be found in the size of a person's reputation, nearer and farther in a text as well as in space. Variant ostension spaces a re very common, a fact that is exploited in language B, below.)

As a result of this combination of bounds and structure there are borderline cases in both. In fact in both cases there can be two kinds of borderline cases. First, if the speaker and hearer are to be able to affect the extension then the meaning of the word must leave them freedom to do so, so that there must be cases which are not determined by the combination of the word's meaning and the facts. And secondly, there are cases which fall into a gap between the determination in context of the extension and the default values arising from the meaning of the word. In the case of vague predicates the first kind of borderline consists in, for example, all the shades between blue and green which are determined by the meaning of the color words neither to b e blue nor to be green. The second kind of borderline will arise when the speaker and hearer have determined that, for example, a shade of turquoise will for immediate purposes count as green, but shades just a little bluer than that shade are not determ ined either way. A very meticulous borderline-setting will of course prevent the second kind of borderline from occurring, but this is rare.

In the case of demonstratives the first kind of borderline consists in the fundamental fact that standard demonstratives usually need speaker and hearer to do something to help determine what the demonstrative refers to, within limits set by the meaning o f the demonstrative. ("Now" may mean today or this century, but not the entire history of the universe; "this" will not denote something three millennia ago on Alpha Centuri.) And the second kind of borderline consists in the fact that this determinatio n is very often not precise; for example when someone points at a scene and says "that is really beautiful" and it is semantically indeterminate how much of the scene is included.

To catch what is common here in a single rough formula: a vague predicate can be expressed as "x is P to between this degree and that one", where the demonstrative picks out borderlines, while a demonstrative can be expressed as "the object at the focus o f the ostension-space" where "focus of" is a vague relation. That is the resemblance that I

claim between demonstratives and vagueness. The next three sections of this paper argue that it could motivate the grammar of some possible variations on English . In these sections two languages, called language A and language B, and a combination of them called language A + B, are sketched. Language A contains "time-linked adjectives", language B contains "ostenders", and language A+B combines these with "time -linked ostenders". The idea is very simple: English demonstratives and vague predicates have the independent basic features attributed to them in the diagram below. If they really are independent and basic features then other combinations of them are p ossible, as indicated in the rows for the other languages. So the question to be answered by experimental construction is whether attempts to combine these features produce intelligible idioms. (As with natural languages, A, B, and A+B combine basic fea tures in their constructions. Artificial languages - 'logic' in the diagram - try the opposite, to isolate features, so that operators like Kaplan's "dthat" focus exclusively on rigidity and the use of variables bound by quantifiers focuses exclusively on anaphora. The last line of the diagram alludes to this fact, though it is not relevant to the argument of the paper.)

.....Rigidity...Anaphora...Degrees...Underdetermination
English..---demonstratives--...------vague predicates------
A.....---------time-linked adjectives-------
B.....ostenders.....----------
A+B.....---time-linkedostenders----------
Logic.....dthat...quantifiers-.....

(I am not claiming that the categories in the diagram are the truly basic ones. Just that we can find more basic categories than those we read off the devices of our languages.)

In presenting the three languages I have chosen examples which bear on pragmatic problems that arise with the (actual) English grammar of demonstratives and vague predicates. So before sketching the languages I shall now very briefly describe two such problems.

Problems about reporting Notoriously, when someone says "that" the context which supports the demonstrative is often not available when another person reports the assertion. I say "that person is my enemy", pointing to someone in a crowd, and later you have to choose between saying "he said that someone in the crowd was his enemy", "he pointed to someone and said that that person was his enemy", "he said that George was his enemy", and other similar constructions. Each is a compromise, presen ting different problems. (I didn't say that the enemy was in the crowd, though that is where I pointed; I may not have intended to point, thinking that context alone made my meaning clear; I did not know that the enemy was called "George", and so on.) Note 7: reporting.

We have some special purpose constructions to ease the difficulty, of which the best known is the use of (s)he studied by Castaneda. Thus when someone says "I see my enemy" someone else can report it as "she said that she saw her enemy", with the presump tion that the speaker had used the first person singular to refer to herself as self. Note that the least unsatisfactory of the solutions to the problems with "that", represented by "he pointed to someone and said that that person was his enemy" uses the demonstrative in the subordinate clause not as a simple demonstrative but to connect anaphorically with whatever it was that the speaker referred to ostensively on the earlier occasion. It is thus analogous to Castaneda's (s)he*. Not e 8: (s)he*

Very similar problems arise reporting assertions with vague predicates. Suppose that you and I are putting buttons in boxes, according to their colors. We have had some disputes about buttons in the region between blue and green (everyone does), which w e have resolved so that we now understand quite precisely what is to count as blue and what as green for this purpose. I say to you "there is a green button in box no 38". The next day you are helping a different person to sort more of the buttons. Aga in you have blue-green disputes and again you resolve them, but do so by implicitly drawing the lines in different places than you and I did the previous day. You want to report my assertion to your present collaborator. What are you to say? "He said t hat there was a green button in box no 38" is definitely misleading, suggesting that the box contains a button that is green by today's rather than yesterday's standards. "We decided what was to count as green and he said that there was a button that we would have taken as green in box no

38" is at any rate true, though not something likely to occur in a real conversation. But it says rather less than my original assertion, as it does not actually indicate what color the button is. These problems are c learly very similar to the problems we have reporting demonstratives, and they are potentially present whenever a vague predicate is employed.

Intentions versus meaning The referent of a demonstrative and the borderlines of a vague predicate are constrained by semantic knowledge, speaker and hearer's mutual knowledge, considerations of relevance, and the gestures (etc.) of the speake r. Notoriously these are not enough. The pointing finger is directed at that cow, that cow's tail, that field, that color, the universe; color words as used in all but the most scientific contexts still have extremely fuzzy boundaries. We have a host o f systematic and improvised devices for lessening the indeterminacy. One recurrent device is the use of a sortal predicate to lessen the possibilities. "This cat is white" obviously does not refer to something as "this" and then assert that it is both a cat and white; rather, it instructs the hearer to use cat-hood as a guide in determining what might be referred to as "this". In the same example "cat" is used to restrict the possibilities for "white". Note 9: dependence on sortals

Problems arise when the information provided by the sortal conflicts with the information provided by context. I point to a spade and say "that is the shovel I want". I see a guinea pig in a cage and say "The flowers to the left of the big gerbil are ge raniums." The problem for philosophers is the truth value of the assertion: is it a function of the objects or borderlines the speaker intended to refer to or the ones suggested by a literal interpretation of the words used? The problem for practical co mmunication is the indeterminacy of what has been said: does one respond in agreement with (say) the belief the speaker meant one to acquire or in disagreement with the proposition that was literally asserted? Note 10: attributive/ref erential

2. First language: the anaphora of borderlines It is time to start inventing languages. The first language constructs a grammar for vague predicates that takes over aspects of the way in English that we refer to individual objects, with demonstratives, pronouns, and quantifiers. Note 11: syntax The second language, in the following section, does the opposite, constructing a grammar for demonstratives that takes over aspects of the way in which we constrain the borderlines of vague predicates. And then a third language will combine elements of both the first two lan guages.

The novel constructions of language A are directed at what one might call the anaphora of borderlines, the chain tying the initial restriction of a predicate's extension to later uses of that predicate with respect to that restriction. To do this, it emp loys explicit borderline-setting devices and also devices for linking the use of a predicate to a particular set of restrictions on its borderlines. These devices are grafted onto standard English syntax: we add to English syntax one new feature, which t hen allows existing grammatical categories to play extended role. That feature is the insertion of a time-link after an adjective. There are only two time-links, "from" and "for". They connect the adjective to a description of a time or event, such as 'now', 'then' 'during the show', 'sorting the buttons'. The presence of a time-link allows an adverbial phrase, such as 'just about', 'too', 'centrally', or 'too yellow to be green' to take a rather different interpretation than it would in English. It links one occurrence of such a phrase to the reference of another use, just as anaphoric links between pronouns and demonstratives tie the reference of one noun phrase to hat of an earlier one. The grammar is best given by examples.

Starting with the adjective 'green', the following are complex adjectival phrases of language A: "just about green for now", "too blue for green from during the show", "maximally yellow for green from sorting the buttons", "centrally green for looking at the landscape", "bluer than centrally green from the chart", "green from buying the curtains", "as blue as can be green for painting the wall". Each of these links "green" to an occasion on which it has been employed, possibly via some qualification of the borderlines it then had.

This may not sound very radical. But the interpretation of these new constructions and the uses these interpretations allow make a considerable departure from English. Times and events are used to label borderlines of predicates. The constraints on the borderlines of a predicate as used on a particular occasion, which allow an object to fall under the predicate, can be labelled with reference to that occasion, by using "for". And this occasion and its associated constraints can be alluded to on a late r occasion, by using "from". This too is best explained by examples. Here are some sentences of A and their truth conditions expressed in not very natural English.

(1) That pen is just about green for now.
(2) All of the samples we saw at first were too blue for green from during the show.
(3) Some of the birds are maximally yellow for green from sorting the buttons, but centrally green for looking at the landscape.
(4) The paint in tube 47 is bluer than centrally green.
(5) This cushion is green for buying the curtains yesterday.

(1) is true iff the pen in question is on or slightly within the borderline for green which is being set as the sentence is uttered. (1) may specify the constraint on the borderline, as much as it reports it, so its utterance may be a factor in its being true. (But this need not be so. (1) may be uttered; an interlocutor may deny it, and the borderline may not then be set where (1) suggests.)
(2) is true iff all of the samples in question were more blue than any object that qualified as green in the episode that has been labelled "the show". That episode may be before or after the time at which the samples were seen.
(3) is true if there are birds that are at or just below the borderline for green which was set when setting the buttons in question and which are distant from any borderlines for green which were set when looking at the landscape.
(4) is ambiguous. The context could make clear whether it should be interpreted as "The paint in tube 47 is bluer than centrally green for now" or as " The paint in tube 47 is bluer than centrally green from o" for some contextually evident occasion phr ase o. In the first case a bid for specifying borderlines is being made and in the second borderlines from a previous specification are being brought forward.
(5) takes borderlines which were constrained in a conversation the day before and adds a constraint to them. Before (5) is uttered "this cushion is green from buying the curtains yesterday" may not be true, and after (5) has been asserted and accepted by the hearer it may be true. So borderlines may be constrained long after their initial labelling.

The syntax of language A allows its speakers linguistic and practical projects that would not be considered by speakers of English. For example they can employ multiple simultaneous sets of borderlines for the same predicate, as in (3). All that is requ ired to do this is for there to be unconfused uses of the predicate on occasions which the speakers on a later occasion understand to be distinct. Then the speakers can speak in the same breath of what is green from buying the curtains yesterday and what is green from looking at the landscape just now. These could be used to keep two different strands of conversation distinct (helping the conversational polyphony that is a beautiful but confusing feature of everyday life). Or they could be used in comb ination, to make a finer grid for present purposes: the desired shade of fabric could be described as too yellow to be green from buying the curtains but green from looking at the landscape. For some purposes this would require the speakers to remember t he constraints put on the predicate on the uses referred to, but for some purposes this would not be necessary: if the object in question fell within the combination of required borderlines as set previously it would satisfy the predicate as now employed, whether or not the speakers are in a position to know this.

The structure of language A can also be used in reporting vague assertions. Suppose that one person says "button number three is almost too yellow to be green for now." Then what she says can be reported with "she said that button number three was almos t too green for then." Suppose she says "button number eight is too yellow to be green from when we began to sort them." Then the report can be "she said that button number eight was too yellow to be green from when they began to sort them." A very lit eral reporting idiom allows us to be explicit about the contexts with respect to which the boundaries of vague predicates should be understood.

Sometimes the relevant boundaries for a predicate as used in one context might be described in another context by referring not to the original boundary setting but another with the same effect. Thus when someone says "button number eight is too yellow t o be green from when we began to sort them" another can report her assertion with "she said that button number eight was too yellow to be green from our discussion just now about boxes." This will faithfully report what she said if "our discussion just now about boxes" and "when we began to sort them" connect with contexts which put the same restrictions on the extension of "green". As long as the occasion referred to in the report clearly could not be the one that the reported speech referred to this will cause no confusion. (Just as one person can say of another "she told me last week that that man sitting at the corner table is a rock star.") But a more explicit idiom is easily constructed. The reporter could instead say "she said that button num ber eight was too yellow to be green from what happened to coincide with our discussion just now about boxes". (Just as a report can take fewer chances by saying "she told me last week about that man who happens to be sitting now at the corner table that he is a

rock star.")

Is this a language that could actually be learned and spoken? In the course of the past several paragraphs you have to some extent learned it. To see how smoothly it could be used in everyday life consider the following dialogue between two speakers of A.

Violetta So you're my new assistant. We were sorting these samples by color. We're not really interested in the green ones, Bruno was gathering them all in this box. Look, he said this was green from then, see how yellow it is. And this one which you might think of as blue, almost. That was green from Bruno's sorting too. So don't waste time now, the job's only half begun.
Rufus Ok, I'll do what I can. While I'm at it why don't I get the boxes organised too. It would make sense if their colors suggested their contents. So I'll put the red samples in red boxes, perhaps one like this would be perfect, centrally r ed for box-sorting. Same for all colors; we need central shades for this job. That way the customers will have no doubt what's inside. OK?
Violetta Just do what you're told. But I suppose that makes sense. You'll have a problem with the green ones though. There's such a range of them.
Rufus I can treat them the same way. This box, for example: it's not too yellow to be green from Bruno's gathering, but it is much too yellow to be green for our box-sorting. And this sample here, though it is green for gathering it is not muc h less blue than this blue for box labelling one. That will be a much better system than just writing the colors on the boxes, as I think you were going to do.
Violetta You're fired.

It took only a little concentration to follow this dialogue, even though you have a very short acquaintance with language A. You were helped by the fact that much of the vocabulary was familiar. If a language like A evolved slowly from English in the us age of a community it would no doubt develop specialised vocabulary and syntax for describing the kinds of events with which constraints on borderlines are associated, and for the more explicit constraining of borderlines that is possible using the langua ge's resources. The result would be a language in which vagueness still permeated all discourse, but in which it was indexed and cross-referenced in much the way that demonstratives and other singular terms are indexed and cross referenced in a language like English. Note 12: Raffman

3. Language B: focussable ostension While language A treated vague predicates in ways that standard English treats demonstratives language B treats demonstratives in ways that standard English treats vague predicates. That is, it provides a number of standard default configurations of borderlines for ostension, around which speakers can negotiate particular variations on particular occasions. In addition, it makes available for demonstratives a procedure analogous to the way we can retreat from a vague one-place form of a predicate to a less vague comparative, for example from the v ague "happy" to the rather less vague "happier than".

Language B has a syntactical category of *ostenders*. Ostenders form noun phrases, whose syntax should be clear from the examples below. Noun phrases formed with an ostender can combine with quantifier words or the definite article to make more c omplex noun phrases. Ostenders are not like any familiar English category, so they are best explained by giving truth conditions for sentences involving them. Begin first with the least alien-feeling of them, prox.

(6) Some prox sheep is female..
(7) Necessarily some prox sheep is female.
(8) You see prox sheep. ... All prox are black.
(9) You see prox sheep. ... The prox is black.
(10) The not very prox sheep is black.
(11) Prox is dangerous.

(6) is true iff there is one among the sheep which are speaker and hearer can see are quite near and not too far away within a conical volume centring on the position of the speaker and hearer, and which is female. (Which cone, in which direction, and ho w near? That has to be determined in context, as with all demonstratives. Note 13: what determines reference) "Prox" is thus to a very first approximation a mixture of "this" and "there": a quick fix on (6) is

"Some sheep there is female", and on (11) is "That/those is/are dangerous."

"prox" has an essentially demonstrative element, as is brought out by (7), which is true iff it is necessary that some member of the set of creatures picked out by 'prox' is female. (7) could be true though "necessarily some nearby sheep is female" is fa lse, for familiar Kaplanesque reasons: if the set of sheep actually picked out by "prox" includes an ewe then that set of sheep includes one that could not have been other than female.

In (8) the second sentence "All prox are black" is true iff all the creatures picked out by the first sentence are black. Note that by the time the second sentence is uttered those particular creatures may not be nearby, another reason not to be misco nstrue "prox" as "nearby". Similarly (9) is true iff there is just one such creature and it is black.

(10) is true iff there is a unique sheep which is at the outer edge of what speaker and hearer would count as being caught by prox. In (11) the vagueness of "prox" is even less resolved than in the previous sentences. Some class of objects which bear so me relation of sufficient nearness centring on speaker and hearer is referred to, and the sentence is true iff that class is dangerous.

The truth value of (11) will often be problematic, just as the truth value of "it is big" said of a baby elephant is. (11) can be straightforwardly true, though, for example when speaker and hearer have come upon a flock of sheep, which the speaker knows to be wild and likely to trample unwary hikers

"Prox" is only one among many possible ostenders. A rather similar ostender is "inter", which picks out objects between speaker and hearer and not too close to either. A pair of ostenders that would be hard to duplicate in English are "evid" which picks out objects which speaker and hearer might expect each other to think relevant to the conversation, and "unevid" which deliberately excludes such objects. Note 14: demonstratives versus pronouns "Unevid" is most useful in qualif ied form, as in "somewhat unevid" or "really pretty unevid". B speakers also use the relational ostender "unevid to x". Some more truth conditions are now needed:

(12) The inter mosquito is harmless.
(13) All very evid philosophers thought it was a terrible argument. Of course there is also Parmenides. Evid philosophers don't take him seriously.
(14) The slightly unevid color would look surprisingly good here.
(15) Unevid to the man holding the baseball bat is going to clobber him.

(12) is true iff there is a particular mosquito between the speakers which the speaker is aware of and intends the hearer to be aware of, and which is harmless.
In (13) the first sentence is true iff there is a class of philosophers which in the conversational context speaker and hearer expect to spring easily to each other's minds, and all of them thought the argument in question was terrible. By the time the t hird sentence is uttered Parmenides has been brought to mind. But the third sentence is true iff all the philosophers who might originally have sprung to mind - most likely not including Parmenides - don't take Parmenides seriously.
(14) is true iff by thinking of a color that she would not at first have thought of the hearer can come up with the one that the speaker intended her to, and it would look surprisingly good there.
(15) is true iff the class of things that speaker and hearer both know that the man holding the baseball bat is unlikely to think of includes one or more things that will soon clobber him.

Ostenders can perform any referential function that English demonstratives can perform. Note 15: plural dthat? They can accomplish quite routinely referential tasks that would be daring and uncertain in English. Consider (15) fo r example: to get a "this" to focus on what speaker and hearer might expect a third person not to expect would take infinitely careful stage-setting. Ostenders also allow less focused reference than English demonstratives do. Not only can an ostender leave the singular/plural distinction unspecified, in effect being ambiguous between "this" and "these" Note 16: singular/plural, but it can leave the boundaries of the focal region in its characteristic ostension space undetermined . Thus in (11) it is left undetermined how far away from speaker and hearer the danger is. As the conversation proceeds the focal region may become constricted or expanded or shaped to some special purpose, just as an initial use of a vague predicate su ch as "green" can be restricted at first only by its default limits and central cases but then become constrained by the decisions and conversational purposes of speaker and hearer.

One further opportunity opened up by ostenders should be described. That is the opportunity for comparative ostension. If we can say "prox sheep" and pick out objects in a vague region of an ostension space, we can say "more prox ", and "most prox" and pick out objects in a more precise relation in that space. Similarly for other ostenders. For example:

(16) More prox sheep is mother to the less prox one..
(17) Some more inter sheep are mating.
(18) Most unevid sheep to the man in the blue hat is preparing to butt him.

(16) is true iff there are two sheep such that one is evidently nearer the focus of the ostension space than the other and the nearer one is mother to the less near one. (17) is true iff there are sheep which are evidently not at the same distance betwee n speaker and hearer and which are mating. (The comments on (6), (7), (8), showing why they are demonstrative rather than quantificational constructions apply to (16) and (17) too.) (18) is true iff the sheep that is clearly (to speaker and hearer) leas t likely to be thought of by the man in the blue hat is preparing to butt him.

4. Combining A & B: freezing constraints Both languages consist of English plus some add-ons. The added vocabularies do not overlap and the procedures for managing them do not interfere, so there is no obstacle to a la nguage A + B which contains the features of both languages. But in fact if we have language A's time-links "for" and "from" and language B's ostenders then it would be natural to apply the time links to the ostenders. We could tune a "this" in the manne r of language B and then preserve the tuning in the manner of language A. We would then have sentences like these:

(16) The prox from when we were looking at swallows animal is dangerous.
(17) The sheep on the left is too far away to be prox for now. All prox from just now sheep are female.

(16) is true iff there is a dangerous animal which is at the focus of an ostension space similar to the one which speaker and hearer were using when they were pointing out swallows earlier. In (17) the first sentence tunes prox so that its ostension spac e does not extend as far as the sheep on the left. Then the second sentence is true iff all the sheep picked out by prox thus tuned are female.

Combining idioms from the two languages we can now construct conversations which are extremely hard to reproduce in English without either extreme cumbrousness or semantic ascent. We can also now produce conversations which take a lot of effort to unders tand immediately after mastering the explanations of the new constructions. That is not surprising; you would not expect to master devices that allow one to express new and subtle thoughts without at least a little practice. What seems evident is that t hey are constructions and uses that could be mastered with a reasonable amount of effort, much less effort in fact than it takes to pick up the syntax of a really alien language. And to that extent it is not too hard to learn a language in which demonstr atives and vague predicates have converged, in which the boundaries of demonstratives can be tuned and negotiated and in which there is a cross-reference between initial and subsequent uses of a vague predicate. Note 17: uses for quasi -natural languages

(The vocabulary of the two languages is English, plus the few words needed for the new constructions. But the presence of ostenders or from/for puts a pressure on the vocabulary to deviate from the standard English pattern. In particular, the predicate s used in the examples took their standard English meanings, in which they have definite default values which impose limits around which speakers can negotiate. If these devices were part of a real language in use I would expect the presence of from/for these default values to become less important, or to evolve in response to the presence of the greater explicitness and power of contextual determination. For example the language might acquire color words which designate narrow strips across the color s olid, including overlaps with words such as "green" and "yellow" but more restricted in saturation and brightness. In context hue-borderlines would be specified, but borderlines for saturation and brightness would rarely have to be. Or it might acquire ostenders which are more remote from "this" and "that" than the examples I have used. Such ostenders might have means of locating the object referred to in less familiar kinds of ostension spaces with less dependence on the position in the space that the speaker had intended to pick out.)

Learning to communicate easily and naturally in the ways facilitated by languages A and B would not be a trivial

achievement: in learning to do it one would be learning to handle vagueness and demonstratives in fundamentally similar ways. The ease with w hich speakers of languages like English can begin to learn such ways of thinking, as suggested by your comprehension of earlier sections of this paper, suggests that the links between vagueness and demonstrativity are implicitly present even in English. (A Note 18: conceptual/procedural .) The suggestion is only that, as it is possible that comprehension of A and B has an entirely different basis to that of English. Still, we now have good reasons to believe that vagueness and de monstrativity can be treated with closely related devices, and this gives us reasons to suspect that in languages like English the devices that manage them may be closely related. Does this show that vagueness and demonstrativity are deeply related pheno mena? Not with certainty. But it makes that conclusion much more plausible.

.

.

Bibliography Bach, Kent (1992) "Paving the road to reference" Philosophical Studies 67, pp 295-300.
Blakemore, Diane (1987) Constraints on Relevance, Blackwell
Cappelen, H and Lepore, E (1997) "Varieties of Quotation", Mind 106, pp. 429-450.
Carnap, Rudolf (1931-2) "Die physikalische Sprache als Universalsprache der Wissenshaft" Erkenntnis 2, 432-465, translated as The Unity of Science, London 1934.
Castaneda, Hector-Neri (1966) "'He': A study in the logic of self-consciousness" Ratio, 8, pp. 130-157.
Donnellan, Keith (1966) "Reference and definite descriptions" Philosophical Review 75, 281-303.
Elugardo, Reinaldo (1996) "Comments on Cappelen and Lepore's 'Varieties of Quotation'", read at the American Philosophical Association, Pacific Division.
Heal, Jane (1997) "Indexical Predicates and Their Uses". Mind 106, 619-640
Kapitan, Tomis (1992) "I and you, he* and she*" Analysis, 52, pp 125-128
Kaplan, David (1989) "Demonstratives" in Almog, J, Perry, J, and Wettstein, H (eds) Themes From Kaplan. New York, Oxford University Press. pp. 481-564
Kaplan, David (1989b) "Afterthoughts" in Almog, Perry, and Wettstein.
Kripke, Saul (1977) "Speaker's Reference and Semantic Reference" in French, Peter, Theodore Uehling, and Howard Wettstein, eds, Contemporary Perspectives in the Philosophy of Language, University of Minneapolis Press, 6-27.
Kuehler, R. and Stegmann, C (1914) Ausfuehrliche Grammatik der Lateinischen Sprache: Satzlehre: Erste Teil. Hahn, Hanover,
Morton, Adam (1995) review of Williamson (1994) Philosophical Books 36, 272-276.
Morton, Adam (1997) "Hypercomparatives", Synthese 111, pp. 97-114.
Perry, John (1977) "Frege on Demonstratives", Philosophical Review 86, pp. 474-497
(1979) "The Problem of the Essential Indexical", Nous 13, 3-21.
Radford, Andrew (1977) Syntactic theory and the structure of English: a minimalist approach Cambridge University Press.
Raffman, Diana (1994) Vagueness without Paradox Philosophical Review 103, no 1.
Recanati, Francois (1993) Direct Reference: from language to thought. Oxford, Blackwell.
Reimer, Marga (1991) "Demonstratives, Demonstrations, and Demonstrata" Philosophical Studies 63, pp 187-201.
Sainsbury, Mark (1998) "Indexicals and reported speech" in Timothy Smiley (ed.) Philosophical Logic, British Academy
Simpson, Paul (1987) "Here and now" Analysis 47, pp 61-62.
Keefe, Rosanna & Smith, Peter (eds) 1997: Vagueness MIT Press.
Kuiper, Konraad (1996) Smooth Talkers: the linguistic performance of auctioneers and sportscasters, Mahwah, N.J., Erlbaum
Sperber, Dan and Deirdre Wilson (1986) Relevance, Blackwell
Vision, Gerald (1985) "'I am here now'" Analysis 45, pp 198-9.
Williams, C.J.F. (1991) "You and she*" Analysis 51, pp 143-146.
Williamson, Timothy (1994) Vagueness. London, Routledge
Williamson, Timothy (1992) "Inexact Knowledge" Mind, 101, pp. 217-242
Zalta, Edward (1989) "Singular propositions, Abstract Constituents, and Propositional Attitudes" in Almog, J, Perry, J, and Wettstein, H (eds) Themes From Kaplan. New York, Oxford University Press. pp. 481-564.

.

NOTES

Note 1 It also explores a way of publishing. I try to give a general picture of my arguments and conclusions in the version printed in the *Proceedings of the Aristotelian Society*, Autumn 1998, leaving some points to be de veloped at greater length in this version. (Which can also be found, with related material, at my web page .) Perhaps in future only short readable versions of all papers should be published in printed form . Background, further thoughts, defences against non-obvious objections, detailed connections with other people's work, full bibliographical material, and so on, could be included in an electronically archived version for critics, scholars, and fans.

Preparing this longer version has convinced me that final drafts of printed and archived versions should be written simultaneously. If I had seen better the form the archived version could take I could have made the printed version shorter and clearer. I would be interested in comments on the dual publication idea.

Note 2 There are precedents for this kind of argument. For example Carnap (1931-2), section 3c of Kripke (1977), and section 3 of Heal (1997). Kuiper (1996) discusses some naturally occurring special-purpose variat I would be grateful for more examples, especially ones that free the imagination.

Note 3 I take my basic line on demonstratives from Kaplan, particularly (1989). See also Kaplan (1989 b), Recanati (1993), and Zalta (1989).

Note 4 For a survey of the current discussion on vagueness see the introduction to Keefe and Smith (1997). For my money the most stimulating recent contributions are Williamson (1994) and Raffman (1994).

Note 5 See Morton (1997) for more details and a treatment in this vein of higher order vagueness.

Note 6 This description of demonstration could be taken as an elaboration of section IX (ii) of Kaplan (1989), building in the reservations of section II of Kaplan (1989b). Compare also Radford (1997), p. 503, defining demonstrati ves as terms which "indicate a location relatively nearer to or further from the speaker." See Sperber and Wilson (1986) for ways in which conversational relevance constrains demonstratives. Bach (1992), Reimer (1991), and Vision (1985) are also relevan t here. See also note 13.

Note 7 See Sainsbury (1997), and Cappelen and Lepore (1997).

Note 8 See Castaneda (1966), Perry (1979), Kapitan (1992), Williams (1991).

Note 9 Some philosophers and grammarians write as if only a special class of attributive adjectives can use a sortal noun to define the extension in context. But this is very implausible when one considers both that color words and nearly all vague predicates can restrict borderlines by using the information provided by a sortal ("red for a face"), and that even paradigmatic attributives such as "big" can be used without a sortal when the context restricts the range of plausible app lication sufficiently. Language A builds on something analogous to attributivity in that its syntax attaches to adjectives other words which tune their extensions. One could get a language much like A by starting with attributive constructions like "red for a face" and then defining special-purpose sortals tied to earlier contexts. Earlier one would define "curtain for now", and later one would say "red for a curtain from then."

Note 10 What I have called the problem for philosophers here obviously connects with issues about attributive versus referential uses of descriptions, and speaker's versus linguistic meaning, the classic sources of which are Donnel lan (1966) and Kripke (1977).

Note 11 I use grammatical terms to help give the syntax of my languages. They are meant to function in the manner of old-fashioned school grammar: if you diagram the sentences in the way the terms suggest then you may see the inte nded structure more easily. Since these are not spoken languages there are no speakers whose competence can be represented by a deeper grammar. As is probably clear I believe that the constructions in these languages or others much like them could funct ion in actual spoken languages. What would the grammar of such a language be like? I

don't know. Best to think of the semantical and pragmatic functions that the constructions could serve and then try to get an intuitive idea of how they might be woven into language as we know it.

Note 12 There are similarities here to the views of Raffman (1994). In effect, Raffman suggests that sorites paradoxes are avoided if we understand an application of a vague predicate, for example "x is red", as shorthand for a rel ational attribution, such as "x is red in relation to immediate precedents s", where s is a set of instances in which "red" was recently applied. (Sorites is blocked because the usual induction assumption is then seen to equivocate between "red relative to any precedents" and "red relative to the last items considered.") This device and those of language A can model one another. We could define "x is red in relation to s" as "x is red from C" where the context or occasion C contains "y is red for C" fo r members of s. And we could define "x is red from C" as "x is red in relation to s" where s is the set of y such that y is declared red in C. (Notice that I said that the two devices could model one another, not that they were interdefinable. Some m eaning may get lost.)

Note 13 The wording is meant to build in a factor brought out by post-Kaplan discussions of demonstratives, notably Bach.(1992) and Reimer (1991). When a speaker says "this" the reference of the demonstrative cannot be taken to be either to the object which satisfies some simple relation to a pointing gesture nor to the object that the speaker intends the hearer to take her to be referring to. Both are two simple. Instead, I shall assume that the demonstrative refers to the ob ject which occupies the location in the (usually spatial) structure associated with the demonstrative which the speaker intends the hearer to recognize her as intending to locate the object with reference to. Intention rules in determining the location i n ostension space; external consideration rules in determining what object occupies that location and is thus referred to. The object is then co-evidently there in the ostension space for speaker and hearer. But it is not essential for this paper's purp oses that this analysis be right.

Note 14 Some languages have more and more finely differentiated demonstratives than English, and in some the line between demonstratives and other parts of speech is much less clear. Latin is an example. See Kuehler and Stegmann (1914).

Note 15 You might worry that ostenders are unlike demonstratives in two ways. First, they might seem to be simply rigidified vague predicates. For example "prox" might seem to be just "dthat nearby", with Kaplan's rigidifying oper ator "dthat". Well, what is the difference between, for example, "that" and "dthat the nearby object in line with my pointing finger"? One difference is that the reference of the demonstrative depends not only on what is in fact in line with the finger , but also on many factors involving the intentions and knowledge of speaker and hearer. So when pointing in the fog and saying "this" one may be referring not to the fairly nearby object which is directly but invisibly in line with the finger but to a v isible object almost in line. (The relation is complicated: see note 6 and especially note 13.) Similarly for prox and her sisters: what they pick out depends on the attention, intention, and knowledge of speaker and hearer in all the same ways.
Second, ostenders might seem unable to do a vague multipurpose ostending job, as "that" does. Certainly "prox" and "inter" are more specific than "that". But "prox or evid" covers most of the ground that "that" does, and if the resources of language A+B are allowed then a deliberately unfocussed use of such an ostender could be carried forward to later occasions. This is not to deny that "that" gathers together a nice combination of attributes some approximation of which is going to be served in most g enerally useful languages by a single primitive construction.

Note 16 'Prox' and other ostenders would thus be at home in a language such as Mandarin in which the singular/plural distinction is optional, and usually unmarked.

Note 17 What uses might such a language have, besides illustrating points in the philosophy of language? You may think that A, B, and A+B would be languages for very precise picking and sorting. Actually I think they could be use d for a subtle and delicate poetry, in which there was a polyphonic play of references back to various tunings of vague and demonstrative terms. There are many possible practical uses for invented natural languages. One is as probes in the psychology of language. Can people learn and use a language with the following grammar? Another is as a teaching aid. Instead of learning an unnatural symbolism for, say, logic or statistical thinking, we could learn a natural language whose grammar fitted the rele vant distinctions and patterns of inference. A third is cognitive. One language may be better than another for conveying how one goes about thinking some kinds of thought. The fourth and furthest out concerns the verbal background to our emotions and t he way we conceive of the patterns of our lives. Liberating

emotions and transforming attitudes to life can have extremely subtle conceptual contents. That is one reason why they are hard to transmit and retain. One linguistic medium may be better than another for communicating them.
For more - not a lot more - on these themes see the file Quasi-natural languages

Note 18: conceptual/procedural Some writers in linguistics, for example Diane Blakemore (1987) distinguish between conceptual and procedural information conveyed by a sentence. Conceptual information tells you what the world is li ke. Procedural information tells you how to process the sentence. Procedural information that is explicit in one language can be left to context in another. The languages in this paper are more explicit about some kinds of procedural information than E nglish is. In each case the effect of the add-ons lies as much in the procedural information that they allow speakers to signal, telling a hearer how an utterance is to be understood and related to the linguistic and practical context, as it does in the actual truth-conditional content of the propositions that they allow speakers to communicate. In each case the effect of the add-ons lies as much in the procedural information that they allow speakers to signal, telling a hearer how an utterance is to be understood and related to the linguistic and practical context, as it does in the actual truth-conditional content of the propositions that they allow speakers to communicate.