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Ambiguity and vagueness in political terminology: on coding and referential imprecision

Article (Accepted version)
(Refereed)

Original citation:

Dowding, Keith and Bosworth, William (2018) *Ambiguity and vagueness in political terminology: on coding and referential imprecision*. [European Journal of Political Theory](#). ISSN 1474-8851 (In Press)

DOI: [10.1177/1474885118771256](https://doi.org/10.1177/1474885118771256)

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Available in LSE Research Online: June 2018

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One form of philosophical activity feels like pushing and shoving things to fit into some fixed perimeter of specified shape. You push and shove the material into the rigid area getting it into the boundary on one side, and it bulges out on another. You run around and press in the protruding bulge, producing yet another in another place. So you push and shove and clip off corners from the things so they'll fit and you press in until finally almost everything sits unstably more or less in there; what doesn't gets heaved *far* away so that it won't be noticed ... *Quickly*, you find an angle from which it looks like an exact fit and take a snapshot . . . Then, back to the darkroom to touch up the rents, rips and tears in the fabric of the perimeter. All that remains is to publish the photograph as a representation of exactly how things are, and to note how nothing fits properly into any other shape. (Nozick 1974: xiii)

Introduction

Conceptual analysis, whether done for its own sake or as part of a larger argument about social justice or the organization of society, often seems to resemble Robert Nozick's parody. The dominant mode of conceptual analysis in modern analytic theory is to try to provide necessary and sufficient conditions for the correct application of a term. This occurs not only during rather old-fashioned conceptual analysis along the lines of 'what is freedom?', but also as concepts are used to build up theories of social justice or permissibility or feasibility. Writers provide a definition and, through examples and inference, suggest that it clarifies the subject better than rival definitions. Previous conceptualizations are critiqued through examples designed to promote the author's preferred conceptualization. Sometimes logical inconsistencies in previous definitions are uncovered, but more often compelling intuitive problems emerge

through ‘the method of cases’ (Mizrahi 2014; Baz 2016) or intuition pumps (Dennett 2013). Protecting a theory and the concepts derived therefrom requires complex reasoning and defence. As well as Nozick’s pushing and pulling, we also see writers dodging and weaving to avoid the sniper fire and landmines set by their critics.

We might query why we think terms in our moral language can be specified by necessary and sufficient conditions for their correct application. To be sure, it is difficult not to attempt to give such conditions when defining a word, but why should we believe our natural moral language can be logically closed and our moral inferences axiomatically or deductively proved? Our moral and political language might still be developing, might always be developing. If our morality changes as it develops, then so will its basic terminology. Whether it is designed to utilize our semantic or our moral intuitions, the method of cases might only show how our morality and moral language change over time. Indeed, it might help that morality to shift; the cases might act to achieve conceptual change as much as conceptual sharpening.

Leaving such conjectures aside, we argue in this paper that the unsatisfactory nature of conceptual analysis in moral and political theory is a fundamental feature of its subject-matter. Outside of any developmental account, moral and political terms are ambiguous and vague. We can, we shall argue, overcome ambiguity – though overcoming ambiguity does not always neatly resolve political disputation. The harder problem is the vagueness of many of our moral and political terms. We argue that vagueness can sometimes be addressed in the same manner as ambiguity, by precisification and the subscript gambit. However, we also suggest that attempting precisification sometimes demonstrates fundamental incoherence. Our moral and political terms have complex and multidimensional referents, involving intuitions that

at the margin contradict one another. Sometimes precisifying merely elucidates or brings to the surface those contradictions.

The only way to maintain coherence here is to eliminate the vague term and replace it with a precisifying description. However, the precise description will sometimes lack the same extension as the original vague term. To cover the full extension of the vague term, we need several different and rival precisifications. And therein lies the problem of analytic moral and political philosophy. Its pretensions to clear analysis cause it to depart from its subject, human morality with all its contrariness. We shall suggest, in our conclusion, that this problem might not be as great as it first appears.

Ambiguity

It is usually thought that we can easily distinguish between ambiguity and vagueness, and that only the latter is philosophically interesting – though many terms are both ambiguous and vague (Sorenson 2016). The term ‘child’ is ambiguous: it can refer to any offspring of an adult or only to immature offspring. When we disambiguate these two uses, we overcome what might otherwise be simple verbal confusion.

Disambiguation can be helpful in political discourse. One writer might use the term ‘freedom’ to mean ‘political freedom’ – the rights and privileges that legitimately come from a set of institutions establishing a politically free society – while another means ‘metaphysical freedom’ – the conditions under which a person might be said to enjoy free will and be free in a metaphysical sense. Of course, there is disagreement about whether freedom really means a form of metaphysical freedom or whether political freedom is enough for us to strive for. It should not be necessary to engage in *substantive* dispute over the mere term ‘freedom’ in the debate. We can label the two

forms of freedom ‘political freedom’ and ‘metaphysical freedom’; discuss the most appropriate specifications of each term; and also dispute whether or not in our society we should strive only for political freedom, only for metaphysical freedom, for both, or perhaps some combination of both.

Chalmers (2011) calls such disambiguation the ‘subscript gambit’, whilst Dowding and van Hees (2007) call it the methodological criterion of conceptual analysis. The idea is that the extension of each of the disambiguated phrases is obviously different, and once we are clear about the different referent of diverse uses of the same word, we can bring into sharper focus what is important in the philosophical dispute. We can avoid ‘merely verbal dispute’ and concentrate upon the real issues: what sort of institutions do we want to promote, what sort of people and society?

We might try the same tactic for more direct disputes about ‘freedom’. Take the dispute between negative libertarians, represented by Ian Carter (1999; 2008; 2011), and republican libertarians, represented by Phillip Pettit (1997; 2001; 2014). Negative libertarians believe that ‘freedom’ means freedom from interference. Roughly speaking, by Carter’s account (and following the lead of Hillel Steiner (1994)), the amount of freedom that a person enjoys is given by the jointly compossible set of actions she can do given the set of actions that she cannot do because she would be stopped by others. Republicans believe that ‘freedom’ is best described as non-domination: merely being unencumbered by interference in doing some action A does not make one free to do A. Equally, being unable to do some action because one is stopped by some set of other people does not necessarily make one unfree. If the action is prevented by the non-arbitrary legitimate actions of another person, one has not lost a freedom.

We could disambiguate by saying there are two referents of ‘freedom’ in operation here.¹ ‘Freedom_N’ is freedom from interference, ‘Freedom_R’ is freedom from

domination. These diverse conceptions are simply different ways of partitioning states of the world. The two partitions overlap but diverge at important junctures over whether a given state constitutes an example of ‘individual freedom’. We need have no conceptual dispute here; we simply see that an individual agent at place and time T by one partition is ‘Free_N’, but by another partition is not ‘Free_R’.

Such disambiguation will not, of course, end dispute between Carter and Pettit, nor between negative libertarians and republicans more generally. They might each have very different preferred ways of organizing society. The negative libertarians might produce one set of desiderata, the republicans a different set. And each side might defend their desiderata on the grounds that these, and only these, maximize ‘liberty’. So, for the negative libertarians, what is important for society is reducing the degree of interference; for the republicans, it is reducing domination. Indeed, Pettit’s work on freedom grows out of a belief that merely enhancing the scope of possible actions is not enough when we have a society full of inequalities that mean some have to take account of what their more powerful employers, neighbours or spouses think.

However, we do not need to define ‘liberty’ in terms of non-interference in order to justify non-interference. Rather, we can develop arguments that what is valuable in a society is non-interference. We can suggest that people gain value from being able to live their lives without interference from others: the expansion of the scope of individual choice enhances people as choosers, increases their autonomy, and so on. By maximizing non-interference, we maximize that value. (And we call that value ‘freedom_N’.) Nor do we need to define ‘liberty’ as non-domination in order to defend the idea that what is valuable in society is trying to minimize domination. We can argue that people gain value from being able to live their lives without others dominating them: expanding the scope of their non-dominated choices enhances them as choosers,

increases their autonomy, and so on. By maximizing non-domination, we maximize that value. (And we call that value ‘freedom_R’.) Terms can be eliminated in favour of what they are taken to mean (Chalmers 2011; Bosworth 2016), although for efficiency we might want to keep those words suitably disambiguated (see below).

By disambiguation we avoid merely verbal disagreement over what ‘freedom’ really means and get to the heart of the dispute between negative libertarians and republicans. We can see, in our simple reproduction of their positions, that the important difference is whether interference or domination fundamentally matters. Of course, the dispute between Carter and Pettit is far more complex than this vignette allows. Carter for one would argue that his conception of ‘freedom’, in its measurement aspects, effectively reduces domination, because freedom is maximized through the set of compossible actions, and this set of compossible actions includes the range of counterfactual situations where the dominated take into account the disposition of the dominant when choosing to act.

In other words, Carter might dispute the precise location of the boundary of the partition of his conception of ‘freedom’ in relation to where Pettit believes it lies. That boundary dispute is a conceptual dispute over ‘freedom_N’. Carter might argue that the extension of his account of maximal freedom coincides with Pettit. We might have similar conceptual disputes over the precise boundaries of ‘freedom_R’. So, there is some conceptual dispute involved in the debate, but it is over the precise entailments of ‘freedom_N’ and ‘freedom_R’, rather than which conception of freedom best represents the master un-subscripted concept of freedom.

Disambiguation in this manner should lead to the elimination of the disputed term in political argument. We do not need to discuss what freedom really means, even if we all agree that freedom is to be maximized, because what is at issue is whether non-

interference or non-domination is to be maximized. We can discuss that without using the term freedom at all. That is not to say that it cannot be argued that one way of partitioning the moral universe is superior to another. It might be, in fact, that Pettit and Carter really do not disagree about the ideal organization of society at all; what they disagree about is how to describe and justify that ideal organization. In that case, the theoretical dispute might involve which description and justification is superior. Pettit might argue that the notion of non-domination is normatively stronger, has greater appeal, and is what really matters to people. Carter might respond that non-interference is really what people want, and its less moralized definition is philosophically superior. This debate can nevertheless be conducted independently of the term 'freedom'.

When discussing the worth of different definitions within moral systems, criteria such as parsimony, rhetorical advantage or simply fit with ordinary language or historical precedent might (and are) used to push one conception rather than another. We might find that one partition enables us to more easily and efficiently describe the moral universe. Or that one partition elides important distinctions that another allows. In a more complex manner, we might find that our different partitions regarding 'freedom' meld into the different partitions we make in relation to other terms such as 'power', 'rights', 'claims', 'privileges', even 'equality'. For example, some negative libertarians argue that maximizing liberty requires equalizing liberty (Steiner 1981); hence the types of domination that concern Pettit will largely disappear with that equalization. Again, however, we can avoid *terminological* dispute through disambiguation and the subscript strategy, and translate from one complex philosophical account to another.

In fact, we will assert that, whilst there are undoubted differences between the Carter and Pettit accounts of the just society, or between negative libertarians and republicans more generally, those differences are not nearly so large as dispute over what freedom really means might suggest. Indeed, the gulf between some negative libertarians is probably larger than that between left-libertarians (such as Carter and Steiner) and Pettit; the same might also be said about the divergences among republicans. Holding on to one or another specification of the referent of 'liberty' does not commit one to a specific account of the liberal or republican society. That itself suggests that the verbal dispute is strictly irrelevant to the conclusions drawn.

We have argued in this section that some disambiguation can help us concentrate upon the more important aspects of political dispute. It helps us move away from conceptual debate, but thereby allows us to see more clearly wherein the deep dispute lies. We make no claim that disambiguation 'clears up' dispute or will lead to a resolution between contending parties. Issues over the referent of 'freedom' are more complex than our simple account here implies, and dispute is caught up in rhetorical considerations. Freedom or liberty is (almost) undisputedly valuable, and if one side can promote its conception of liberty over the other, that might make the defence of their preferred way of organizing society easier. We do not discount the importance of rhetorical advantage in political argument.

Our point, rather, is that despite these complications, the ambiguity of terms in moral and political philosophy is relatively easy to overcome. Relatively easy, that is, in relation to the vagueness that haunts political terms. If ambiguity were the only issue, then, despite all the problems, we might be sanguine about the process of conceptual analysis. However, we shall now argue that political terms are also multidimensional and vague, and that is a much more intractable problem.

Vagueness

Vagueness, as opposed to ambiguity, is thought to be more philosophically interesting. The problem of vagueness occurs when it is not clear whether a term correctly applies to some cases. The examples generally used to illustrate the problem are simple where it is difficult or impossible to precisely specify the borderline for the correct application of certain cases. ‘Tallness’ is a vague term, but one which is fit for purpose in natural language. Saying ‘George is the tall guy over by the window’ is more helpful than saying ‘George is the guy by the window who is 180.57cm tall’. That, far more precise, answer is as likely to confuse as help. Indeed, as we see from some examples below, sometimes vague descriptions are more *accurate* than precise ones.

We give two versions of vague terms. The first follows the standard account of vague terms such as ‘tallness’, where the vagueness lies at the boundary. Science handles such vague terms in one of two ways. The preferred method is by eliminating the vague term to replace it with something more precise. The vague term might return when summarizing results, but plays no part in the analysis itself. The second method creates more precise versions by what we call coding decisions. Different coding decisions will lead to different precisifications, none of which can claim to be *the* correct one. Generally, at the margin, different coding decisions will make only trivial differences to analysis. The points where the different coding decisions are important give a clearer indication of where the borderline is for certain issues. This does not necessarily mean that one coding decision is superior to another overall, but for certain research questions it might be.

The second account of vagueness is more problematic. Here the multiple dimensions of a term’s reference might each be precisified, but it turns out that our

intuitions about those different dimensions come into conflict. Again, different precisifications can be made for the same vague terms and, again, none can be defended as the best. In other words, normative considerations or intuitions cannot all be simultaneously satisfied under all conditions. Each precisification can be defended, but none can claim to be the generally superior representation of the vague term. We shall argue that, despite being analytically incoherent, such vague terms still have a normative role to play.

The first account of vagueness can be considered semantic indeterminacy. The world is precise, but we use vague terms for efficiency; at times, however, we need to partition the world into more precise categories for scientific analysis. On the second account, there is ontic vagueness. We have contrary desiderata that lead to an incoherent reference when precisified. Here, though, the world is not simply partitioned in ways that are only trivially different through semantic coding decisions; they are importantly different, since they give certain normative criteria precedence.² Even so, there might still be efficiency reasons for still utilizing the vague terms in ordinary language.

Coding Decisions and Elimination

Some people argue that there exists a single precisification for non-ambiguous terms. For them the fact that the world is not vague, only our representation of it is, means there is only epistemic vagueness (Williamson 1994). Epistemicists suggest in this regard that for all vague terms such as ‘tallness’ or ‘richness’ there must be some precise division in height or relative wealth where someone moves from being tall to not-tall, from rich to not-rich. It is just that, epistemically, we do not and cannot know where that line is. Williamson (1994: 226–30; 1997: 926–7) argues that a belief constitutes knowledge

when it is appropriately reliable and so the same beliefs must be expressed in sufficiently similar cases. He then claims that the extension of vague predicates supervenes on their use in such a manner that small changes in the use of a given term must induce a small change in that term's extension. We nevertheless cannot detect such small changes in ordinary language (Williamson 1994: 231; 1997: 948).

The fact that we have some descriptions, some terms, that are not precise does not mean that our knowledge is limited, just that the manner in which we have chosen to describe the world is limited. It is true that imprecise language causes problems when that language is analysed using the tools of classical logic. One response is to analyse natural or folk language by giving up truth bivalence either through fuzzy logic (Machina 1976) or supervaluation (Eddington 1997; Keefe 2000), suggesting there just is no sharp dividing line for cases such as tallness, baldness or wealth, and the correct application of the term allows for borderline cases. Another is to save classical logic by a single precisification, but that seems to constitute a metaphysical division by a mere coding decision and not by nature.

There do seem to be some precise divisions by nature. In part, how precise we need to be in any scientific analysis depends upon the research question. The world might be precisely described at different levels of granularity. Precision matters at some level for some questions. For example, the term 'gold' can be given precise meaning: it is an element with the atomic number 79. It might have been used less precisely at some times to mean a yellowish soft metal, put to various uses, with its degree of purity measured by carat. As Williamson (1994: 231) points out:

For any difference in meaning, there is a difference in use. The converse does not always hold. The meaning of a word may be stabilized by natural divisions, so that a small difference in use would make no difference in meaning. A slightly

increased propensity to mistake fool's gold for gold would not change the meaning or extension of the word 'gold'.

The reason is that the natural way to partition part of the empirical world is by the number of protons in the nucleus of the atom, as that determines stark differences between elemental objects. These are natural divisions and, if our language does not map those natural divisions, then in an important sense our descriptions of the world are misleading. These divisions enable us to make predictions about how the world presents itself under different conditions. However, the sharp divisions we see in the chemical world do not always provide a good model for other partitions that we make for predictive and explanatory purposes.

How does science actually handle a vague term like 'tallness'? Height has been correlated with various social and economic attributes: taller businessmen tend to receive more frequent promotion (Melamed and Bozionelos 1992) and higher starting salaries (Loh 1993); taller candidates tend to be more successful than shorter ones in US presidential elections (Stulp et al. 2013). Scholars analyse such claims without strict definitions of 'tallness'. They do not code candidates into categories 'tall' and 'non-tall'. Rather, they compare the heights of candidates and then conduct regressions, using height along with other variables, to reach the conclusion that taller people, on average, tend to do better.

In other words, scientists eliminate vague terms, even if they are later brought back to use (undefined and therefore vaguely) when reporting their results. These reports convey the general idea of the findings, rather than the precise findings themselves. Indeed, given that much of social science is, or at least has been, conducted on samples, the less precise conclusions are more *accurate* than the precise findings. The precise findings are estimates that give credence to the vaguer conclusions rather than

to the precision of the results themselves. We do not have to precisify vague terms in order to be exact in our descriptions and analyses of the world. We simply replace the vague terms with more precise ones. The term is nevertheless not eliminated permanently from our language, just from the scientific enquiry in hand.

For other types of analysis, especially in social science, precisifying a vague term by coding decisions is necessary. For example, the Policy Agendas and Comparative Agendas Project codes public policy issues into 22 major codes and around 250 minor codes (John 2006; Dowding et al. 2016). Terms describing public policy are undoubtedly vague. We might be sure, for example, that legislation regulating health insurance constitutes an example of health policy. But is legislation concerning the provision of public housing a health policy? Whilst not usually considered so, poor housing arguably contributes to ill health (Smith et al. 1999). Do we code legislation on medical training for teachers or school administrators as education or health policy? What about the provision of nurses in schools? CAP provides coding frames and advice to its teams of coders to help ensure consistent coding decisions.

When turning qualitative data into quantitative form for statistical analysis, inter-coder reliability becomes important. Coders can simply make mistakes. Or two coders can make different but equally well-justified decisions. Such inter-coder reliability problems, if small and random, usually get lost in the noise of statistical analysis and do not affect the conclusions too much. However, if there are many borderline cases, and if the coders' contrary decisions are systematic, then they can affect the ultimate analysis. What matters here is not so much which coder is correct, but ensuring that all coders follow the same rule, otherwise a verbal dispute can bias a substantive conclusion.

So, in scientific analysis, borderline vagueness is not that troubling, and it can be dealt with in much the same way as ambiguity. That is, we make coding decisions for specific analysis. In doing so, we either precisify the term itself, changing the vague term into a precise one (though we need to be aware that our coding decision might be misleading), or we eliminate the vague term altogether. In the first case, we might have rival precise definitions, none of which can be said to be the correct one. When we eliminate for scientific analysis, we allow the vague term to stand in our natural language for reasons of efficiency. Sometimes the scientific precisifications can be relatively easily translated back into the vague term – the vague term can be seen to roughly apply to the referents of the precise terms – but not always. The scientific analysis of energy can explain our folk understandings of energy, but the folk understanding of energy cannot stand for all the conclusions of the scientific use of the term.

That is all very well for pragmatic scientific analysis. It does not solve the problem for logic. Gareth Evans (1978) proves that if there are vague objects then there are no vague identity statements, and since he takes the latter claim to be obviously false, the conclusion is that there can be no vague objects. It follows that vagueness is a semantic indeterminacy. As we argue above, and as Lewis (1988) notes, if that is the case then vague terms can have alternative precisifications that will have claim to *equal* validity – this is what we call ‘coding decisions’. We add to Lewis, however, that these equally valid coding decisions can lead to rather different analyses of the world.³ We gave a relatively trivial illustration above but, for example, the terms used to code civil conflict – ‘civil unrest’, ‘insurgency’, ‘revolution’ – can have more significant consequences for the analysis of the causes of civil war.

In such cases, it is better not to provide precisifications, but rather to eliminate the terms and code data events that themselves form part of the analysis (the coding decision) of those vague terms. Code expenditure on the military and police, the number of riots, strikes, and so on, and base one's conclusions on those precise terms. Of course, whilst those terms are more precise than the terms for which they might act as proxy data, they are also vague in the sense that coding decisions still have to be made over what constitutes a riot, what expenditure on the military or police is relevant, and so on. However, the finer the detail of the analysis and the greater the number of coded items, the less likely it is that coding decisions will prove misleading. We can chase vagueness down to more and more exactitude, just as one can measure a height ever more accurately by looking to micro-measurements.

We take Evans's (1978) proof to mean that the world, at some level of description, is not vague. A vague term's extension is not identical to its precisification. That can be true even of what are normally considered precise terms. For example, the reference of 'gold', as understood in natural language, is not simply the metal with atomic number 79, but also that metal with impurities. 'Water' is a precise term when understood as H_2O and philosophers regularly accept $water = H_2O$ as an identity statement; but the 'water' to which we naturally refer is more than H_2O because it is full of impurities. Indeed, some important qualities of water, such as being a good conductor of electricity, are not true of pure H_2O . Thus, in Williamson's terms, there seems to be a 'natural division' between pure H_2O and water as ordinarily understood.⁴ In this sense, all terms have a degree of semantic indeterminacy. However, we can take vague terms to refer roughly to extensions in the world, and their precisifications to refer more precisely. At times the precisification process causes the more precise description or term to stand for the vague one and its extension becomes what we understand the

vague term to refer to. However, as Lewis suggests, we can have rival precisifications, whose referents are rival extensions. Here the extension of the precisifications is not equivalent to the vague term; they cannot be or identity would not be transitive. That is Evans's proof.

Usually, when we conduct empirical analysis we eliminate the vague terms and use the finer-grained descriptions. We then might reintroduce the vague terms when explaining the result. Importantly, vague terms might be constitutive of a more accurate summary of the scientific results than the precise findings. It might be more accurate to say that taller men are favoured over their shorter male colleagues than to claim that each centimetre in height gives a given higher probability of promotion or salary increment, since those results are based on a sample with measurement bias. Eliminating vague terms for analysis does not mean eliminating them from the language, but recognizing their more limited legitimate role. The scientist really does not care how many stones make a pile, nor how many centimetres in height make a man tall. She just counts the stones and the centimetres and uses them in whatever she is interested in examining.

The world itself might not be vague at some level of description, but it does not follow that every term in our language has to be precise in order to be meaningful. What constitutes a pile of stones might be referentially vague at the edges, but most of the time still clearly refers. There is no deeper problem. For some terms with multidimensional meanings, however, precisifying reveals incoherence in our beliefs over what is entailed by the term's meaning. We find that precise versions lead to reference claims that we may not wish to commit to.

Ambiguity and Vagueness of the Collective Will

There are clear understandings of terms like ‘the public interest’ – interests that people have in common as members of the public (Barry 1990: 190). Each member of the public need not value that interest equally, but if the interest is common to all, then any person can be a representative of that interest. In that sense, the common interest is composed of those interests shared by each and every person who composes the collective. The collective or general will is something that ‘transcends the popular decision, that exists even when nobody discerns it, and that can contradict the empirical judgement of the citizens’ (Bertram 2012: 404). Such a collective will might be epistemically inaccessible (at least for some collectives at some times). If there are objectively correct answers, and there are ways of finding those answers, and all individuals consider the evidence objectively and independently of each other, with each having a slightly better than even chance of getting the right answer, then Condorcet’s jury theorem shows that a majority stands an increasingly greater chance of finding that correct answer as the number of voters goes up (Grofman and Feld 1988; List and Goodin 2001). That is the basis of epistemic defences of democracy. Where there are no right answers as such, merely preferences over what should be done, then voting takes a subjective form. Collective bodies such as clubs, groups or states (hereafter groups) can act decisively with the subjective consent of all their members. We can consider such actions as being conducted in terms of the ‘collective will’ of the group.

It seems clear, therefore, that understood objectively the term ‘collective will’ can have a precise reference. Yet there is another way in which to construe the term in political philosophy. This is where the collective will is composed of the summation of the preferences of each person within a collective body (Riker 1982). We might term

this the ‘subjective collective will’. So the ‘collective will’ can be ambiguous between its objective and subjective forms.

The subjective collective may not have a clear reference. Where there are no objectively correct answers to questions, all we have to go on is the decision that the people make in some social decision process. We can say that, no matter what the decision is, it can be considered the collective will. However, different decision mechanisms give different results. Kenneth Arrow attempted to provide normative conditions that any account of the collective will in this subjective sense should abide by. He proves that there is no such account.

In the subjective sense the collective will might be thought to have embodiment – to have reference if everyone were to agree. So, if there was unanimity over some decision, then we can say that in this case the subjective collective will has a clear reference. However, there are examples – like tallness – where we cannot give such a clear reference. Unlike tallness, however, a coding decision cannot simply clear up the matter to ensure there is no mere verbal dispute. Arrow’s theorem (1951/1963) demonstrates a logical problem with a reasonable definition of a collective will. It does not show that we cannot precisify the phrase, but it does show that there can be different and rival precisifications, none of which, conceptually, can be considered the preferable version of the vague term’s extension.

Arrow’s theorem demonstrates that any way of aggregating preferences that satisfies three intuitively compelling axioms must be dictatorial. The three axioms are unrestricted domain, Pareto efficiency and independence of irrelevant alternatives. The first two are intuitively compelling, the latter more controversial; but when the independence of irrelevant alternatives is broken, seemingly arbitrary changes in preference orderings can transform the result. We do not provide a precise

characterization of Arrow's Theorem here, as it is much discussed in the literature. There is broad agreement over what it means and our characterization fits squarely within that agreement. Arrow's theorem means that any non-dictatorial social decision mechanism determines the result of any vote as much as the voters' input. Another way of putting this point is to say that there is no social welfare function that is the unique aggregation of the preferences of the collective and so there is no unique social decision function that can represent them. The three axioms ensure that no potential set of orderings is discounted, unanimity will be respected and manipulation through strategic voting or agenda setting is disavowed. The theorem demonstrates that these three normative desiderata cannot be simultaneously satisfied. We can try to trivialize the result by saying that Arrow demonstrates that something which, prior to the proof, few people thought existed does not, in fact, exist. However, the fact that it does not exist is not trivial, as the history of political theory makes clear.

In some sense, we can imagine there being a subjective collective will just as we can imagine there might be a shape that is so terrifying that anyone who sees it goes insane.⁵ But, in fact, there is no shape that is so terrifying. We can only envisage representations of it that we can pretend have that effect. In reality, there is no shape of the collective will, only representations of it that we can draw by a mechanism counting individual preferences that we can pretend are the collective will. Such a pretence might be very important for binding us together to accept as legitimate the result of the mechanism that in fact we use to make our collective decisions (Patty and Penn 2014), but it is a pretence nonetheless.

So, we can think of the subjective collective will as a vague term that we can see, once we try to make it precise, as Arrow did, has in fact no reference. There is no possible world containing something with the unique extension we require that abides

by Arrow's normative conditions. We can precisify the term in several rival ways that will, at least sometimes, give an importantly different extension. Each representation will directly refer to a result, given an input and the aggregation of that input by that mechanism. We cannot claim that any one of those precisifications is superior to the others, as a representation of the vague term's extension, since the vague term has no precise referent.⁶ It has no precise referent since the vague term itself does not specify an aggregation mechanism; it simply assumes that there is one. But there are several such mechanisms and, under certain conditions, they do not all give the same result.

Is liberty referentially imprecise?

'The collective will', at least as specified in terms of a well-behaved preference ranking, does not have a clear reference. We dub this referential imprecision. By that we mean that, strictly speaking, there is no logically possible extension that uniquely fulfils the criterion. There are extensions that partially meet it. Referential imprecision does not mean that we cannot have a vague notion of what the subjective collective will refers to, and sometimes, for given collectives over given issues, what that collective agrees upon is clear. Rather, the imprecision of a vague term means that, if we try to precisify that vague term, we end up with rival descriptions and rival referents, none of which is superior to the others as a precisification of the original vague term.

'Liberty', or 'political freedom', is such a case. We will illustrate it using our example of pure negative liberty and republication freedom in the work of Carter and Pettit.⁷ Both provide formulas for measuring freedom. But both face the counterintuitive issues that arise in the axiomatic approach to measuring freedom (for a comprehensive review, see Dowding and van Hees 2009). Their method assumes that how much freedom someone has can be represented by an opportunity set of a finite

number of mutually exclusive alternatives. These alternatives can be considered to be commodity bundles or actions.

Pattanaik and Xu (1990; 1998) suggest three axioms that any freedom measurement should satisfy, and then demonstrate that only one measurement satisfies all three. The first – indifference between no-choice situations – is that singleton sets, a choice from only one option, do not offer any freedom, so with regard to the measurement of freedom (as opposed to welfare), we should be indifferent between no-choice situations. The next axiom of strict monotonicity suggests that a set that offers at least one extra option has more freedom of choice than a singleton set. The third independence condition states that adding or subtracting an alternative from two opportunity sets should not affect the freedom ranking of either in relation to the other. Pattanaik and Xu then prove that these three axioms are satisfied by only one rule, the cardinality rule: only the number of options in an opportunity set is relevant for the amount of freedom it provides. However, as they argue, such a rule is deeply counterintuitive, for it suggests that a choice between two cans of lager provides as much freedom as a choice between attending church or lying in bed all morning.

Some have suggested that Pattanaik and Xu's approach is too restrictive: that freedom is about more than mere actions or choosing commodity bundles and involves opportunities to develop oneself and open up new paths. However, given that 'freedom' is a quantitative term, we have to measure such opportunities somehow. One response is to take into account the utility we gain from different options. However, a contrary problem then emerges: that a measure of freedom is in danger of becoming a measure of preference or indirect preference. We might find that a single highly valued option is worth more than a large number of less valued items. Certainly, such a choice offers more utility or welfare, but does it really offer more freedom?

A better response, one taken up by Pattanaik and Xu themselves, is to add some measure of diversity modifying the independence and monotonicity axioms. Several approaches along these lines suggest incorporating opportunity (number) and diversity by assuming that opportunity sets can be described by a series of points in n -dimensional space. Klemisch-Ahlert (1993) suggests that freedom can be defined as the convex hull of that set; the larger the convex hull, the more freedom it gives. Rosenbaum (2000) suggests we measure freedom as the normalized distance between any pair of alternatives in the opportunity set; whilst Suppes (1996) suggests entropy measures a set's freedom. The problem with all these approaches is that they allow diversity to dominate, and this does not seem to equate with our intuitive understanding of the extension of 'freedom'. Imagine two countries, one with two extreme parties of the left and the right, and another which bans parties of the extreme right, but has many parties ranging from the far left to the far right. The diversity approach would suggest the first country provided the most freedom of political choice (van Hees 2004).

Other approaches suggest partitioning opportunity sets into elementary subsets, the partitions being similarity relations that belong to equivalence classes. We might then rank by the number of equivalence classes we have, thus ranking freedom by the number of dissimilar elements, rather than merely totting up the total number (Bavetta and del Seta 2001). Still, these proposals do not fully overcome the original problem with the cardinality rule. Van Hees (2004) examines various such proposals, but shows that, however Pattanaik and Xu's axioms are modified, we still come up with impossibility results.

All these axiomatic attempts to measure freedom face counterintuitive examples. Simply counting the alternatives in an individual's opportunity set entails that choosing from a larger number of trivial items gives more freedom than a smaller

number of vital ones; attempting to add degree of preference over the items leads to measuring utility or indirect utility rather than freedom; whilst trying to increase diversity leads to the situation where a choice between a far right and a far left candidate offers more freedom than a choice between, say, a host of options from moderate right to far left. These same problems emerge with the measures that Carter and Pettit suggest.

Carter argues that the degree of a person's freedom can be described as the ratio of everything that person is free to choose and the number of all the free and unfree alternatives. He derives a freedom function of the aggregation of the probabilities of a particular action a in a set of compossible actions s that an agent is not prevented from doing. Denoting the function as F_a , this leads to $F_a = \sum_{s \in S(a)} p(s)$, where $S(a)$ denotes the sets of compossible actions of which action a is a member and $p(s)$ is the probability that the agent will be unprevented from performing s . Carter believes that the overall freedom of a person consists not just in what she is not stopped from doing, but in the extent of those actions. So, he takes a person's freedom to be the ratio of everything she is free to choose and the number of all the free and unfree options. The extent of a person's freedom in this regard is $U_a = \sum_{s \in S(a)} 1 - p(s)$, so a person's freedom to do a can be described as the value of $F_a / (F_a + U_a)$. We aggregate these over all possible actions x to give $\sum_{x \in A} [F_x / (F_x + U_x)]$.

There are a number of intuitive problems with Carter's measure. First, it does not allow diversity to enter into the range of freedom as much as intuition suggests it should. Actions which allow the same sets of alternatives yield the same degree of freedom – having three options at the cinema yields the same amount of freedom, whether all three are action films, romcoms or superhero films, or a combination of one of each (van Hees 2000: 131). Carter (1999) suggests that the extent will tend to

approximate the amount of diversity. The addition of a similar liberty will add less to the total amount represented by the set than adding a completely separate liberty. He gives the example of adding new washing powders to the liberty of being able to use any washing powder. However, this response is at odds with his own claim that the measure is not of individual liberties, but conjunctively exercisable ones (Kramer 2003: 466–71).

More problematically still, if one expands the number of things available through technological innovation, but resource constraints limit the probability of being able to access those things, and say everyone has an equal but low probability of accessing them, then everyone's freedom is reduced (Van Hees 2000: 132–4). Indeed Carter (2004: 78), seeing this problem, suggests that his formula might need to be revised. However, it is not our intention to critique Carter's measure, merely to show that, whilst it provides, on the face of it, a reasonable theoretical, if not practical, way of measuring freedom, it has various counterintuitive implications. As Van Hees (2000: 134) suggests, it is somewhat ad hoc. The same can be said of similar measures from the freedom-from-intervention stable (such as Steiner 1994; Kramer 2003).

Kramer (2003) brings quantity of preference or value into his calculus to try to overcome some of the problems with Carter. But he does not grapple with the problem of the axiomatic approach: that bringing in values or preferences can turn a measure of freedom into one of utility or welfare. Pettit, meanwhile, is clear that he does not want measurement of freedom to include preference over the items in an opportunity set. He says, 'your freedom can be reduced by the hindrance of any one of those options, regardless of which you happen to prefer' (Pettit 2012: 33). So, when we ask about maximizing expected freedom from two alternatives, X and Y, in an opportunity set, he suggests we need to minimize two probabilities: 'the probability of your being

hindered in the event of choosing X and the probability of your being hindered in the event of choosing Y'. He advises that 'we should minimize a function that reflects the two probabilities in some way: say to take an over-simple proposal, we should minimize the sum that we get by adding them together' (Pettit 2012: 33), giving the formula $p(\text{H if X})+p(\text{H if Y})$, where p = probability, and H = hindrance.

However, Pettit recognizes that it would be irrational to spend scarce resources on minimizing hindrances for alternatives that we are less likely to want to choose. Some – for example, Goodin and Jackson (2007) – suggest we should focus on minimizing hindrances for alternatives more likely to be chosen. Thus we should minimize $p(\text{X}) p(\text{H if X})+p(\text{Y}) p(\text{H if Y})$. Pettit does not want to follow that line because, if it is a measurement of freedom, then one could increase freedom by getting people to want to choose the alternatives that are least likely to be hindered. He does suggest that if there is some freedom-relevant loss, then we might weight the harm on some normalized scale (between 0 and 1) that reflects the degree of preference. He asserts that 'so long as the degree of preference is low, the proposal will be distinct' from the problematic proposal of Goodin and Jackson (Pettit 2012: 35, n. 13). Such a weighting proposal starts to move us away from ordinal preference functions to cardinal utility. The issue becomes rather technical, and it is not at all clear that there can be any compromise between taking preferences into account and Pettit's preferred clean break between alternatives that are given no preference weighting.

Complicating matters further, Pettit sees two rather different types of hindrance to one's choice. Vitiating hindrances are generic and affect your capacity to be able to get what you want; invading hindrances are specific and directed at stopping you from getting what you want. The latter reflect the will of another person, a dominator. Vitiating hindrances can derive from the structure of society and include any factors

that limit or remove your resources without directly imposing the will of another; they include any lack of personal or social resources. Vitiating hindrances reduce freedom of opportunity; invading hindrances reduce freedom of action or control (Pettit 2012: 45).

Pettit suggests we can assume equal unvitiating capacity and measure the degree to which people are subject to the invasion of others. Or we can assume equal probabilities of invasion and measure variations in opportunity. Or we can try to measure variation across both. But that would require us to weight them, and Pettit acknowledges that it is very unclear how we should do so, although he obviously thinks invasive hindrances are worse than vitiating ones. We note that each of his three methods, and any different weighting scheme, will provide different precise claims about how much freedom is gained and lost in different scenarios. In other words, precisifying ‘republican freedom’ can logically lead to different extensions.

We could think of this as a coding problem. There are different versions of republican freedom, and when we come to measure how free different people or societies are, we have to make coding decisions in order to conduct that analysis. We would hope that for most of the comparisons the coding decision would not make any material difference. That hope is not ridiculous: at worst, it might mean that the precise rankings might differ, but individuals or societies with similar amounts of freedom would coalesce, so different measures would agree on the quasi-orderings of those societies or individuals. Here the coding schemes do give us different precise conceptions of the vague term ‘republican freedom’, but they represent that vague term in much the same manner. The quasi-ordering is vaguer than the precise ordering, but provides a good referent for the vague term.

There is a deeper problem, however. And, despite the sophisticated measurement discussion, it overshadows all precisifications of the term ‘freedom’. Pettit

(2012) recognizes that being hindered in one's choice of a preferred alternative is worse than being hindered in choosing a less preferred one, but suggests we should not register that harm in a measurement of freedom. He thinks this is merely a book-keeping issue; a coding decision. However, if we are trying to conceptualize freedom precisely, then how we precisely measure freedom is not simply about measurement. The problem is that if we only measure the alternatives without regard to individual preferences or the diversity of the alternatives, we bump up against the counterintuitive conclusions of the cardinality approach. There is no such unique referent that simultaneously meets these intuitive conditions.

Conclusion

Our political vocabulary is both ambiguous and vague. Where it is ambiguous, we can help sort out confusions using the methodological criterion or the subscript gambit. We can thereby avoid confusions that are merely verbal, and concentrate on the real questions. Where the terms are vague, we can precisify. In doing so, we might need to eliminate the terms altogether and use more precise ones. At times, these precise alternatives will be non-rival, based upon coding decisions. They might create some debate, but will not ultimately cause deep moral or political divisions. Nevertheless, replacing the vague terms with more precise ones constitutes a substitution and not simply supplying a more exact measure of the vague term.

However, political and moral terms (or at least some of them) are vague in a deeper sense. Here there is *nothing* the term precisely refers to. When we precisify the term, we find that what we have created cannot represent, precisely, what we meant by the vague term, since the precise term throws up ambiguities or counterintuitive implications. In fact, this exercise demonstrates that our vague term, once precisified, is

incoherent. It might be argued, for one precisification or another, that the new precisification is the best representation of the vague term that is possible. For some, that would be the point of conceptual analysis or political argument. However, given that all the precisifications are different, all tickle some intuitions (or they would not be produced and published) as well as producing counterintuitive ones. We can only say that these terms are alternative precisifications that have claims to equal validity as more precise versions of the vague description. We might prefer some to others, but we cannot justify that preference on the grounds that they provide the best representation of the vague term's extension, for that extension is incoherent. They have to be defended in their own terms.

Despite their lack of clear reference, vague terms are an important part of natural language. Sometimes using a vague concept such as 'tallness' is more efficient and accurate than giving a precise measurement. Similarly, using a vague term or phrase such as 'liberty' or 'what is best for society' can be more efficient than being more precise.

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Endnotes

¹ A familiar Rawlsian account suggests that there are various conceptions of a core concept. As we make clear below, we see this distinction as a vague concept that can be made precise in different and rival ways, rival because they imply different referents. However, we do not adopt the language of concepts and conceptions; rather we talk about vague and precise concepts. There are levels of precision and all we need do is adopt the level that is precise enough to answer the question we are pondering. Hence we tend to use the terms ‘concept’ and ‘conception’ interchangeably. We see concepts as partitioning states of the world, and to the extent that there are several rival partitions that represent one master partition, that master partition must be vague and as such – as we argue below – has no precise referent.

² It is these sorts of considerations that lead to some versions of the essential contestability of concepts. However, we think the vagueness issue is more fundamental. The usual account of essential contestability is that people with different values cannot agree over the correct application of a term. With vagueness, the same person can have competing intuitions that rely upon different precisifications. We discuss essential contestability elsewhere.

³ Coding decisions and elimination can be seen as Carnapian explication. Explications are intrinsically pragmatic and in science we often eliminate the folk concept with a scientific version and the fact it does not represent all of our intuitions about a folk concept does not matter. Outside of a purely positive account of the world however, when we come to normative terms we cannot simply disregard intuition, even if our intuitions can only be guided into specific non-rival precisifications of the vague term.

⁴ We can also pedantically point out that a body of pure water would typically contain free H and free O as well as being overwhelmingly H₂O.

⁵ As one of the authors remembers occurring in a story read to him as a child.

⁶ That is not to say that we cannot prefer one mechanism to another on other grounds, say simplicity, or being less open to strategic manipulation, or that we desire proportionality of first preferences to a political party to representation in a parliament. These might be good justifications in specific circumstances, but they are not justifications for favouring one particular mechanism over another in terms of the representation of the vague concept.

⁷ We only illustrate the claim, and provide no proof that freedom could not be so defined. We examine the claim more fully in other work.