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Values in science: assessing the case for mixed claims

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ABSTRACT

Social and medical scientists frequently produce empirical generalizations that involve concepts partly defined by value judgments. These generalizations, which have been called ‘mixed claims’, raise interesting questions. Does the presence of them in science imply that science is value-laden? Is the value-ladenness of mixed claims special compared to other kinds of value-ladenness of science? Do we lose epistemically if we reformulate these claims as conditional statements? And if we want to allow mixed claims in science, do we need a new account of how to reconcile values with objectivity? Alexandrova (2017. *A Philosophy of the Science of Well-being*. New York: OUP, 2018. “Can the Science of Well-Being Be Objective?” *The British Journal for the Philosophy of Science* 69 (2): 421–445) offers affirmative answers to these questions. In responding to Alexandrova’s arguments, this short discussion note motivates negative ones and in doing so casts new light on mixed claims.

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1. Introduction

While some theorists might still hold that science is and ought to be free of non-epistemic values (e.g. moral, prudential, political, or aesthetic values) (Staddon 2001; Betz 2013), many philosophers have provided arguments to the effect that science neither is nor should be free of them (Longino 2002; Douglas 2009; Brown 2019; Peters forthcoming). Anna Alexandrova (2017, 2018) offers an important contribution to the debate. She first notes that social and medical scientists frequently produce empirical generalizations involving concepts such as, for instance, ‘well-being’, ‘unemployment’, ‘equality’, ‘health’, etc. Here are two examples:

- (1) ‘Unemployment negatively affects individuals’ well-being’ (Voßemer et al. 2017, 1).

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(2) 'Economic growth may conflict with greater equality' (Sloman 2007, 201).

Alexandrova then argues that since concepts such as, for instance, 'well-being', 'unemployment', 'equality', etc. rely on value judgments about what counts as well-being, unemployment, equality, etc., the generalizations at issue 'present a special case of value-ladenness' in science (2018, 421). She calls these generalizations *mixed claims*, as they combine empirical information about causal or statistical relations with value-based definitions.

Mixed claims pose serious risks. For they appear to capture conclusions based solely on science, objectivity, and evidence even though they are in fact partly dependent on value judgments. This may mislead scientists and the public about the generality, authority, and neutrality of the claims at issue. Since, in some fields, 'almost every empirical study' makes mixed claims (McClimans 2019, 350), how should we deal with them?

Alexandrova (2018) argues that, '[a]gainst the prevailing wisdom, [...] we should not seek to eliminate them from science' but 'develop principles for their legitimate use' (421). She adds that while '[p]hilosophers of science have already reconciled values with objectivity in several ways', 'none of the existing proposals are suitable for mixed claims' (2018, 421). A new account is thus needed, Alexandrova claims.

I shall take a critical look at her argument. In doing so, I aim to provide answers to the following four questions that should be of more general interest for philosophers working on values in science.

- (1) Does the presence of mixed claims in science imply that science is value-laden?
- (2) Is the value-ladenness of mixed claims special compared to other kinds of value-ladenness of science?
- (3) Do we lose epistemically if we reformulate mixed claims as conditional statements?
- (4) If we want to allow mixed claims in science, do we need a new account of how to reconcile values with objectivity?

Alexandrova offers affirmative answers to [1] to [4]. I shall motivate negative ones.

2. Do mixed claims imply that science is value-laden?

Before addressing the question, some background first. For Alexandrova, a 'claim is mixed' iff '[i]t is an empirical hypothesis about a putative causal or

statistical relation', and '[a]t least one of the variables in this hypothesis is defined in a way that presupposes a moral, prudential, political, or aesthetic value judgement about the nature of this variable' (2018, 424). While she takes her argument to hold for mixed claims in general, Alexandrova focuses (just as I do here) only on mixed claims from the science of well-being, which spans the social and medical sciences. Her examples include

- (a) 'Happiness is not always conducive to well-being.'
- (b) 'Early learning difficulties have a disproportionate impact on life well-being.' (2018, 424)

With respect to (a) and (b), Alexandrova notes that psychologists tend to distinguish three different notions of well-being: (i) happiness or a favourable balance of positive over negative emotions, (ii) life-satisfaction, captured in individuals' judgements about how their life is going overall, and (iii) flourishing or good functioning, an ensemble of strengths such as competence, relatedness, sense of achievement and meaning. Alexandrova argues that settling on one of (i)-(iii) 'requires a choice about the most plausible conception of well-being', which in turn requires a value judgment on what is good for people (2018, 425). Thus, she continues, 'empirical generalizations' such as, for instance, (a) and (b) 'present a special case of value-ladenness' of science: on her view, mixed claims imply that values 'enter science' (2018, 421, 426).

Alexandrova isn't alone in inferring that since the definition of concepts such as well-being, inequality, etc. depends on value judgments, any science involving these concepts is itself value-laden. This kind of inference also seems to underlie, for instance, Kincaid, Dupre, and Wylie's (2007) view that 'value-laden science shows up' *inter alia* when 'values [are] involved in deciding what categories or basic objects constitute the area to be studied' (12). Similarly, Beckerman (2017), an economist, claims that in an analysis of, say, the economic inequality in society, there are different ways of measuring that inequality. And for their analysis, economists must select a 'particular definition' in the light of their 'value judgement as to which definition is more important'; hence 'positive economics cannot be value-free, since the way the [...] variables [in economic analyses] are defined depend[s] partly on subjective value judgements' (2017, 22). That is, Beckerman concludes that since values come in when scientists define concepts such as economic equality, unemployment etc., the scientific reasoning and

empirical generalizations that subsequently involve them are themselves value-laden.

However, it does not follow that when the definition of scientific concepts relies on values, that the science involving these concepts is itself value-laden. This arguably only follows if the process of defining the concepts is *part of science*, and, importantly, whether that is so can't be determined simply by turning to the facts of the world. That is because what belongs to science and what doesn't depends on what we mean by 'science'. And the question of what is and isn't properly called 'science' (vs. mere 'pseudo-science') is, given the term's normatively loaded and rhetorically powerful nature, a well-known controversial issue ultimately settled by a value judgement pertaining to what we perceive to be the most plausible notion of 'science' (Godfrey-Smith 2003, 3; Hansson 2017).

Suppose, for instance, that we hold that the process of defining concepts is *not* part of but precedes, and is situated outside, science proper. The view isn't outlandish. In a similar vein, Longino (1990, 85f) proposes that when scientists identify their object of study and define their concepts, this happens at an 'external' stage of science. Douglas (2000) adds that even when that stage is affected by non-epistemic values, the "'internal" process of scientific reasoning', i.e. the testing, justification, and analysis, can then still 'go forward without the necessary inclusion of non-epistemic values' (564). Because if the concepts are defined upfront and their definitions remain explicit in the subsequent reasoning and data assessment, then that reasoning and data processing, including the conclusions, are relativized to the definitions, and hold (or don't hold) independently of whether the scientists using the concepts endorse the value judgments shaping the concepts' definitions (Nagel 1961, 486). Hence, the subsequent science involving these concepts would remain value-free. While Longino and Douglas assume that the definitional work at issue still takes place *within* science (albeit at an 'external' stage of it), there is no obvious reason speaking against pushing the 'externalization' a step further and situating that work outside of science.

Having said that, I do not mean to deny that it is plausible to view the definitional process as a proper part of science. My point is dialectical. It is just that when theorists infer that science is value-laden because it involves concepts that are defined partly via value judgments, then that inference rests itself on a value judgment pertaining to what is a proper part of science and what isn't. It rests on the judgment that the most plausible concept of science is one according to which the process of defining these concepts *is* a proper part of science. We might accept that value

judgment. But as noted, the opposite view that the definitional process is *not* part of but prior to science isn't obviously false. And, crucially, if that alternative view is right, then the subsequent scientific research with the concepts at issue can be conducted without endorsing the values shaping the definition of the concepts. The fact that values affect the definition of certain scientific concepts thus doesn't by itself *imply* that the science and mixed claims involving these concepts are themselves value-laden.

3. Are mixed claims special?

Suppose mixed claims and the science in which they figure *are* value-laden. To show that their value-ladenness is 'special' and 'unique', Alexandrova (2018, 426f) argues that the values underlying them function differently from more familiar values in science. The familiar functional roles that she considers are values as

- (1) reasons to pursue science,
- (2) ethical constraints on scientific research and research protocols,
- (3) arbiters between underdetermined theories,
- (4) determinants of standards of confirmation,
- (5) the source of wishful thinking/fraud in the sciences, and
- (6) agenda-setters (2018, 226–428).

To assess Alexandrova's view about the specialness of mixed claims, I shall focus on (6). What are *agenda-setting* values?

Alexandrova writes that they are 'normative commitments' indicating to scientists what 'phenomena are interesting, important, and worth studying' (2018, 426). She argues that we should 'distinguish this agenda-setting function of values from their role in mixed claims' because there can be 'moral and political reasons to initiate a scientific study of human and animal well-being, but these reasons alone do not force us to go mixed. We could instead insist on new value-free definitions of well-being' (2018, 427). Alexandrova takes this to show that the value-ladenness related to mixed claims is distinct from that related to agenda-setting values.

However, we should keep the view that (a) all agenda-setting values lead to mixed claims separate from the view that (b) all mixed claims are based on agenda-setting values. Alexandrova is right that (a) is false. But to establish that the values underlying mixed claims are functionally

special and unique compared to the mentioned familiar values, she would need to show that (b) is false also. Otherwise, we are free to hold that the values underlying mixed claims are agenda-setting values too. Yet, Alexandrova doesn't provide an argument against (b). Moreover, there is reason to hold that (b) is correct. For in shaping scientists' definitions, the values underlying mixed claims do narrow down the scope of phenomena that the scientists will then focus on (Longino 1990, 98f). For instance, if, in their project to investigate well-being, scientists choose, say, life-satisfaction as the most plausible conception of well-being, they therewith select one phenomenon (i.e. life-satisfaction) for investigation over another one (say, happiness). Since the values at issue direct scientists' attention toward one phenomenon rather than another, they are in a straightforward way determining scientists' research agenda. Their functional role is thus not special compared to that of the values already explored in philosophy of science, for values that set research agendas and determine the selection of phenomena for investigation have already been discussed (Longino 1990; Lacey 1997; Kitcher 2011; Douglas 2016).

4. Do we lose epistemically if we reformulate mixed claims?

Alexandrova holds that mixed claims are legitimate in science and should stay. She makes her point indirectly by arguing that the most explicit case *against* mixed claims, which she takes to be offered by Nagel (1961), is unsuccessful. To see her point, it will be useful to first consider Nagel's view on value judgments.

Nagel distinguishes between '*estimating*' value judgments, which merely capture whether 'some commonly recognized type of action, object, or institution is embodied in a given instance', and '*appraising*' value judgments, which 'express approval or disapproval of some moral or social ideal, or of some action (or institution) because of commitment to such an ideal' (1961, 492f). If we apply this distinction to judgments about well-being, then social scientists would form *estimating* value judgments when they are using a particular given account of well-being to judge how much a person or community exhibits the features this account considers constitutive of well-being. In contrast, they would form *appraising* value judgments when they take a subjective stance on what well-being is, where this involves approving and favoring a notion of well-being, and then using it to judge whether a person or community is doing well.

Alexandrova argues that Nagel distinguishes between estimating and appraising value judgments to ‘eliminate appraisal from science, leaving only estimation’ because the ‘ideal science for him is an ethically neutral one’ (2018, 429).¹ She continues that Nagelians would most likely conduct such elimination by converting mixed claims from regular causal or correlational ones into conditional claims as follows. For any

mixed claim involving a cause or a correlation, *C*, a value-based concept, *T*, and an operationalization, *O* of *T*: (1) Scientists can investigate estimation claims: ‘If *T* is operationalized as *O*, then *C*’. (2) Scientists cannot investigate appraisal claims that have not been so conditionalized. (2018, 430)

If scientists adopted this method, Alexandrova holds, then, since their claims would always be tied to specific operationalizations of *T*, their claims involving *T* would remain value-neutral.

Her argument against this Nagelian reformulation of mixed claims is that it doesn’t really remove values from science but ‘only pushes them to another, less appropriate stage’, as there ‘would still remain a question as to which normative standard’ and ‘operationalizations’ scientists ‘should use in their estimation claims’ (2018, 430). On behalf of the Nagelian, Alexandrova considers and rejects three possible answers to that question.

The first one is the suggestion that Nagelian reformulations of ‘mixed claims could be rendered value free’, that is, free from scientists’ own value judgments, if scientists operationalized their value-based concepts by ‘using the value judgements of the community they studied’ (2018, 430). Alexandrova rejects this proposal because the ‘folk disagree [on matters such as well-being etc.] even within one community and any proposal for how such a disagreement can be resolved is itself normative’ (2018, 430).

However, the point isn’t entirely convincing. After all, scientists might, for instance, focus on a common notion of well-being, or on the notion that the majority of the members of the community endorse. Or they might index their operationalization with details about the distribution of how many people endorse or reject a particular concept of well-being. In each of these cases, the scientists’ own values wouldn’t enter the research via the operationalizations.

The second proposal that Alexandrova considers on behalf of the Nagelian is that scientists working on well-being could be asked to ‘study the

¹But notice that Nagel is in fact explicit that his goal is merely to consider whether or not ‘an ethically neutral social science is inherently impossible’ (1961, 495). This does not require, and he does not make, any claim about the ‘ideal science’.

empirical relations between well-being and a given factor on *all* the existing views of well-being' (2018, 431). She rejects this proposal too arguing that there are numerous theories of well-being, and using them all for the operationalizations is 'impossible, but a choice requires a normative judgement about their relative plausibility' (2018, 431).

However, this needn't be the case. Scientists might select a particular operationalization *O* simply because a given problem hasn't been explored with respect to *O* yet. The value motivating scientists to select *O* may then just be the goodness of thoroughly exploring an area of research, which is an *epistemic* value perfectly legitimate in science. And even if scientists do make value judgements about the plausibility or importance of theories and concepts of well-being, this is arguably entirely acceptable for Nagelians. For, as Nagel (1961) notes, when 'social scientists address [themselves] exclusively to matters which [they] believe are important because of their assumed relevance to [their] cultural values', this 'represents no obstacle to the successful pursuit of objectively controlled inquiry' provided the mentioned operationalization occurs (486). The conceptual choice that Alexandrova highlights thus wouldn't necessarily involve a 'value judgement that the Nagelian hopes to keep out of science' (2018, 431).

She considers a third proposal on how Nagelians might settle which operationalizations scientists should use. It involves the idea of a 'division of labor', according to which:

scientists take care of facts, while others take care of values. [...] [T]he right standard of well-being to use in the science of well-being is within the purview of moral philosophers (and/or democratic decision-makers). Scientists can participate in this discussion, but not *qua* scientists. (2018)

Alexandrova's point against this proposal is also her main reason why mixed claims should stay in science. It is the thought that the view that scientists take care of facts while others take care of values,

ignores or devalues scientists' knowledge about values, which they have acquired in virtue of their knowledge of facts. This knowledge enables them to make better normative choices *qua* scientists. It is because developmental psychologists know the effect of, say, institutionalization of orphans that they believe attachment to be crucial to child well-being. Similarly, it is because divorce scholars know the consequences of divorce that they conceptualize it as an opportunity for personal growth and not merely a loss [...]. (2018)

The 'Nagelian division of labour', Alexandrova continues, 'wastes the normative knowledge scientists acquire while in the business of producing

mixed claims. That much is sufficient for a *prima facie* case that mixed claims are worth preserving', she concludes (2018, 432).

However, the envisaged division of labour needn't involve ignoring or wasting scientists' normative knowledge. For, on the labor-division view, as Alexandrova notes herself, the job of moral philosophers and/or democratic decision-makers is to 'take care of values': their job is to form *good* normative judgments. If scientists make better normative choices *qua* scientists, then it seems clear that it is the job of moral philosophers and/or democratic decision-makers to *not* ignore or waste the scientists' better normative knowledge but consider it when it is relevant. On the envisaged labor-division view, moral philosophers and/or democratic decision-makers wouldn't do their job properly if they overlooked the scientists' special normative knowledge. The proposed labor-division thus needn't result in discounting scientists' normative knowledge, and we wouldn't necessarily lose epistemically if mixed claims were reformulated in the Nagelian manner.

5. Do we need a new approach to reconciling values with objectivity?

Alexandrova holds that while 'philosophers of science have already reconciled values with objectivity in several ways, none of the existing proposals are suitable for mixed claims' (2018, 421) because they fail to solve the following two problems related to mixed claims:

Inattention: Scientists might present empirical findings while failing to note the normative assumptions on which the findings depend, which may lead to a misuse of the authority of science.

Imposition: Scientists might import into 'science substantive views about the nature of [e.g.] well-being that those whose well-being is being studied have good reasons to reject. When eminent economists [...] advocate a measure of national well-being that takes into account only the average ratio of positive to negative emotions of the populace [...], the citizens can legitimately object if they take well-being to consist in more than that' (2018, 432f)

However, against Alexandrova's claim that existing proposals on how to reconcile values with objectivity aren't suitable for mixed claims as they can't adequately deal with *Inattention* and *Imposition*, for instance, Nagel's (1961) proposal does in fact already both allow for mixed claims in science and help tackle these two problems. For suppose a scientist *S* reformulates the mixed claim

[C] ‘Happiness isn’t always conducive to well-being’

as

[R] ‘If well-being is operationalized as life-satisfaction, happiness isn’t always conducive to well-being’.

[R] might still rest on a value judgment equating well-being with life-satisfaction. Suppose it does. [R] will then still be a ‘mixed claim’, i.e. an empirical hypothesis about a statistical relation containing a variable partly defined by a value judgement (Alexandrova 2018, 424). Yet, it will be a mixed claim that Nagelians would treat as entirely acceptable in science and that would actually help prevent *Inattention*. Because if *S* clarifies at the outset and in the conclusions of her research that her research pertains to well-being construed as life-satisfaction only then the relative character of *S*’s findings remains clearly in view.

Moreover, in disallowing ‘appraisal claims’ in science in the first place (Nagel 1961, 492f; Alexandrova 2018, 430), the Nagelian proposal also counteracts *Imposition*: if it is ensured that scientists don’t make claims to the effect that one particular notion of well-being is the best or most plausible one then, for instance, eminent economists can’t *advocate* any particular measure of national well-being, and so can’t impose their own concept of well-being on others.²

Granted, for Alexandrova, this has the negative side effect that scientists’ (possibly) superior normative knowledge is wasted. But, as argued above, that needn’t be the case. Provided that moral philosophers and/or democratic decision-makers do their job of forming good normative judgments about the nature of well-being (etc.) properly, they will need to take the scientists’ normative knowledge into account if it is superior. The Nagelian proposal thus allows mixed claims in science and helps prevent both *Inattention* and *Imposition*. Alexandrova’s view, that ‘none of the existing proposals [on how to reconcile values with objectivity] are suitable for mixed claims’ (2018, 430) because they fail to deal with *Inattention* and *Imposition* is thus too strong.

²*Imposition* might be interpreted as the problem that when a group of (e.g.) well-being scientists who accept relatively homogeneous values operationalize well-being in ways that is unresponsive to the public’s view then the public may as a result not have access to science that is responsive to their concerns. However, it is worth noting that *objectivity* doesn’t require that the public get access to knowledge that is relevant to them. If a small scientific elite only conducted research grounded (explicitly) in an obscure theory of well-being, there would be many valid (e.g. moral) criticisms that we could make of such an arrangement. But there needn’t be any failure of objectivity: the scientists might produce perfectly objective knowledge operating within their conceptualization of well-being. The problem at issue would then no longer call for an account reconciling objectivity with values.

6. Conclusion

While the preceding discussion focused on Alexandrova's view on mixed claims, the conclusions are of more general interest for the theorizing on values in science and science communication. This is because they help advance the analysis of mixed claims in the following ways. First, the presence of these claims in science doesn't by itself imply that science is value-laden, for the definition of the concepts figuring in mixed claims can be viewed as a process prior to rather than part of science. While that view might be rejected, the key point here has just been that doing so will itself partly depend on a value judgment about the most plausible notion of 'science', illustrating that the theorizing on values in science involves values and mixed claims itself. Second, the role of the values underlying mixed claims in science isn't special compared to already familiar functions of values in science. Rather, it is functionally on a par with that of agenda-setting values. This is because in shaping the definition of scientific concepts, the values underlying mixed claims guide scientific inquiry. Third, we don't necessarily incur epistemic costs if we reformulate mixed claims as conditional statements. In fact, such a reformulation helps to accommodate mixed claims in science and to address two significant problems with them (*Inattention* and *Imposition*). A new account of how to reconcile values with objectivity so as to deal with these problems might thus not be needed. Nonetheless, while I have indicated various doubts about Alexandrova's argument, she does us a valuable service in highlighting the issue and risks of mixed claims. This is because scientists and science communicators do currently still often fail to make their operationalizations and value judgements explicit when producing mixed claims. Alexandrova rightly draws attention to this point.

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