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Double Measures: Conceptual Tensions and the Treatment of Evidence in Alcohol Policy

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Abstract

This paper argues that the lack of a shared evidence base in the policy debate around alcohol control, and the failure to acknowledge this fact, creates a tendency to dismiss key bodies of evidence as irrelevant, to the detriment of public health approaches. Using examples from three policy processes, it shows that proponents of opposed positions deploy rival conceptualizations of "problem alcohol use" as the object of policy intervention. Using analytic tools from the philosophy of science, it argues that these conceptualizations correspond to distinct bodies of evidence, which are treated as incompatible. Finally, it points to institutional mechanisms through which the problem can be mitigated.

1. Introduction

In recent years, alcohol policy has been fiercely debated in several countries where regulatory reforms have been proposed. For instance, in the United Kingdom (UK), politicians deliberated over alcohol pricing, licensing practices, and combatting sales to underage drinkers during the coalition government, which held office from 2010 to 2015 (Nicholls and Greenaway 2015). In 2018, legislation was passed in the Republic of Ireland and the UK nations of Scotland and Wales introducing minimum alcohol prices of 0.10 euros per gram and 0.50 pound sterling (GBP) per unit, respectively. During the Covid-19 pandemic, changes to alcohol policy were made in several African countries, including South Africa (WHO 2022; Bartlett et al. 2023). The public discussions in these countries

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demonstrate how convoluted debates over alcohol policy can be. As public health and policy scholars James Nicholls and John Greenaway have argued: "Developments in alcohol policy have always also reflected the dominant frames for understanding what the 'alcohol problem' is" (2015, 140), something recent developments continue to confirm. There are multiple—often conflicting—understandings of the issue that the policies are supposed to confront, which frequently turn on whether the object of alcohol policy is framed as a problem of public health, public disorder and crime, or individual health.

Our aim in this paper is to address the following question: How do differences in how alcohol-related impacts are studied contribute to debates about alcohol policy? In particular, we are interested in the relationship between conceptualizations and explanatory frameworks in empirical research, on the one hand, and the framings of the object of policy intervention, on the other. To answer this question, we draw on both theoretical insights concerning the importance of "framing" in the policy arena (for example, Rein and Schön 1996; Van Hulst and Yanow 2016; Chater and Loewenstein 2023) and on philosophy of science accounts of evidence production and use (for example, Longino 2013; Bradburn, Cartwright, and Fuller 2017). We argue that alcohol policy debates are characterized by a problematic feedback loop whereby, as a result of processes that are neither epistemically nor politically justified, the selection of evidence from one body of evidence comes to dominate at the expense of others, cementing a certain definition of the problem policy is supposed to address. This impacts the assessment of relevance for bodies of evidence, leading relevant evidence to be sidelined.

We show that there is more than one body of evidence concerning the phenomena taken to be instances of "problem alcohol use."[1] Further, we argue that the plurality of conceptualizations and bodies of evidence is usually not explicitly acknowledged. Instead, there is an assumption of a shared understanding of what constitutes "problem alcohol use." This contributes to a tendency to dismiss the evidence of nondominant frameworks. Thus, we argue, increasing awareness of the plurality can act as a safeguard against the unwarranted dismissal of evidence that fails to cohere with the relevance criteria of dominant framings.

This paper addresses gaps in both philosophy of science and public policy literature. First, despite the considerable societal impact of alcohol, alcohol policies and research on alcohol have largely been overlooked by philosophers of science and medicine. In philosophical literature, alcohol use has mainly been discussed in medical ethics (for example, Gavaghan 2009) and public health ethics (for example, Walker 2010; John 2018). When the topic has been approached from a philosophy of science perspective, the focus has been on the concept of addiction and the question of whether addiction is a brain disease (for example, Uusitalo, Salmela, and Nikkinen 2013; Burdman 2021). This focus on addiction or dependence has created a research gap concerning the broader range of phenomena to which the term "problem alcohol use" refers to in lay parlance, research, and political debates. Second, we contribute to the philosophical discussion concerning the use of evidence in policymaking (for example, Cartwright and Hardie 2012; Parkhurst and Abeysinghe 2017; Marchionni and Reijula 2019). These debates have mainly focused on evidence-based policy and the question of how the strength of evidence should be assessed

[1] This paper uses the term "problem alcohol use" as a neutral term for the object of study in different fields of alcohol research and as an object of policy interventions.

(for example, on the criticism of the so-called hierarchy of evidence). Rather than strength, the present cases address the question of the "appropriateness" of evidence—that is, relevance to the decision criteria and other contextual factors particular to the case (cf. Parkhurst and Abeysinghe 2017). Third, though discussions in policy studies have acknowledged the way framings can promote or obstruct different policy interventions (Rein and Schön 1996; Van Hulst and Yanow 2016), the opposite direction of influence has been less well addressed: the specific way in which the preference for certain bodies of evidence in turn cements the dominance of such framings. Spelling out these relationships will help policymakers to refrain from foreclosing options through a flawed conception of what *the* evidence supports.[2] The failure to acknowledge the plural nature of bodies of evidence often causes evidence from nondominant approaches to be erroneously dismissed as irrelevant or conceptually misguided.

The structure of the paper is as follows: We begin by offering a snapshot of alcohol policy initiatives across three jurisdictions, to exemplify conceptual tensions in how "problem alcohol use" is addressed as an object of policy intervention (sections 2.1–2.3). We identify two broad classes of problem framing, which deploy distinct conceptualizations: "alcohol misuse" and "alcohol use" (section 2.4). We suggest that the problem framings and the suggested policy interventions reflect a distinction between so-called i-frame and s-frame policies (cf. Chater and Loewenstein 2023). In section 3, we characterize two broad frameworks for empirically studying "problem alcohol use." Under the "Individualist Framework" (section 3.1), researchers conceptualize "problem alcohol use" as a characteristic of certain individuals, while under the "Public Health Framework" (section 3.2.), all alcohol consumption is seen as potentially problematic, although threshold levels may be used to prioritize targets. In section 3.3, we argue that there is an affinity between a focus on "misuse" as an object of intervention in policy, and the selection of evidence derived from the Individualist Framework. Correspondingly (and more obviously), there is an affinity between alcohol "use" as an object of intervention, and the selection of evidence derived from the Public Health Framework. Finally, we conclude by showing that it is this affinity between rival conceptualizations of "problem alcohol use" as an object of scientific study, on the one hand, and particular positions in the alcohol policy debate, on the other, which is the source of the clear tensions identified in the cases (section 4). We give an account of what those tensions consist in, and how they could be resolved. Section 5 offers conclusions.

2. Conceptualizations of "Problem Alcohol Use" in the Policy Context

Alcohol consumption is associated with a high number of deaths and morbidities, as well as considerable individual suffering (WHO 2018). Effective interventions to reduce alcohol use that leads to negative outcomes are thus vital. However, policies related to alcohol are often highly contested. In this section, we present three examples of well-documented consultation processes across three countries—in the UK, Ireland, and South Africa—during which the introduction of policies to curb alcohol consumption were considered and, in some cases, adopted. These cases demonstrate that the relevance of evidence is a contested

[2] As an anonymous reviewer pointed out, evidence alone, however strong, does not determine that any policies should be implemented. This requires further normative premises—for example, that the phenomenon the policy aims to address is a priority; see also Jukola and Gadebusch Bondio (2023).

matter, related to how the problem to be addressed by the policies is framed. We show that conflicts are structured, to a large extent, by different understandings of the object of policy intervention: what "problem alcohol use" is taken to be.

We draw on an analytic tool used in policy studies—frame theory. The concept of "framing" is used in diverse ways in different disciplines but typically refers to how a phenomenon is perceived and discussed in a particular context (Koon, Hawkins, and Mayhew 2016). It is common to apply frame theory to the analysis of policy processes with regard to legislative changes in public health initiatives (for example, Bartlett et al. 2023; Koon, Hawkins, and Mayhew 2016; Nicholls and Greenaway 2015). In policy studies, framing is viewed as an intersubjective process involving unconscious elements, sometimes deployed strategically, sometimes reflexively, either to persuade others to adopt a course of action, or to justify a course of action once embarked upon (Rein and Schön 1996; Van Hulst and Yanow 2016). While the literature on frame analysis in relation to alcohol policy is valuable, our intention is not simply to add to it. Rather, our aim is to highlight the relationship between how the object of policy intervention is conceptualized in policy discussions, and the way in which available scientific evidence is used and contested in policy debates.

2.1 UK: Minimum Unit Pricing (Not Adopted in England or Northern Ireland, Adopted in Scotland and Wales)

In the final year of the last Labour government in the UK (1997–2010), the Commons Health Select Committee delivered a report that contained a set of recommendations for an updated alcohol strategy (House of Commons Health Committee 2010). Building on that report, the incoming coalition government published its alcohol strategy (Home Office 2012b). This strategy was subject to a further review by the Health Select Committee (House of Commons Health Committee 2012). The headline policy under the alcohol strategy was a commitment to implement minimum unit pricing (MUP), with the price level to be determined. The government then conducted a public consultation on alcohol strategy towards the end of 2012 (Home Office 2012a). Following this consultation, the commitment to introduce MUP in England was dropped. Subsequently, the devolved administrations of Scotland and Wales each legislated to bring in MUP at 0.50 GBP per unit (8 grams pure alcohol), entering into force in 2018 and 2020, respectively. As of 2025, the 2012 alcohol strategy remains the UK's most recent alcohol strategy document.

The policy process around MUP during this period was the object of informative studies for the purposes of the present paper (McCambridge, Hawkins, and Holden 2013; Nicholls and Greenaway 2015). As these authors show, the policy direction was initially strongly guided by the latest research in public health, but this focus was diluted after divergent priorities led policymakers to view the evidence they were being presented with under a different frame.

The Department of Health commissioned the University of Sheffield to conduct a review of alcohol policy measures; this produced the Sheffield Model, which modeled the effectiveness and economic efficiency of various policy interventions by providing estimates of changes in alcohol consumption and alcohol-related harms (such as negative health outcomes and crime), as well as costs related to such harms (Brennan et al. 2008). Significantly, it provided an evidential basis for MUP in comparison to alternatives, and a

basis on which to determine the price level. In addition, the highly influential study led by Thomas Babor, *Alcohol: No Ordinary Commodity* (Babor et al. 2010), was published during this period, which cemented the public health case for population-level policy intervention. As Nicholls and Greenaway note, the Babor study was referred to as the "bible" of public health policy in oral evidence given to the Health Select Committee (Nicholls and Greenaway 2015, 137; House of Commons Health Committee 2012, Ev 2).

In Scotland, industry lobbyists (the Portman Group and SAB-Miller) submitted evidence arguing that population-level policies were unlikely to be effective because they are "untargeted" and "predicated on the improbable assumption that raising the price of alcohol will make those who *misuse* alcohol behave differently" (cited in McCambridge, Hawkins, and Holden 2013; emphasis added). In London, lobbying from alcohol industry bodies deployed the strategy of asserting that the predictive effectiveness estimates derived from the Sheffield Model were "not 'evidence' in the conventional sense" (Nicholls and Greenaway 2015, 138). However, more significant than this, Nicholls and Greenaway argue, was that the incoming government reconceptualized the problem MUP was intended to address in a way that diverged from how it had been understood in the 2010 House of Commons Health Select Committee report and under the Sheffield studies. Due to shifting political priorities and the influence of the Home Office, MUP was assessed not as a measure for reducing all-cause harm but as a response to misuse, in particular "the scourge of violence caused by binge drinking" (Home Office 2012b, 2). The Sheffield Model, meanwhile, was clear that the policy targeted people buying cheap off-trade alcohol for home consumption, where public street violence and disorder is not a core concern.

As Nicholls and Greenaway point out, this was not a disagreement about the best interpretation of the available evidence. Neither, however, was it merely a disagreement about values. Rather, the policy frame was "integral to the identification" (Nicholls and Greenaway 2015, 136) of evidence *as evidence* concerning the effectiveness of policies in the first place. The "social disorder framing," in their view, "weakened the focus on the aspect of the evidence … which was most robust"—namely, "that MUP would reduce health harms among the heaviest drinking subgroups" (2015, 137). The government's announcement that MUP would be abandoned applied a "violence" and "disorder" definition while stating that it "did not have enough concrete evidence that it would be effective in reducing harms associated with problem drinking" (Home Office and Jeremy Brown 2013). The conceptualization of the problem to be addressed thus clearly influenced not only the assessment of the evidence but also the assessment of what material constituted relevant evidence at all.

2.2 South Africa: Advertising Restriction (Not Adopted)

In South Africa, the Control of Marketing of Alcoholic Beverages Bill was under consideration between 2011 and 2017.[3] This was a proposal to restrict alcohol advertising, prohibit sponsorship (for example, of sports competitions), and prohibit promotions. In

[3] A more recent example of alcohol policy change in South Africa concerns the radical policy measures (near-total bans on alcohol sales) in response to the Covid-19 pandemic. Although these debates have been documented through media analysis (Ngqangashe, Heenan, and Pescud 2021), it is difficult to construct a detailed account of the policy process and the reasoning behind the adoption and ongoing assessment of the policy without primary research, which is not the object of this paper.

2013, the Minister for Social Development announced that the Bill would be gazetted for public comment. In the end, this never transpired (South African Government Official Information and Services 2013). As a result, the proposed operation of the legislation was never officially determined.

The Bill was the object of aggressive coordinated lobbying by alcohol industry actors (Bertscher, London, and Orgill 2018). During consultation on the proposed advertising ban, industry lobbyists presented testimony arguing that a ban would be ineffective at reducing alcohol-related harms. The minutes of a committee hearing record a presentation by an industry lobbyist that is instructive. Although the presentation contains rhetorical fallacies—such as the claim that alcohol advertising bans would be a slippery slope to further bans; for instance, on mobile phones on the grounds they produce harmful radiation (BMi Sport Info 2013), it also deploys conceptual arguments that attempt to challenge the validity of advertising regulation as a means of addressing alcohol-related problems in principle. For instance, lobbyists accepted that there was a problem that needed to be addressed, but argued "the problems in South Africa did not lay [*sic*] with alcohol consumption, rather with alcohol abuse and it was wrong to demonize all consumption" (Parliamentary Monitoring Group 2013).

Here, we find more than simply an evaluative appeal to liberalism and anti-paternalism, we also find an implicit causal–explanatory claim: an advertising ban is ineffective in tackling the problem (as conceptualized) because it fails to directly target "alcohol abuse." The form of argument adopted is to identify key problems associated with alcohol, including binge drinking, drunk driving, and fetal alcohol syndrome, and present direct solutions to these problems, which do not include advertising regulations. Because advertising controls, and population-level measures more broadly, are not the best targeted solutions to these problems, they are dismissed, despite the fact that they might have a positive impact in relation to a range of problems and a significant cumulative impact (Industry Association for Alcohol Use Presentation 2013, slides 12–16). As a detailed qualitative case study argues, these lobbying methods were typical: "Throughout the policy formulation process, what constitutes the 'correct' evidence … is a point of contention" (Berscher, London, and Orgill 2018, 795).

During the same period, public health scholars, prominent among them Charles Parry, director of the Mental Health, Alcohol, Substance Use and Tobacco Research Unit of the South African Medical Research Council, made the case for regulation (Parry, Burnhams, and London 2012). They rebutted several inaccurate empirical claims perpetuated by the industry, in particular, the argument that alcohol advertising only encourages existing drinkers to switch brands, an argument redeployed from the tobacco lobby. They also addressed the conceptual challenge, noting that "the liquor industry differs from the public health community in how it sees alcohol problems and how they should be addressed" (Parry, Burnhams, and London 2012, 603). These scholars pointed out that the focus on the minority of individuals misusing alcohol in industry discourse stands in contrast to the public health approach, which aims to "shift the population curve for per capita consumption of alcohol downwards."

2.3 Ireland: Range of Measures in Support of Legal Commitment to Reduce Total Consumption, Including Minimum Unit Pricing and Advertising Restrictions (Adopted)

In Ireland, the Public Health (Alcohol) Act No. 24 of 2018 was signed into law on October 17, 2018. Some sections began to enter into force the following month, with other sections entering into force at later dates (the latest being 2026—the requirement to place warning labels on alcohol containers). Among other effects, the Act creates requirements to: apply a minimum price no less than 0.10 euros per gram of alcohol; prohibit the advertising of alcohol in parks, on public transport, or with 200 meters of a school or playground; prohibit alcohol advertising in sports arenas; prohibit promotional pricing, including "buy one get one free" deals on alcohol; and to sell alcohol only in a structurally separated area within retail outlets. The industry body Drinks Ireland describes the Act as "some of the most restrictive measures governing the sale, promotion, price and labelling of alcohol in the world" (Drinks Ireland, n.d.).

The Act signs into law the objective of reducing total population-level consumption of alcohol to a predetermined level (9.1 liters of pure alcohol per person per year). The public health case for the legislation was summed up in the *Steering Group Report on a National Substance Misuse Strategy* (Department of Health 2012). The steering group was chaired by the chief medical officer and its membership included civil servants from affected departments, healthcare and criminal justice professionals, voluntary sector representatives, and two industry bodies. Although the industry bodies were invited to participate in the steering group, they eventually declined to endorse the report, instead producing their own "minority reports" (MEAS 2011; Alcoholic Beverage Federation of Ireland 2012). The steering group declined to append these to the committee's official report; they were instead published separately.

The *Steering Group Report* identified alcohol as a risk factor in a range of harmful outcomes, argued that the government had a crucial role in intervening to prevent problems, and identified "price, availability and marketing" as the key drivers of consumption (Department of Health 2012; Lesch and McCambridge 2021). In doing so, it provided evidence of the need for interventions at an environmental level, which were eventually brought forward in the Bill. In turn, the key focus of the industry lobby's minority reports was to insist upon alcohol *misuse* being identified as the problem. Matthew Lesch and Jim McCambridge, who conducted semi-structured interviews with individuals involved in the policy process, record a steering committee member reporting that the industry representatives "really fought against having *alcohol use* used, always pushing towards *misuse*" (2021, 4; emphasis added). This is also reflected in the minority reports, which cite the group's decision to address *use*—rather than *misuse*—as a key reason for their refusal to endorse the main report. The minority reports, for instance, charge the committee with having "not considered" evidence that the heaviest drinkers were less responsive to price signals (Alcoholic Beverage Federation Ireland 2012). This is despite the fact that the research the minority report cites itself notes that pricing "also affects heavy drinking significantly," although "the magnitude of the effect is smaller than the effect on overall drinking" (Wagenaar, Salois, and Komro 2009, 179).

Unlike in the UK and South African cases, in the Irish case there was apparently little uptake of the industry lobby's attempt to insist on a focus on "misuse." Lesch and McCambridge (2021) attribute the passage of the legislation in large part to the influence of

then health minister and later Prime Minister (Taoiseach) Leo Varadkar, his background as a medical doctor having been a significant factor in his receptivity to the evidence from the public health literature.

2.4 Analysis: Framings of the Object of Policy Intervention

Any full analysis of the causes behind the success or failure of these policy initiatives would be complex; it is possible to view the explanation for the outcome of the policy processes under a range of analytical frameworks. For our purposes, we focus on how the problem to be addressed by policy options is framed. What the cases effectively bring out is that the framing of the object of policy intervention is a major determinant of the process's outcome. Two broad classes of framing can be identified in these cases—these are conveniently captured under the "use vs. misuse" dichotomy that was insisted upon by the alcohol industry lobby in all three cases.

"Alcohol misuse" refers to the idea that "problem alcohol use" captures the drinking habits of only a minority of drinkers, who are viewed as requiring correction or treatment. Examples of this are the way in which industry representatives in Scotland argued against population-level policies by claiming that they were based on faulty assumptions about the behavior of misusers, and lobbyists in the South African case stressed that the problem lies with alcohol abuse. "Alcohol use," meanwhile, refers to all consumption, without applying a prior distinction between "good" and "bad" drinkers. For instance, the *Steering Group Report* in the Irish case named alcohol "*use and* misuse" (Department of Health 2012, 8) as causes of harmful outcomes. Under the first view, the problem that policies should address inheres in particular individuals. Under the second, the problem is alcohol *itself:* corresponding policies will therefore tend to target all consumption.

Significantly, in the above cases, rival camps of policy advocates each take the other to be committing conceptual errors and misusing evidence, not simply citing evidence of low quality. For instance, the Alcoholic Beverage Federation of Ireland notes that it "objected to the fact that the terms of reference [of the public consultation on alcohol policy] referred to the 'harm caused by alcohol'" and suggested that it should instead refer to the "harm caused by 'alcohol misuse'" (2012, 4). The dispute was not the relative priority that should be given to the harm caused by overall alcohol consumption versus the harm caused by misuse, but whether it was correct to attribute harm to consumption, rather than misuse at all. Similarly, lobbyists in the South Africa opposed "untargeted" measures on a priori grounds.

In policy studies using frame theory as an analytic tool, researchers have highlighted the way in which the adoption of certain frames affects the treatment of evidence (for example, Parkhurst, Ettelt, and Hawkins 2018; Parkhurst 2012). In their recent paper, Nick Chater and George Loewenstein (2023) propose a distinction between "i-frame" (Individual) and "s-frame" (System) approaches to societal problems. Under the i-frame, societal problems are seen as issues of individuals and their behaviors. I-frame policy interventions prompt individuals faced with a given situation to behave differently. Under the s-frame, research approaches consider the norms, institutions, and other systemic factors that contribute to the explanation of social phenomena. S-frame interventions substantively change the situation in which agents act, to promote or mitigate those phenomena (for example, through bans, service provision, or material incentives). The misuse/use distinction is closely related to the i-frame/s-frame distinction. A misuse focus is individualizing—it

distinguishes responsible from irresponsible drinkers, framing the object of policy as promoting individual responsibility. A use focus is systemic—it targets the environment in which drinkers act; for instance, through price disincentives.

Chater and Loewenstein (2023, 6–7) argue that the i-frame has become dominant in contemporary policymaking, and this dominance "crowds out" potentially more effective s-frame solutions: framing a societal issue as caused by individuals' problematic behavior takes attention away from systemic solutions. In behavioral science and policy, crowding out is discussed as a motivational phenomenon affecting interest in pursuing policies (Raimi 2021). However, Chater and Loewenstein also note how evidence plays a role: "Without high-quality public debate based on a *shared evidence base,* gaining support for systemic change is likely to be very difficult" (2023, 17; emphasis added). What we suggest is that the lack of a shared evidence base helps to explain disagreements in the three cases reviewed above: the differences in the framings of the problem correspond to disjoint bodies of evidence. The use/misuse conceptualizations that emerge in the policy debate thus do not simply derive from rhetorical elements of frames. Rather, they arise from a genuine disunity between the evidence bases to which discussants working within each frame attend. These disjoint evidence bases are themselves based in distinct conceptualizations and operationalizations in empirical research, as we show in the next section.

3. Conceptualizations of "Problem Alcohol Use" in Empirical Research

While having a beer with lunch or a glass of wine every night may be considered normal in some countries, in other cultures consuming alcohol during the week is not common. Binge drinking is often deemed part of student life, but going on a bender as a 45-year-old professional is seldom thought of as normal. In other words, which entities are labeled problematic—whether behaviors or individual drinkers—is influenced by societal norms, in relation to, for instance, gender and class (Room 2006; John 2018). This context dependency is a difficulty to overcome in empirical alcohol research.

Alcohol use is, of course, not the only contested topic that is studied scientifically. In many research projects, especially in the social sciences and medicine, researchers study phenomena that do not have clear or agreed-upon definitions in either lay parlance or research (Bradburn, Cartwright, and Fuller 2017). For example, phenomena such as "poverty," "aggression," and "implicit attitudes" have complex and context-dependent meanings in everyday usage (see, for example, Bradburn, Cartwright, and Fuller 2017; Longino 2021; Thompson 2022). Collecting data about such phenomena is possible only after conceptual definitions have been fixed and operationalizations developed—that is, after the phenomenon has been defined (Bradburn, Cartwright, and Fuller 2017; Biddle and Kukla 2017; Longino 2021; Thompson 2022). "Assigning criteria of identification" (Longino 2021, 2854) is a critical methodological step in empirical research and influenced by available methods and tools, chosen theoretical frameworks, and the epistemic aims of projects. This step enables determining what individuals, events, and so on will be analyzed as indices of the phenomena of interest. Research projects that on a surface level seem to study the same object can, thus, focus on very different cases and indices, depending on the criteria used for identifying the phenomenon.

How a phenomenon is defined and operationalized is not the only possible point of disagreement between researchers that can lead to divergent bodies of evidence. In addition

to different ways of conceptualizing the phenomenon of interest, there can be multiple approaches to empirically studying its nature and causes. For example, there are several ways of studying "aggression": researchers interested in finding associations between violent crime and different environmental factors and geneticists looking into biological causes of antisocial personality disorder are both studying the causes of aggression but the explanatory frameworks they produce are different (Longino 2013, 2021). This leads to a situation in which different explanations are not best viewed as contributions to a single complete causal explanation of aggressive behavior, but rather as incommensurable sources of information that do not directly challenge one another (Longino 2013).

Evidence production is not a mechanical process but requires a number of decisions that influence what kind of knowledge is eventually produced about the phenomenon (Ylikoski and Kuorikoski 2010; Biddle and Kukla 2017). The variation in how the object of inquiry is operationalized, how variables are categorized, and what experimental setups are used implies that there can be multiple bodies of evidence about a phenomenon. In what follows, we take these theoretical considerations as a starting point for reviewing the epistemic landscape of alcohol research. We show how numerous potentially value-laden decisions are required for producing evidence that can be used to guide policymaking. Developing conceptual definitions is a challenge in research into alcohol use: what constitutes "problem alcohol use" is a contested matter. What events, behaviors, or individuals should researchers take as their unit of analysis when they study "problem alcohol use" and its impacts? We identify two distinct frameworks that are used for studying "problem alcohol use."[4] These frameworks, we show, differ in their conceptualization of their object of study; they also deploy different forms of causal explanation. Because of these differences, the resulting bodies of evidence are disunified and partly incommensurable. This causes tensions, which, we argue, are recapitulated at the policy level, forming the basis of an explanation of the trajectory of policy processes.

3.1 Individualist Framework

The first framework, which we call the *Individualist Framework,* is broadly characterized by conceptualizations of "problem alcohol use" that identify patterns of individual behavior in relation to alcohol as pathologies or deviance requiring intervention. In other words, the phenomenon to be studied is conceptualized *as a condition of an individual* (cf. Longino 2021 on how sexual or aggressive behavior as an object of inquiry is often conceptualized as a characteristic of individuals). This view often takes a binary position: individuals can be classified as belonging to a category or not (Miller and Kurz 1994). A class of people either has the trait of or carries a disposition toward having problems with alcohol whereas others, the normal population, do not.

Within the Individualist Framework, there are different positions concerning the number of conditions or diagnosable diseases related to the use of alcohol. Historically, the most prominent category within the framework has been "alcoholism," which has classically

[4] Our analysis draws on a nonsystematic review of research articles, reviews, reports, and commentaries. We do not intend to claim that we identify all possible frameworks of studying "problem alcohol use." All that is necessary for our purposes is to show that there is a plurality of broad frameworks or clusters of approaches to the study of alcohol-related problems, with their own characteristic questions, methods, and conceptualizations, and that these give rise to disjoint bodies of evidence.

been characterized as a dispositional disease (for example, Saunders, Peacock, and Degenhardt 2018).[5] The generic category "alcoholism" was in clinical and research use in the earlier decades of the twentieth century, and some groups, such as Alcoholics Anonymous, still refer to a unitary disease "alcoholism" or "addiction." However, the current revisions of the American *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) and the World Health Organization's *International Classification of Diseases* (ICD-11) do not include "alcoholism" as a unitary disease category (American Psychiatric Association 2013; WHO 2021). Instead, DSM-5 has one disease category describing pathological use of alcohol, "Alcohol Use Disorder," and ICD-11 has two categories for pathological use of alcohol, "Harmful Use of Alcohol" (which does not include dependence) and the more serious "Alcohol Dependence."[6]

As views about the number of distinct alcohol-related diseases have changed historically, so have the beliefs about the causes of individuals using alcohol in a problematic way. For a long time, problem drinking was seen as a sin or a moral failing—only in the last couple of centuries has the idea that excessive drinking could be a disease become dominant (Levine 1978; Room 1983; Ferentzy 2001). Even though there are currently many approaches to studying the causes of the conditions identified as "problem alcohol use" within the Individualist Framework, the focus is on individual susceptibility, typically related to either biological or psychological factors. A striking example of the former tendency, still in use in treatment programs, though scientifically controversial (Lakeside-Milam Recovery Centers, n.d.), is James Robert Milam and Katherine Ketcham's claim that "physiology … determines whether a drinker will become addicted to alcohol or not" (2021, 7). More recently, identification of genes and neuro-level mechanisms potentially causing alcohol-related diseases has been particularly important. Explaining the prevalence of alcohol use disorder (AUD) and other alcohol-related conditions by referring to genetic causes is common in the literature. For instance, Marc A. Schuckit states that "about 40–60% of the risk of alcohol-use disorders is explained by genes and the rest through gene–environment associations" (2009, 495). According to Jason P. Connor, Paul S. Haber, and Wayne D. Hall, in turn, "50–70% of the risk of alcohol use disorder is attributable to additive genetic factors" (2016, 990).

Several critical scholars have found this shift to viewing excessive use of alcohol as a genetic disease as a form of individualization of the problem (see, for example, Midanik 2004). In particular, social scientists have questioned the research focus on individuals and biological causes. An early example of this criticism was John W. Riley Jr.'s work on problem drinking (Riley 1949). Riley proposed the term "problem drinking" precisely to challenge research concerned only with drinking that "impairs the normal, healthy functioning of the organism qua organism" (Riley 1949, 301). Similarly, Robin Room, one of the most influential alcohol sociologists, criticized individualistically oriented

[5] Alcoholism as an irreversible condition of certain individuals was made prominent by Alcoholics Anonymous, which over the course of the twentieth century was a key driver of the propagation of the so-called disease concept of alcoholism (Room 1993).

[6] What is noteworthy is that because of the differences in the criteria, an individual could be included in the category of having a problem with alcohol in one system and not in the other. For example, both DSM-5 Alcohol Use Disorder and ICD-11 Harmful Use of Alcohol take into consideration the effects of drinking on others. However, ICD-11 requires that direct *harm to physical or psychological health* of others has been done, while DSM-5 includes drinking that *interferes with taking care of one's home or family,* or *causes trouble with family or friends or causes school or job trouble.* Because of space limitations, we cannot discuss this issue here in more detail.

researchers for treating problem drinking as a "platonic entity," rather than "a social creation of different times and situations" (Room 1983, 49). These scholars argue that the phenomenon of "problem alcohol use" cannot be properly understood if an individual's behavior is decontextualized: problems related to drinking come into existence as a result of factors related to the relationship between individuals or groups, alcohol, and the cultural and social context, not because of some property or disposition of certain individuals (Room 1983; Beccaria and Prina 2016). The focus is shifted from individuals and their properties to interactive behavior (cf. Longino 2021).

3.2 Public Health Framework

The Individualist Framework conceptualizes "problem alcohol use" as located in the makeup of pathological or deviant individuals and explainable by individual susceptibility and largely by biological causes. This can be contrasted against how it is conceptualized and studied in what we call the *Public Health Framework*. In this framework, researchers focus on *consumption that exceeds certain daily or weekly limits,* or as certain patterns of consumption, regardless of whether the individual satisfies the diagnostic criteria for any alcohol-related disease, or whether any of their behavior is labeled problematic in the social context (cf. MacGregor 2016; Saunders, Peacock, and Degenhardt 2018).

Methodologically, the Public Health Framework is characterized by epidemiological approaches, which focus on possible causes and effects of alcohol use at population level (Rossow and Norström 2013). These approaches classically address the epidemiologic triad (see, for example, Li and Baker 2012). According to this model, harmful outcomes are constituted by a relationship between the host, the causative agent, and the environment. Of particular interest for researchers in alcohol epidemiology is "the relationship between levels of long-term exposure, over several or many years, to the toxic effects of alcohol and the risk of a variety of illnesses" (WHO 2000, 95). Researchers study, for example, the relationship between consumption levels and the incidence of liver cirrhosis or cardiovascular disease. Researchers also examine the relationship between consumption and traffic injuries, or particular harmful social outcomes that are not considered disease entities, such as crime, family problems, work problems, and so on (Room 1993; Rossow and Norström 2013). Data for studying these associations can be collected from population surveys or on the basis of national alcohol sales, as well as from mortality, health, crime, and accident statistics (WHO 2000). It is worth noting that the diagnostic categories originating from the Individualist Framework are relevant for researchers in this framework too. For instance, public health scholars study the prevalence of AUD in a given population and how that is associated with total consumption of alcohol or patterns of consumption. According to what is called the total consumption model, the number of "heavy drinkers" is connected to the total consumption at the population level (Rossow and Norström 2013).

Within the Public Health Framework, then, alcohol-related harms such as social problems and dependence are treated not as the highly individualized concerns of specific subjects but as responses to the extent of exposure to the causative agent—alcohol—across the population. One of the central tenets that can be found in this framework is that there is no clear limit for safe drinking (Griswold et al. 2018). For instance, according to a study by Adam Sherk et al. (2020), drinking according to low-risk drinking guidelines (drinking that would not warrant a diagnosis according to the existing diagnostic criteria) was

associated with increased hospital stays when compared against not drinking at all. Moreover, there is "no clear demarcation between heavy drinkers (or alcoholics) and other drinkers; thus, alcohol-related problems exist in various degrees of severity throughout the entire population" (Rossow and Norström 2013, 21).

3.3 Analysis: Conceptual and Explanatory Frameworks in Alcohol Research

Research on "problem alcohol use" and alcohol-related harms is characterized by a plurality of conceptualizations of the object of study. In the Individualist Framework, "problem alcohol use" is conceptualized as a trait of certain individuals. Individuals who have been for example, diagnosed with AUD, Alcohol Dependence, or Harmful Pattern of Alcohol Use, or self-identify as alcoholics, are studied as indices of the phenomena of interest. In the Public Health Framework, meanwhile, all alcohol use, irrespective of the characteristics of the individual doing the drinking, is potentially "problem alcohol use." Researchers then study how levels or patterns of consumption are associated with harmful outcomes at the population level.

In addition to how the object of inquiry is conceptualized, the frameworks differ in what kind of causal explanations for "problem alcohol use" they provide: The Individualist Framework typically results in individual-level (especially genetic) explanations (for example, Schuckit 2009; Connor, Haber, and Hall 2016). The Public Health Framework, in turn, looks for the causes of alcohol-related harm by focusing on total consumption and the distribution of consumption in a population, or investigating associations between alcohol-related harm and different population or system-level factors. Even when public health scholars are interested in AUD or other alcohol-related diagnoses, they typically study the distribution and prevalence these diagnoses in certain populations and how they are associated with availability, total consumption, or other systemic factors (instead of, say, genetic factors).

The difference in these explanatory strategies reflects the distinction that Geoffrey Rose (1985) made between two types of approach to the study of health and disease, one focusing on "causes of cases" and the other on "causes of incidence" (see Valles 2021; Fuller 2022; and Jukola 2024 for examples of previous philosophical discussions of Rose's account). As Sean A. Valles (2021) and Jonathan Fuller (2022) have argued, the distinction Rose makes between the different approaches to studying health and disease can be understood as a difference between answering different kinds of questions and offering two types of contrastive explanations: one having a focus on population characteristics and the other on the characteristics of affected individuals.[7] On the one hand, researchers can be interested in why some individuals become diseased while others remain healthy. For example, are individuals who are diagnosed with AUD more likely to have a particular genotype? On the other hand, researchers can ask what makes a negative health outcome more common in a certain population than in another. This question directs them to identify factors that act "on the population as a whole" (Rose 1985, 34): For example, one of the outcomes of

[7] As Fuller explicates, another way of understanding the distinction made by Rose is to take it as "an empirical statement about the kinds of worldly factors that cause the cases versus the incidence" (2022, 240). According to Fuller, this interpretation is problematic, especially in the context of epidemiology of infectious diseases where distinct approaches do not always refer to different cases. For example, in an epidemic, the causes of cases and causes of incidence, when taken literally, are not entirely different because "the incidence aggregates over cases," that is, the causes of cases are also causes of incidence (Fuller 2022, 245).

research conducted within the Public Health Framework is that the risk of disease outcomes is increased by alcohol consumption at the population level, even if individuals did not drink heavily.

The purpose of our review of the conceptual and epistemic landscape of alcohol research is not to argue for the empirical superiority of one of the frameworks, or to criticize the studies conducted in either of them. Instead, we claim that both frameworks aim to answer conceptually and pragmatically distinct questions. The different conceptualizations of the object of inquiry, as well as differences of explanation for the phenomena under investigation, give rise to distinct bodies of evidence concerning the nature and causes of the phenomenon of "problem alcohol use." Yet both frameworks produce empirically adequate knowledge and evidence about "problem alcohol use."

If this position is accepted, the diversity of conceptualizations and explanations may seem innocuous at first: It is, of course, not surprising that researchers with different epistemic goals and tools available to them generate different kinds of knowledge (for example, Ylikoski and Kuorikoski 2012; Longino 2013). However, the differences between the frameworks create tensions when evidence is needed for judging how best to intervene on "problem alcohol use." Given that the Individualist Framework, and the causes of cases approach that it supports, focuses on causes that distinguish between healthy and unhealthy individuals, the interventions that the approach suggests tend to be individual level. For instance, according to Lorraine T. Midanik (2004), individual-centered research and a focus on biological etiology directs attention toward pharmaceutical interventions.

In comparison, the Public Health Framework, and the causes of incidence approach in it supports, produces knowledge about factors that explain population-level differences in outcomes, which motivates population- or system-level interventions, such as taxation and restrictions on sale. In particular, studies on the so-called prevention paradox support such systemic measures: Although the most severe forms of alcohol-related ill-health tend to be caused by heavy drinking, moderate drinking can also have a moderate negative impact on health. Because the number of moderate drinkers is large, interventions that produce even relatively small reductions in consumption at an individual level can produce considerable aggregate benefits at a population level (for example, Rossow and Norström 2013; see John 2014 for a normative analysis of tensions related to choosing between high-risk and population strategies).

We can see how actors in the cases described here invoked distinct bodies of evidence. A strong commitment to the Public Health Framework can be found on the part of government ministers in the Irish debate. The recognition of the evidence of public health scholarship is clearly signaled by frequent use of the slogan "no ordinary commodity/ product" in accompanying government communications, alluding to the influential Babor study (Babor et al. 2010). This stands in contrast to the British and South African cases, both of which were redirected to a focus on individual "misuse," either in the context of criminality, or in the context of specific alcohol-related diagnoses (for example, fetal alcohol syndrome).

4. Responding to Conceptual and Explanatory Tensions

One view of the policy discourse on alcohol would be that it is merely a dispute between two evaluative positions, one that claims public health should weigh most heavily, and another

that claims the interests of individuals in enjoying the freedom to drink in a liberal society should weigh most heavily. What we argue is that this purely evaluative description of the disagreement is exacerbated by epistemic failures, brought out in the cases discussed in section 2. Policymakers draw from disjoint evidence bases to defend their positions. Thus, the characterization of the discourse either as a disagreement about the interpretation of the evidence or as merely about political priorities is incomplete: There is no shared evidence base for evaluating policy proposals. This reflects differences between the research frameworks, with different frameworks presupposing distinct, partially overlapping conceptualizations of "problem alcohol use" and different understandings of its possible causes. Research under the Individualist Framework treats alcohol problems as centered around pathological or deviant behavior or physiology, and tends to employ biomedical etiological explanations. It thus offers direct support to the conceptualization of alcohol as a problem of "misuse" that was identified in the policy literature in section 2. Research under the Public Health Framework offers direct support for "alcohol use" as a conceptualization of the object of intervention in public policy, given that the public health framework consists of epidemiological approaches that study alcohol as a noxious agent harmful to all users.

As noted in section 2, evaluation of policy options on the basis of a shared evidence base is an important precondition for the success of s-frame policy solutions such as higher taxation. This, we argue, contributes to the explanation of why i-frame policy solutions—for example, information campaigns aimed at encouraging responsible drinking behavior—"crowd out" s-frame solutions like MUP: The evidence derived from the Individualist Framework is highlighted (especially by interested lobbyists), and because the evidence bases are disjoint, and plurality is not acknowledged, full consideration of evidence from the Public Health Framework becomes less likely, as it comes to be regarded as irrelevant.

If we are correct that the phenomenon whereby individually focused policy interventions "crowd out" consideration of population-level interventions is partially caused by there being more than one body of evidence that can be invoked in debates, we are left with the question of what the appropriate response would look like. As Justin O. Parkhurst and Sudeepa Abeysinghe (2016, 675) have argued (in the context of their critique of the overemphasis of evidence from randomized controlled trials in policymaking), to adequately respond to a plurality of evidence derived from a range of approaches, policymakers should consider the following questions: "What are the policy concerns at hand (and is the evidence selected the most useful to address the multiple policy concerns at hand)" and "Do we have reason to believe that the evidence is applicable to our local policy context?". Similar conclusions arguably apply in response to the tensions in public policy on alcohol: Policymakers need to be mindful of the potential for individualist approaches to dominate approaches that may be at least as appropriate, or perhaps more appropriate, in the given context.

This call for greater openness to evidence from other scientific approaches can also be motivated via appeal to the response to incommensurability in the context of pluralism advocated by Helen Longino—she discusses both explanatory pluralism (Longino 2013) and broader notions of pluralism, including concerning the identification of objects of study (Longino 2021). According to Longino, the plurality of approaches and partial nature of each corresponding body of knowledge is not adequately acknowledged because "monism exists as a default assumption" (Longino 2013, 138): We assume a single "complete and

comprehensive account" of the phenomenon under study is or will become available. It is the assumption that a research domain is best characterized by monism that gives rise to epistemological problems, rather than differences of interpretation or explanation in themselves. Researchers and decision-makers with monist inclinations, the thought is, cite the evidence of their favored approach in the misguided belief that it undermines truth claims derived from other approaches (Longino 2013). This is a kind of epistemological error, as the option of multiple partial explanations coexisting remains available.

In the case of research on "problem alcohol use," the two frameworks would not have to be considered rivals, as they focus on questions at different levels (cf. Fuller 2022). The Individualist Framework can produce knowledge that helps to understand the causes of an individual's excessive use of alcohol (to be applied, for example, in the clinical context), while the Public Health Framework illuminates the causes of the incidence of alcohol problems in a population. Nevertheless, they are *taken as competitive* when evidence is required for guiding practical decision-making. This explains why the foregrounding of evidence from individual-level approaches can cause evidence from population-level approaches to be treated as irrelevant.

Longino's view suggests that policymaking in the context of a plurality of prima facie incommensurable or partly incommensurable approaches ought to guard itself against a false picture of the relationship between science and policy, one that "separates [supposed] pure knowledge from its application" (Longino 2013, 149). In the assessment of evidence, in the transition from research to the design and implementation of interventions, "practical problems and their associated constraints" should "shape the criteria involved in the evaluation of research results." Policy tensions with respect to alcohol control that we have identified can be used to motivate a more developed account of how these calls for a more unified picture of knowledge and its application might work in practice.

There have already been calls for "good governance" of the use of evidence in response to the realization that, however high its quality, evidence cannot dictate policy, given it does not itself determine political priorities (Hawkins and Parkhurst 2015). The present discussion provides further motivation for this claim, given that the selection of bodies of evidence can create feedback loops, which push those processes further in a particular direction (cf. Chater and Loewenstein 2023). Benjamin Hawkins and Justin O. Parkhurst (2015) suggest principles of appropriateness, accountability, transparency, and contestability *to and by those governed* for the good governance of evidence use in public policy. These respond to a shortcoming in the evidence-based policymaking literature, according to which scholars have tended to neglect the political dimension of evidence misuse, by focusing on measures to improve the fidelity of translation of evidence from research to policy (see, for example, Nutley, Walter, and Davies 2007). These, Hawkins and Parkhurst note, are ineffective when policymakers and research communities have different values-based priorities. Their solution: governance structures that improve the democratic responsiveness of policy processes.

These proposals, while commendable, arguably do not go far enough in engaging with political obstacles to the appropriate use of evidence. They rely on external actors (democratic publics) to monitor and correct policy processes. Transparency, for instance, did little to help in the UK case above, in which the government was quite open about which

bodies of evidence it selected as relevant and which it excluded.[8] Though we echo the call for better governance of evidence use, our argument implies the need for governance structures that allow evidence-review processes to self-correct and are internal to the processes themselves. While Hawkins and Parkhurst (2015) highlight the tendency for epistemic arguments to be instrumentalized in the service of political agendas, thus calling for more political contestation of evidence reviews, we point to a tendency for the use of evidence to reinforce existing tendencies against certain interventions, whether motivated by a political agenda or not, meaning scientific as well as political contestation is what is needed for course correction.

If we take seriously Hawkins and Parkhurst's insistence on the inescapably political character of the processes through which bodies of evidence are assessed for relevance, the role of experts cannot be relegated to evidence production. Governance of evidence use requires expert oversight of the selection of bodies of evidence, to guard against the deployment of faulty epistemic reasoning in pursuit of political agendas. This view is supported via the cases we reviewed; in particular, in the Irish case, a significant factor in the successful transition of public health priorities from research to legislation was the role of individuals who combined expert advisory and political functions, most notably the physician and chief medical officer of Ireland, Tony Holohan, who was able to adjudicate on questions of relevance before the results of evidence review were passed up the chain (Lesch and McCambridge 2021).

Importantly, increasing expert oversight of policy means more than simply placing people who support public health policies in places of greater influence (as this would just privilege certain political priorities in a democratically illegitimate way). Governance must provide a check against evidential "crowding out" by providing platforms for scientific deliberation and oversight from a plurality of research perspectives at a high institutional level, with the aim of mitigating factors that "corrupt" the evidence base (Chater and Loewenstein 2023), including the influence of commercial interests. When, as Hawkins and Parkhurst (2015) observe, relevant evidence is dismissed ostensibly on the grounds of quality, it is not enough to rely on democratic oversight to correct these processes, precisely because considerations of evidentiary appropriateness and quality are matters involving scientific expertise.

5. Conclusions

We have argued that the plurality of understandings of what constitutes "problem alcohol use" and the availability of more than one body of evidence contributes to the disagreements on which alcohol policy interventions should be implemented. As policy studies scholars have previously argued, different framings of the problem to be solved can be used for promoting or blocking policy initiatives. Our analysis shows how a plurality of available bodies of evidence can also be utilized in debates. In particular, the lack of "a shared evidence base" (Chater and Loewenstein 2023, 17) has made it possible for the opponents of systemic interventions to question the relevance of evidence demonstrating the effectiveness of policies such as MUP. The phenomenon of "crowding out" systemic interventions is constituted, at least in part, by a disunity between bodies of evidence

[8] We thank an anonymous reviewer for this point, raised against an earlier version of our argument.

derived from Individualist Framework approaches, on the one hand, and Public Health Framework approaches, on the other. This disunity gives rise to the perception on the part of political actors involved in the assessment of evidence that such evidence is incompatible, and thus one body of evidence ought to be dismissed. We suggest a greater awareness of this disunity is needed in evidence-review processes, which should be realized institutionally through a more prominent oversight role for a broad range of scientific experts in a steering capacity.

This paper establishes a connection between four sets of related dichotomies. These dichotomies apply at different levels of analysis. The misuse/use distinction is a distinction between ways of conceptualizing "problem alcohol use" in policy. The "Individualist/Public Health Framework" distinction is between approaches to the study of "problem alcohol use" in scientific practice. "Causes of cases/causes of incidence" (Rose 1985) is a distinction between kinds of explanation. Finally, the "i-frame/s-frame" distinction is between types of policy intervention (Chater and Loewenstein 2023). The first disjuncts in each pair have an affinity with one another, and the second disjuncts likewise, so that they tend to be deployed together but this is a rule of thumb, rather than a logical implication. It is possible, for instance, that a policymaker could conceptualize the problem as one of misuse and nevertheless advocate for an "s-frame" intervention, but as we have seen, structural tendencies render this unlikely.

Alcohol research and policy have thus far been understudied topics in the philosophy of science, despite their considerable social relevance. Our aim here is to begin filling this gap in research. Yet there remain many questions that philosophers could help to solve. For instance, a more detailed analysis of the epistemic landscape of alcohol research would be useful to explicate what kind of knowledge different approaches to studying "problem alcohol use" produce. What kind of questions do researchers address when they study "problem alcohol use"? What kind of methods do they use for delivering answers to these questions? What do they recognize as possible causal factors at play? What is considered good evidence for making claims? Values-in-science literature (for example, Longino 2013; Biddle and Kukla 2017) could be used to pinpoint how value-laden assumptions influence research. Evaluating the dynamic nature of alcohol-related diagnoses in the DSM-5 and ICD-11 would be a valuable avenue of research in the philosophy of medicine. If, for example, the application of diagnostic criteria to similar behaviors varies with cultural context, this may have implications for the validity of those very criteria. This paper is thus intended as a contribution to a wider research program, of interest not only to philosophers of science and medicine but also to policymakers and to medical and scientific practitioners.

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