



# Limiting Access to Certain Anonymous Information: From the Group Right to Privacy to the Principle of Protecting the Vulnerable

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## Abstract

An issue about the privacy of the clustered groups designed by algorithms arises when attempts are made to access certain pieces of information about those groups that would likely be used to harm them. Therefore, limitations must be imposed regarding accessing such information about clustered groups. In the discourse on group privacy, it is argued that the right to privacy of such groups should be recognised to respect group privacy, protecting clustered groups against discrimination. According to this viewpoint, this right places a duty on others, for example, private companies, institutions, and governments, to refrain from accessing such information. To defend the idea that the right to privacy should be recognised for clustered groups, at least two requirements must be satisfied. First, clustered group privacy must be conceived of as either a collective good or a participatory good. Since these forms of good are of the type from which no member of a group can be excluded from benefiting, the right to them is defined as a group right. Second, there must be group interests on which to base a group right. Group interests can be either the interests of those members that are a result of their being in the group or the interests of the group as a whole that transcend the interests of its members. However, this paper argues that clustered group privacy cannot be conceived of as either a collective or a participatory good because it is possible for some individuals to be excluded from benefiting from it. Furthermore, due to the lack of awareness among individuals that they are members of a clustered group and the nature of a clustered group itself, such groups cannot have the group interests necessary to establish a group right. Hence, the group right to privacy cannot be recognised for these groups, implying that the group right cannot be considered a means to protect clustered groups against discrimination. Instead, this paper suggests that moral principles need to be articulated within an ethics of vulnerability to identify the moral obligations of protecting vulnerable clustered groups. The duty owed to the vulnerable should involve refraining from accessing certain information about clustered groups in specific contexts. This duty is not engendered by the right to privacy of

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such groups; it is the duty owed to the vulnerable. The findings highlight the need to articulate moral principles regarding privacy and data protection to protect clustered groups in contexts in which accessing information about them could constitute a reason for discriminatory targeting.

**Keywords** Clustered Groups · Collective right to privacy · Corporate right to privacy · Group Privacy · Principle of protecting the vulnerable

## 1 Introduction

By harnessing the potential of big data analytics and data-driven technologies, specifically machine-learning (ML) algorithms, these technologies stand at the forefront of computing advancements [1]. Such technologies process and analyse large quantities of data<sup>1</sup> based on patterns and group profiles to uncover new patterns or structures and/or to confirm suspected correlations within datasets [2]. Automated forms of data analytics, such as ML, have the potential to impact how groups are identified and perceived, enabling the design of new groups without predefined parameters or attributes [3]. Through data analytics, individuals are grouped based on the similarity of attributes, such as age, gender, and purchasing behaviour, and possible correlations can be explored. However, individuals grouped together based on certain similar attributes may not be aware they are being bound by these similarities.

The results of data analysis are often used to inform policies, target specific groups, and make decisions that may pose risks to a group. The types of actions and interventions analyses facilitate are not aimed at individuals. Instead, these actions and interventions focus on groups with some interesting property or ‘type’ (of customers, dog lovers, skiers, ...) to which the individual (a ‘token’, e.g., Alice, you, ...) now belongs. Therefore, data analytical technologies are designed to operate on the broadest possible scale, in which the individual is often incidental to the analysis [2].

Big data analytics technologies—ML algorithms in particular—are directed at the group level and are used to formulate types, not tokens, challenging the foundations of most current ethical theories, particularly concerning privacy. Privacy has traditionally been regarded on an individual level; however, the increasing use of these technologies forces us to ask questions about privacy on a group level [4]. According to this point of view, the concept of privacy needs to be reshaped to help us think about the privacy of groups.

For a clearer understanding of the issue concerning group privacy, consider the following case:

A research proposal aims to uncover correlations between purchasing behaviour and highly sensitive attributes, particularly sexual orientation,<sup>2</sup> using cluster techniques as part of ML tasks. To achieve this, a dataset containing over 60,000 records that pertain to information about individuals, who are henceforth referred to as ‘data sources’, as recommended by Henschke [6], who provide information on individuals’

<sup>1</sup> It is important to note that ‘data’ and ‘information’ are used interchangeably in this research.

<sup>2</sup> This research was conducted by Kosinski et al. [5] on social networking sites.

purchasing behaviour, detailed demographic profiles, and self-reported sexual orientation. By applying clustering techniques to the dataset, distinct groups of individuals based on similarities in purchasing behaviour are identified, henceforth referred to as ‘clustered groups’. Once these clustered groups are identified, the research explores any correlations or associations between purchasing behaviour and sexual orientation in the identified groups. The analysis reveals that 88% of the members in a clustered group exhibiting specific purchase behaviour are thought to be homosexual and/or engage in some same-sex activity. By employing reliable generalisation techniques, the information obtained from the few data sources is generalised to a broader population; the derived result indicates that 88% of the population exhibiting specific purchase behaviour are homosexual.<sup>3</sup>

Now, consider a totalitarian government characterised by intolerance towards homosexuals. This government formulates a policy that explicitly targets this particular group based on their purchasing behaviour. The policy aims to impose disadvantages or deprivations on the group. These disadvantages manifest through the denial of education opportunities or employment that others enjoy in society. Importantly, these unfair disadvantages are directed towards groups of people with (an assumed) specific sexual orientation. Thus, discrimination occurs against the group rather than targeting a specific individual within the group. Accessing information obtained at the group level enables the government to formulate a discriminatory policy.<sup>4</sup>

Almost all privacy scholars who address the concern of clustered group privacy (e.g., Floridi [4, 11], Mantelero [12] and van der Sloot [13]) claim that the right to privacy for such groups should be recognised. This right holds others (e.g., researchers, data handlers, or governments) under a duty to refrain from accessing specific pieces

<sup>3</sup> I am not discussing a case in which data handlers use the information obtained at the group level to infer information about an identified individual (e.g., Anna is a homosexual because of the similarity of her purchase habits with the clustered group). For more information about whether and how putting a person in a group because their information provided is similar to others, and accordingly making inferences about an individual whose data were not used in the training dataset, violates the privacy of that individual, see Mühlhoff [1] and Munch [7]. Additionally, I am not discussing cases in which undisclosed attributes of a user are inferred based on the disclosed attributes of the user’s friends on social networking sites. In this regard, I do not discuss ‘Networked Privacy’ [8], which implies that the privacy of a user on a social network site is connected to others. However, I focus on cases in which inferences are not drawn based on confirmed relationships existing among members of a group but, rather, on the absence of ties among members of a particular group.

<sup>4</sup> My claim is that accessing certain information about a clustered group poses a threat to the privacy of the group. However, it is worth noting that there are other potential harms that extend beyond the scope of this paper. These harms may arise from the design of clustered groups through analysing aggregated anonymous information or the generalisation of information from a few individuals to an entire population. If data handlers or researchers have a duty to refrain from designing or generalising information, it must be considered part of their epistemic duties, including duties against stereotyping [9]. Another concern might arise from publicising the information conveyed by ML models. Making information obtained at the group level public facilitates access to that information, which could constitute a reason for an agent to act in morally objectionable ways to harm the group. However, it is not always necessary for information about a group to be public to raise concerns about privacy. There are cases in which private companies develop models and internally use the generated information, as exemplified by Lippert-Rasmussen and Aastrup Munch [10], to discriminate against specific groups. Therefore, I argue that the concern for group privacy arises when corporations, institutions, or private companies access information at the group level without necessarily making it public.

of information about a clustered group.<sup>5</sup> Floridi [11], who first raised the concept of group privacy in relation to big data analytics technologies, argues the (clustered) group right to privacy is irreducible to the right to privacy of the individuals who comprise that group. This idea is grounded in the practical reality that, even if the privacy of each individual in a group can be protected, the privacy of the group may be violated. For example, the privacy of individuals who comprise a clustered group might be protected using anonymisation techniques but access to certain pieces of anonymous information at the group level is still possible, which will be likely to be used to harm that group, raising concerns about the privacy of the group.

Nonetheless, the major challenge that proponents of the group right to privacy face is how to conceive of the holder of a group right to privacy. According to Floridi [4], the group right to privacy is a right held by a group as a whole rather than by its members collectively. However, an alternative perspective conceives of the group right to privacy as a right held jointly by members of a group [14].<sup>6</sup>

One way to address the aforementioned issue is to focus on the nature of clustered group privacy. The nature of the good, which is the object of a right, determines who or which entity is a holder of the right. Drawing on the insights of Raz ( [15], see Sect. 4.1), only if clustered group privacy were a collective good could members of a clustered group collectively hold a right to privacy. On the other hand, in light of Réaume's [16] view (see Sect. 4.2), only if clustered group privacy were a participatory good could a clustered group as a whole have a right to privacy.

Moreover, an interest that grounds a right determines who or which entity can claim that interest to be respected. Based on insights drawn from Raz's [15] viewpoint (see Sect. 5.1), members of a clustered group could collectively claim a right to privacy to protect the interests aggregated among them. However, in light of Newman's [17] perspective (see Sect. 5.2),<sup>7</sup> a clustered group as a whole could claim a right to protect its non-aggregative interests, independent of the interests of the members.

In this paper, I argue against the predominant approach in group privacy discourse, which emphasises recognising the right to privacy for clustered groups. First, I argue

<sup>5</sup> Although there is no consensus among proponents of the group right to privacy regarding defining such a right, Floridi [4] and Mantelero [12], for example, argue it is necessary to respect the right to privacy of a clustered group to prevent discrimination against that group. It follows that it is the violation of the clustered group right to privacy that provides a government, in the particular case explained above, or data handlers (in general) with certain pieces of anonymous information about that group. Such information would then likely be used in decision-making processes that target groups in discriminatory or harmful manners. Accordingly, I assume that proponents of the group right to privacy describe this right as a right to limit access to anonymous information acquired about a clustered group that could provide others with reasons to harm the group. If there were a right to privacy in terms of a right to limit access to certain information about a clustered group, it would place a duty on a government, data handlers, or any other agent to refrain from accessing certain information.

<sup>6</sup> Floridi [4] and Mantelero [12] defend the corporate approach to the group right to privacy, although Floridi does not explicitly refer to this term; instead, he uses the term 'strong' to describe his approach. On the other hand, Puri [14] draws attention to the collective approach to the group right to privacy. I demonstrate that neither approach can be applied to describe a clustered group right to privacy (see Sect. 6).

<sup>7</sup> It should be noted that Newman advocates for the corporate approach to group rights, yet in Newman [17], he uses the term 'collective' to describe group rights. To maintain consistency with the text, I use the term 'corporate' to describe Newman's theory.

that the privacy of a clustered group cannot be considered either a collective or a participatory good (see Sect. 6.1). Second, I argue that neither members of a clustered group nor the clustered group itself can have an interest that can ground a group right (see Sect. 6.2). Finally, I conclude that a clustered group cannot have a right to privacy, as the group right to privacy cannot be held either collectively by members of a clustered group or by a clustered group as a whole.

Instead of recognising the right to privacy for clustered groups, I suggest taking a moral principle for the moral obligation of protecting vulnerable clustered groups within an ethics of vulnerability. Accessing certain information about clustered groups that causes, threatens to cause, or is likely to cause harm to those groups makes them vulnerable. Thus, the duty to respect clustered group privacy is engendered by the principle of protecting the vulnerable, not the group right (see Sect. 7).

To conclude, although new and advanced technologies raise unprecedented concerns about group privacy, this does not necessarily imply that the right to privacy of such groups is at risk, since such a right is not primarily defensible for these groups. As a result, the privacy of a group and the group right to privacy should be regarded as distinct concepts and not be conflated.

The research findings have both theoretical and practical implications. From a theoretical perspective, a comprehensive argument is lacking in the literature on group privacy to demonstrate that the recognition of the right to privacy for clustered groups is implausible. From a practical perspective, the findings highlight the need to consider clustered group privacy and moral principles to protect the vulnerable in the context of privacy and data protection. Moreover, the findings are of practical interest due to the suggestion of the need to develop techniques to protect group privacy, such as encrypting the general patterns uncovered by ML algorithms, thereby restricting access to information about clustered groups.

In the following sections, I explore the argument demonstrating that a clustered group cannot have a right to privacy in greater depth. In Sect. 2, I provide an outline of what I consider group privacy, its realm, and the approach to it. In Sect. 3, I explain both the corporate and collective approaches to group rights. In Sects. 4 and 5, I outline the assumptions and requirements for qualifying as a right-holder under each approach concerning the nature of the good as the object of a right and the interest that grounds a right. In Sect. 6, I critically evaluate whether a clustered group satisfies the identified requirements for holding the right to privacy. In Sect. 7, I present my suggestion for respecting clustered group privacy. Finally, in Sect. 8, I address a potential objection that might argue that the invasion of group privacy is justified due to the beneficial results achieved in promoting public health.

## 2 Group Privacy

Floridi [4] discusses the recognition of the right to privacy for groups designed by algorithms—a right ascribed to groups as a whole. As Floridi [4] notes, the group right to privacy differs from the existing rights in the fields of privacy and data protection in that it is not reducible to the privacy of the individuals who form such groups. As Floridi [4] argues, opening anonymised data to public use in cases in

which groups of people may still be easily identified and (discriminatorily) targeted increases the risk of violating the right to privacy of groups as a whole.

Floridi's [4] theory has two parts—which have received attention from privacy scholars who defend group privacy, such as Taylor [18], Mühlhoff [1], and Mantelero [12]—the realm of group privacy and the approach to it. Regarding the former, Taylor [18], like Floridi [4], argues that the realm of privacy must be expanded to include anonymous information pertaining to a group with which a group can be identified and targeted. Accordingly, a new concept of privacy (i.e., group privacy) must be developed to protect this kind of information. Anonymising personal information involves the process of removing personal identifiers [19] or eliminating the link between data and a specific person [20], thus turning personal into anonymised information.<sup>8</sup> Concurrently, information pertaining to a group can be translated as information that is not necessarily related to each individual member of the group but to the group as a whole. For example, a pile of books can have the property of 'being too heavy to be moved by a single person, despite the fact that each book in it is reasonably small and light' [4, p. 89]. Thus, the group, a pile of books, has a property (being heavy) that is not reduced to the properties of its members.<sup>9</sup> Therefore, an accumulation of individual rights to privacy would not protect the information pertaining to a group, as there are no concerns about individual privacy. In this sense, group privacy must transcend the collection of the right to privacy of the members who form that group [2].

Recall the case in Sect. 1. Consider that, after collecting information, the researcher removes the identities associated with the information in a dataset for the analysis to proceed. The information discovered from the processing of anonymous information relates to the purchase behaviour of the clustered group as a whole; that behaviour is not necessarily related to each individual member of the group. Accessing this information, which might be used in discriminatory ways to harm the group, raises concerns about the privacy of the group. In this case, the nature of the information does not fall within the scope of the individual right to privacy; the scope of the individual right to privacy is, by nature, limited to personal information [24]. Rather, the information falls within the realm of group privacy.

<sup>8</sup> Since my focus is on whether the privacy of a clustered group is violated when anonymised information is accessed by an agent, I do not discuss the issues of re-identification or de-anonymisation, which involve linking an anonymised dataset with a separate dataset containing identifying information (for more information on this matter, see Barocas and Nissenbaum [20]; and Ohm [21]). I argue that, if the information uniquely identifies a person, then individual privacy is at risk due to the personal nature of the information. In other words, if no effort is made to identify an individual, then accessing anonymised information would not violate the individual right to privacy. Therefore, my concern lies in accessing anonymised information by an agent, without exploring the discussion of re-identification, which can be addressed within the scope of the individual right to privacy.

<sup>9</sup> Although the relationship between group privacy and individual privacy is not explicitly clarified in the theories of those who defend group privacy, I assert that, based on their approach to the concept, such a relationship is one form of dependence. In this sense, group privacy is an emergent property without being reduced to its base property (i.e., individual privacy). Although a discussion on different forms of dependence relationships, such as ontological dependence [22] or functional realisation [23], merits consideration, it goes beyond the scope of this paper.

Hence, establishing an account of group privacy is at least negatively useful in that it is not useful to reduce group privacy to individual privacy, just as it is not feasible to reduce special sciences to physics; reducibility to physics is regarded as a constraint on the acceptability of theories in special sciences [25, p. 97]. Analogously, reducing group privacy to individual privacy prevents acknowledging the significance of protecting certain kinds of information, namely anonymous information that pertains to groups.

Regarding the approach to group privacy, proponents of group privacy take the consequentialist approach, as echoed in Floridi's [4], Mühlhoff's [1], and Mantelero's [12] works. Mühlhoff [1] argues that the unfair and harmful use of information discovered using modern analytics, which leads to adverse decisions that affect the social situation, well-being, or welfare of groups, raises concerns about the privacy of groups. According to Mantelero [12], group privacy is the right to limit the potential harm to the group itself that can derive from invasive and discriminatory data-processing. Since a group as a whole is targeted by discriminatory practices or policies [26], its privacy is at risk. Thus, a right to privacy of a group should be respected to protect it against discrimination.

Drawing on the insights of Munch [7], who develops the consequentialist approach to the right to privacy, accessing specific pieces of information about an entity (A) that could provide B with information that enables B to act *subsequently* in ways that would likely harm A in morally relevant ways violates A's privacy. As Munch emphasises [7], 'violating A's privacy could provide B (or others) with information that enables him (or them) to subsequently act in ways likely to render A worse off in morally relevant dimensions' [7, p. 3786]. Accordingly, the right to privacy, as a right to limit access to certain pieces of information, functions as a means to protect A against discrimination.

Correspondingly, A's (instrumental) interest in privacy (in terms of restricted access) justifies holding others under the duty to protect that interest—the duty to refrain from accessing specific pieces of information that could be used to harm them (more information on the relationship between right, duty, and interests is provided in Sect. 3). As a right-holder, A might make a justifiable claim against a duty-bearer, such as a data-handler B, not to gain access to those particular pieces of A's information that are more likely to contribute to B forming a belief about A, which could motivate B to perform certain harmful acts against A.

I agree with Floridi [4] that attempts to acquire certain pieces of information about a clustered group harm the group's privacy, as these pieces of information are likely to be used in certain objectionable ways to harm the group. Like defenders of group privacy, whose theories are explained in this section, I take the consequentialist approach to privacy.<sup>10</sup> Therefore, I omit the more theoretical and abstract

<sup>10</sup> In addition to the consequentialist approach this paper takes, I acknowledge other approaches to privacy, such as deontological and political ones. The deontological approach is concerned with autonomy [7], and the political approach addresses institutional or governmental power [13, 27, 28]. The exploration and discussion of whether deontological and political approaches defend the group right to privacy or view the group right to privacy as a collection of individual right to privacy, which might be violated due to the *collection* of information, are important but beyond the scope of this paper. The main concern of this paper is the consequentialist approach, which is compatible with the stance that proponents of group privacy take.

question of whether simply accessing information without making adverse decisions would also violate the privacy of the group. However, I disagree with Floridi [4] and other proponents of the group right to privacy that the right to privacy of a clustered group must be recognised to protect the group's (instrumental) interest in having privacy respected by others to prevent others subsequently acting to harm them. I argue instead that a group right is not primarily defensible. An issue in defending the group right to privacy arises from the interpretation of the group interest, that is, whether it is the interest of those members that is a result of their being in the group (i.e., aggregative interest) or the interest of the group as a whole that transcends the interests of its members (i.e., non-aggregative interest). In Sect. 6.2.2, I demonstrate that the group interest cannot be interpreted as aggregative or non-aggregative. As a result, a group interest on which a group right to privacy is based cannot be defended for clustered groups.

### 3 Approaches to Group Rights

In the analysis of rights, one of the most significant questions that requires an answer is as follows: 'What is it that rights do for those who hold them?' Two major theories describe the functions of rights: the interest (or benefit) theory (e.g., Raz [15]), and the will (or choice) theory (e.g., Hart [29]). Interest theorists maintain that a right makes the right-holder better off [15], whereas will theorists argue that a right makes the right-holder 'a small scale sovereign' [29, p. 183]. In philosophical literature, there has been a long-standing debate about which theory is better at explaining the functions of rights [30]. However, the focus of this paper is the interest theory of rights. This focus is compatible with the perspective that proponents of the group right to privacy defend [26]. According to this view, the function of the group right to privacy is to protect the instrumental interest of its holder in privacy (see Sect. 2).

According to the interest theory of rights developed by Raz [15], the function of a right is to further and protect certain kinds of interests of the right-holder. An interest of a person (A) in  $x$  justifies attributing to A the right to  $x$  only if A's well-being is sufficient reason to hold other person(s) under a duty to do whatever will promote the interest on which it is based. The right is the ground of a duty, the ground that justifies holding that other person(s) have the duty. Children have a right to education, which entails a duty to provide education for children based on the interests of those children [15].

The analysis of rights is mainly focused on rights held by individuals, also known as individual rights. However, a right can be held by a group, which is known as a group right. In the literature on group rights, two approaches are described based on how we understand the group that holds the right. These approaches are discussed in Sect. 3.1 and 3.2.

#### 3.1 Collective Approach to Group Rights

The first approach to a group right, known as the collective approach [31], views groups as a collection of individuals, and a right is jointly held by those individu-

als. Jones [31] clarifies the concept of the collective approach to group rights in his paper on ‘Group Rights and Group Oppression’. In his subsequent book on *Group Rights* [32], he develops this idea. According to the collective approach to rights, the right-holder is a collection of individuals who hold rights together as a group and not separately as individuals. For example, the right to live in a beautiful town is a collective right held jointly by those who live in such a town, which imposes a duty on the government to work towards achieving this goal. A group right conceived of in this way does not imply recognising the group as a whole has a moral status distinct from that of its members. Rather, the moral standing that enables a group to hold a right is the moral standing of the numerous individuals who jointly hold the right. Although group rights are held by the individuals who comprise a group, they differ from individual rights because they are rights the members of the group hold jointly rather than singly or independently; group rights are not just an aggregation of rights held individually by the members of the group [31, 32].

### 3.2 The Corporate Approach to Group Rights

The second approach to a group right, known as the corporate approach [31] views the group as a unitary entity that holds rights. A group as a right-holder is conceived of as a moral entity with a moral status equal [33] or similar [34] to that of an individual person, and its rights are not reducible to the individual rights of those who constitute its members [35]. For example, a union, as a corporate entity, has the right to pursue its own interests even if those interests do not correspond to the interests of each individual member. These interests may include rules allowing the union to strike and requiring workers in a particular workplace to be members of the union. However, some individual members would be better off negotiating their own contracts outside of union membership, and it may be in some individuals’ interests never to strike. Hence, the corporate right held by the union differs from the right of the individual member to negotiate their own contracts or to choose not to strike [17].

What marks out a group as the type of entity that might bear rights is that it possesses an identity that does not change regardless of whether some or all of the persons in the group change or not [17, 33]. The unity or integrity necessary for a group to be a right-holder is found not only in its institutional characteristics but also in the common bond and sense of identity that its members share. A group that meets certain criteria—shared cultural characteristics, including language or religion, for instance—should be considered a unit with intrinsic moral rights [36]. McDonald [37] argues that if members of a group have a sense of being normatively bound to one another by virtue of their intersubjective experience, then the group is a unitary body that undergoes that intersubjective experience. A shared understanding that makes diverse individuals into a group includes features such as a shared heritage, language, belief, or social condition.

In general, the distinction between the collective and corporate approaches to group rights lies in their respective perspectives on whether group rights should be considered human rights or non-human rights. As Raz [15] highlights, understanding a group’s rights according to the collective approach is consistent with human rights. As this right is held by natural persons, it is consistent with human rights. How-

ever, according to Jones [38], the corporate approach encounters a problem regarding human rights. Since we typically consider human rights as the rights of natural persons, corporate rights are not human rights because they are held by artificial (or legal) persons. However, proponents of the corporate approach to group rights may argue it does not matter whether a group right is a human right or not. They might instead suggest we can treat group rights as being distinct from human rights [38]. The significance of this distinction for the argument in this paper is that it helps to determine, if there is a group right to privacy, whether that right can be conceived of in a way that is consistent with the human right or whether it is necessary to recognise it as a non-human right, thereby requiring changes to relevant ethics guidelines and regulations.

In the following sections (Sects. 4 to 6), my aim is twofold: first, to explain that, if a group has a right, the right is described as either a collective or a corporate right; and second, to demonstrate that the right to privacy of a clustered group cannot be conceived of as either a collective or a corporate right. Having discussed why the group right to privacy cannot be defended, in the final section of the paper, I suggest employing the principle of protecting the vulnerable to protect the privacy of a clustered group. In this regard, instead of focusing on the right to privacy, we need to consider privacy a moral principle aimed at protecting vulnerable clustered groups.

## 4 Exploring the Nature of Goods that Qualify as Objects of Group Rights

One way to resolve the disagreement between proponents of different approaches to group rights is to examine the nature of the good that is the object of a right. The collective approach posits that collective rights are rights to ‘collective goods’, whereas the corporate approach argues that corporate rights are rights to ‘participatory goods’. In the following Sect. (4.1 and 4.2), I discuss criteria that need to be satisfied to consider a good as either collective or participatory.

### 4.1 The Collective Approach to Group Rights: Examining the Nature of Goods as Objects of Collective Rights

Why should we make moral space for rights that individuals hold collectively but not separately? Raz [15], as a prominent proponent of the collective approach to group rights, argues that certain public goods necessarily have a group character. If a right to those public goods exists, then there must be a collective right. A public good is characterised by its non-excludability, which means that if a good is provided to anyone in a society, no member of the society can be excluded from benefiting from it. Nevertheless, different individuals may benefit from the goods to different degrees, depending on their characteristics, interests, and dispositions.

Raz [15] distinguishes between contingent and inherent public goods. Contingent public goods’ non-exclusionary nature is due to contingent constraints on the present state of technology. It is logically possible to exclude some people from a contingent public good, but due to limitations of technological abilities, this is not a practical

possibility. For example, clean air is a contingent public good; everyone benefits, but only because engineers have not yet invented a way to control the distribution of clean air to each individual.

In contrast, inherent public goods are goods from which it is logically impossible to exclude any member of a society. The diffuse nature of the benefits of such goods derives from the general character of the society to which a person belongs. For example, the existence of a cultured society is an inherent public good because some aspects of the good of such a society meet the inherent non-excludability criterion. Although it is possible to exclude some people from benefiting from certain goods of a cultured society, such as libraries and art galleries, by excluding them from the society to which they pertain, that does not affect the character of a cultured society as an inherent public good. The enjoyment of the benefits of a cultured society, including the aesthetic or richer aspects of life, cannot be denied to any member of the society. Raz [15] refers to inherent public goods as ‘collective goods’.

Raz [15] argues that the collective nature of inherent public goods (or collective goods) makes them unsuitable as objects of individual rights. If there is a right to an inherent public good, it must be a collective right. Raz opposes individual rights to inherent public goods but not to contingent public goods. The right of access to clean air, which is a contingent public good, is an individual right rather than a collective one [15].

Based on the above discussion, I emphasise the importance of the following criterion, referred to as C1, when adopting a collective approach to group rights regarding the nature of the good that a group has a right to:

**C1:** Collective rights are rights to collective goods. Collective goods are goods from which it is logically impossible to exclude any member of a society or a group from benefiting. Therefore, if a good is not a collective good, and if there is a right to that good, that right cannot be a collective right. This definition implies that individuals do not hold that right to that good collectively but individually.

## 4.2 The Corporate Approach to Group Rights: Examining the Nature of Goods as Objects of Corporate Rights

Réaume [16] identifies essential criteria for a good to qualify as an object of a corporate right. Réaume critiques the inherent public good in Raz’s theory and develops the notion of a participatory good. According to Réaume [16], there is no individual right to some public goods, but not because they are inherent public goods, as argued by Raz [15]. It is the nature of some goods that makes them unsuitable as objects of individual rights. For instance, the nature of a cultured society is such that it is unsuitable to be the object of individual rights. Goods of a cultured society are not only produced through the involvement of many but are also valuable precisely because of the joint involvement of many. In Réaume’s [16] view, an individual likely cannot successfully claim a right to these types of goods, which she calls ‘participa-

tory goods'; participatory goods must be held by groups rather than individuals.<sup>11</sup> Hence, there may be individual rights to some public goods but only those that are not participatory.

An individual right exists when an individual's interest is a sufficient reason to justify imposing an obligation on others to protect that interest [16]. The interest in question is an interest in a good an individual has, and the good is of value to the individual and is enjoyed by an isolated individual. Hence, individual rights are claimed to those public goods that can be enjoyed individually, whether or not others enjoy them. According to Réaume, when the interest in a good is of importance to the person considered an isolated individual, regardless of whether the provision of the good requires widespread co-operation, the right to that good is an individual right. For example, the right to clean air is an individual right because clean air is a good that an individual can enjoy even if no else does, although clean air cannot be produced individually [16].<sup>12</sup>

Réaume [16] clarifies her argument that no individual right is possible to some public goods by focusing on a good and its enjoyment. According to her, there is no individual right to a cultured society because the provision of such goods and their enjoyment require the participation of many people. A cultured society is a complex cluster of goods with a core upon which all other aspects of a cultured society depend. The core aspect of culture is that each individual needs others to enjoy it, not merely to produce it. A cultured society requires the existence of individuals who create and enjoy rock videos, read and write literature, compose, perform, listen to music, paint and sculpt, and so forth. The greatest value in a cultured society inherently involves the presence of others with similar interests in the arts, who devote their energies to culture, and with whom one can interact and share that culture. The value of such goods is partly constituted by a particular type of participation. As mentioned previously, Réaume calls such goods participatory goods, which involve activities that not only require many to produce but are valuable only because of that joint involvement. The core aspect of culture, that is, sharing cultural experiences, is participatory because it cannot be enjoyed individually, although it is enjoyed by individuals. Réaume admits there are some goods in the cluster of a cultured society that can be privately or individually enjoyed to a certain extent. In this respect, a cultured society also has an indubitable aspect that is conceptually capable of grounding an individual right. As a result, there is no individual right to the core aspect of a cultured society, not because it is an inherent public good and the interest of a single individual is weak regarding grounding duty on others, but because it is a participatory good and the individual has no interest as an individual in such a good.

<sup>11</sup> In her paper on 'Individual, Groups, and Rights to Public Goods' [16], Réaume does not explicitly mention the corporate approach to group rights. Rather, her main focus is on the nature of the good being claimed, not on the criteria necessary to qualify as a right-holder. However, the way she discusses participatory goods suggests her view is categorised under the corporate approach. In contrast, Miller [39] argues that rights to participatory goods are collective rights that can only be held by collectivities, not individuals. Miller defends the collective approach without relying on the interest theory of rights; the view is based on the teleological account tied to joint action. Miller's idea is not discussed in this paper because the scope of this paper is limited to the interest theory of right.

<sup>12</sup> This means that individuals, governments, and businesses contribute to the improvement of air quality.

Based on the discussion above, I emphasise the importance of the following criterion, which I refer to as C2, when considering a corporate approach to group rights, which focuses on the object of group rights, meaning the type of good that group rights pertain to:

**C2:** Corporate rights are rights to participatory goods. A participatory good involves the presence of others who take an active and genuine interest in that good with whom one can interact with and share that good. One cannot individually enjoy the benefits of a participatory good unless others with similar interests do too. A right to a good that requires the joint involvement of many in its production and enjoyment is a corporate right. Therefore, if a good is not a participatory good, and if there is a right to that good, that right cannot be a corporate right.

## 5 Exploring the Types of Group Interests that Ground Group Rights

To adopt the interest theory of rights, it is necessary to examine the interests of a group that could ground group rights. The collective approach posits that collective rights are based on the interests of the members of a group, whereas the corporate approach contends that a group, as a distinct entity, has interests that ground corporate rights. In the following Sect. (5.1 and 5.2), I explore each approach more fully and consider how these approaches align with interest theories of rights.<sup>13</sup>

### 5.1 The Collective Approach to Group Rights: Examining the Types of Group Interests That Ground Collective Rights

A collective right to an inherent public good exists if the following three conditions are met: first, the right exists because an aspect of the interests of humans justifies holding some person(s) to be subject to a duty; second, these interests are the interests of individuals as members of a group in a (*an inherent*) public good, and the right is a right to that public good because it serves their interests as members of that group; third, the interest of no single member of that group in that public good is sufficient by itself to justify holding others subject to a duty [15, p. 208].

The first condition is required for collective rights to be consistent with human rights. Collective rights serve the collective interests of members of a group. The second and third conditions distinguish a collective right from a collection of individual rights based on the nature of the interests in the question and their weight [15].

Regarding the second condition, one condition of the existence of a collective right is that the interests in question, assumed to be protected by the right, are the interests of individuals as members of a group in an inherent public good that is good

<sup>13</sup> The nature of a good that is an object of a group right and the interest that grounds a group right are interrelated, as members of a group have interests in a (collective) good that benefits them collectively, without excluding anyone from its benefits. To avoid the complexity that may arise discussing these two components of group rights together, I discuss them separately.

to themselves as members of the group. Collective interests are the interests of individuals that arise from their membership in a group. The collective right is a right to a public good because it serves the interests of the group's members, as outlined by Raz [15]. For individuals to have interests that might ground collective rights, they must be members of a group and be aware of their membership in that group. For example, individuals who belong to a linguistic group have a collective interest in using their own language, and the interest of each person arises from their membership in that group. Without awareness of their linguistic group, individuals cannot have an interest that arises from their group membership, and their interests remain merely the interests of isolated individuals that cannot ground collective rights.

Considering the above discussion, I emphasise the importance of the following criterion, called C3, when adopting a collective approach to group rights regarding group interests that ground rights:

**C3:** Collective rights are grounded in group interests. Conceiving of group interests as the interests in the collective good of those who constitute the group requires that individuals be *members* of a group and be *aware* that they are members of a group before they can have interests that might ground collective rights. Therefore, if an interest cannot be considered a group interest, it cannot ground a collective right.

The third condition of collective rights, as outlined by Raz [15], states that the interests of several members in a good that is good to themselves as members of the group are sufficient to ground those rights. According to Raz [15], the right of a community to their own self-determination is a collective right. Although many individuals in a community might have an interest in the self-determination of their community (e.g., an interest in living in a community that enables them to express themselves in public without repression), the interest of any single individual is insufficient to justify holding others subject to a duty to satisfy that interest. The right to self-determination is grounded in the cumulative interests of many individuals within the community. Therefore, the existence of interest does not depend on the size of the group; the existence of collective rights and their strength do [15].

Collective rights represent the cumulative or aggregated interests of many individual members of a group. Individuals have an interest in the collective good only with others, rather than on their own. What makes that interest matter is it being the interest of numerous individuals for whom it is good, but their individual interests alone cannot impose an obligation on others. Only when the combination of interests of a certain number of members reaches the threshold<sup>14</sup> required for the creation of a duty on others to act in a way that secures the collective good for them does it become a collective right.

<sup>14</sup> In Raz's theory, there is ambiguity regarding how it is decided what the threshold is and who decides it.

## 5.2 The Corporate Approach to Group Rights: Examining the Types of Group Interests That Ground Corporate Rights

In this section, I focus on Newman's [17] theory to identify the criterion that needs to be met for a group interest to ground a corporate right. Newman advocates the corporate approach to group rights, as opposed to Raz [15]. In contrast to Raz's theory, which characterises group interests as the aggregation of the members' interests, Newman conceives of group interests as non-aggregated; thus, corporate rights are grounded in non-aggregative interests.

Unlike Raz, Newman argues that the aggregative account, which reduces a collective interest to a summation of the members' interests, does not provide an appropriate conception of group interests. The problem with aggregate interests is they do not allow for individual differences; they presuppose a certain absence of diversity, and they can only work in a nonhomogeneous world. When interests are incomparable in terms of some overarching value, we cannot aggregate them. Aggregation, thus, does not provide a satisfactory description of the interests of a group that are founded on different values that cannot be compared, such as the values of different life courses. Newman suggests that an acceptable conception of group interests should be one in which individual differences and incommensurable values are considered. The group interest is not simply reducible to, or even an aggregative of, the interests of its members. Rather, such interest is a set of factors facilitating the fulfilment of the individual interests of diverse members at the same time. Newman argues that group rights must be grounded on group interests or the interests of a group as a whole, which is non-aggregative interest. As an example of group interest, consider a church as a corporate entity with an interest that is non-reductive to the interests of the members. If a church were suddenly abandoned by all its members, then it would, as a corporate entity, retain a residual right to freedom of religion as a public good. If a church did lose all its members, we would not accept that the church, as a corporate entity, immediately lost any moral interests it held [17].

Drawing on the above discussion, I highlight the significance of the following criterion, which I refer to as C4. This criterion is particularly important when taking a corporate approach to group rights that focuses on the interests of a group.

**C4:** The type of interest that can ground corporate rights is group interest. A group interest in goods must be a non-aggregative interest that is not reducible to the numerous interests of the numerous individuals who comprise the group. If a group interest cannot be considered a non-aggregative interest, it cannot ground a corporate right.

Conceiving of group interests as interests possessed by groups and going beyond or apart from those individuals is similar to what Jones calls 'mysterious interests' [40, p. 45]. As Jones indicates, this view assumes a group is a supra-individual entity, and that its interests precede those of its members.

To summarise Sects. 4 and 5, Table 1 outlines the criteria that need to be fulfilled when adopting either a collective or corporate approach to group rights.

**Table 1** Summary of the approaches to group rights

		Approaches to Group Rights	
		Collective Approach	Corporate Approach
Reasons for Recognising Group Rights	Object of Rights: Nature of the Goods	C1: Collective goods: Goods from which it is logically impossible to exclude any member of a society or a group [15].	C2: Participatory goods: Goods produced through the involvement of many, and one cannot individually enjoy the benefits of such goods unless others with similar interest do [16].
	Ground of Rights: Group Interests	C3: Aggregative interests: Aggregation of the interests of the members of a group can ground a collective right. To have an interest that arises from group membership, individuals must be members of a group and be aware they are members of a group [15].	C4: Non-aggregative interests: Non-aggregative interests of a group can ground a corporate right. Group interests are ascribed to a group as a whole, which requires the group to be considered a supra-individual entity whose interests are distinct from those of its members [17, 40].

## 6 The Group Right to Privacy: A Collective or Corporate Right?

I have explained two approaches to group rights: collective and corporate. The importance of distinguishing between these different approaches lies in how we understand the group right to privacy as a human right, held jointly by individuals, or a corporate right held by a clustered group as a whole. According to these approaches, if a clustered group can have a right to privacy, then the right must be a collective or a corporate right. This section demonstrates that the consequent of this conditional statement is false.

To explore whether the group right to privacy can be viewed as a collective or corporate right, I address two issues that stem from the criteria mentioned in Sects. 4 and 5. The first issue is related to the nature of the good, and the second concerns the interests of a group. Regarding the first issue, I investigate whether clustered group privacy can be considered a collective good, as described by Raz [15], to satisfy C1, or a participatory good, as described by Réaume [16], to satisfy C2. The second issue I investigate is whether individuals are aware they are members of a clustered group to have an interest that arises from their group membership, to satisfy C3, and whether clustered group interests transcend those of its members, to satisfy C4.

## 6.1 The Privacy of a Clustered Group: A Collective Good or a Participatory Good?

The first issue to consider is whether clustered group privacy is a collective good, which is comparable to Raz's [15] definition. According to Raz, a public good is a good that everyone can benefit from without exclusion, and a collective good is a good that is logically impossible to exclude anyone from benefiting from. However, clustered group privacy may not meet the non-exclusion criterion because it is possible for some individuals to be excluded from benefiting from it. For example, consider the following case: Although the privacy of a clustered group might be protected through the encryption of patterns uncovered through ML algorithms (i.e., encryption of the ML model), an attacker can send a query to the encrypted ML model to deduce sensitive information about an individual—a specific datapoint—which is known as an inference attack [41]. In such cases, the privacy of a clustered group is preserved because the model is encrypted to prevent individuals from accessing information about the clustered group. However, despite these measures, knowledge about an individual can still be acquired, risking their privacy. This case illustrates that clustered group privacy fails to meet the non-exclusion requirement of being a public good, let alone its other inherent criterion of being a collective good.<sup>15</sup>

Nevertheless, from another perspective, (networked) privacy is a collective value, as explored by Regan [42]. Regan suggests that privacy is a collective value because technology and market forces make it difficult for any one person to have privacy without all people having a similar minimum level of privacy. It could be criticised that a person or company with significant power can retain their privacy while forcing others to reveal information about themselves, which is contrary to Regan's definition of the collective value of privacy. I think that what Regan meant is emphasising the necessity of the relationship between privacy protection for each person whose data are shared in a network and the rest of the network who share their data: for one person to have privacy, all persons in a network must have privacy. However, this view does not imply a necessity relationship between privacy protection for those whose data are shared in a network and those who hold or control the shared data,

<sup>15</sup> An anonymous reviewer objects that just because 'individual privacy' is undermined, it does not follow that 'the good of clustered group privacy is excludable' (I thank the reviewer for raising this issue). In response, I refer once more to the kind of information that group privacy and individual privacy protects to clarify that the case mentioned here demonstrates the exclusionary nature of clustered group privacy. Information pertaining to a group predicts the behaviour of the group as a whole; that behaviour has been revealed based on comparing and contrasting the behaviour of all members of the group. However, information that pertains to an individual predicts their behaviour based on analysing their past behaviours [3]. Group privacy protects information that pertains to a group, thereby preventing the acquisition of knowledge about its members. Such knowledge is obtained by inferring group characteristics about them, although knowledge about an individual might be acquired by analysing their personal information. In the case mentioned here, the member is excluded from benefiting from clustered group privacy through the inference of group characteristics about them. Given that the model is encrypted, and generalisation from information about a single person that results in group information representing the model is impossible, the person is excluded from the clustered group privacy while the group has privacy. Likewise, just as excluding members from libraries demonstrates the contingent nature of such a good, excluding members from clustered group privacy demonstrates the contingent nature of that good. This is unlike the diffuse nature of certain goods, such as the core aspect of a cultured society, from which the exclusion of a member is impossible.

such as a company with great power. In Regan's view, privacy is a collective value because it is impossible for one to have privacy in a network while the privacy of others in a network is violated.<sup>16</sup>

Consider the value of privacy on a social networking site from Regan's perspective. Through a social network analysis, the undisclosed attributes of a user can be inferred based on the disclosed attributes of the user's friends on social networking sites. For instance, a user's sexual orientation can be somewhat reliably inferred by analysing the nature of the relationships they maintain and their interactions with others. These inferences are made based on confirmed relationships among users [20]. The privacy of a user on a social networking site is protected only when the privacy of their group of friends is protected. Thus, privacy on a social networking site can be understood as a collective value, according to Regan's perspective.

However, the privacy of a clustered group cannot be understood as a collective value because it does not fulfil the non-exclusion requirement for a good to be conceived of as collective. Additionally, there are no meaningful relationships among the members of a clustered group. The individuals are unaware of being grouped together based on the similarity of their features (see Sect. 6.2.1). This lack of relationships means privacy cannot be considered a collective value, according to Regan's [42] view, in a clustered group.

Clustered group privacy cannot be considered a collective good, but can it be conceived of as a participatory good? To determine whether clustered group privacy can be considered a participatory good, it is important to examine whether the production of privacy and its *enjoyment* require participation from many individuals. According to Réaume [16], although participation by many is a necessary condition for a good to be considered participatory, it is insufficient. For instance, clean air is produced through the participation of many, but it can be enjoyed by an individual alone regardless of whether others enjoy it. Thus, clean air cannot be considered a participatory good. However, a cultured society is considered a participatory good because an individual has no interest in it as an isolated entity. My claim is that clustered group privacy is similar to clean air, rather than a cultured society, since it can be enjoyed individually without the involvement of others and, thus, cannot be considered a participatory good.

Overall, clustered group privacy cannot be considered a collective or participatory good. Fulfilling the outlined criteria is important because group rights are rights to a collective or participatory good. Given that the nature of clustered group privacy cannot satisfy either C1 or C2, I conclude that a clustered group cannot have a group right to privacy. Therefore, the disagreement between proponents of collective and corporate approaches to group rights regarding whether the right to privacy of a clustered group is a human or a non-human right is unfounded.

<sup>16</sup> I thank an anonymous reviewer for pressing me to clarify the non-excludable nature of privacy in Regan's argument, although she does not explicitly refer to it, but rather to its collective nature. I agree with the reviewer that Regan's argument suggests that privacy can be conceived of as a collective or non-excludable good, while clustered group privacy cannot, due to a lack of ties among the members of a clustered group. Accordingly, the important point is to distinguish clustered group privacy from the privacy that Regan defines and the consequent ways of conceiving them.

## 6.2 The Interests of a Clustered Group: Aggregative or Non-Aggregative?

The second issue investigated is related to the interests of a clustered group, which could ground a group right. According to Raz [15], a collective right is grounded in the aggregation of the interests of individuals arising from their membership in a group, referred to as C3. This view requires that individuals are *aware* of their membership, and that their interests can be aggregated to establish a collective right. However, Newman [17] argues a corporate right is grounded in the non-aggregative interests of a group ascribed to the group as a whole, referred to as C4, implying the group has interests that *transcend* those of its individual members.

### 6.2.1 Is a Clustered Group Self-Aware?

Raz argues the interests of members of a group in a collective good provide a ground for a collective right [15]. If an individual has an interest in a good, they might have a right to it as an individual. However, if an individual, as a member of a group, has an interest in a good, they have a right to that good in combination with others. Since a public good benefits a certain society or group, an individual must be aware they are a member of a group to have interests as a member of that group in the good that benefits their group; otherwise, their interests might ground individual rights instead.

Perceiving oneself as part of a group can come from being aware one shares common characteristics with others. For example, members of a certain religious group recognise they share common characteristics and belong to the group. Moreover, individuals recognise they are members of a group because they themselves form the group. Examples of such groups include music lovers, bikers, and sports fans.

On the one hand, as Kammourieh et al. [3] argue, members of a clustered group may be unaware of the specific sets of characteristics or attributes used to group them with others. Machine-learning algorithms cluster individuals based on similarities, such as purchasing certain items. An individual who buys a certain item may not know this action caused them to be grouped with others who made the same purchase. Thus, members of a clustered group may be unaware they share certain characteristics with others, and that this similarity caused them to be grouped together. Since any changes in the purpose of analysing data lead to the design of a new group, individuals may be grouped with others based on each action they take or each characteristic they possess. Being aware they are grouped with others based on certain actions or characteristics would require individuals to consider each feature or attribute of themselves as a group feature.

On the other hand, a clustered group is not formed by its members; the technologies used and their constraining affordances play a role in its formation [4]. Thus, individuals may not recognise themselves as members of a clustered group because they do not play a role in its formation.

Since individuals are unaware they are members of a clustered group and cannot recognise themselves as such, they do not have interests as members of that group in general or in clustered group privacy in particular. Followingly, members of a clustered group cannot have interests that ground a collective right to privacy.

## 6.2.2 Does a Clustered Group's Interests Transcend those of its Members?

According to Newman [17], non-aggregative interests of a group must be protected by corporate rights, because these interests are attributed to a group as a whole, and the rights that secure these interests must be held by the group as a whole. The idea of conceiving of group interests as non-aggregative interests assumes that a group is a supra-individual entity [40] with unity, capable of having interests in a good that go beyond or apart from those of its individual members. To assess whether non-aggregative interests exist for a clustered group, I examine two key issues. First, I determine whether a clustered group is independent of its members or whether it can be reduced to a collection of its members. I argue we can only conceive of a clustered group having a right to privacy according to the corporate approach if the former is true. Second, I investigate whether a clustered group has the integrity and unity required to ascribe interests to it.

To determine whether a clustered group is an independent entity or can be reduced to a collection of its members, as mentioned by Floridi [4], I examine the most discussed distinction of realism versus nominalism, or holism versus individualism. In brief, realist views posit the existence of 'kind-' or 'type-'level entities, whereas nominalist views deny the existence of such entities [4]. In various forms of realism, types or universals, such as groups, are genuinely existing entities distinct from their instances, such as individual members of a group. According to the realist view, types are objective and observer-independent and exist before the interest in identifying them is specified (discovered). However, the nominalist view only allows for the existence of tokens or particulars, such as individuals, rejecting the existence of types. According to the nominalist view, types are subjective, observer-dependent, and invented [4, 43].

Floridi [4] proposes a relationalist approach to the ontology of clustered groups, which takes a middle ground between realism and nominalism. He argues clustered groups are the outcomes of selections made by a data analyst on observables (information) for specific reasons and are linked to the constraining affordances offered by the technology used to analyse the gathered information. Clustered groups are not discovered or invented; they are *designed*. Such groups are the end result of a combination of the mind (of the analyst) and the physical world (of the technology). This perspective suggests clustered groups do not have a real, independent existence. However, they are not simply subjective entities that can be reduced to individuals; they are a combination of both objective and subjective elements [4].

Even if I accept the relationalist approach, which defines the existence of a clustered group in terms of the relationship between both subjective and objective elements, the second issue that needs to be investigated is how it exists—whether it exists as an integrated or unitary entity to which an interest can be ascribed. This criterion is necessary because I claim that, for group interests to transcend the interests of its members at any particular time, it must be a single, continuous entity over time, such that any changes in the group's membership do not change its interests. Otherwise, the interests of the group reduce to a mere aggregation of the interests of individuals who are its members at a specific moment.

The integrity and unity of a group are found either through changes in membership having no effect on the group's identity [17, 33] or in the common bond and sense of identity shared by its members [37]. When considering the design of clustered groups, a data analyst at time  $t_1$  might select specific feature values of individuals for analysis using a technology. However, in  $t_2$ , the feature values might change, resulting in the inclusion or exclusion of different individuals in a group and the design of different groups. Clustered groups are a type of aggregate collectivity, which French [33] describes as a 'statistical collectivity', or a 'set' in Newman's [17] view, and 'mere collections' in List and Pettit's [44] view. The identity of the cluster is that of an aggregate; its identity rests solely in the aggregation. Any change in the cluster membership will always result in a change in the identity of the cluster. In contrast, for example, we can think of a football club or trade union that remains the same club or union over time, even though some members leave the group and others join it [40]. Furthermore, a lack of shared understanding stemming from a shared social condition, for example, results in a lack of a sense of shared identity among its members. Hence, a clustered group cannot be conceived of as having a continuing identity. The interests of a clustered group can be understood as merely the summation of the individual interests at a specific time.

As a result, the interests of a clustered group in general (and interest in clustered group privacy, in particular) do not transcend those of its members, because the existence of a clustered group and the way it exists do not allow it to have interests, and if it has an interest, it is merely an individual's interest in privacy. It follows that clustered groups cannot have the right to privacy in the corporate sense.

## 7 A Moral Principle to Protect the Privacy of Clustered Groups

I argued that a clustered group cannot theoretically have the right to privacy. Accordingly, the duty of protecting the clustered group privacy by refraining from accessing certain pieces of information cannot be entailed from the group right to privacy, as such a right cannot be recognised in the first place. Instead, I suggest establishing a moral principle for the moral obligation of protecting vulnerable clustered groups as a requirement for respecting group privacy within an ethics of vulnerability. Accessing certain pieces of information about a clustered group that are likely to be used in morally objectionable ways to harm the group makes the group vulnerable. Since the source of vulnerability is the access to certain pieces of information, the duty owed to a clustered group as the vulnerable group is to refrain from accessing such information. Therefore, there is a need to expand moral duties to encompass vulnerable clustered groups, in addition to animals and environments, for example. Instead of thinking about duties engendered by the group right to privacy to limit access to certain pieces of information, we need to think about duties owed to the vulnerable to protect and respect them.

Rogers [45] highlights the need for an ethics of vulnerability<sup>17</sup> to analyse the concept, articulate the sources and circumstances of vulnerability, identify those who are particularly vulnerable, and describe appropriate responses and protections for them. According to Rogers, such an ethics must clearly specify grounds for duties owed to the vulnerable. More specifically, in the areas of healthcare, she provides conceptual clarity regarding vulnerability to eliminate confusion about who falls under this category and what specific duties should be fulfilled to ensure their protection [45].

A moral principle within an ethics of vulnerability might be Goodin's [48] principle of protecting the vulnerable (PPV). According to this principle, we each have special obligations to protect those who are particularly vulnerable to our actions and choices. The PPV emphasises that vulnerability generates moral responsibility, compelling us to take measures to protect the vulnerable.

Since vulnerability arises from accessing information uncovered about a clustered group that is used to harm that group, there must be a moral response to limit such access. I claim that data analysts, who design clustered groups using ML algorithms, bear responsibilities<sup>18</sup> to protect the vulnerable. Privacy-preserving techniques can be employed to prevent access to information about the group. By utilising encryption measures, for example, data analysts can prevent access to information obtained at the group level. Patterns uncovered by ML algorithms must be encrypted, specifically the ML models. In this way, data analysts protect the vulnerable clustered group (see Sect. 1) from adverse policies and decisions made by the government. The use of encryption necessitates formulating policies and regulations to determine how and under what conditions key (i.e., an encryption key) distribution or key access to decipher encrypted models is implemented.

Vulnerability is contextual and variable, making it imperative to approach it as a matter of investigation rather than assumption [45]. To identify the vulnerable, data analysts must carefully consider the contextual factors that may indicate potential harm to a clustered group. For example, accessing information uncovered at the group level that identifies the correlation between specific purchasing behaviour and a particular sexual orientation may not render the group vulnerable in one society.

<sup>17</sup> In feminist ethics, the concept of vulnerability and care holds a central position. Certain feminists ground moral duties of care in response to those who are vulnerable. Vulnerability, in feminist ethics, is understood as an ontological condition of human existence, arising from our embodiment, neediness, and social and affective natures. Our obligations towards the vulnerable encompass the responsibility to provide care for them [46]. Considering that the focus of this paper is on clustered groups, I choose not to explore feminist ethics concerning the obligations towards these vulnerable groups, such as providing care for those groups, mainly due to the nature of vulnerability, which does not arise from an ontological condition of such groups. Instead, I adopt a broader perspective to define the source of vulnerability, arising from accessing certain pieces of information about clustered groups. Therefore, I explore duties towards the vulnerable from an ethics of vulnerability regarding protecting groups. In this context, I concur with Roger's assertion regarding the importance of articulating an ethics of vulnerability to identify the vulnerable and the corresponding duties owed to them for their protection. Moreover, the ethics of care as a feminist ethics seeks to preserve and promote an 'actual' human relationship between people [47]. Although there might be an actual relationship between an individual in a clustered group and a data analyst or researcher, such a relationship does not exist between an individual in a target group and a data analyst or researcher. Since my argument in this paper covers both clustered and target groups, I do not adopt ethics of care to define a moral principle to care for the vulnerable.

<sup>18</sup> Similarly, parents are responsible for protecting the children to whom they gave birth.

However, in another society, such information could enable the government to formulate discriminatory policies targeting the group. To fulfil their moral duties in protecting vulnerable groups, data analysts first need to be aware of the contextual factors that indicate vulnerability.

## 8 Invasion of Group Privacy vs. Promoting Public Health

Critics may point out that limiting access to information obtained at the group level should not be imposed due to the significant benefits that access to information brings to society, particularly in promoting public health. The question that may arise is whether restrictions should be placed on accessing certain pieces of information that are more likely to be used in a discriminatory way to harm a group, considering the necessity of accessing group-level information for public health purposes. This point raises the broader question of how to reconcile the potential conflict between protecting group privacy and advancing public health. Based on a careful consideration of how public health can be effectively promoted, I argue that the concern regarding a contradiction between protecting group privacy and promoting public health is unfounded.

Although there is no prevailing consensus on public health ethics in the literature, Rogers [45] highlights that most scholars adopt a broad social justice approach, emphasising the need for special duties towards the poor who experience ill health as a result of systemic social disadvantage. Within public health practice, socially vulnerable populations are those more likely to face a heavier burden of ill health. Research on the social determinants of health (e.g., see *Just Health* by Daniels [49]) has revealed that various forms of deprivation and disadvantage—such as economic, educational, financial, occupational, and social factors—are closely linked to poor health status. Given the presence of health inequalities associated with social vulnerability, the practice of public health prioritises addressing the health disparities stemming from systemic social disadvantage [45].

To promote public health, the social determinants of health disparities and the underlying factors that contribute to these disparities need to be identified. Upon identification of these factors, policies and intervention efforts need to be formulated to address the source of health inequalities and, ultimately, promote public health. Regarding the knowledge of social determinants of health disparities required to improve public health, such insights can be gained from employing cluster techniques. Hence, a pattern must be uncovered from clustered groups that identifies underlying factors contributing to health disparities in a society. As I mentioned previously, this pattern is required to inform policymakers about how to formulate policies to improve public health. The breach of the privacy of clustered groups happens when the uncovered information is used in certain objectionable ways to harm these groups. However, I argue that, if such harm occurs, we cannot advocate for improving public health in society. The discriminatory use of the uncovered information stands in contradiction to the promise of promoting public health, which entails providing social justice for the vulnerable. Therefore, respecting the privacy of clustered groups is not in conflict with promoting public health.

To protect the privacy of clustered groups, it is necessary to articulate the PPV, which entails protecting and respecting vulnerable clustered groups. Vulnerability arises from accessing certain pieces of information about groups that can be used in morally objectionable ways to harm those groups. Therefore, the duty owed to those identified as vulnerable in a specific context is to impose limitations on accessing the information.

## 9 Conclusion

Accessing certain pieces of anonymous information about a clustered group, enabling the group to be easily identified and targeted, which would likely be used to render the group worse off in morally relevant ways, harms the privacy of a clustered group. Protecting the privacy of a clustered group by imposing limitations on accessing certain pieces of information about the group leads to protecting the group against discrimination. This paper argued the duty to refrain from accessing certain information about a clustered group cannot be entailed in the right to privacy of these groups, as they cannot primarily have a right. Instead, I proposed that the moral obligation to protect vulnerable clustered groups, as a requirement for respecting clustered group privacy, should be established regarding privacy and data protection guidelines and principles. The duty to respect clustered group privacy is not entailed in the group right to privacy of clustered groups but in the moral PPV clustered groups within an ethics of vulnerability. The necessity of limiting access to certain pieces of information about groups uncovered by ML models stems not from the need to respect the right of the group to privacy but from the imperative to protect groups from vulnerability, emphasising the paramount importance of protecting group privacy in the age of artificial intelligence.

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