

BETWEEN THE SPECIES

Has the philosophical case for animal liberation been proved? A systematic and narrative review of the philosophical literature 1975-2020

ABSTRACT

I test the hypothesis proposed by Peter Singer that the philosophical case for animal liberation has been won, through a systematic review of papers published by philosophers between 1975 and 2020. There was a slight but statistically significant correlation between support for an animal liberation vegan position, with year of publication. Support for a better treatment of animals than currently sanctioned by society increased significantly among papers discussing general principles of animal ethics. Findings support a weaker version of Singer's hypothesis. Among the philosophical community there is greater support for animal liberation, but the debate has not been 'won'.

** Supplementary data that includes all the papers evaluated in the systematic review, scores and evaluations, are provided in an Excel spreadsheet on Zenodo (<https://zenodo.org/record/6637338#.Y0tEY0xBywV>).*

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Introduction

In the first edition of *Animal liberation*, Peter Singer (1975) is critical of so-called ‘animal lovers’ who thoughtlessly eat ham sandwiches while professing how much they care about animals. In the second edition (Singer, 1990) he expresses approval about how far the animal liberation movement has come, stating that nobody signalling concern for animals offers him ham sandwiches anymore. Singer confidently states (citing philosopher Colin McGinn), that the ethical core of the book, a consideration for the ethical interests of animals and an exhortation to become vegetarian, is a ‘won argument’.

It appears that it is not only activists who are rethinking the ethics of eating animals. Animal product consumption in western countries has been falling in recent years, driven by publicity over the environmental, animal welfare and human health concerns (Dagevos, 2016; C. Morris, 2018; M. Morris, 2021a). This appears to be part of a longer-term ethical shift in attitudes towards nonhuman animals (Pacelle, 2016).

The shift in public thinking presents at least *prima facie* evidence for Singer’s claims about how the philosophical arguments against eating animals and other forms of animal exploitation have been won. Other philosophers since Singer have made similar claims, including many reviewed here. The most recent of these is Jaquet (2020).

It is likely that any change in public sensibilities would have been accompanied by a shift in thinking in the philosophical literature, given the way that public opinion is both influenced by, and influences, academic discourse. However, no comprehensive review of the philosophical literature has been undertaken. This review attempts to test Singer’s hypothesis by pro-

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viding a semi-quantitative analysis of philosophical thinking over the ethical status of animals from 1975 until the present, using the technique of a systematic review.

Unlike conventional reviews, systematic reviews aim to survey all relevant literature on a particular subject to answer a specific question, and then conduct meta-analyses on results. Systematic reviews are common in the medical literature and are also used in the field of public policy to provide specific information on interventions (Page et al., 2021).

Their emphasis on quantitative data makes systematic reviews less suitable in areas of study such as philosophy which rely more on logic and reflective intuition than empirical data. However, in the field of descriptive ethics, such reviews can be useful in gauging the opinion of the public or opinion leaders, which in turn can help to shape public policy.

This study uses systematic review techniques to trace the nature of philosophical debate over the ethics of animal liberation.

2. Methods

2.1. Question asked

The null hypothesis is that there has been no change in support for consideration of animals' interests among the philosophical community between 1975 and 2020. The alternative hypothesis is that support for consideration of animals has improved with the passage of time. A possible decline in recognition of the animal liberation position was not considered since there is no empirical evidence for this, and such a hypothesis is

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not entertained among the philosophical community. Tests for significance are therefore one-tailed.

Singer's assertion that the philosophical case has been 'won' was made in the context of people eating animals. Animal eating is a cornerstone (though not the only consideration) of the vegan ideal, so support for Singer's assertion was framed in terms of how well the vegan ethic is represented in the philosophical literature.

This goes beyond Singer's own views at the time. Singer (1975, 1990) did not fully advocate for a vegan diet; he allowed eating free range eggs, and he did not totally rule out animal experimentation if the results from the experiment were important enough. He did however influence other philosophers such as Regan (1983) and DeGrazia (1996), who took a more thorough going approach to being vegan. These philosophers argued for a fully vegan diet, as well as being opposed to other forms of animal exploitation such as the use of animals in science, education, entertainment and clothing. They are essentially arguing for a full vegan position, as defined by the Vegan Society in 1988 (<https://www.vegansociety.com/about-us/history>).

Veganism is a philosophy and way of living which seeks to exclude—as far as is possible and practicable—all forms of exploitation of, and cruelty to, animals for food, clothing or any other purpose; and by extension, promotes the development and use of animal-free alternatives for the benefit of animals, humans and the environment. In dietary terms it denotes the practice of dispensing with all products derived wholly or partly from animals.”

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There are some grey areas for vegans. There are long and acrimonious debates on vegan social media pages for example on whether vegans should be allowed to feed their cats meat, and whether it is acceptable to kill invasive animals that kill natives. Some of these spill over into serious philosophical discourse, including some of the papers reviewed here (eg Milburn 2016).

Evaluations are therefore based on practical considerations most vegans would agree with. This means at the very least, a commitment to not eating animals, an end to invasive animal experiments, and a ban on animal use for clothing and entertainment.

2.1. Animal ethics scores

All papers were read and scored as follows:

- -2, any paper supporting the status quo, and extending it to other uses of animals that are becoming increasingly unacceptable (whaling, trophy hunting, curiosity-driven science, organ farming, religious sacrifices, etc.).
- -1, any paper supporting the status quo.

This includes any papers arguing that animals should not be made to suffer but who see no ethical issue with painless killing (animal welfare ethic). In theory, if this became the consensus view of society, then meat eating would become almost non-existent. However, in reality, the animal welfare ethic, professed (though not practiced) by most people, allows a system of animal production that includes live drowning and evisceration of fishes, genetically manipulated chickens that

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are in constant pain from lameness, botched slaughter and legal mutilations without anaesthetic (Baker, 2016; Bekoff and Pierce 2016).

There are two reasons for this. One is that it is not possible to produce meat at a price people are prepared to pay for while looking after the animals' welfare. More perniciously, it is part of the 'meat paradox' (Gradidge et al., 2021). To avoid discomfort caused by cognitive dissonance, professing a concern for animal welfare while turning a blind eye to animal suffering is a psychological coping mechanism, justifying the score of -1.

- 0, any paper by authors who present arguments both for and against the status quo, or who show awareness of the issue, but without coming to any firm conclusions.
- 1, any paper extending protection of animals further than that provided by the status quo, even if it stops short of a full vegan ideal. This might include for example papers that support an end to eating animals, but still allow some animal experimentation or killing of invasive species.
- 2, any paper that promotes a full vegan ideal. This means it needs to detail the practical implications for any ethical theories.

Half scores were awarded where the views expressed fell between two criteria.

2.3. Search criteria

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I searched citations to Singer's (1975, 1990) work, using the search terms 'Singer "animal liberation"', on Google Scholar. Although this database has limitations compared with some requiring a subscription, it has one advantage; that of equity. Because it is free, it is available to researchers in low-income countries, as well as those with no institutional funding.

All philosophical literature on animal rights from 1975 (when the first edition of 'Animal liberation' was published) to 2020 were included. Due to the extensive material and limited resources, the search was restricted to articles published between 1975-81, 1995-96, 2000-01, 2005-06, 2010-11, 2015-16, and 2020. This provides five-year gaps in which to measure any attitude changes.

2.4. Increase in numbers of citations

The number of citations for "animal liberation" dramatically increased between 1975 and 2020. Even though many of those citing may be opposing Singer's thesis, the increase in numbers does provide prima facie evidence that the issue of animal liberation is now being taken seriously. It is something that now requires refutation, not just ignoring or sniggering over.

However, it is also possible that this simply represents the increasing population of researchers, ease of publishing, a 'publish or perish' mentality in most institutions or proliferation in the numbers of journals and conferences.

To test this hypothesis, I conducted a similar search on citations for popular works of philosophy published around the same time. Search terms used were;

- Singer "animal liberation",

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- Pinker “language instinct”,
- Rawls “theory of justice”
- Naess “Ecology community and lifestyle”

All searches were made on the same day (1 April 2021).

2.5. Criteria for selecting papers for analysis

Papers found in the search were narrowed down based on the following criteria:

1. At least one of the authors is a philosopher. I defined this as someone who at the time of publication or at any time previously had an academic appointment in a philosophy or ethics department at a university. I also included papers by researchers such as Carol Adams (1991) and Val Plumwood (2000), who do not have a background in academic philosophy, but who appear to be generally accepted in the philosophical community. This necessarily precluded valuable contributions from theologians and amateur philosophers, but was required in order to meet Singer’s (1995) definition of the ‘philosophical community’.
2. Written in a philosophical journal. This includes multidisciplinary journals that have philosophy as one of their disciplines. It does not include journals in other disciplines that occasionally have contributions by philosophers. Nor does it include books, or chapters in books.

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This would ensure that papers are reviewed as well as written by those in the philosophical community. It ensures that pieces by ‘tame’ philosophers writing in experimental science publications exhorting the use of animals for experimental purposes (eg Cohen, 1986) are excluded. Also excluded were journals that are not philosophical in nature, and which start with a particular stance towards animals, such as the *Journal of critical animal studies*.

Journals that are philosophical in nature and start with animal-friendly assumptions (such as this one), were included. No philosophical journals were found that started with a similar assumption against the ideas of animal sentience or liberation.

3. Not a simple book review, or a response to a book review. A more rigorous discussion of a book with references is acceptable.
4. Not written by Peter Singer.
5. Has the subject matter related to the ethical issues surrounding animal use. This can include those within broader subjects such as environmental ethics, abortion and rights of robots and chimeras (eg Palecios-Gonzales 2015, Coeckelbergh 2020), if animal ethics are specifically mentioned.
6. Lists the full paper in Google Scholar.
7. The work is published, not ‘forthcoming’.
8. Not a translation or a reprint of an earlier work.

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Searches for material published between 1975 and 2020 were conducted between February and April 2021.

2.6. Evaluation of material

All papers that met the criteria above were reviewed and scored by the author. Papers in English and Japanese and some in French were read directly. Papers in other languages were translated into English with Google Translate.

A research assistant reviewed any paper in English where it was unclear what the author's position was. These mostly included papers that had been scored between -0.5 and 0.5, but also some with higher and lower scores. For papers in languages other than English where the authors' meaning was unclear, a reviewer proficient in the language and with knowledge of the subject material was asked to provide a second review. Reviewers were either not told the null and alternative hypothesis when reviewing, or the year of publication and other information that could provide a clue to the year were hidden.

If the difference in scores between the first and second reviewer was 0.5 or less, the average of these was taken as the final score. Differences of more than 0.5 were discussed and agreed upon by consensus until the two scores were 0.5 or less apart.

Details of evaluations and reasons for the evaluation for all papers chosen are provided in a supplementary file (<https://zenodo.org/record/6637338#.Y0tEY0xBywV>).

2.7. Field of study

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Many of the references collected concerned the topic of environmental ethics. This often involves a conflict between the protection of ecosystems seen holistically, and the rights and welfare of individual sentient beings within these ecosystems (eg Callicott, 1980).

The field of environmental ethics may therefore be less conducive to animal liberationist ideas. It is possible also that papers dealing with medical ethics and the ethics of what we eat (agricultural ethics) may also have different approaches.

To test this, papers were divided into 4 sets of subject matter as detailed below.

1. Environmental ethics. This concerns “the moral relationship of human beings to, and also the value and moral status of, the environment and its non-human contents”, as per the definition in the *Stanford Encyclopedia of Philosophy* online
2. Agricultural ethics. Considers the ethics of raising or hunting animals for food, as per the stated scope of the *Journal of Agricultural and Environmental Ethics*.
3. Medical ethics. Considers the ethics that govern the practice of medicine and related research. In the context of animal ethics, this relates mostly to the use of animals in medical experiments. There were some papers on the ethics of abortion that also mention animal ethics, and which compare unborn humans to animals (eg Abbate 2015).

4. General. Considers general ethical considerations of animal use such as animal sentience and moral standing.

2.8. Statistical techniques

Contingency tables were used to compare citations for ‘animal liberation’ and other influential philosophical works.

A Spearman’s rank correlation and ordinal regression was conducted to test correlation between publication year and attitude to animals, as measured by its animal ethics score. Binary logistic regression was used to test whether more recent years had more papers arguing for an improvement of animals’ interests compared with the status quo (score > -1).

All correlations and regressions were performed on SPSS statistical software.

3. Results

3.1. PRISMA analysis

Table 1 shows a PRISMA table (Page et al. 2021) for the number of papers selected for detailed analysis. A total of 402 papers were selected for initial screening as meeting all the criteria. Further reading of these papers excluded a further 13 papers. Languages the papers were written in are provided in Table 2.

Table 1: PRISMA table of papers selected

Total found in search	6513
Number selected for initial review	402
Not about animals	6
Not a philosopher	2
Published in a non-philosophical animal rights journal	1
A translation	1
A repeat	1
A review article	1
Article could not be found on any databases	1
TOTAL USED IN ANALYSIS	389

Table 2. Languages that the papers selected for analysis were written in.

Language	# Papers
English	348
Spanish	11
Portuguese	8
French	5
Polish	4
Italian	3
Japanese	3
Chinese (traditional characters)	2
German	1
Czech	1
Dutch	1
Indonesian	1
Korean	1

The one paper that could not be located (Table 1) was in Korean.

3.2. Quantitative analysis

Table 3 shows the changes in the number of times Singer's (1975, 1990) work was cited, compared with citations for Pinker (1994), Rawls (1971) and Naess (1989).

Table 3. Citation rates for 4 scholars searched on 1 April 2021

Year	Singer	Pinker	Rawls	Naess
1995	171	165	1410	51
1996	168	248	1380	69
2000	219	417	1890	59
2001	256	393	2220	58
2005	358	497	3250	98
2006	357	517	3500	104
2010	629	643	4820	146
2011	785	619	5120	156
2015	916	512	6270	184
2016	1060	562	6080	187
2020	963	451	6160	191

All citations for these popular and influential works increased between 1995 and 2020. A contingency test revealed that citation of Singer's work increased significantly more than the increase for the other works ($p < 0.0001$). The second most influential of the works cited was Rawls *Theory of Justice*.

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Post hoc testing comparing Singer and Rawls still revealed that Singer's popularity increased the most ($P < 0.001$).

Fig. 1 shows the animal ethics scores for each paper reviewed, by year of publication.

Table 4 shows the results of the Spearman correlation and logistic regression between year of publication and animal ethics score. Changes towards a more vegan oriented animal ethics score were just significant when all papers were counted. Post hoc testing showed that the significance increased when medical ethics papers were excluded.

Logistic regression showed that papers on general ethics including animal sentience became significantly less supportive of the status quo and more sympathetic to animal liberation and sentience as the years progressed. Ordinal regression showed that the relationship between the score and year also approached significance for this subject (Table 4).

3.3. Qualitative changes: Environmental ethics.

Although there were no statistically significant changes detected in this field, the last 10 years does appear to be marked by a shift towards individual animals having moral status as part of the environment. This can be seen most clearly in the way attitudes have changed toward the ethical status of invasive species.

Callicott (1980) appears ruthless in his determination that invasive species have to be exterminated. Twenty years later Sterba (2000) still supports killing, though O'Neill (2000) considers that moving or sterilising animals is a more ethical way of controlling them. Gunn (2001) and Edelglass (2006) support

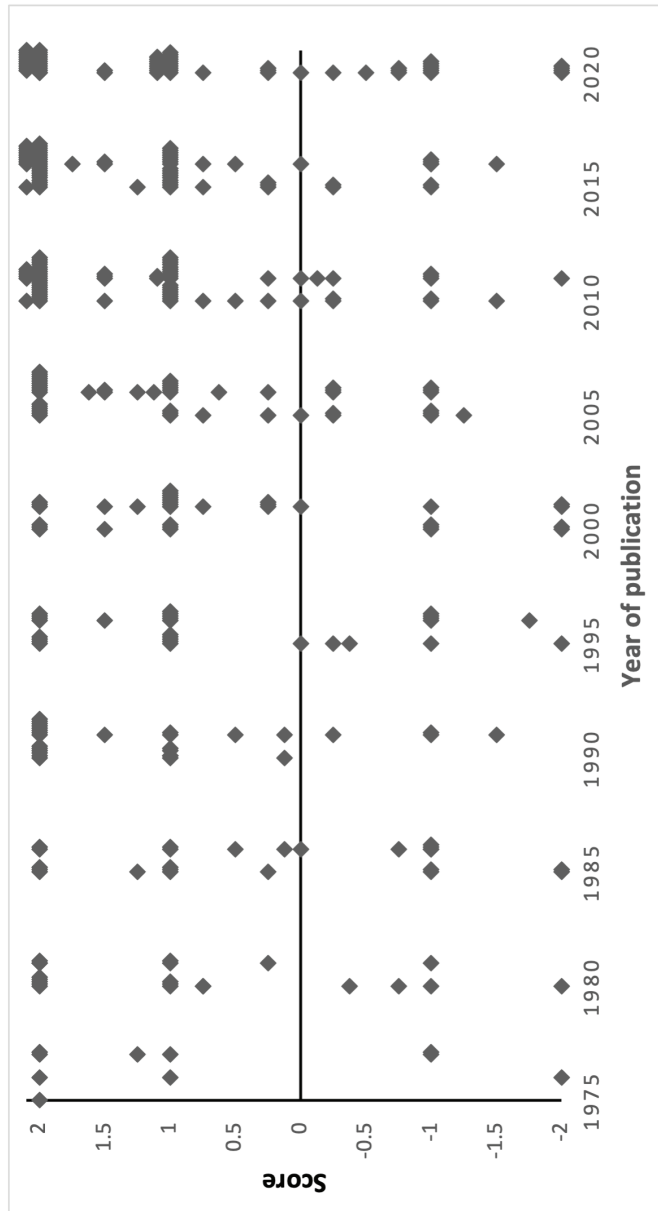


Fig. 1. Scores for all papers evaluated, by year of publication.

Subject	Spearman rank correlation (1 tailed)	Ordinal regression coefficient (+/- 90% CI)	Logistic regression coefficient (status quo) (1 tailed) (+/- 90%CI)
All data (n=389)	0.087 P=0.042*	B=0.012 (0.001, 0.024) P = 0.043*	Exp (B)=0.980 (0.963, 0.997) P=0.026*
Environmental Ethics (n=99)	0.131 ns	B=0.015 (-0.011, 0.04) ns	Exp(B)=0.982 (0.947,1.019) ns
Agricultural ethics (n=50)	0.074 ns	B=0.011 (-0.040, 0.042) ns	Exp(B)=0.985 (0.940,1.032) ns
Medical ethics (n=39)	-0.113 ns	B=-0.019 (-0.057, 0.019) ns	Exp(B)=1.015(0.967,1.066) ns
General (n=201)	0.086 ns	B=0.016 (0.00, 0.032) P=0.057	Exp(B)=0.970 (0.947,0.994) P = 0.020*
All except medical ethics (n=350)	0.104 P=0.023*	B=0.053 (0.003,0.027) P=0.027*	Exp(B)=0.976 (0.958,0.994) P=0.015*

Table 4. Statistical significance testing for changes in score with year

* = Significant at P <0.05. ns=not significant

killing invasive species. Schmidtz (2011) supports vegetarianism and respect for sentient life, but still would allow killing of invasive species.

More recently, with advances in technology, Rohwer (2020) supports gene drives as an alternative to killing, though Lean (2020) still supports killing invasive species in some cases. Inglis (2020) urges readers to stop demonising ‘invasive species’ and indeed to stop using the term at all.

It is not only philosophers who have changed their thinking about invasive species. Conservation scientists have been advocating ‘compassionate conservation’ as a means of preserving the environment while also respecting the lives of individual unwanted animals (Coghlan and Cardilini 2022). The Jane Goodall Institute is one conservation charity that has embraced ‘compassionate conservation’ (Margodt, 2022). Recent learning resources from a conservation education NGO have shown a more holistic and empathetic approach to unwanted animal control, when compared with older material (Morris 2021b).

3.4. Qualitative changes: General ethics

This was the only topic that showed a statistically significant shift away from status quo thinking when considered by itself (Table 4). Early papers concentrated on Singer’s and Regan’s (1975-1980) arguments on whether animals should have moral consideration, (eg Podstow 1977, Vandever 1980, Sencerz 1980).

In recent papers, sentience and animal rights are taken for granted. Arguments are made to extend consideration, and to affirm more complex cognitive abilities than mere sentience. As far back as 1980, Bishop (1980) considered that animals

can think. Sapontzis (1990) argues that animals are ‘valuers’, meaning they can experience things as having value. Musschenga (2015) considers that animals are moral agents, and Towley (2010) explores friendships with animals. There are also arguments to extend sentience consideration to insects (Lamey, 2016; Monsó & Osuna-Mascaró 2020).

Discussion

Overall, our results show a slight yet significant shift in thinking towards the view that animals matter morally, and support for a vegan ethic. The shift does not justify the optimism of Singer (1990), who proclaimed the case for animal consideration to be ‘won.’ And it has taken 45 years to get this far. However, it should be noted that turning against the prevailing view practiced (if not professed) by over 95% of the world population that animals are ours to eat and experiment on, is still an impressive achievement.

This systematic review has some limitations. One is that while there are some authors who are obviously supportive of the vegan ideal, and others who are obviously hostile, there are also many grey areas, and assigning scores is subjective. This difficulty was mitigated somewhat by having a second reviewer for controversial cases and solving disagreements through consensus and discussion.

The lack of blinding is another consideration. While every effort was made to ensure the second reviewer was not influenced by knowledge of the null hypothesis, this was something that couldn’t be held back from the author. The possibility of unconscious bias can therefore not be discounted. The subjective nature of the scoring and the possibility of bias are reasons why I have made all the data available for others to scrutinise.

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Another limitation is that in confining the search term to Singer's "animal liberation", the searched items were skewed in favour of Eurocentric ethics, even among papers written in non-European languages.

For example, a paper by Kotagi (2006) in Japanese, solely discussed animal liberation in terms of Western philosophers. Kitō (2015a) mentions the peculiarly Japanese tradition of memorial services to animals 'sacrificed' for scientific experiments, but she discusses animal ethics through the lens of contemporary Christian philosophy. Two Taiwanese authors likewise see animal ethics as a Western construct (Yuquan 2005, Zhang 2011).

There were only three papers that discussed animal ethics from a non-western viewpoint. One was in Indonesian, and it supported the use of animals in Hindu sacrifices (Asmarani 2020). Among the papers in English, Palmquist and Chan (2016) discuss animal issues at least partly in terms of Confucian ethics, and Kagawa-Fox (2010) discusses environmental ethics from a Japanese perspective.

However, in spite of these shortcomings, the progressive and significant increase in papers favourable to a vegan ideal (Table 4), together with the significantly greater than expected proliferation in papers citing Singer's (1975, 1990) work (Table 1), provide some support for Singer's (1990) claim that the philosophical case has been strengthened, though it would be optimistic to claim it has been 'won'.

This leads to several practical considerations.

The first is that a philosophical consensus should lead to a political consensus. This means that governments need to pro-

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vide serious policy considerations to better safeguarding the interests of animals, as pointed out in one of the papers reviewed (McShane, 2016).

This will need to include measures to phase out animal agriculture and animal experiments, and an immediate ban on less acceptable yet engrained practices such as jumps racing and rodeo. Given the strong shift in thinking among environmental ethicists towards non-lethal means of ‘pest’ control, investment in compassionate conservation and education should also be a priority (Morris 2021b).

A further consideration should be the role of philosophy. Philosophical texts and explanations for undergraduates stress the importance of philosophy in the pursuit of ‘wisdom truth and knowledge’, (eg Metcalf, 2020). Philosophers are generally not as well listened to as scientists, and changes in their consensus are often more protracted, relying as they do on discussions, conceptual investigation, logic, and intuition rather than falsifiable experiments. Nevertheless, if philosophy is to mean anything more than a sterile intellectual past-time then one needs to take seriously the claim that philosophical consensus can at the very least point the way toward objective truth.

This does not mean that something is true simply because a majority believes it. As DeGrazia (1996) and Gradidge et al. (2021) point out, modern Western society is enmeshed in an animal-eating and abusing culture, and sophisticated justifications to continue abusing them are the norm. Large meat, dairy and pharmaceutical companies have disproportionate influence among politicians, policy makers and the general public. When forming ethical conclusions on animal issues it is therefore important to check for ingrained bias.

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However, philosophers are supposedly trained in independent thinking. This is reinforced through interactions with a community that is likewise trained. Unlike the staff in faculties such as agriculture and medicine and publishing in medical journals, they are not usually paid or funded by industries tied in with animal exploitation (Lo and Field 2009).

It is interesting in this regard that the papers reviewed here in the field of medical ethics are the least conducive to a change of attitude towards animal concerns (Table 4). Most of the medical ethics papers surveyed were published in specialised bioethics journals. It is possible that these could be influenced by the medical community, which has more conservative attitudes towards animal experimentation (Lohse 2021).

A shift in views, occurring in spite of the prevailing social attitude towards animals, and in the face of discrimination against vegans (Horta 2018) and hostility to the vegan idea (Gradidge et al., 2021), is a genuine advance that suggests at the very least that animal interests need to be taken seriously.

This study also highlights the usefulness of systematic reviews among philosophers in finding out what type of philosophical problems need to be addressed.

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Note: Only key references are listed. References used for the review are included in the supplementary material (<https://zenodo.org/record/5673846#.YYykjLrRWM8>).

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