

25 In response to public concern after the publication of Ruth Harrison's *Animal Machines* in
26 1964, the British Government appointed a committee to investigate intensive livestock
27 farming. In the following year the *Report of the Technical Committee to Enquire into the*
28 *Welfare of Animals kept under Intensive Livestock Husbandry Systems* (1965) was published.
29 In this landmark report the Five Freedoms are found in their embryonic form, sometimes
30 called 'Brambell's Five Freedoms':

31 An animal should at least have sufficient freedom of movement to be able without difficulty, to turn
32 round, groom itself, get up, lie down and stretch its limbs. (Brambell 1965 p13)

33 The Brambell Report recommended the creation of a farm animal advisory committee
34 (Brambell 1965 p61). The Farm Animal Welfare Advisory Committee (FAWAC) held its
35 first meeting in October 1967 (FAWAC 1967)¹. In July 1979 the Farm Animal Welfare
36 Council (FAWC) was established and FAWAC was disbanded.

37 In *Animal Welfare, a Cool Eye towards Eden*, John Webster, a past member of both FAWAC
38 and its successor FAWC, writes of the original formulation:

39 These minimal standards (which have yet to be achieved) came to be known as the 'Five Freedoms'
40 and for many years dominated discussion of animal welfare in Europe. In my early years on the UK
41 Farm Animal Welfare Council (FAWC), I suggested that this obsession with space requirements was very
42 narrow-minded, since it concentrated almost exclusively on one aspect of behaviour (comfort seeking)
43 to the exclusion of everything else that might contribute to good welfare, like good food, good health,
44 security, etc. (Webster 1994 p.11)

45 He continues:

46 Preserving the concept of the 'Five Freedoms', I attempted to produce a logical, comprehensive
47 method for first analysis of *all* the factors likely to influence the welfare of farm animals, whether on
48 the farm itself, in transit or at the point of slaughter. (Webster 1994 p.11)

¹ Chaired by the zoologist Professor Humphrey Hewer.

49 The current official conception of the Five Freedoms, as employed by the advisory body that
50 created the framework, is documented on the FAWC website. First, FAWC outlines its
51 definition of animal welfare. Second, FAWC lists the Five Freedoms:

52 The welfare of an animal includes its physical and mental state and we consider that good animal
53 welfare implies both fitness and a sense of well-being. Any animal kept by man, must at least, be
54 protected from unnecessary suffering.

55

56 We believe that an animal's welfare, whether on farm, in transit, at market or at a place of slaughter
57 should be considered in terms of 'five freedoms'. These freedoms define ideal states rather than
58 standards for acceptable welfare. They form a logical and comprehensive framework for analysis of
59 welfare within any system together with the steps and compromises necessary to safeguard and
60 improve welfare within the proper constraints of an effective livestock industry. (FAWC website
61 undated)

62 The Five Freedoms in their current format are listed below (FAWC 2010):

- 63 **1.** Freedom from hunger and thirst - by ready access to water and a diet to maintain
64 health and vigour.
- 65 **2.** Freedom from discomfort - by providing an appropriate environment including shelter
66 and a comfortable resting area.
- 67 **3.** Freedom from pain, injury and disease - by prevention or rapid diagnosis and
68 treatment.
- 69 **4.** Freedom to express normal behaviour - by providing sufficient space, proper facilities
70 and appropriate company of the animal's own kind.
- 71 **5.** Freedom from fear and distress - by ensuring conditions and treatment, which avoid
72 mental suffering.

73 The Five Freedoms have had an enormous impact on animal welfare. For instance, the UK
74 Animal Welfare Act 2006 mandates duties based on them. Owners and keepers in England
75 and Wales (and similarly in Scotland) are legally responsible for ensuring that the welfare
76 needs of their animals are met. These needs include a suitable environment (place to live), a
77 suitable diet, the need to exhibit normal behaviour patterns, to be housed with, or apart from,
78 other animals (if applicable) and to be protected from pain, injury, suffering and disease
79 (National Archives 2012). The Five Freedoms form the basis of the various UK Defra Codes
80 of Recommendations for the Welfare of Livestock, e.g. those for Meat Chickens and
81 Breeding Chickens (2002), Pigs (2003) and Cattle (2003). The Five Freedoms are also
82 prominent in the criteria and sub-criteria of the European Welfare Quality® scheme, a large
83 and potentially far reaching welfare assessment project (Botreau et al 2007; Veissier et al
84 2011). Finally, the Five Freedoms are commonly used in the education of veterinary students
85 and animal welfare science students.

86 Despite their success in terms of impact, the Five Freedoms have, perhaps surprisingly, not
87 been subject to any rigorous analysis in terms of their adequacy. Consider the consequences
88 if the Five Freedoms were inadequate as a framework for the analysis of animal welfare: the
89 welfare of billions of animals might have been and would continue to be assessed using a
90 framework that is not fit for purpose. Similarly, if the Five Freedoms stipulated arbitrary and
91 unnecessary conditions for animals, which were not relevant to their welfare, then livestock
92 producers would be burdened by excessive regulations and recommendations. The simple
93 question that needs to be asked is: ‘Are they fit for purpose?’ To answer this question, the
94 Five Freedoms are examined from first principles, using critical reasoning to assess their
95 sufficiency.

96 **ANALYSIS OF THE FIVE FREEDOMS**

97 Each of the Freedoms is composed of two parts. The first part is called the *freedom* and the
98 second part the *provision* (Webster 2006 p.12). As has been widely observed, in four of the
99 freedoms, the freedom denotes freedom *from* (e.g. freedom from hunger and thirst), whereas
100 in the fourth freedom, the freedom denotes freedom *to* (freedom to express normal
101 behaviour). *Freedom from* can be interpreted as *not* having the state or condition contained in
102 that freedom. In the case of the fourth freedom, the *freedom to* is interpreted as *being able to*
103 express normal behaviour. Some of the freedoms are freedoms from multiple conditions (eg
104 hunger and thirst), rather than from a single condition (discomfort). Some of the freedoms
105 denote relatively simple conditions (hunger, thirst, pain, fear) whilst others denote more
106 complex conditions (discomfort, injury, disease, normal behaviour, distress)².

107 Although there are nominally five freedoms (the ‘Five Freedoms’), in actual fact the Five
108 Freedoms denote nine conditions (hunger, thirst, discomfort, pain, injury, disease, expression
109 of normal behaviour, fear and distress), as previously noted by Webster (2005 p.15). In
110 addition, discomfort and distress are ‘catch-all’ type words, denoting not simple and
111 irreducible mental and physical states, but complex ones. For instance, consider the word
112 discomfort. On a given day, a human individual could reasonably and accurately describe
113 herself to be in a state of discomfort due to the ache from a lower back condition. Another
114 day, she could report a state of discomfort through having sore feet as a result of prolonged
115 standing. In contrast, hunger and thirst are simpler sensations. It does not make sense to
116 report being hungry in one way on Monday whilst being hungry in quite another way on

² I use the words ‘simple’ and ‘complex’ here to refer to the range of phenomena that the condition covers. Hunger, thirst, pain and fear are terms that refer to well defined physiological processes. In contrast, discomfort, injury, disease, normal behaviour and distress do not refer to well defined physiological processes in the same way. For instance, pain is an aversive sensory and emotional experience caused by stimulation of nociceptors. Discomfort is a much more general terms and its referents include physical and thermal discomfort. Injury, disease and normal behaviour are very general or vague terms since an animal can be injured or diseased, or exhibit normal behaviour, in a multitude of ways.

117 Friday. Of course, one can feel more or less hungry and thirsty, but these are sensations that
118 are qualitatively the same, although they can vary in intensity (a quantitative measure).

119 Examining now the provisions, the main descriptive point to make about them is their use of
120 general words. Consider the words *appropriate*, *sufficient*, *proper*, *conditions* and *treatment*.

121 The Five Freedoms are general guidelines for animal welfare (compared to specific
122 guidelines for, say, breeder broiler hens); therefore a high level of generality is to be
123 expected. Such generality works to give greater scope to the application of the Five
124 Freedoms.

125 **ARE THE FIVE FREEDOMS FIT FOR PURPOSE?**

126 The Five Freedoms are a framework for the analysis of animal welfare. However, in what
127 way can the framework itself be assessed for fitness for purpose? One approach would be to
128 challenge it with a particular definition of animal welfare. For example, Broome (1986) has
129 defined animal welfare as the state of an animal with respect to its ability to cope with its
130 environment. Similarly, animal welfare has been variously understood as being
131 predominantly feelings-based (e.g. Duncan 1993), predominantly physical/functional-based
132 (e.g. McGlone 1993) and predominantly naturalness-based (e.g. Brambell 1965; Rollin
133 1993). However, any strict definition will necessarily limit what can qualify as good animal
134 welfare. For instance, if we define good animal welfare as ‘fit and feeling good’ (Webster
135 2005), then good animal welfare is limited to an animal that is fit and feeling good.

136 Animal welfare is concerned with what has prudential value to an animal, i.e. what is *good*
137 for an animal. The concept of animal welfare therefore has normative elements, which partly
138 explains why it has been so highly contested³. Humans can have different but reasonable
139 conceptions of the good in human society (Rawls 1971). Similarly, we can have different but

³ See Haynes (2010) for a comprehensive discussion of competing conceptions of animal welfare.

140 reasonable conceptions of the good for animals (i.e. what causes animals to have good or
141 poor welfare). It is for this reason that the Five Freedoms framework should be challenged by
142 the broadest possible reasonable conception of animal welfare. If we used a narrower
143 conception of animal welfare to assess the adequacy of the Five Freedoms, then the analysis
144 would be susceptible to the criticism that the investigation was in effect a tautology: first we
145 select a favoured definition of animal welfare; second we analyse the Five Freedoms
146 framework in terms of the narrow definition. Fraser's integrative conception of animal
147 welfare, which encompasses feelings-based, physical-based and naturalness based elements,
148 can be used to illustrate the idea of a broad and flexible notion of animal welfare:

149 At least three overlapping ethical concerns are commonly expressed regarding the quality of life of
150 animals: (1) that animals should lead natural lives through the development and use of their natural
151 adaptations and capabilities, (2) that animals should feel well by being free from prolonged and intense
152 fear, pain and other negative states, and by experiencing normal pleasures, and (3) that animals should
153 function well, in the sense of satisfactory health, growth and normal functioning of physiological and
154 behavioural systems. (Fraser et al 1997)

155 Hence, we should use the broadest possible reasonable conception of animal welfare when
156 assessing the Five Freedoms. In addition to this, we should be willing to alter any pre-
157 conceived limitations to our conception of animal welfare. Once we have a broad and flexible
158 notion of animal welfare, critical reasoning is used to scrutinise the Five Freedoms as a
159 framework for the analysis of animal welfare, in terms of necessary and sufficient conditions.
160 The process of evaluating the Five Freedoms is in fact a two way process as the deliberator is
161 potentially also revising his/her conception of animal welfare. If this is the case, the approach
162 might then be criticised for lacking concrete grounds in terms of justification. However, the
163 process of evaluating the Five Freedoms can, at least in part, be justified through
164 epistemological coherentism. This simply means that the conception of animal welfare in part
165 justifies the sufficiency of the Five Freedoms, and the sufficiency of the Five Freedoms in

166 part justifies the conception of animal welfare. This does not necessarily mean that the
167 reasoning is circular, and indeed the implication is intuitive; any purely *a priori* conception of
168 animal welfare should be viewed with suspicion, since any conception of animal welfare is
169 intimately tied up with the empirical assessment of animal welfare. Therefore the process of
170 justification is a dynamic one that involves the potential revision of both conception of
171 animal welfare and framework for analysis of animal welfare. (See Forsberg 2007 for a
172 discussion of coherentist justification). So, first we ask, is each freedom individually
173 necessary for good welfare? If the freedom is not a necessary condition for good animal
174 welfare, then an individual animal can experience good welfare without the condition being
175 satisfied. Second we ask, are the Five Freedoms, in combination, jointly sufficient for good
176 animal welfare? This is because even if each of the freedoms denote conditions that are
177 necessary for good welfare, it is possible that, in combination, the freedoms are not sufficient
178 for good welfare. A robust methodology of critical reasoning employing necessary and
179 sufficient conditions has been outlined. Despite the success of the Five Freedoms, the
180 framework has not before been evaluated in such a robust way before. The following sections
181 are a first attempt to conduct such an evaluation.

182 **ARE THE FIVE FREEDOMS INDIVIDUALLY NECESSARY?**

183 **Insert Table 1 here**

184 It is important first of all to examine if each of the freedoms is necessary as part of a
185 comprehensive framework for the analysis of animal welfare. If any of the freedoms are not
186 necessary, then they should be discarded as surplus to requirements⁴. In Table 1, the
187 freedoms have first of all been analysed into the conditions contained in the freedom and the

⁴ A freedom—or a condition denoted by a freedom—that is not necessary should be discarded because, amongst other reasons, regulation based on the Five Freedoms may unnecessarily burden farmers economically.

188 provision. In the next column, important terms are defined. These include all of the
189 conditions denoted by the Five Freedoms, together with the word ‘suffer’, which is part of the
190 provision of the fifth freedom. The provision of the fifth freedom is *by ensuring conditions*
191 *and treatment which avoid mental suffering*. The latter part can reasonably be interpreted as
192 freedom from mental suffering, so it is useful to define the important verb *to suffer* also.
193 These definitions have been adapted from the Oxford English Dictionary⁵ (OED 1996) and
194 are documented for the following reasons: First, a rigorous assessment of the Five Freedoms
195 necessitates an understanding of the terms that are contained within the framework. Second,
196 they are documented for illustrative purposes. By defining all of the relevant terms, it is a
197 short step to list the biological effects of the conditions satisfied and unsatisfied, in the fifth
198 and sixth columns respectively. However, it is not necessary to consider that these definitions
199 are being used in a strict, exhaustive sense themselves. Hence, the word ‘disease’ has a
200 meaning beyond the simple definition of an ‘unhealthy condition of the body or the mind’.
201 The ‘biological effects of the condition(s) satisfied column’ is often a restatement of the
202 definition of the condition itself. Documenting these definitions and their biological
203 interpretations alongside each other illustrates that no implicit, and possibly unjustified,
204 understandings of these words are being smuggled in. The ‘biological effects of the
205 condition(s) not satisfied’ column lists the physical and mental consequences that the animal
206 can be expected to experience if the condition(s) denoted by that freedom is/are not satisfied.
207 Finally, a judgement is made as to the effect on animal welfare, should the condition(s) not be
208 satisfied. If the judgement is negative, the condition(s) denoted by the freedom, and thus the
209 freedom itself, is a necessary component in an analysis of animal welfare. If the biological
210 effect of a condition that is not satisfied were judged not to be detrimental to animal welfare,

⁵ It is possible to define the words in a more technical sense, perhaps selecting from the scientific and philosophical literature. However, the selected definitions could be contested, ultimately leading to disputing the conclusions of this paper. Therefore although standard dictionary definitions are not ideal for all purposes, they are preferable to more technical definitions for the aims of this paper.

211 then that condition is unnecessary, and the freedom which contains it should be modified
212 accordingly.

213 The judgements in the final column of the table are negative for each of the Five Freedoms.
214 Hence, all of the Five Freedoms, including the conditions that are contained therein, are
215 individually judged to be a necessary component for the analysis of animal welfare. To be in
216 a state of discomfort, pain, fear or distress, to have an injury or disease, or to experience
217 mental suffering, are all states that are called unpleasant and ones that animals avoid. It might
218 be objected that sensations of hunger and thirst, at least within moderation, are not so
219 obviously negative. Pre-reflectively, there is perhaps a positive feeling bound up with hunger
220 and thirst. However, reflection reveals that it is not the hunger or thirst *per se* that is the
221 positive feeling, but rather the anticipation of the enjoyment of eating and drinking, which the
222 sensations of hunger and thirst motivate through the acquisition of food and drink
223 respectively.

224 An interesting point that is illustrated by a full analysis of the freedoms is their
225 interconnectedness. Many of the terms denoted by the conditions contained within the Five
226 Freedoms are inter-definitional. For instance, hunger and thirst are in part defined as
227 ‘discomfort’ (second freedom); discomfort is defined in part by ‘slight pain’ (third freedom);
228 pain is defined by ‘mental suffering’ or ‘distress’ (fifth freedom); fear is defined in part by
229 expectation of ‘pain’, distress by ‘severe pain’ and mental suffering by ‘being subjected to
230 pain’ (third freedom). The interconnectedness extends beyond this semantic, inter-
231 definitional phenomenon; the conditions are related at the biological (animal), rather than
232 simply the word, level. For instance, pain (third freedom) often causes reduced appetite
233 (hunger and thirst – first freedom), which may lead to a greater susceptibility to disease (third
234 freedom) through mental suffering (*distress* – fifth freedom) causing an immune-
235 compromised state. It could be argued that the interconnectedness suggest that some of the

236 conditions within the freedoms are superfluous. However it is likely that by discarding
237 conditions as unnecessary, the sufficiency of the framework overall might be jeopardised. For
238 instance although hunger and thirst are in part defined by discomfort, the ‘freedom from
239 discomfort’ condition is clearly not superfluous because its scope is far greater than this, for
240 instance including physical discomfort (e.g. important in a dairy cubicle system). Therefore
241 the overlapping nature of the Five Freedoms promotes its sufficiency as a framework for the
242 analysis of animal welfare.

243 **ARE THE FIVE FREEDOMS JOINTLY SUFFICIENT?**

244 Are the Five Freedoms sufficient as a framework for the analysis of animal welfare? To
245 answer this question, two methods of critical reasoning can be used. These are top-down,
246 analytical reasoning and bottom-up, synthetic reasoning. In top-down reasoning, scenarios
247 are conceived of an animal that is suffering poor welfare. This scenario is then compared
248 against the Five Freedoms framework, to see if the mode of suffering is covered by one of the
249 freedoms. For example, consider the idea of a piglet in the process of being tail-docked. The
250 piglet’s behaviour (vocalisation and escape behaviour) can be interpreted as indicating that
251 the piglet is feeling pain and discomfort, and possibly fear and distress. These conditions are
252 contained in the second, third and fifth freedoms. This reasoning can be carried out for any
253 number of possible husbandry scenarios. If just one scenario is deemed to cause suffering, but
254 is not covered by the Five Freedoms, they are deemed insufficient as a framework for the
255 analysis of animal welfare.

256 This reasoning process is very similar to Rawls’ method of reflective equilibrium. In the
257 latter, an individual considers which basic political conditions contractors deliberating under
258 a ‘veil of ignorance’ in an ‘original position’ would choose. In the method of reflective
259 equilibrium, an individual deliberates from moral principles (e.g. causing harm is *prima facie*

260 wrong) to particular moral judgements (e.g. harming a stranger for personal gain is wrong)
261 and back from moral judgements to moral principles. The principles are reflectively worked
262 out and the judgements are considered to be more pre-reflective and intuitive. In the event
263 that the principles and moral judgements conflict, one must be adjusted to be consistent with
264 the other (Rawls 1971 p.20). In a similar way, pre-reflective intuitive judgements about, for
265 example, animal husbandry procedures (a vocal piglet being tail-docked) are deliberated in
266 tandem with reflectively calculated principles (both the Five Freedoms and the conception of
267 animal welfare). In this way, evaluation of the Five Freedoms is very closely related to, but
268 not equivalent to, the evaluation of the deliberator's conception of animal welfare. This is
269 because the conception of animal welfare itself can change (hence the importance of a
270 flexible conception of animal welfare for this exercise). Therefore the exercise of evaluating
271 the Five Freedoms is also illuminating for one's own conception of animal welfare.

272 The bottom-up, synthetic approach begins with the Five Freedoms framework and works
273 upwards to an animal with good welfare. This method asks the question: does satisfaction of
274 the conditions denoted by the Five Freedoms lead to good animal welfare? If it does, then the
275 Five Freedoms are sufficient as a framework for the analysis of animal welfare. If satisfaction
276 of these freedoms does not lead necessarily to good welfare, then the Five Freedoms are not
277 sufficient as a framework for the analysis of animal welfare.

278 Webster (2005) suggests that the Five Freedoms are indeed not sufficient as a comprehensive
279 framework:

280 This list introduces an important further element, not included within the Five Freedoms, namely the
281 concept of exhaustion; the suffering experienced by animals that once could cope but now can cope no
282 more. The nearly-spent hen and the emaciated dairy cow do not suffer because they are killed at an
283 early age (death is the end of suffering). They suffer because they are not killed. They are made to
284 continue production when they appear, and feel, physically worn out. (Webster 2005 p.16)

285 Despites Webster’s concerns, suffering due to exhaustion appears to be covered by the Five
286 Freedoms. The word exhaustion indicates a sort of severe fatigue or tiredness that is, in the
287 case of farm animals, a result of being farmed at a biologically unsustainable rate. In the case
288 of the nearly ‘spent’ laying hen and the emaciated dairy cow, the suffering that they
289 experience is, arguably, covered by the conditions within the Five Freedoms framework. This
290 is a result of the wide scope that the freedoms have been formulated to have. Both the hen
291 and the dairy cow will likely suffer from hunger (first freedom) and the ‘feeling physically
292 worn out’ aspect may be covered by a broad interpretation of the fifth freedom (avoiding
293 conditions and treatment that avoid mental suffering.) In addition, Table 1 shows that the
294 state of exhaustion is included within the definition of distress. (This point illustrates the
295 utility of returning to the definitions of the concepts contained within the Five Freedoms
296 framework.)

297 With an understanding of this method to assess the sufficiency of the Five Freedoms, together
298 with an understanding of scientific method generally, it is evident that this judgement of
299 sufficiency is revisable in the light of scientific advancement. However, if, after reflection
300 and debate, it is considered that the Five Freedoms are sufficient for good animal welfare,
301 then it is reasonable to assume that this is a valid judgement not only now but for the
302 foreseeable future. This is because our current knowledge of farmed animal species (cows,
303 sheep, pigs, chickens etc, though perhaps not fish), in terms of their physiology and
304 behaviour, can be considered to be at a sufficiently advanced level to make this claim..

305 The above analysis therefore shows that the Five Freedoms are fit for purpose as a framework
306 for the analysis of animal welfare. However, what exactly are the Five Freedoms and what
307 attributes do they have, which contribute to their enduring nature and impact? These
308 questions are addressed in the next section.

309

THE FIVE FREEDOMS AS IDEALS OF ANIMAL WELFARE

310 The Farm Animal Welfare Council⁶ was the creator and is the natural guardian of the Five
311 Freedoms concept. In *Farm Animal Welfare in Great Britain: Past, Present and Future* the
312 Council clearly recognises their influence:

313 The Five Freedoms have achieved public recognition worldwide and can be found in national
314 legislation, marketing and farm assurance schemes, sometimes with minor modifications. They have
315 withstood much criticism and, within Great Britain, are the cornerstone of Government and industry
316 policy and the Codes of Recommendations for the Welfare of Livestock. (FAWC 2009 p2)

317 However, there are different interpretations of the Five Freedoms. The report's Introduction
318 states:

319 One criticism of the Five Freedoms is their focus on poor welfare and suffering. This focus was
320 undoubtedly appropriate at the time they were devised but the requirement to provide for an animal's
321 needs in the new Animal Welfare Act implies that good welfare should be an ambition too. (FAWC
322 2009 p2)

323 And in the Executive Summary to the same report:

324 Current legislation on the minimum standard of animal welfare is based on the avoidance of
325 unnecessary suffering and the provision of needs. The Five Freedoms themselves concentrate on
326 suffering and needs. This focus reinforces the negative image of farming and food production. (FAWC
327 2009 p.iii)

328 In contrast to this, the ideal nature of the Five Freedoms has been stressed by Webster:

329 The Five Freedoms identify the elements that determine the ideal welfare state as perceived by the
330 animals (i.e. feeling really good). The Five Provisions define the husbandry and resources required to
331 promote, if never achieve, this ideal welfare state. (Webster 2005 p.12)

⁶ The Farm Animal Welfare Council, a non-departmental public body, had its status changed to an expert committee on April 1 2011 and is now called the Farm Animal Welfare Committee.

332 FAWC also describes the Five Freedoms as ideals, as for example in its recent *Annual*
333 *Review 2009-2010*:

334 In considering the conditions under which farm animals are kept, the Council is guided by ideals that
335 have become known as the Five Freedoms (FAWC 2010 p.4)

336 What then is the correct interpretation of the framework? The tone of the freedoms can
337 appear to be negative in sentiment, probably because four of the freedoms have the form
338 *freedom from*. The *from* in the freedoms logically dictates that the condition of the freedom
339 must be stated in its negative aspect (e.g. *dis-comfort* versus *comfort*). Rather than talk about
340 the freedoms in terms of positive and negative aspects, for the purposes of discussion the
341 *freedom from* will be called a prohibition, and the *freedom to* a prescription. The first
342 freedom is the *freedom from hunger and thirst*, which are sensations that constitute negative
343 feelings (Table 1). If this freedom was formulated as a prescription, rather than a prohibition,
344 it might become something like *freedom to eat and drink* – or, perhaps more accurately,
345 *freedom to satisfy hunger and thirst*. Formulating the first freedom as a prescription appears
346 to be intelligible and practical. It simply prescribes that farm animals should be able to eat
347 and drink. Similarly, inverting the second freedom would yield *freedom to be comfortable*,
348 which is also intelligible and practical. However, when it comes to the third freedom,
349 *freedom from pain, injury and disease*, the intelligibility and practicability breaks down when
350 written as a prescription. In Table 1 pain is defined as ‘a strongly unpleasant bodily sensation
351 produced by illness, injury, or other harmful physical contact’ and ‘mental suffering or
352 distress’. A more precise definition of animal pain is:

353 An aversive sensory and emotional experience representing an awareness by the animal of damage or
354 threat to the integrity of its tissues. It changes the animal’s physiology and behaviour to reduce or avoid
355 the damage, to reduce the likelihood of recurrence and to promote recovery. (Molony 1997)

356 In particular, pain is stimulated by specific receptors called nociceptors. To formulate the
357 third freedom as a prescription, pleasure might be used as the opposite of pain. However, it is
358 not strictly accurate to describe pleasure as the opposite of pain. Of course, pleasure and pain
359 are often thought of as opposites, at least in everyday life, but the absence of any stimulation
360 of nociceptors does not cause pleasure, but merely a lack of pain. Indeed, an animal can be in
361 a pain-free state, without necessarily experiencing pleasure. Furthermore, an animal could be
362 experiencing another negative emotion, such as boredom, without it being in pain. So
363 *freedom from pain* cannot accurately be substituted by *freedom to experience pleasure*. This
364 leaves the option of writing the third freedom as *freedom to be free from pain* (disease and
365 distress are omitted here, for simplicity). However, such convoluted language indicates the
366 value of formulating at least some of the Five Freedoms in their negative aspect, i.e. as
367 prohibitions.⁷

368 FAWC has recently written that “The Five Freedoms themselves concentrate on suffering and
369 needs.” (FAWC 2009 p.iii). This is true in a sense; the words of the Five Freedoms do
370 concentrate on suffering and needs. This follows from their being, in the most part,
371 formulated as prohibitions. However, although the words concentrate on suffering and needs,
372 it does not follow that this limits the standard of welfare that farm animals themselves might
373 experience, should the Five Freedoms be satisfied. The *freedom from pain*, in the third
374 freedom, can be used to demonstrate this: *Freedom from pain* means, precisely, freedom from
375 pain. As has been argued above, strictly speaking, pain does not have a positive correlate. On
376 the other hand, it is well known that pain causes debilitation. Pain causes poor welfare
377 directly through its emotional aspect. However, the negative consequences of pain reach
378 further than this. Pain reduces welfare indirectly, via the reduced activity of the painful

⁷ This discussion assumes the centrality of consciousness and sentience in animal welfare. An early argument for animal sentience is found in Brambell (1965 pp.9-10) and there is now an extensive literature on animal consciousness and sentience (see for instance Stamp Dawkins 1993; Griffin 2001; Fraser 2008).

379 individual. Pain can cause mental depression and withdrawal behaviour (Broom & Fraser
380 2007 pp.62-64). Put simply, an animal in pain would not experience as much or any pleasure
381 through such activities as feeding and social interactions⁸. In contrast to the mentally
382 depressed and behaviourally withdrawn painful animal, a pain-free animal is not limited (by
383 pain at least) in terms of mental and behavioural activity. A pain-free animal, other things
384 being equal, is an animal that has the *freedom* to feel and act as it desires, which pain would
385 otherwise restrict. Putting all of this more generally, consider an animal that has all the
386 freedoms satisfied: it is not hungry or thirsty, not in discomfort or pain, does not have any
387 injuries or disease, is free to express normal behaviour and is free from fear, distress and
388 mental suffering. Some of the time, this animal might be in a neutral state with regards to
389 positive and negative feelings. However, much of the time the animal may be in a (very)
390 positive welfare state. This is because satisfaction of the various *freedoms from* (hunger,
391 thirst, discomfort, pain, injury, disease, fear, distress and mental suffering) and the *freedom to*
392 (express normal behaviour) allow the animal to flourish. An animal in this state will
393 experience the following as a direct result of satisfaction of freedoms: pleasure by the
394 satisfaction of desires through eating and drinking; a comfortable state; freedom from any
395 pain, injury and dis-ease; freedom to express normal behaviour; and a secure mental state.
396 However, this is not the end of it. Allowed the potential to flourish (freedoms satisfied), an
397 animal will naturally actualise its species-specific nature, its *telos*, the actualization of which
398 is often associated with the feeling of pleasure and contentment (Rollin 2006 p100)⁹. An
399 analogy to this can be taken from the subject of political philosophy. The doctrine of liberal
400 individualism emphasises the importance of an individual being able freely to think, act,
401 write and associate with others without impediment (Mill 1859). A restriction on these

⁸ Here, one can see that pleasure is diminished due to pain, not in a strictly necessary sense because pleasure is the opposite of pain, but rather because of the effects of pain.

⁹ Also see Nussbaum's capabilities approach (Nussbaum 2004).

402 activities either by the state or other individuals requires very strong reasons (normally
403 protection of the same rights for others). The thinking here is not that without any positive
404 action by the state or community, the individual will be limited in his/her well-being
405 (welfare) because the individual may choose to do nothing. Rather, individuals are more
406 likely to flourish under these conditions, due to fundamental aspects of human nature. The
407 situation with the freedoms is analogous. There is no limitation to animal welfare because the
408 words of the Five Freedoms concentrate on suffering and needs. Rather, these words refer to
409 vital and important interests (hunger and thirst, discomfort and pain) that an animal must
410 satisfy, in order to be able to experience good welfare.

411 The Five Freedoms are ideals, but they are mostly formulated in a negative sense, for logical
412 and practical reasons. Ideals, strictly speaking, are ‘highest conceptions’, ‘perfect’, ‘existing
413 only in idea’, ‘visionary’, and ‘dependent on the mind’. In contrast to this, the Five Freedoms
414 could have been cast as non-ideal, i.e. real. The formulation of the Five Freedoms as ideals
415 leads to both advantages and disadvantages as a framework for the analysis of animal
416 welfare. The main advantage is that the ideals are more likely to be complete and
417 comprehensive. Ideals are more likely to be durable through time, and can appear timeless,
418 as, for example, in the case of the Ten Commandments. The main disadvantage of the Five
419 Freedoms is also related to their *ideality*; cast as ideals, the freedoms cannot themselves
420 determine whether an animal’s welfare is unacceptable, satisfactory or good. The Five
421 Freedoms, in this sense, are a rigid framework for analysis. Although the Five Freedoms can
422 be judged in one sense to be sufficient as a framework for the analysis of animal welfare, they
423 do not provide guidelines as to what extent they should be satisfied for the animal to
424 experience good welfare.¹⁰

¹⁰ A second disadvantage is that if interpreted literally, the five freedoms can be criticised for being over-simplistic in not reflecting how sensations and emotions impact on motivation. For instance, an animal

CONCLUSION

425

426 The Five Freedoms may appear to describe an ideal but unattainable state ('Eden') (Webster 2005 p13)

427 The Five Freedoms have had an enormous impact; they have been translated into much
428 animal welfare legislation, codes of recommendations and farm animal welfare accreditation
429 schemes. Their success is no doubt in part due to their simplicity and the ease of
430 remembering the alliterative words: the 'Five Freedoms'. Despite this, the freedoms have not
431 been subject to a critical analysis in terms of their adequacy. Are they fit for purpose? This
432 paper has demonstrated that individually, each of the freedoms is a necessary component of
433 any comprehensive animal welfare analysis. Second, the Five Freedoms, as they currently
434 stand, appear to be sufficient as a framework for the analysis of animal welfare. However,
435 due to the progressive nature of science, whether the Five Freedoms really are sufficient for
436 the analysis of animal welfare will, to some extent, be an open question and subject to
437 revision.

438 The Five Freedoms are formulated as *ideals* of animal welfare. Ideals are highest conceptions
439 by definition and, therefore, the Five Freedoms framework does go well beyond a
440 concentration on animal suffering and needs alone. Finally, despite the Five Freedoms being
441 sufficient as a framework for the analysis of animal welfare, their *ideality* means that they do
442 not have the power to determine what is an acceptable level of animal welfare, in an ethical
443 sense. To determine this, an ethical framework is needed which can be used to prescribe how
444 humans ought to treat animals. FAWC's more recent contribution (2009) of the concepts of a
445 good life, a life worth living, and a life not worth living could be used to bridge this gap.

completely free from hunger would not eat, and though it would not suffer from hunger, it would perish of starvation. Similarly, pain has an important adaptive function whereby the individual negatively associates the causative stimulus and learns to avoid it in the future. In this sense the experience of an adaptive intensity and duration of the sensations and emotions contained in the freedoms is necessary for good welfare.

446 Whether they are suitable for this task, however, is a matter that requires future work to be
447 done.

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