

Plants in Ethics: Why Flourishing Deserves Moral Respect

ANGELA KALLHOFF

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Abstract:

“Flourishing” is a concept of the good life of plants which comprises an empirical and an evaluative aspect. In this article, I shall discuss this concept as a starting point for addressing the moral status of plants anew. Therefore, I shall first outline the content of flourishing as explained in botany. The article then explores the evaluative aspect of flourishing in the context of three questions. These questions are: How does the concept of flourishing fit into moral theory? Why do plants deserve a moral standing? And finally: What are the consequences of this approach to plants in ethics? The exploration of these questions contributes to a fine-grained perspective on moral implications of the capacity of plants to flourish.

In order to discuss the moral standing of plants, addressing the specific characteristics of the life of plants contributes to overcome a kinship-thesis. This thesis says that only those entities which are kin to persons are part of the moral universe. Starting with specific characteristics of non-human living beings, instead, pays tribute to their “otherness”. In many respects, plants are distinguished from animals. Insights in stress-aversive reactions of plants are particularly helpful in taking the specific characteristics of the life of plants seriously. In particular, plants display a set of strategies in order to realize an overall situation which will be discussed as the “flourishing” of plants. The concept of “flourishing” has primarily been explored as an alternative to concepts of “well-being” and “happiness” of persons. It mirrors Aristotelian insights in the good life.¹ Yet, it is also helpful as a concept of the good life of plants. Even though the moral implications of this perspective on plants are not self-understanding, I shall demonstrate that there are good reasons for addressing flourishing as an anchor stone for a plant ethics.

¹ For a discussion of the concept of “flourishing” in contemporary approaches to ethics, see [deleted for blind review].

Moreover, the concept of flourishing contributes to a clear-cut distinction between beneficial effects and events which are harmful to plants. This, in turn, supports the view that the key argument against a moral standing of plants in ethics, namely the argument that plants “cannot suffer”, also needs to be discussed anew. Even though plants do not possess the capacity to feel pain and therefore cannot be harmed in terms of literally “suffering”, once the concept of flourishing has been spelled out, harmful effects can be categorized as such. These insights do not automatically result in a defense of the moral standing of plants either. Yet, they contribute to re-thinking arguments for the inclusion of plants in ethics.

This article falls in five sections. The first section introduces the concept of “flourishing” as applied to the life of plants. The second section discusses implications of this description of the life of plants. In particular, it explains that “flourishing” is a double-aspect term, comprising an empirical and an evaluative aspect. The third section presents the central claim of this paper. It says that the capacity of plants to flourish provides a reason for moral respect. Section four gives a short and critical review of recent discussions of plants in ethics, all focusing on the “good life of plants”. Section five provides a sketch of some consequences of this interpretation for a plant ethics; it also gives two examples of how these insights play out on a concrete level.

1. Introducing the concept of “flourishing”

In order to explain the behavior of plants, it is helpful to discuss insights of theories on the reactions of plants to external stress.² Authors in that field of research demonstrate that plants employ *strategies* in order to cope with stressful environments. Examples of stress which frequently occur are water- and heat-stress, but also stress caused by parasites or extreme

² The following analysis is restricted to a group of plants: the vascular plants, which have also been called “higher plants”. Plants in this group have specialized tissues for conducting water, minerals and photosynthetic products. This group includes i.e. the ferns, flowering plants. In particular, most of the plants that serve human beings as nourishment belong to that group, i.e. crop, fruit-bearing trees and vegetables. If “flourishing” also can be applied to other groups of plants and non-plants, needs to be discussed on separate grounds.

environmental situations which deviate significantly from usual locational factors, i.e. heat, rain or wind. The strategies of plants are reactions to these events. A plant, which, e.g., suffers from heat-stress, balances the need to take in CO₂ against the threat of dying from an undersupply of water. Opening the stomata for breathing might result in vaporating too much water; these strategies have been examined in plants of the desert (Nover et al., 2011).

Another strategy is the constitution of antibiotics and the encapsulation of a fungus which settles at the surface of a leaf and tries to invade the plant (Hirt, 2009). Yet, it also has to be said that as long as plants are in a situation to react actively, none of these events is harmful. Whether or not plants have the capacity to react depends on their genes, but also on their overall strength.

Not only philosophers, but also botanists choose a second perspective when they do not only describe these mechanisms, but also ask *why* plants employ that stress-aversive behavior. The life of plant has “plasticity” regarding the set of possible reactions to stress. In particular, surviving or staying healthy is not a perfectly convincing answer. Instead, reasonable answers are: Plants are organized in a way that a complete life-cycle has priority over remaining unaffected by periodic stress. Another answer is: Plants react actively to environmental factors in a way which does not only protect them from damage, but also contributes to processes of development including the realization of typical characteristics.³ “Flourishing” is a term which explains this set of reactions of plants.

In order to explain its content, the concept of “flourishing” can be broken down into three conditions. Together, they are sufficient conditions for attributing “flourishing”. A higher plant flourishes when

- a) it is viable throughout its life, so that it is capable of reacting to external stress without endangering its overall performance which sustains its life;

³ For a summary of this interpretation of the life of plants and an exploration of the components of flourishing, see [obliterated for blind review]

- b) it is capable of accomplishing its typical life-cycle (juvenile phases, adult phases that end with proliferation);
- c) it succeeds in expressing the typical characteristics both as a plant which has a specific life-form and as a more specific organism, generally fitting its species description.

Each of the elements implies theoretical concepts that have to be explained. As for (a), viability is a concept which explains the relative strength of a plant in a particular situation. Different from “health”, viability does not only imply that a plant is free from an “illness”. Instead, it is in a situation to perform its vital functions successfully. The condition (b) indicates that flourishing is a concept for the overall good life of an individual plant. Plants are organized in a way that the achievement of a complete life cycle has priority. Proliferation is an important element in realizing flourishing. As for (c) it is important that plants develop characteristics as plants and as a specific type of plants.⁴ All three elements together describe the “good life” of plants.

2. Implications of the concept of flourishing

After this short sketch of the concepts of “flourishing” and of “strategies”, I shall first explain why this concept might serve as a starting-point for a moral reconsideration of plants. I shall then discuss its implications for ethics and underlying methodological theses.

The concept of flourishing may serve as a starting-point for a plant ethics for three reasons. *First*, the concept is not only explanatory in that it is part of answering the questions why plants behave in a certain way. Instead, it relates to various key concepts in explaining the behavior of plants in natural sciences: It says that plants develop characteristic properties according to their life-form; it says that situations in which plants are not only healthy, but vital, can be distinguished from situations of decline and from plant diseases; it explains the life-cycle of higher plants and the role which breeding plays within that cycle. Moreover, the

⁴ I am aware of the difficulties in applying a species notion. For my argument, it suffices to say that species characteristics relate to central characteristics of a natural being.

concept of flourishing gives an interpretation of a plant as an organism that realizes processes of development which – on a scientific level – can be explained systematically. This perspective on a plant is central in botany, even though plants are of course studied on the molecular level as well.

Secondly, flourishing is a pre-moral, yet evaluative notion of the life of plants.⁵ It is a concept which includes an evaluative, yet not morally founded component. It describes the “good” of an organism. In that respect, it is comparable to the notion of “well-being” in animal ethics, even though it relates to a set of capacities which do not include consciousness or sentiment. In particular, flourishing as well as well-being are states of affairs which living entities pursue actively. It refers to tendencies in the life of a plant which result (a) from the genetic disposition of a plant, (b) from strategies which are also part of the physical outlook of a plant and which are part of the plasticity of plants’ reactions to the environment and (c) the capacity of plants to actively pursue what supports its specific life-cycle.

Third, because of the precise empirical content of flourishing, it is possible to sort out causal impacts on a plant which are either harmful or beneficial to a singular plant. Moreover, the consequences of effects on populations can also be studied. Harmful empirical events disturb the flourishing of a plant; they possibly also destruct a plant and disturb populations. Overall, “doing harm to a plant” can now be given a precise content.

In turning to the methodological side, two comments are necessary. The first focuses on the implications of a double-aspect term; the other on the meaning of the observations on “flourishing” for the question of whether or not plants deserve moral respect.

As for the methods which this approach to plants employs, it is in some critical respects coherent with the approach of Nicholas Agar (2001). Agar defends a biocentric position in ethics; in particular, his approach is interdisciplinary. In defending this approach, he first

⁵ For the distinction between moral and pre-moral notions of good, see (Frankena, 1963: 1–10).

distinguishes two extreme options in defining the relationship between ethical concepts and scientific concepts in applied ethics (Agar, 2001: 5–6). A *conservative* approach says that moral philosophers discover fundamental moral principles; ecologists and evolutionary biologists help to formulate principles accordingly. In this approach, natural sciences work on the level of “application” of moral principles. A *radical* approach, instead, includes that the natural sciences can contribute to forming new ethical principles. His own approach differs from both. In order to explore new grounds, it is helpful to start with a widely shared folk understanding of a term which has some meaning in the context of ethics. Scientific research contributes to clarifying the content of that concept. Methodologically, this path follows the patterns of specification which are common practice in natural sciences. Yet, Agar states that this method also works within an interdisciplinary approach. A rough ethical concept can be highlighted and differentiated in discussing its empirical content.⁶

Methodologically, the exploration of “flourishing” follows a similar path. In order to outline the content of “flourishing”, insights regarding the life-cycle, the life-form and the characteristic activities of plants as explained in botany are taken into account. Yet, different from Agar, I do not start with a “folk term”, but instead with a concept which has already been discussed in ethics, yet in another context. Flourishing serves as a concept of the good life of persons. It is part of an approach to ethics which lays emphasis on the natural make-up of persons. It says that persons have inborn capacities. In order to lead a good life, it is necessary to develop these basic capacities first.⁷ In that context, flourishing is explored as a basic concept of the good life and in one line with concepts such as “happiness”, “well-being” etc. To say that this concept is useful in addressing plants, does not say that the set of

⁶ “Though the normative component won’t be mapped onto any moral natural kinds, progress with respect to the descriptive component can ‘drag’ views about the normative component along with it.” (Agar, 2001: 13)

⁷ The concept of “flourishing” has been discussed in research on the Aristotelian ethics. For this, see FN 3. Recently, it has received a prominent place both in Martha C. Nussbaum’s capabilities approach (Nussbaum, 2006) and in ethics in the context of discussion on Aristotelian ethical naturalism.

underlying natural capacities is the same in persons and in plants. Instead, it says that in order to explain the good life of living beings which unfold and tend to realize a specific life-form, it is necessary to look at the biological side as well.

Yet, a precise description of the content and status of “flourishing” does not suffice for defending a moral status of plants. Different from biocentric approaches, a plant is not automatically the addressee of moral claims because it has the capacity to flourish.⁸ Instead, the moral considerations need to be outlined in more detail.

3. On the moral standing of plants

In order to defend a moral standing of plants, one of two strategies has been chosen: either extensionalism or biocentrism. I shall give a short sketch in turn and then explain why I shall favor a third option. I shall then outline my argument.

First, one might integrate plants in moral reasoning by choosing an “extensionalist strategy”.

This strategy widens the scope of ethics and includes a range of non-human moral patients (Krebs, 1999: 22). The reasons for this option vary. One might argue that if moral properties count, they do have to count generally. This is a claim about coherency in drawing a moral framework. Yet, one might also defend an extensionalist strategy because – following Singer (Singer, 1975: 7, 16) – “speciesism” is unfair. As Varner illustrates, there are two different interpretations of Singer’s anti-speciesism claim: “some authors write as if favoring any members of one species over another is speciesist, whereas others equate speciesism with ignoring or differentially weighing the similar interests of different species.” (Varner, 2011: 171) Following Varner, it is the second claim which interprets Singer’s theses in the right way. Anti-speciesism then results in the claim to judge similar cases similarly (ibid.: 172) and

⁸ It needs to be said that this is only a very shallow sketch of biocentrism. Actually, biocentrists pay tribute to the fact-value dichotomy; moreover, they say that attributing “intrinsic value” does not automatically result in moral claims. Instead, more cautious biocentric positions say that attributing value to the life of plants shifts the burdens of proof. As an effect, doing harm to plants is not “morally innocent”, but needs to be integrated into moral thinking. For helpful distinctions underlying these fine-grained options, see (Drenthen, 2011; Sterba, 1995).

to be consistent in relating moral claims to categories describing the capacities of living entities. In the second interpretation, the argument is similar to the first argument. Yet, Varner also reminds us that this option does not speak against judging cases, in which different interests play different roles, also in a different way.

Extensionalist approaches do not have to start with defending moral concepts from scratch. Instead, they start with a set of categories, whose moral relevance has already been elaborated in ethics. In the context of utilitarianism, it is the category of “interests”, “pleasure” and “pain”, in Kantian ethics it is “reason” and “dignity”, in the framework of Aristotle’s ethics, it is “virtues” and “happiness”, possibly also “human flourishing”. Extensionalists then argue for a consistent application of that category to all relevant cases. In the second interpretation of Singer’s claims in *Animal Liberation*, extensionalist strategies can be reduced to saying: “judge similar cases similarly” (ibid.).

I shall now first discuss *extensionalism* in order to prepare my approach to including plants as moral patients. I shall start with a short critique of that set of strategies. In my view, the major problem with extensionalist strategies is that *anthropomorphism* re-surfaces. Different from anthropocentrism, *anthropomorphism* does not say that a moral theory either derives its epistemic rationales or its moral reasons exclusively from the perspective of persons. Instead, it says that moral concepts derive part of their legitimacy from being particularly appropriate in describing human life. As a consequence from anthropomorphism in ethics, moral concern is restricted to concepts and approaches to which persons are – for good reasons – acquainted with in moral theory. In particular, these concepts are particularly well-chosen for describing situations and resulting moral claims concerning the life of persons. This limitation is not self-understanding. One might also choose concepts for expressing moral concern which deviate from this.

The *second strategy* in order to defend a moral standing of plants is biocentrism. For defending this claim, biocentrists have elaborated a perspective on living entities which relates the claim for moral respect to the fact of being a living entity. Broadly stated, biocentrists defend the view that each living entity deserves moral respect.⁹ Biocentrists also defend the view that living entities are bearers of intrinsic value.

To be fair to biocentrism, it also has to be said that biocentrists do not necessarily defend moral egalitarianism in the sense of claiming an *equal* moral respect for all living entities. Instead, biocentrism is a moral theory which distinguishes between various levels of concern. Criteria for distinguishing these levels of concern vary. Some authors hold the view that complexity of a living entity relates to the moral weight of normative claims (Attfield, 1991). Further authors defend value pluralism. As a consequence, moral considerations of a living entity needs to be discussed within contexts in which a set of various values needs to be discussed (Varner, 1998). Underlying these distinctions is the view that two different claims need to be kept apart. Following Goodpaster, defending a moral status of a living entity must be kept apart from attributing a specific weight to the claims that follow from the first. Goodpaster wishes to distinguish moral considerability from moral significance (Goodpaster, 1978).¹⁰ Yet, what justifies calling a position biocentric, is that the claim for moral respect is – in some way – systematically related to attributing “life”. Yet, biocentrism does not introduce criteria for distinguishing between various types of harm which can be inflicted to a living entity.

The strategy which I shall now propose in order to discuss plants in ethics anew takes “flourishing” as its starting-point. “Flourishing” fits the life of plants particularly well. It does

⁹ The following authors count as pioneers of biocentrism: (Attfield, 1991; Schweitzer, 1981; Taylor, 1986). Further biocentric accounts and distinctions in biocentrism have been elaborated by (Agar, 2001) and (Varner, 1998).

¹⁰ A claim which goes in a similar direction can be defended in the context of virtue ethics. Following Kawall two things need to be kept apart: insight in moral rightness on the one hand, and decision procedures on the other side (Kawall, 2003).

not suffer from “anthropomorphism”, but instead relies on empirical insights in the life and in the performances of plants. Moreover, “flourishing” is as a pre-moral notion of the “good” of that living entity. In sum, “flourishing” addresses the “otherness” of the life-form of plants.

The next step is a discussion of how this notion can be integrated into moral reasoning.

“Flourishing” is not only an automatic process in the life of plants. Sure, under conditions which are not detrimental to the life of a plant, it will flourish. The more important insight is that a plant struggles to realize a situation in which it flourishes. It displays strategies which contribute not only to staying alive and remaining healthy throughout episodes of external stress; the organism also modifies its basic functions in order to realize a situation which has been described as “flourishing” (see section 2). This includes struggling for realizing a complete life-span, expressing species characteristics, and staying vital throughout this whole process. Even though this does not imply intelligence similar to the intelligence of persons, nor does it imply “autonomy”,¹¹ plants display strategies in order to realize their specific type of flourishing. The reason for addressing this situation in moral terms results from two insights: Regarding the struggle of individuals to realize flourishing, the category of “harm” can be applied. Moreover, an argument for “not inflicting harm arbitrarily” in this specified case and an explication of the consequences of this reasoning can be outlined.

Following an insight of Von Wright in discussing various meanings of “the good” (Wright, 1972: 11-13), the beneficial and the harmful are closely related to a notion of the well-being of an entity. Moreover, both notions comprise an empirical and an axiological level. Inflicting harm on a living being says that a living entity is disturbed with respect to life-processes which are critical to its good life. In my view, the concept of flourishing fits into this explanation. It has an axiological and an empirical aspect; moreover, it is a notion of the good

¹¹ Some authors have defended the claim that plants are similar to persons in either possessing “intelligence” (Heyd, 2007) or even “intentionality” (Marder, 2013: 158); therefore they say plants are much closer to persons than usually presupposed. In my view, in saying this, the authors fall back into the anthropomorphism-trap.

life of a living entity which that entity actively pursues. In particular, “flourishing” has the discriminatory force which is needed in order to apply the category of “harm” adequately. To harm a plant includes an interference with processes of flourishing. Severe harm destroys the very option of flourishing. In order to outline the moral implications of this line of argument, it is important to notice that at its baseline is the idea that this specific type of harm is not justified. In explaining Aristotelian roots of her capabilities approach, Martha C. Nussbaum explains: “The approach includes ... an ethical concern that the functions of life not be impeded, that the dignity of living organisms not be violated. Unlike Greek thinkers in the Platonist tradition, Aristotle seems not to have pursued such thoughts. ... And yet, if we feel wonder looking at a complex organism, that wonder at least suggests the idea that it is good for that being to persist and flourish as the kind of thing it is. This idea is at least closely related to an ethical judgment that it is wrong when the flourishing of a creature is blocked by the harmful agency of another.” (Nussbaum, 2004: 306) The moral insight which Nussbaum outlines applies to the flourishing of plants as well. It is wrong to block flourishing. The reason is not that inflicting harm is accompanied by “pain”. Instead, it is wrong because that living entity struggles to realize a good life which expresses its very potential. This very basic idea of why persons should not disturb the flourishing of a living entity, is the anchor for discussing plant ethics anew.

I shall now give some comments on what this approach to plant ethics implies and what it does *not* imply. *First*, this approach to the life of plants claims that if the flourishing of plant suffers negative effects from human actions, this should be part of the process of an ethical assessment of that action. Yet, in order to give a precise account of moral reasoning in that case, the framework of a plant ethics needs to be elaborated in detail (*deleted for blind review*). In particular, the evaluation of “harmful effects” corresponds to a broader evaluation

of relations between human beings and plants.¹² One distinction which is particularly important in evaluating the overall situation is the distinction between cultivated nature and areas of wild nature.¹³ In cultivating plants, respecting flourishing includes that practices respond to the conditions of flourishing; in addressing wild nature, persons should pay respect to the fact that plants may need this place because it provides adequate living conditions. *Secondly*, this approach does not say that respecting flourishing is a singular criterion in addressing plants. Instead, it is related to further criteria, in particular also to the good life of populations of plants and species continuation. In particular, there is no moral imperative which says that persons should protect the flourishing of each single plant. Instead, it articulates the much more modest claim that harm to plants should be part of a moral calculation. Moreover, this perspective on plants does not render further arguments for the protection of plants obsolete. Vegetal areas deliver many services to persons, including aesthetic experiences and the feeling of being “at home” in this specific area. It is prudent not to destroy areas of vegetal life which deliver important eco-services. In other words, arguments from flourishing add to the already stated reasons for protecting plants and for not destroying areas of vegetal life. *Thirdly*, this approach avoids anthropomorphism and instead articulates the specific capacities of plants, for instance in highlighting the importance of a life-span. In particular, processes and performances are at its heart. The good life is not discussed in terms of events, but rather in terms of processes of self-development. It also highlights the importance of reproduction in plants, the importance of a fit between properties and environmental factors, etc. Yet, these insights in the good life of another life-form may – in the end – also be helpful in discussing the life of persons. Discussing life-span, environment and specific characteristics of plants

¹² For a particularly helpful relational account, see (Heyd 2007).

¹³ By “wild nature” I do not refer to nature which is completely free from anthropogenic effects; instead, it refers to nature which is not cultivated as a resource for human beings.

helps to understand something important about life – be it in terms of otherness, radical strangeness or perhaps in terms of similarities.

In reversing the usual practice of moral theory and in starting with plants, both similarities and differences can be portrayed thoroughly.¹⁴ In this way, an interdisciplinary approach to the life of various entities contributes to distinctions between the “flourishing” of plants and that concept as applied to persons. Yet, exploring concepts of the good life of plants is also part of the self-interpretation and of processes of self-understanding of human beings.¹⁵ Yet, this does not say that plants are similar to persons; nor does it say that persons could know anything about “how it is to be a plant”.¹⁶ Instead, this process pays full respect to the fact that persons need to interpret non-human nature.

4. Alternative conceptions of the good life of plants

In my view, one of the good sides of flourishing is that this avoids a shortfall in applied ethics which has been termed “human anthropomorphism”. In section three, I have argued that this shortfall re-surfaces in extensionist strategies which start with a set of categories which are well-defined in ethics, but which are not particularly appropriate in explaining non-human living entities. Some of the recent approaches to integrating plants in ethics appear to suffer from this shortfall. In the following I shall give a short review of these approaches. These are: interest-based approaches, approaches to the integrity of plants, approaches to the dignity of

¹⁴ Part of this endeavor is also a critique of the still employed “scala naturae”. Following biological insights, this hierarchy is not reliable. Instead, plants and animals are so different that biologists acknowledge two separate realms. Plants are not less complex; instead, they simply are different from animals.

¹⁵ Yet, the constraint of a reasonable process is that the concept is both comprehensible in ethics and already meaningful. In particular, it designates something which persons are in a situation to understand, both in terms of giving a consistent interpretation of that term *and* in recognizing the moral worth expressed in this term. Therefore, it does not deviate from “epistemic anthropocentrism” which says that conceptual capacities are exclusively tied to a personal standpoint.

¹⁶ The differences between the human flourishing and the flourishing of plants need to be accepted. Human flourishing differs significantly from the flourishing of plants. Yet, there are also points of comparison: Flourishing is a concept which denominates a basically good life; this basically good life deserves moral respect. Persons strive for transcending flourishing as a notion for the basic endowment of persons and the basic central functional capabilities. But, they need a situation of flourishing in order to achieve a more individualistic, higher-order end. Interpretations of “human flourishing” in [deleted for blind review].

plants. I shall also explain why these approaches fall short of taking into account and respecting the specific characteristics of the life of plants accordingly.

4.1. Interest-based approaches

One group of approaches explores the concept of “interests” as applied to the life of plants. Even though plants do not possess a capacity to feel pain and even though they do not have consciousness, their developments and movements can be interpreted as expressing “interests“. In a broad sense, the sentence “P has an interest in W” means that W serves the fulfillment of needs which are related to the overall well-being of P.¹⁷ Different from “interests-as desires”, “interests-as need” can be attributed to plants: “By having optimal states living things inherently define what is in their interest.”(Johnson, 1993: 80) In order to mark the difference between the interests of plants and the interests of human beings, von der Pfordten has made the proposal to speak of “other-interests” in the case of plants (Von der Pfordten, 1996: 221–224.). Criteria for ascribing “other-interests” are self-genesis, self-subsistence and self-development of a living organism (ibid.: 238). Plants fit into this scheme. Moreover, following von der Pfordten, other-interests create realms of moral concern; there is a weak normative thesis related to other-interests which says that other-interests need to be counted within a moral calculation.¹⁸

Yet, interest-based approaches suffer from not providing convincing arguments for the normative relevance of interest. Even though plants may be said to have interests, the further question of why they should be respected, still is unanswered. In particular, approaches to the interests of plants all build on a category, which is appropriate in application to the life of persons, but not particularly well chosen for the life for plants. What is lacking is a criterion which would be helpful in distinguishing between any life-process of plants and life-processes which relate to an interest if plants – and be it a well-being interest. Moreover, in practice,

¹⁷ This type of interests is labelled “interest-as-need“ by Johnson and contrasted with the more frequently used concept of “interest-as-desire“ (Johnson, 1993: 77).

¹⁸ For another interest-based approach, see (Thompson, 1990).

plants' interests will usually be outweighed by interests of persons. As compared to the interests of persons, plants' interests are supposed to be generally weak (Von der Pfordten, 1996: 250).

4.2. Integrity of plants

A second group of authors claim to respect the “integrity” of plants (i.e. Lammerts van Bueren, 2005). “Integrity” is defined as a situation in which an organism is displaying all its vital functions; moreover, the organism is capable of repairing malfunctions without external support (ibid.). Scholars who follow this line of thought choose a category which fits the life of plants and animals particularly well. Yet, three problems could not be resolved so far.

First, integrity is not a situation which is valuable in itself. Instead, it is something which describes a “normal situation”, which nevertheless can be disturbed by external forces

Secondly, and as a consequence from the first point, in order to give integrity the status of something valuable, it is necessary to develop a framework which spells the importance of this term out; it highlights its meaning. Authors who defend the value of integrity propose a framework which is coherent with basic assumptions in ecological agriculture. They defend respect for integrity because it is good for the organism itself and simultaneously for the soil, for persons who eat plants etc. *Third*, integrity is a concept which is – in a way – detached from physical characteristics of a specific living entity. Integrity relates to functionalism. In compensating for this, authors who defend respect for integrity wish to relate it to “naturalness” of living entities. Yet, this turn is neither particularly plausible, nor is it practicable to distinguish practices which do not harm integrity from practices which are harmful in terms of disturbing integrity of organisms or populations.

4.3. Autonomy and dignity of plants

Recently, some authors have tried to attribute a moral worth to plants. They argue for properties of plants which have been underestimated so far and which come very close to the

capacities of persons.¹⁹ Even though these arguments vary, it is a shared aim to provide arguments for the “likeness” of plants regarding moral properties. It has been argued that plants possess autonomy (Hall, 2011). Therefore, they should receive a similar form of moral respect as human beings. Moreover, some authors argue that plants possess dignity because of their capacities. Even though plants are not conscious, and even though they do not set goals, their life has been explained as goal-directed. This suffices for declaring a dignity of living entities (ECNH, 2008; Odparlik, 2010: 20 - 23) . Some authors go even further and argue that the dignity of plants results from the capacity of communicating with each other (Koechlin, 2009).²⁰

Yet, apart from claiming properties of plants which botany either does not explain or which are rejected from that perspective, the approaches also get into the trap of using anthropomorphic concepts instead of respecting the otherness of plants. Even though there might be processes of signal exchange among plants, this is far from communication. And even though plants may modulate their behavior and react to outer stimuli, these processes are different from any willful responses of persons.

Moreover, some of these approaches need a second layer of concepts in order to clarify the content of the thick concepts, i.e. of dignity. In outlining the concept of “dignity”, authors turn to concepts which are much more suitable to the life of plants than that ethically thick concept, i.e. the concept of “integrity” (Odparlik, 2010). This demonstrates that postulating a “dignity” of a plant results from a projection rather than from an analysis of plants’ capacities.

5. Examples of applications

¹⁹ A reason for reconsidering plants was provided by the amending of the Swiss constitution which includes an article on the “dignity of creature” that also implies plants. In order to interpret this article, among other things, philosophers and other scientists worked on issues in plant ethics.

²⁰ In particular, the debate on the dignity of plants has been part of a process of overhauling the Swiss constitution. It now includes an article claiming the protection of the dignity of living creatures. Illustrating comments refer to that article. See, i.e. (Falco and Müller, 2001; Brom, 2000).

In this final section I shall discuss some examples of how the former insights play out in concrete cases. As a basic notion in plant ethics, “flourishing” contributes to discriminating between causal effects which are “good” for a single plant, and others which are harmful. On the level of application, it helps to discriminate between harmful and beneficial effects. Even though the rule not to harm the flourishing of a plant needs to be integrated into a mesh of further principles, it will be part of the process of moral calculus or moral consideration. In the following, I shall give some examples of how this approach might play out in practice. Yet, it is not my aim here to develop a comprehensive account; I rather wish to give examples of how it *could* work in practice.

One example, which any plant ethics needs to address nowadays, is genetic engineering of plants. On first glance, a plant ethics which works with the concept of “flourishing” differs from approaches which take “naturalness” as an evaluative criterion. True, flourishing also relates to existing plants and entities. But it does not foreclose genetic engineering because of its unnaturalness. Instead, the moral debate of that technique needs to include a discussion of the effects of these techniques on the capacity of organisms to flourish. Some types of genetic engineering alter the plant in a way that a plant is hindered from flourishing. This is a case when plants cannot develop something like a full life-cycle. Other types of engineering support the flourishing of plants, but might have bad side-effects which are not desirable for other reasons. Salt-resistant plants, i.e., can adapt to regions which are very dry and whose soils are particularly salty. Plants are supported in settling in regions which they could not settle in before. This does not say that breeding salt-resistant plants is good – there might be further moral or cultural reasons for rejecting those techniques and the effects.

The so-called terminator-gene is another example which makes this clear (*deleted for blind review*). That technique has been criticised primarily for reasons of social justice and for bad side-effects. Yet, from the perspective of an ethics of flourishing, it will be rejected for

another reason as well. This technique hinders organisms from flourishing; it renders breeding either impossible or dependent on interventions from outside; it therefore also harms a living entity. Again, this is only one argument which needs to be integrated in to a broader debate on the terminator-gene; yet, it is one additional argument which focuses on the plant and its life. A second example for a level of application addresses practices of cultivation. Following a proposal of Paul Taylor, ethical judgements regarding practices which have an effect on vegetation also depends on the realm of nature which will be addressed. Nature might – inter alia - be segmented in cultivated nature and wild nature (Taylor, 1986). Respecting the flourishing of plants plays out in both segments, yet in different ways. As for cultivated nature, respect for flourishing includes that a situation in which plants are not hindered from flourishing is generally preferable to a situation in which plants have no chance to unfold their characteristic properties and to perform a full life-cycle. Breeding conditions need to respond to this claim. Yet, in the context of wild nature, respecting the flourishing of plants means something quite different. It includes respect for a specific vulnerability of plants. Plants can only flourish when they do not suffer from false or plenty stressors; moreover, they need space to unfold.

These examples demonstrate that an ethics, which claims respect for the flourishing of plants, will not provide a comprehensive and ultimate rationale for protecting plants from arbitrary and anthropogenic damage. Instead, it adds further criteria for defending an ethical judgement regarding actions and consequences of activities which have an effect on the lives of plants.

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