Demands of Dignity in Robotic Care: Recognizing Vulnerability, Agency, and Subjectivity in Robot-based, Robot-assisted, and Teleoperated Elderly Care

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Abstract: Having a sense of dignity is one of the core emotions in human life. Is our dignity, and accordingly also our sense of dignity under threat in elderly care, especially in robotic care? How can robotic care support or challenge human dignity in elderly care? The answer will depend on whether it is robot-based, robot-assisted, or teleoperated care that is at stake. Further, the demands and realizations of human dignity have to be distinguished. The *demands* to respect humans are based on human dignity and the inalienable high and equal moral standing that everyone has. For human moral agents, these demands take the form of negative and positive duties. For robots, they arguably take the form of corresponding ought-to-be norms. The *realizations* of dignity consist in variable responses to these demands, by oneself by others, and by society at large. This article examines how robot-based, robot-assisted, and teleoperated care can amount to realizations of dignity. The varieties of robotic care can, in different ways, be responsive to the demands of dignity and recognize humans as vulnerable beings with needs, as autonomous agents, and as rational subjects of experience, emotion, and thought.

Key words: care robotics, elderly care, human dignity, vulnerability, agency, cognitive capacities, subjectivity

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1. Introduction

Having a sense of dignity is one of the core emotions in human life, yet is this sense under threat in elderly care, especially in robotic care? Does robotic care maintain or, in contrast, ignore human dignity in elderly care? This paper addresses these questions and the ways in which robotic care can support or challenge human dignity in elderly care. We begin with two introductory sections. In the first of these (section 1.1), we offer a brief overview over the state of the art in care robotics, and distinguish robot-based, robot-assisted, and teleoperated care. In the second introductory section (section 1.2), we suggest that the notion of human dignity is best analyzed as having two aspects. First, dignity involves an inalienable aspect of a high and equal moral standing, which poses *demands* to respect humans (e.g., as autonomous agents, as subjects of experiences, emotions and thoughts, and as vulnerable beings); these can be called demands of dignity. For moral agents, these are negative and positive duties, and for robots, these take the form of corresponding ought-to-be- norms. Second, dignity involves the realizations of dignity in variable responses to these demands (expressions of self-respect in one's own actions and attitudes, received recognition and misrecognition in interaction with others, and the quality of living conditions consistent with human dignity). Section Two through section Five investigate in detail how robot-based, robot-assisted, and teleoperated care can be responsive to demands of dignity and recognize humans as vulnerable beings with needs, autonomous agents, and as rational subjects of experience, emotion, and thought.[1]

1.1. Care Robotics

Within the past ten years, care robotics has emerged as a serious technology that could partially solve the challenge of the increasing need for care services for the elderly. Multiple developed nations are facing a challenge of an oncoming ageing population. For example, the share of people aged 65 and older within the population is rising in the European Union (EU28) from 18.4 percent in 2013 to a predicted 28.4 percent by 2060[2] (see Figure 1). Some governments are already taking action in order to be able to provide quality health care services for the increasing number of people who need them. For instance, Japan invests heavily in the development of robots to improve efficiency in care services, to decrease caregivers' physical burdens, and to improve the quality of life in care facilities through tools of recreation.[3]
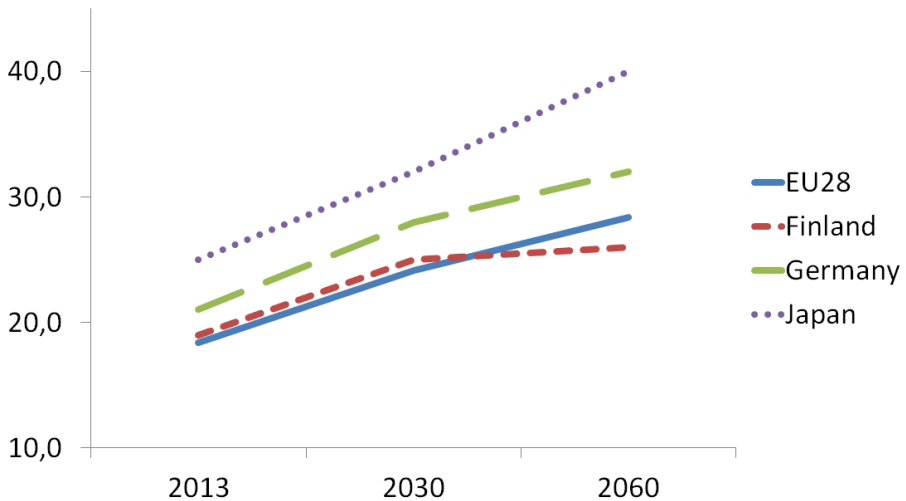
Figure 1. Projections for the share of the people aged 65 and over of the population in EU28, Finland, Germany, and Japan[4]

    Care robotics is a sub-area of robotic technologies consisting of a wide variety of applications. Currently, it is hard to say about their actual impact on the quality of life of the elderly, or on the quality or efficiency of care work. In a review of the effectiveness of assistive technologies for seniors (Khosravi and Ghapanchi 2015), only tele-health applications for people with chronic illnesses were found to be clearly effective. In another review (Khosravi, Rezvani, and Wiewiora 2016), robotic applications for wellbeing were noticed to be somewhat effective, particularly on reducing loneliness of older people. The applications included the therapy robot seal Paro[5], the robot dog Aibo[6], a telepresence robot and a robot walking support. A more recent review (Pu et al. 2019) concluded that social robots appeared to have various positive impacts on quality of life for older adults, such as reducing agitation and anxiety. However, Lihui Pu and colleagues (ibid.) as well as Tobias Krick and colleagues (2019) pointed out that high-quality studies are rare in the field; this seriously limits drawing conclusions about the effectiveness of the technology.

    Regardless, a number of new assistive robotic products and services can be expected to be introduced to this growing market within ten to twenty years (International Federation of Robotics 2018). For instance, the sale of exoskeletons for rehabilitation and ergonomic support for reducing loads is already expected to grow significantly by 2020, about double the 5,600 units sold in 2016 (ibid.).

Adoption of this technology is likely to change elderly care, and the perspective of the care receivers and the elderly themselves should, naturally, be heard in the development and adoption of such.

Within the last decade, the developmental trends in robotics have included humanoid robots, natural interaction, therapy robots, and social robots (Goeldner, Herstatt, and Tietze 2015). In social robotics, the main publication trends have concerned robots as social partners as well as robots supporting children's development and assisting elderly people (Mejia and Kajikawa 2017). Maybe reflecting the trendy emphasis on social interaction, the image that tends to dominate public discussions of robotic care is that of naturally interacting humanoids. For instance, the capabilities of care robots are being compared to those of human caregivers, and it is asked whether a care robot can replace a human caregiver in his or her job.[7] This indicates a background belief that a care robot might be able to do all, or at least a considerable amount of, the care tasks that currently are performed by a human—but not as well as the human would do. These lines of thinking could partially explain why surveys on the acceptance of, and positive and negative attitudes towards, robots in society tend to show lower acceptance for care robots compared to robots applied in other domains. For instance, 45 percent of the citizens in the EU28 countries felt at least moderately comfortable about the idea of having robots provide services or companionship to elderly or infirm people, whilst 61 percent were positive towards robots and artificial intelligence in general (Special Eurobarometer 460, 2017; for a recent study about healthcare professionals' attitudes toward robots, see Turja et al. 2018).

Older people have surely been considered in the context of care robotics in the past. Their perspective, attitudes, and expectations with regards to care robots has been investigated with questionnaires, focus group studies, interviews and citizen panels (e.g., Čaić, Odekerken-Schröder, and Mahr 2018; Harmo et al. 2005; Frennert, Eftring, and Östlund 2013; Niemelä and Melkas 2019; Pino et al. 2015; Wu et al. 2014). A number of case studies and field trials have been implemented to understand their needs and uses of technology (e.g., Cesta et al. 2016; Hebesberger et al. 2017; Niemelä, Van Aerschot, et al. 2019; Sabelli, Kanda, and Hagita 2011; Stafford et al. 2014), and ethical issues concerning robots and older people have been discussed widely (Draper et al. 2014; Jenkins, and Draper 2014; Kemenade, Konijn, and Hoorn 2015; Sharkey and Sharkey 2012a; Sharkey 2014; Sorell and Draper 2014; Vandemeulebroucke, Dierckx de Casterlé, and Gastmans 2018).

As a summary, it seems that elderly people's acceptance of robots in care depends on:

- their perceived *need* for the robot, which depends on their state of health;

- the expected *benefits* of the technology, with regards increased safety;

- the *concerns* they may have about the technology, with regards to privacy and usability;

- whether they have *alternatives* to the robot, for example help from family or a spouse;

- the *social influence* they receive from their environment, for example encouragement or pressure from family;

- and their personal *characteristics* (cf. Peek et al. 2014).

Ethical assessments of robotics use in elderly care has also been discussed from the viewpoint of *dignity* (see Vandemeulebroucke Dierckx de Casterlé and Gastmans 2018; Wilson et al. 2016; the debate was sparked largely by Sharkey 2014; Sharkey and Sharkey 2012a, 2012b). Dignity is often taken to encompass the more specific reasons for the acceptance of technology, such as safety, respect for privacy, and autonomy.[8]

Nevertheless, there are many questions that the current state of the art concerning the relevance of dignity in elderly care has not satisfactorily addressed. In this paper, we will further the debate by drawing four kinds of distinctions and examining systematically the questions that these distinctions enable us to make. Firstly, we show the importance of distinguishing clearly the two faces of human dignity as categorical demands on the one hand, and as their variable realizations on the other. Secondly, we argue that these realizations can take place in one's own actions, in recognition from others, and in living conditions that are consistent with one's dignity. Thirdly, we show the importance of analyzing different kinds of recognition, especially recognition of vulnerability, agency, and cognitive capacities of persons. Fourthly, we discuss systematically how these aspects of dignity are in different ways at play in robot-based, robot-assisted, and teleoperated care. Let us next introduce these concepts.

1.2. Robot-based, Robot-assisted, and Teleoperated Care

Robots can provide support for the caregiver through *robot-assisted care*, or they can provide care activities themselves through *robot-based care*. In robot-assisted care, the robot can be physically close to the elderly person, for example when a caregiver uses a lifting robot, or the robot can be in the background, for example when a robot performs delivery or cleaning tasks that do not directly interact with

an elderly person. In robot-based care, the robot has direct interaction with the elderly person, for example as a home assistant robot, or the robot is possibly assisted by a caregiver, for example in therapy when recreation robots are used in care homes. It is widely thought that the human dignity of an elderly person is particularly threatened in robot-based care; since "robots can't love" there are essential aspects missing in the realization of human dignity. But what should we think when a robot interacting with an elderly person is fully teleoperated by a caregiver? This category of care robots falls between robot-assisted and robot-based care (Figure 2). In other forms of robot-assisted care, the care personnel are present. The absence of care personnel *in situ* means that teleoperated robots constitute a special case for the human dignity question, which is worth examining separately.

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      ┌────────────────┐              ┌────────────────┐
      │ Robot-assisted │              │  Robot-based   │
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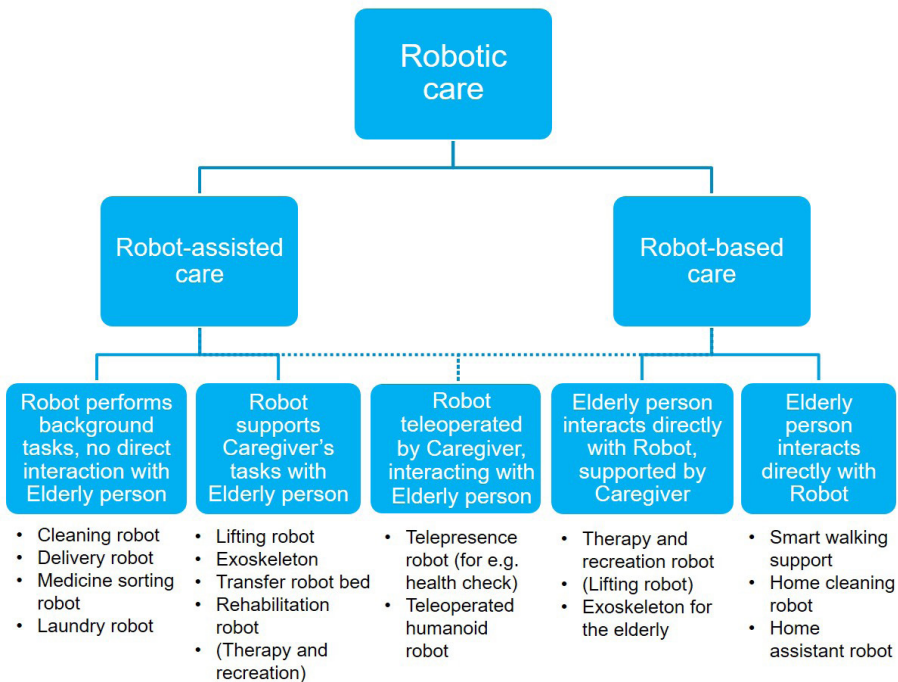| Robot performs background tasks, no direct interaction with Elderly person	Robot supports Caregiver's tasks with Elderly person	Robot teleoperated by Caregiver, interacting with Elderly person	Elderly person interacts directly with Robot, supported by Caregiver	Elderly person interacts directly with Robot
• Cleaning robot • Delivery robot • Medicine sorting robot • Laundry robot	• Lifting robot • Exoskeleton • Transfer robot bed • Rehabilitation robot • (Therapy and recreation)	• Telepresence robot (for e.g. health check) • Teleoperated humanoid robot	• Therapy and recreation robot • (Lifting robot) • Exoskeleton for the elderly	• Smart walking support • Home cleaning robot • Home assistant robot

Figure 2. Categories of robotic care.

Distinguishing between these three kinds of robotic care enables us to pose the question: how does using robotic care in these different ways influence the dignity of older people?

2. Two Aspects of Dignity:
The Inalienable Status and the Variable Realizations

This paper approaches dignity in a novel and systematic way as having essentially two kinds of aspects (Laitinen, Niemelä, and Pirhonen 2016). Firstly, as an inalienable feature, human dignity, or D1, is a source of strictly undeniable, stringent, and unconditional normative claim; dignity is something that everyone possesses automatically and equally merely because they are humans or persons. The normative demands of dignity do not diminish, regardless of how badly one is treated, or even if one behaves in an undignified manner oneself. When it is said that one loses one's dignity due to the way he or she behaves, or due to the way one is being treated or due to the circumstances in which one is forced to live, it is *not* meant that one no longer has a moral status consisting of the peremptory normative claim. Even mass-murderers, slaves, or people forced to live in the gutters, retain their human rights and human dignity in the sense of the moral demands or claims.

The second aspect of dignity, or D2, is contingent and gradable in how fully it is realized in actual living. It can be realized to a higher or lower degree in one's *own* actions, emotions, and self-relations. It can also be realized in *interactions* with others, and in one's *living conditions*. Even though the demands of dignity are categorical and based on an inalienable standing, these dimensions of ways in which people act and are treated by others vary. It is this variable aspect that varies, when one is said to "lose one's dignity."

These two aspects can be labeled the *inalienable aspect* D1 (See Section 2.1) and the *variable aspect* D2 of dignity (See Section 2.2). The novelty of this paper is the systematic study of these aspects of dignity in the context of three kinds of robotic care, and regarding three aspects of human existence. We do not claim that these three aspects, which will be explained in the following section, exhaust all important dimensions of human existence, but instead serve to illustrate important aspects of dignity that should be respected in the context of robotic care.

2.1. Negative and Positive Duties, and Ought-to-Be Norms,
Based on Inalienable Dignity

One of the most undisputed moral premises is the great and equal moral standing of persons, underlying universal and equal human rights. In Immanuel Kant's (2011) theory, everyone ought to be treated as an end itself and not as a mere means. Each human being, as a rational being, has infinite worth and dignity, in-

stead of a mere measurable value or price. No one is to be sacrificed in the name of the general good. Dignity in this sense is not dependent on achievements, or even on one's own dignified behavior or self-respect. So, what is dignity based on then? It is typically taken as depending on the central capacities of persons, however, various other theories of the basis of dignity have been presented.[9] We will further not contribute to the debate on the grounds of dignity as we take the inalienable dignity of all human persons as an established moral starting point.

In virtue of inalienable dignity, there are strict moral boundaries to how a person can and cannot be treated; the inalienable dignity is to be respected, not violated, and any interactions must take place within the boundaries of respect for dignity. The easiest way to meet this demand without violating boundaries is simply by doing nothing, or at least by not interacting with anything that has an inalienable standing. In contrast, positive duties require actual contributions—the helping of those in need.

There are many ways to classify norms based on the inalienable dignity of human persons. We will here pick out three aspects that we concentrate on, yet we make no claims that these three exhausts all relevant aspects. Our considerations of dignity demand that we:

- protect each other *as vulnerable* beings with *needs*, or H1;

- that we respect each other *as autonomous agents*, or H2;

- and respect and engage with each other as beings with sophisticated inner lives, as *rational thinkers, emoters and subjects of experience*, or H3.

These three aspects of human existence have been central in the debates on interpersonal recognition (Honneth 1995; Ikäheimo 2014; Iser 2019; Laitinen and Pirhonen 2018; Laitinen 2002), and constitute three "targets" of respect for human dignity. They all are relevant in elderly care and help in assessing the ethical acceptability of robotic care.

The perspective H1 concerns the recognition of the vulnerability and needs of human beings; an elderly person here fulfills the role of care receiver. The relevant kinds of robots in usage here range from lifting aids to cognitive and recreational support and therapy, for example the therapy robot seal *Paro*. The difference between robot-assisted, robot-based, and teleoperated care is likely to be relevant here (see Section 3).

The perspective H2 is concerned with the recognition of the agency of the person; supporting physical actions and the practical aspect of autonomy. The rele-

vant robots used here include intelligent rollators, robots that can simulate the role of care-recipient, and activation robots. Similar to H1, the differences between robot-assisted, robot-based, and teleoperated care is relevant (see Section 4).

Perspective H3 examines recognition of a person as a thinker and a subject of emotions and experiences. Here the cognitive aspect of autonomy and respecting an elderly person's personal experience and opinions are relevant; how they are acknowledged or accepted by others will affect their self-relations (Honneth 1995; Taylor 1985). Again, robotic care can be assessed from the perspective of recognition of this aspect of human existence (see Section 5).

Taking these aspects of human existence into account, human dignity grounds for example the following three negative and positive duties to all moral agents (compare, e.g., to Beauchamp and Childress 2013; Körtner 2016):

- a negative duty of not harming others, and positive duty of taking due care of human needs and protecting vulnerabilities;

- a negative duty of not blocking people's autonomous agency, and positive duty of aiding and supporting people's autonomous agency;

- and a negative duty of not blocking people's rational thinking and subjectivity, and positive duty of aiding and supporting people as thinkers and subjects of experience.

We can call breaches of the negative duties *violations* of human dignity, and successfully meeting the negative duties, by omitting to harm someone, create *respect* for human dignity. Further, we can call breaches of the positive duties *neglect* of human dignity, and successfully meeting the positive duties, typically by engaging in right kinds of activity, create *positive support* for human dignity.

What relevance do these distinctions have for considering the role of robots in securing dignity in elderly care? To answer this, it is helpful to start from the duties that *moral agents*, or those capable of literally having duties, have because of the dignity of those persons who are "moral patients," or persons as objects of moral concern. If robots are moral agents, they have such duties literally. If they are not moral agents, they should arguably nonetheless be built to be such agents so that they function accordingly; they *ought to be* such that the dignity of moral patients is not violated, but is supported.[10] Concerning any artefacts, there can be such ought-to-be norms literally, even if they would not have ought-to-do duties; clocks ought to be such that they show time reliably, chairs ought to be such that they do not collapse under human weight, and so on. Many kinds of responsibili-

ties and ought-to-do norms follow for agents; clockmakers ought to make clocks that work, salespeople should warn customers if the clocks they are selling are not very reliable, and people agreeing to meet each other, should warn each other if their clocks are not reliable in keeping time. Concerning robots, such responsibilities are, or should be, similarly aligned to engineers, salespeople, users, maintenance people, and legislators.

Only moral agents literally have duties. Nevertheless, robots ought to be built so that they do not harm, yet protect vulnerable humans and help meet human needs. They *ought to be* such so that they do not block people's autonomous agency, rational thinking, or equality, but rather are of help in aiding and supporting those aims. Thus, the same list of concerns can be construed as a list of ought-to-be norms based on human dignity, applicable to robots even when they are not moral agents themselves.[11] These are:

- not harming others, and helping satisfy human needs and protect vulnerabilities;

- not blocking, but aiding and supporting people's autonomous agency;

- and not blocking, but aiding and supporting people as thinkers and subjects of experience.

Suppose a robot causes a violation of the dignity of the elderly patient. Is the robot to blame? Did it violate its duties? Only if the robot is a genuine moral agent can it have duties or violate its duties, and only then does it makes sense to hold *it* responsible for its behavior. If it is not, then the manufacturers, sellers, owners, trainers, users, legislators, and democratic choosers of legislators will, in different ways, have to share the responsibility. This is a practical challenge for how social practices of holding responsibility will develop.

But even in the case that the robot is not a genuine moral agent, not to be literally praised or blamed, it can still cause both genuine damage and genuinely good outcomes. When a tree falls and hurts an animal or a person, it may cause genuine damage, yet does not literally act wrongly or immorally. It might be counter-intuitive to say that a falling tree did not respect one's dignity, or violated claims based on dignity. However, we can argue that robots literally *ought to be* such that they do not cause harms or violations; ought-to-be norms should be applied to any artefacts, and to how they ought to function. In that sense, robots can violate the claims of human dignity, even if we do not assume that robots are, literally, moral agents capable of violation of *duties*. It is rather that they bring

about a severe harm that, if done by a moral agent, would constitute a violation of a duty (cf. Coeckelbergh 2009).

We have so far discussed the requirements or demands based on inalienable human dignity. For moral agents, these are duties, and concerning robots, they take the form of ought-to-be norms. How these requirements are met in practice, by each agent in their self-regard and in their recognition of others' living conditions, will constitute the variable realization- aspect of dignity, to which we will now turn to. The difference is not in the demands, or the inalienable aspect generated by the demands of dignity however one is being treated, but that there is variability in how these demands are responded to in practice.

2.2. The Variable Aspects of Dignity:
Own Actions, Interactions, and Conditions of Living

In a sense, nothing can challenge human dignity as an inalienable status and as a source of demands. Whether or not others respect one's dignity, the status exists; others *ought to* recognize and respect it and robots *ought* to operate in such a way that violations do not occur. To what extent they do so may then differ, and in some sense "realizations" of dignity in interaction and practice may, thus, vary. In a similar sense, how people regard themselves can conceptualize realization of dignity to higher or lower degree. Some people may be especially worthy of appreciation or admiration or "appraisal esteem" because they manage to behave in very dignified ways; they manifest the dignified behavior in noteworthy ways. They maintain their dignity in adverse circumstances, or in facing the prospect of death, for example (cf. Waldron 2017). The dignity of humans also requires a decent standard of living to maintain humane functioning, and to be able to appear in public without shame or denigration (cf. Smith 1776; Nussbaum 2004).

There are thus three aspects to dignity as a varying realizable achievement. These are:

- *one's own* attitudes and comportment can be more or less dignified;
- the way *others* interact with and recognize one can realize dignity to a higher or lower degree;
- and the cultural, material and institutional background *conditions* can be consistent with the demands of dignity (Laitinen, Niemelä, and Pirhonen 2016).

Thus, although nothing can take away the inalienable status from humans, some people will have to live in worse conditions than the basic minimum that

human dignity would entail, and some people are treated in ways that are not respectful of their human dignity, making them lack self-respect and act in undignified ways as a result. When that is the case, dignity in the variable sense is realized to a lower degree than otherwise would be possible.

It is relevant to note that an agent cannot meet one's positive duties, or promote dignity, by doing nothing. Dignity is realized in how one's living conditions are arranged, how interactions are conducted, and the degree to which one's needs are being met. The demand is that these dependencies should be taken care of in a dignified manner and in ways that, to a fuller extent, *realize* and *support* the ways of being and doing in which human dignity exists. The relevant regard from others goes beyond keeping a respectful distance to such attitudes as genuine care, trust, gratitude, solidarity, and esteem or genuine recognition. Thus, being merely left alone is typically an affront to dignity in that one's basic needs and social needs are thereby being neglected. Human beings are deeply dependent on each other, and the challenge is to negotiate these dependencies in ways that respect the dignity of each.

Similarly, the ought-to-be norms for robots, based on human dignity, should reflect the same aims of positively supporting and contributing realizations of human dignity. If these aims are not met, the introduction of robots may lead to a *neglect* of some aspects that could be supported by human agents or non-smart technologies.

2.3. Varieties of Respect and Neglect

In this article, we take three perspectives to recognition of dignity—vulnerability, agency, experiential and cognitive subjectivity—and through them analyze the potential effects of robotic care, and the dignity of the elderly in robotic care interactions (see Sections 3-5). Concerning each, we also ask how the introduction of robots might lead to direct violations of dignity, and how robots can fail to provide further positive support for positive achievements of dignity. Concerning the positive aspects, it is easy to see how robots could help support dignity by assisting the agent's own actions, and how they can be a smart part of living conditions consistent with human dignity. However, it is more controversial whether interaction with, or recognition from, robots can be directly constitutive of human dignity; whether robot-based care could directly provide the needed recognition for patients. Robot-assisted or teleoperated care does not face a similar worry. These topics are summed up in the following table.

Table 3: Realizations of dignity in robotic care, regarding vulnerability, agency and cognition.

Dignity realized in ↓ / Concern for →	Vulnerability and needs	Agency	Emotion and cognition
The inalienable status	(negative duty) not harming others; and (positive duty) taking due care of human needs and protecting vulnerabilities	(negative duty) not blocking people's autonomous agency; and (positive duty) aiding and supporting people's autonomous agency.	(negative duty) not blocking people's rational thinking and subjectivity; and (positive duty) supporting people as thinkers and subjects of experience
Own action (robot-assisted self-care)	Positive: Robotic assistance for protection of safety in one's own activity. Violation: self-injury in using robots. Neglect: neglect of one's needs in one's own action.	Positive: Increasing physical, agentic capabilities. Violation: (robot-assisted) disregard for one's dignity in one's action. Neglect: neglect of one's (future) needs in one's own action.	Positive: Increasing cognitive capacities. Violation: (robot-assisted) disregard for one's dignity in one's action. Neglect: neglect of one's (cognitive) needs in one's own action.
Robot-based "interaction" in care	Positive: needs met. Violation: risk of injury. Neglect: cannot provide human contact for social needs.	Positive: make more capable, strengthen and motivate. Violation: risk of disability. Neglect: cannot provide real interaction.	Positive: make more capable, challenge and stimulate. Violate: risk of disability. Neglect: cannot provide real recognition and communication.
Robot-assisted interaction in care	Positive: helping a nurse treat a person safely. Violation: nurse causing pain or anxiety to a person by robot use.[12] Neglect: sometimes may not provide human contact for social needs.	Positive: supporting a person's own participation in treatments. Violation: preventing a person's own participation by robot use. Neglect: sometimes may not provide real interaction.	Positive: robot taking care of hard work (e.g., lifting) enables nurses to concentrate on emotional needs of a person. Violation: objectification of a person by robot use. Neglect: sometimes may not provide real recognition.

Dignity realized in ↓	Concern for →	Vulnerability and needs	Agency	Emotion and cognition
Teleoperated interaction in care		Positive: client needs met with technological solutions. Violation: possible injury and insult via teleoperation. Neglect: cannot provide equally good human contact; some technologies restricted to communication, fewer aspects of wellbeing (e.g., smell, general view of an apartment) may be recognized.	Positive: supporting agency by strengthening and motivating. Violation: possible violations of autonomy via teleoperation. Neglect: cannot provide equally embodied interaction; mere instructions instead of action.	Positive: enables meaningful conversations for the lonely. Violation: possible denial of cognitive autonomy in teleoperated interaction. Neglect: sometimes may not provide real recognition; lack of comprehensive human interaction.
Background conditions of living		Smarter technology may be better, but may be more dangerous?	Smarter technology may be better, but will it require too much physically?	Smarter technology may be better, but will it dumb us down? Will it require too much cognitively?

One distinction that will be relevant throughout is the distinction between robot-based and robot-assisted care—will robots replace or complement the work of human nurses? One central human right is that of the right to human contact, and the ethics of solitary confinement as a form of punishment has been widely discussed (Brownlee 2013). The central popular concern about social robotics is that they replace human contact. The following dark scenario comes from Amanda Sharkey (2014, 63):

> An old lady sits alone in her sheltered accommodation stroking her pet robot seal. She has not had any human visitors for days. A humanoid robot enters the room, delivers a tray of food, and leaves after attempting some conversation about the weather, and encouraging her to eat it all up. The old lady sighs, and reluctantly complies with the robot's suggestions. When she finishes eating, she goes back to stroking the pet robot seal: 'At least you give my life some meaning' she says, as the robot seal blinks at her with its big eyes, and makes seal-like sounds in response to her ministrations.

The common and important response to scenarios like this has been that robots are not meant to replace human contact, but to ease caregivers' burdens in dif-

ferent ways. Indeed, as Jari Pirhonen and Ilkka Pietilä (2015) remark, loneliness is already a serious problem in assisted living today. In reality, the old lady may sit in her room all alone, without the company of a robot seal, and a busy nurse would hastily pop in with the tray. The current reality may be even worse than Sharkey's scenario. Furthermore, some applications, such as Paro, can increase contact for people suffering from dementia. As noted above, the robot appears to encourage and help to initiate social interaction with a therapist, caregiver, or another elderly person. There are also some indications that a robot giving a hug to a person matters at some emotional level. Shiomi et al. (2017) reports an experimental study in which being hugged by a sizable teddy bear robot encouraged people to tell their secret or personal issues to the robot, whilst those not given a robotic hug were less willing to self-disclose. Hugged participants also interacted longer with the robot.

Bodily integrity and human touch are delicate issues in assisted living (Parviainen and Pirhonen 2017). Here, robotics promises both good and bad prospects. Assistive robotics may, for example, help the elderly visit the bathroom by themselves, if they wish to. On the other hand, decreasing human touch in care situations may endanger a profound human need, the very need to be touched by humans. According to Bush, people who suffer from dementia still have capabilities to communicate through gestures and touching (Bush 2001). Rose Mary Langland and Carol Panicucci (1982) hold that the more confused elderly people are, the more touch-deprived they get. Regarding people with severe dementia, touch may be their most effective way of communicating, which emphasizes the quality of the toucher.

Another general remark can be made in that fairness or justice or the demand of treating people as equals will concern each of the three aspects—vulnerability, agency, and subjectivity. In some cases, this means treating people equally, in a "one size fits all" kind of treatment (Nussbaum 2009). But in cases of special needs, treating people as equals may demand providing more resources to those with special needs—those in wheelchairs are a classic example (Sen 1980). Even in cases where resources should be distributed differently in the name of fairness, it may be that there is some other "measure of justice" in terms of which people receive equal treatment. For example, the distribution of resources might be based on the idea that one should get what one needs. Another fundamental concern with social robotics is related to inequality. Will the benefits of robotics only be available to the better-off? Will the risks of decreasing human contact be actualized for those who already are worse off? Such societal issues will not be solved by technological means, but rather, will partially depend on societal developments

as to whether more utopian or more dystopian prospects of technology will be realized (Sparrow 2016).

3. Robots and Concern for the Neediness and Vulnerability of Human Beings

So far, we have seen how the distinctions made help us draw a table of varieties of respect and neglect. The three remaining sections will discuss the aspects of human existence—H1, H2, and H3—one at a time. This section will discuss the demands that dignity poses concerning aspect H1 and our neediness and vulnerability, and how those demands may be met or left unmet in robotic care (cf. the column "needs and vulnerability" in Table 3).

As Alasdair MacIntyre (1999) puts it, human beings are dependent, rational animals. Vulnerability and neediness are deep-rooted in the temporal trajectory of our human existence. During childhood, this neediness is obvious. In adulthood, we picture ourselves as independent, and in old age the need for help increases again. Various disabilities and diseases may disclose our dependence during any of these stages. It is important that human vulnerability is recognized in the provision of elderly care, in caring for and caring about the elderly (Turkle 2011). As long as robots are not able to care about people, or about anything, their use in elderly care should be assessed carefully.

How to assess, then, the prospects of robotics is important—in what ways can they respect, violate, support, or neglect human vulnerability and neediness? In the following subsections, we will go through their possible indirect effects on the agents' self-respect, the direct and indirect aspects of robot-based care, and discuss robot-assisted and teleoperated care as well as the contribution of robotics to general conditions of living.

3.1. Own Actions and Attitudes: Self-Respect

One thing robots can affect is how human dignity is realized in persons' *own actions and attitudes*. Some might experience the very need for technological or robotic assistance in activities of daily living, or ADLs, as undignified. But in reflection, it is hard to defend such attitudes; the pace of the ideology of "manliness" and autarchy, dependence, and vulnerability must be fully acceptable aspects of human life (MacIntyre 1999). It is realistic to expect to need assistance with ADLs in old age, whether it be dependence on others or on technological walking, hearing, or seeing aids. Naturally, the design of such assistive technology should ideally enhance rather than diminish the subjective feeling of self-respect. What is

experienced as acceptable and subjectively enhancing varies contextually however (see Broadbent et al. 2012; Turja et al. 2018; Wu et al. 2014).

Human vulnerability is in probable tension with our own agency, as everyone is a source of risk for themselves as well. In elderly care, a balance is to be sought, for example on what level of safety is required for the elderly's own activity, either at home or in assisted living. It is possible to err in two directions; too much risk, but also too much safety (or too rigidly preprogrammed satisfaction of needs) constitute problematic scenarios. Conceivably, robotic assistance could *enhance* human dignity by providing protection, and by enabling agency. But it could also *diminish* human dignity if used to create unnecessary risks or to restrict agency unnecessarily.

3.2. Dignity and Robot-based Care

With regards to *robot-based care*, what are the varieties of interaction possible? This question creates context for the concern that robots would replaces nurses. If robot-based care really were to replace nurses, what sorts of skills should robots have? Looking at the skills human nurses have, Patricia Benner (2000) has developed seven moral sources and skills of nurses. She suggests that nurses should:

1. have relational skills in meeting older people in their particularity;

2. be able to recognize when a moral principle, such as injustice, is at stake;

3. have skilled know-how that allows for ethical comportment and action in particular encounters in a timely manner;

4. have moral deliberation and communication skills that allow for justification of and experiential learning about actions and decisions;

5. have an understanding of the goals and ends of good nursing practice;

6. participate in a community of practitioners that allows for character development;

7. and have the capacity to love oneself and one's neighbor and have the capacity to be loved.

Programming these skills into care robots sounds extremely unlikely or is even impossible. As long as that is so, robot-based care on its own would be unable to provide the kind of interaction in which human dignity can directly be realized.

To overcome this dilemma of human-specific characteristics, researchers have suggested a differentiation of mere care-activities and nursing activities as

an answer (Turkle 2011). In this understanding, "care"-activities, as opposed to "nursing," consists of all the "doings" in the field of care work, such as taking body temperature, giving medicine, bathing, feeding, and so on. Conceivably, many such care tasks could be accomplished by advanced robots (Santoni de Sio and Van Wynsberghe 2016). Such tasks and activities may amount to "taking care of" people, but genuinely caring about them requires empathy, which is, for the foreseeable future at least, out of robots' reach. Empathy requires the skill to put oneself into the position of another, to imagine what it would be like to be in another person's situation. There is a deep human need for such empathetic encounters, to experience being emotionally cared about. Therefore, robot-based care seems to respect human dignity only to the extent that it is combined with human nurses who have more time and resources to spend with people, thus robot-based care is ethically acceptable only when combined with robot-assisted care (Decker 2008; Sharkey and Sharkey 2012b).

Hence, the positive aspect of robot-*based* care could be that needs can genuinely be met, and the contingent risk is that the robots injure the patients and thereby violate demands rooted in their dignity. But as robots cannot provide the emotional human contact needed for meeting the social needs of care-recipients, robot-based care on its own amounts to neglect. If the human needs for social contact are amply met *outside* care-contexts, however, it may not be a very central concern that such needs are not met in the context of care-activities.

3.3. Assisted and Teleoperated Care, and Decent Living Conditions

Robot-assisted care has the obvious benefit that the presence of human nurses enables genuine human interaction. Of course, sometimes the robot-nurse team may not provide human contact for social needs, for example, if the robot takes the nurse's attention away from the patient. With current robotic applications, this might easily happen due to malfunctions; field trials even with commercial applications report technical problems, such as Wi-Fi connectivity failures (Niemelä, Van Aerschot, et al. 2019).

Teleoperated care may be lacking in its capacity to perform the actual interventions, if it is a matter of mere communication. This is the case with simple telepresence robots that only enable mobile video connection and do not include medical equipment or manipulators. Yet, in principle, teleoperated robots could be built with capacities for interventions. At least for medical purposes, such forms of teleoperation are already in use—doctors may listen to a patient's heart or look into an ear from far away with instruments plugged into a telepresence device.

However, this kind of system may raise mixed feelings. In a pilot study of a telepresence robot equipped with a stethoscope and remotely used by a nurse to make health checks on older adults, both the adults and the nurse accepted the robot to a high degree and the adults felt "as if the nurse was present." On the other hand, the usability of the robot was perceived as low and the nurses felt frustrated because they could not palpate or touch the patients (Vermeersch, Sampsel, and Kleman 2015). Telepresence may not be of equal quality to genuine human presence, but of course is better than no contact at all to other people.

Finally, it can be added that technological progress, as an aspect of the background conditions of life, can lead to social advances that are consistent with human dignity, and smart technologies may be simply better at responding to human vulnerabilities and needs. On the other hand, they can of course also create distinct risks and dangers. For example, it is not clear how technological progress plays out within the scenarios of climate change and global ecological deterioration. Whether the good or bad potentialities of technology will be realized depends largely on the cultural and institutional backgrounds in different societies, and also on environmental conditions.

4. Recognizing the Agency of a Person

Agency is aspect H2, as previously discussed, of human existence that is relevant for maintaining dignity. As already pointed out, the goal of enhancing agency may conflict with the goal of protecting the vulnerable even from self-imposed risks. Higher degrees of agential capability may come with a higher sense of dignity, and robotic hindrance and support to these capabilities offer, accordingly, relevant questions. In particular, practical autonomy is relevant in this regard.[13] Because the considerations concerning one's own agency, recognition in robotic care, and living conditions are very similar to ones discussed in the previous section, this section is not structured in the same manner, to avoid repetition.

According to gerontological literature, Western culture emphasizes successful ageing, where success is defined as activity, autonomy, and "anti-ageing" (Bowling and Dieppe 2005; Katz 2000). Thus, people who are obviously dependent on other people may be seen as failures (Pirhonen 2017; Rozanova 2010). Also, moving to an assisted living facility has been described as a major event in older people's lives, insomuch that becoming a resident at such means leaving behind a private home, family, friends, pets, local communities, and previous lifestyles (Gubrium 1997; Grenade and Boldy 2008). According to Bethel Ann Powers (1995), older people may perceive care facilities as the "end of the line."

Older persons losing their functional abilities are at risk of becoming "others" and risk losing their status as persons (Pirhonen et al. 2015; Gilleard and Higgs 2013).

Over the past decades, autonomy has become the watchword for describing a good quality of elderly care (Ball et al. 2004; Roth and Eckert 2011; Zimmerman et al. 2005). George Agich's (2003) distinction between *independence* and *autonomy* is worth considering in the context of elderly care. Agich sees the difference between them through the participative role of an individual; an independent person makes and implements decisions on their own whereas an autonomous person makes decisions and implements them with help from others. Implementation of decisions calls for human agency. Agency can be seen as a practical side of autonomy; if one makes decisions regarding one's life, but cannot put them into practice oneself, they are still in charge of their life, although lacking the practical aspect of independence.

Culturally, assisted living residents belong to the group of "fourth agers" due to their hampering functional abilities and increasing dependence on other people. In opposition to the freedom and opportunities of fit "third agers," the fourth age has been pictured as a period of dependence, frailty, and death (Gilleard and Higgs 2013; Laslett 1989). Indeed, Chris Gilleard and Paul Higgs (2010, 122) hold that residents of assisted living facilities have lost their cultural frame of reference regarding individual agency due to a failure in self-management and transfer into round-the-clock care. Could robots help such older people to maintain their agency and thus their dignity?

According to Pirhonen (2017), assisted living residents have their own ways of hanging on to their agency and thus avoid the feeling of being a burden despite hampering functional abilities. Two of his findings are particularly interesting regarding robots and human agency: that agency may be supported by technological aids, and agency may be delegated to other people.

We all use different aids every day to support our agency. We use transport to move around and eyeglasses to see where we are going. Long-term care (LTC) residents emphasized this agency-supporting nature of aids by, for example, telling how a walker enabled them to go to the bathroom independently, without any help from the nursing staff (Pirhonen 2017). Arguably then, the more advanced aids older people would have, the more agentic they could be. Advanced assistive robots might enable considerable agency for many older people, provided that the robots would be easy enough to use when, for example, operated via speech recognition. An example of a simple mechanical aid developing towards an assistive robot is the LEA, or Lean Empowering Assistance, a robotic rollator that actively

supports walking, navigates autonomously over to the user, detects obstacles on the way, and provides fitness exercises as well as reminders to the user.[14]

Pirhonen (2017) also found that residents seemed to delegate their agency quite willingly to other people. Many of his interviewees told that they had out-sourced their finances to their children. A female resident who was unable to move around herself kept her closets in order by telling a visiting friend how her closets should be organized. A male resident said that he could not care less about what medication he was taking since he thought that the doctor was a more capable person to decide. Another female resident had let his son find a sheltered home for her. These people maintained their decisional agency while delegating the activity-part of the agency to other people. In principle, this could just as well be done by delegating the activity-part to a robot, unless there is something in the nature of the activity that makes it an inappropriate or unfit task for robots (Santoni de Sio and Van Wynsberghe 2016).

Robots could conceivably support older persons' agency in an efficient way, presuming that such elders are cognitively fit enough to utilize robots. Accord-ing to previous research, older people struggle to avoid the feeling of being a burden to other people (Degnen 2007; Pirhonen et al. 2015). Robots could help them with this struggle and postpone the dependence on others. Still, in assisted living facilities, robots may serve residents and help them manage some tasks without the need to ask assistance from staff, affirming their sense of autonomy. Furthermore, robots do not become annoyed when residents sometimes express their needs constantly.

There is yet another agency-related advantage in assistive robots in care surroundings—they may help older persons to help other people despite of their hampering functional abilities. If one is able to use a robot to assist themselves, they are surely is able to help others with it. Older persons do want to be useful to others (Laitinen and Pirhonen 2018), and robots may make it possible.

Many robotic applications are designed to assist an old person in maintain-ing their mobility and carrying out physical tasks, and so increase the autonomy or capacity to self-determination for that person (Hari Krishnan and Pugazhenthi 2014). Similar to wheelchairs and walking supports, robotic walking supports or exoskeletons could, in principle, help independent living. On the other hand, if robotic devices are too difficult to use, they can decrease the person's autonomy and feeling of control over one's life.

Sometimes the capacity for self-determination is lowered, as in the case of children, the cognitively handicapped, or the demented. In these cases, the full right

of self-determination is lowered as well, and turned into "assisted self-determination." One should not lose all autonomy rights the moment one's capacities are slightly lowered. Apart from individual aspects, the principle of self-determination should extend to collective decision-making concerning the entry of robotics in care. For instance, the elderly should have the right to make their voice heard, with regard to whether robots are taken into use in the care home they live in.

One deep agential need for human beings is to take part as a contributor to the common good, and be esteemed as a contributor. This need concerns being or having been a useful member of the community and being a recipient of the gratitude of others, not *merely* being a burden to others. Arguably, a healthy, dignified relationship to the self also includes acknowledgement of dependence throughout life, which the phrase "burdens" distorts. This is often linked with the experience of becoming unemployed; job loss typically makes one economically worse off, but also entails losing the role in which one can be of use to others. The feeling of being "superfluous" accompanies losing one's status as a contributor.

Older people also prefer to avoid becoming a burden to their close ones (Street et al. 2007). Typically, pensioners are considered to have already largely made their lifetime contributions and achievements, so they need no longer fill that role. On the other hand, within family and among neighbors, it is still equally rewarding to be able to contribute. In this respect, something like the girl-like robot, *Alice*, that was designed to allow the elderly to take on the active role of helper or caretaker, seems like a perceptive innovation. Alice asks the older person, for example, to open the window (Koster 2015; Kemenade, Konijn, and Hoorn 2015). Responding to such requests may activate the elderly and perhaps get them to experience themselves as useful, at least to a girl-like robot. In this context, the worry about deception may however reappear -in what sense was this really helpful? Again, there is a clear preference for robot-assisted activation by a team of humans and robots, instead of robot-based activation by robots alone, as the latter may include deceptiveness which is not consistent with the dignity of the elderly.[15]

5. Recognizing Subjectivity and the Emotional and Cognitive Capacities of a Person

5.1. Recognition of Cognitive Capacities

Different types of robots may conceivably support residents' self-respect and emotional self-acceptance. As proposed above, assistive robots may help older people's agency and boost their self-esteem by giving them a chance to still help

others.[16] In some situations, if robots functioned as "middlemen" between an older person and others, the risk for "epistemic injustice" might be reduced. Fricker (2007) holds that there are biases regarding who gets listened to in a conversation. For example, it is common that when an older person runs errands with an escort, people tend to speak to the escort instead of that older person. Would people speak to the older person if they were shopping with a robot instead of a human escort? Robots could someday even represent an older person with a difficulty to move around in meetings or national voting.

Another way in which the cognitive capacities and wisdom of the elderly would be recognized is to make the elderly themselves the trainers of AI and robots. They, if anyone, could teach the specificities of old age problem solving to the machines. Moreover, they have also accumulated more general human experience compared to younger people.

And more generally, the elderly should have a say concerning the norms of interaction—they should possess the standing or status as relevant judges concerning common matters. Being invisible in this respect is a violation of dignity. Consider this passage from Rainer Forst:

> The violation of human dignity consists in being ignored, not counting, being 'invisible' for the purposes of legitimizing social relations. In issues concerning human dignity, therefore, one should not think in terms of the end, of (objective or subjective) conditions or states of affairs, but of social relations, of processes, interactions and structures between persons, and of the status of individuals within them. (2012, 967)[17]

5.2. The Need for Emotional Recognition as a Unique Individual

It is a distinct human need to be emotionally recognized as a unique, irreplaceable person, leading one's own life, and facing one's own death. In addition to our biological vulnerabilities, this need creates a new type of vulnerability—we are dependent on others to give us recognition as an irreplaceable individual. Emotionally, we need emotional affirmation from others (Honneth 1995).

In that regard, a possible positive aspect of robots could be that their capacity to identify the individual in question, and to adapt and personalize their behavior for any individual human being may someday be much better than the adaptability of humans. For instance, robots might learn to decode the speech of people with linguistic impairments.[18] Again, there are two alternatives for the use of this feature: in robot-based care, the robots could be the interaction partner, which might

lead to a decrease in human contact and human dignity, and in robot-assisted care, they could facilitate interaction between humans.

Being someone's parent, child, spouse, sibling, relative, friend, or lover involves relationships with their own "logic." In this logic, the other is an irreplaceable, unique, and an individual. They are not like any other roles or offices one might have. In relationships of friendship or love, it would be absurd to think that one's friend or loved one can be swapped with someone similar enough. The emotional attachment is to that one special, singled out individual.

Many concerns about robotics deal with emotional interaction. One of them is that robots lure people into fraudulent emotional interaction. The Alice robot apparently was able to create emotional attachment from elderly users (Kemenade, Konijn, and Hoorn 2015). This may have happened since we form attachments to what we nurse and care for (Turkle 2011). But a robot is not capable of genuinely responding to feelings although a human being may be experiencing such—the one-way emotional attachment, interpreted to some extent as two-way by the human, can be seen as deception (Turkle 2011). Although Alice, too, is meant to be a robot to assist human relationships and not replace them, the deceptive relationship may entail harmful emotional consequences (Kemenade, Konijn, and Hoorn 2015). Deceptive attachment by a robot may not be of major concern for healthy adults, who are aware of the quality of interaction, but what about with children and demented elders? For instance, is it harmful for an elderly person suffering from dementia to form an attachment to a social robot? In a study by Marketta Niemelä, Mari Ylikauppila, and Heli Talja (2016), caregivers in nursing homes found Paro valuable in that elderly residents with dementia had positive feelings towards it and they wanted to take care of it. Paro enabled a certain sense of agency in the elderly—they were not mere passive receivers of human care. Whether the resident perceived Paro as a robot, seal, or baby during the act of caring, made no difference to the caregivers. Their training encourages them to accept the perception of the elderly. On the other hand, the caregivers saw that residents could not form long-term attachments to Paro, due to their dementia. With children, the long-term, fraudulent attachment to a social robot might have a more far-reaching impact, in terms of psychological development.

Recognizing such harmful impact on children would most certainly call for regulatory actions. One workable analogy might be digital games with age limits; perhaps the use of social robots and their behavior in terms of emotional engagement will have to be restricted according to the age of the humans interacting with

the robot, or only allow robots to interact with a child user in the presence of a human caretaker.

One form of misrecognition of individual uniqueness of persons in care facilities is providing residents with standardized treatments, which means that everyone gets treated in the same way and not based on their individual features and desires (Pirhonen 2017). This phenomenon partly arises from the austerity regarding resources of care—hasty staff need scheduling and charting to deal with all the work required of them. There is also a great turnover regarding care staff, which leads to situations where residents do not know their caretakers and vice versa. Also, sometimes, there are attitudinal issues with staff, and one must admit that assisted living residents are as colorful a bunch of people as any other crowd. There are unpleasant and even mean residents, and sometimes illnesses and medication related behavior result in bad conduct, which tends to keep staff distant (ibid.).

Robots would not mind residents being nasty and they could conceivably be programmed to "remember" every client's personal characteristics once they are recorded. A suitable robotic device could conceivably always remember that Ann needs to use an asthma inhaler in the evenings, that John's feet need lotion twice a day, or that Ella drinks only from a glass, never a mug. Robots have no reason to avoid a person, they do not have favorites. If a robot works as a nurse's partner, it could conceivably remind the nurse about all these facts. It might also remember the details long after an older person has forgotten about them. Equipped with face recognition technology, robots can recognize individual people already today. With advances in recognizing non-verbal social signals, such as subtle gestures and facial expressions, and finally human feelings, someday robots may really help older persons in care facilities to be treated as dignified persons until the end of their days.

6. Conclusions

In this article, we have discussed the nature of care robotics and robotic care from the viewpoint of the dignity of the elderly. Dignity poses demands, which in the case of human agents are duties, and in the case of robots, they are corresponding ought-to-be norms. Dignity is to be respected, not violated or disregarded; promoted and not neglected. We have discussed three kinds of responses: self-respect, respect from others, and conditions of living consistent with human dignity. We have also distinguished three dimensions in which these demands and responses can be assessed—namely those related to human vulnerability, to human agency,

and human subjecthood. We have identified various uses for robots which might conceivably enhance human dignity, and ones which would create disrespect. Overall, the findings can be summed up as "it depends"; robot-based care, robot-assisted care, and teleoperated care can each contribute to realizations of human dignity both positively and negatively, and it will expectably *depend* on the institutional and cultural settings whether positive or negative effects dominate. The aim of this article has not been to empirically examine this, but to distinguish the various ways that robotic care could affect human dignity, and so provide avenues for further study.

Notes

1. We would like to thank two anonymous referees and the editors of the special issue for numerous fruitful comments, as well as members of the Robots and the Future of Welfare Services research project (Academy of Finland Strategic Research Council) for collaboration on these topics, Otto Sahlgren and Kuisma Keskinen for assistance with the text, and Chris Brennan for checking the language.

2. https://data.oecd.org/pop/elderly-population.htm.

3. http://www.meti.go.jp/english/press/2015/pdf/0123_01b;   http://robotcare. jp/?lang=en.

4. http://ec.europa.eu/economy_finance/publications/european_econo-my/2014/pdf/ee8_en.pdf;   http://www.ipss.go.jp/site-ad/index_english/esuikei/h1_1. html.

5. http://www.parorobots.com/.

6. https://us.aibo.com/.

7. For instance in a letter to the editor titled "Robots can't love," published in *Helsingin Sanomat*, the largest daily newspaper in Finland, on 18.10.2015.

8. The topic of human dignity has been of great theoretical interest in the last decades (see, e.g., Waldron 2012, 2014; Rosen 2012). There is also some indication that the interest in the dignity of the elderly is growing (see, e.g., Waldron 2017 and references there; Pleschberger 2007; Woodruff 2017).

9. The Christian answer is that of "Imago Dei." The "personalists" argue it is a matter of person-making characteristics, such as sentience, self-consciousness, responsiveness to reasons in one's actions and thinking—the problem with this being that not all people have the relevant characteristics, and no one has them all the time (Laitinen 2007). The Aristotelian "humanists" say the moral standing is merely a matter of the human form of life and what makes humans thrive (see, e.g., Foster 2011; Iser 2019). Some people may be born without the typical human capacities, and old people may have lost some of these capacities with age, but that does not lessen their

status, argue the humanists. Whether robots are, or will be, persons will depend cru-cially on what the person-making characteristics are, and whether they include capaci-ties that robots do not or cannot have (for humanists, of course, robots will never have the high moral status as they will never be humans) (Gunkel 2017; Bryson 2010; Jones 2016).

10. On ought-to-be norms, see Sellars 1968, Wedgwood 2007, and Tuomela 2013.

11. For an overview of the relevant technological solutions suitable for this, in-cluding the use of an ethical governor capable of restricting robotic behavior to pre-defined social norms and an ethical adaptor which draws upon the moral emotions to allow a system to constructively and proactively modify its behavior based on the consequences of its actions, see Arkin, Scheutz, and Wagner 2012.

12. Human nurses are better in interpreting from movements, gestures, and facial expressions when patients feel uncomfortable, even if patients cannot say it out loud. For more, see Parviainen and Pirhonen 2017.

13. The Capability Approach typically stresses the aspect of agency, humans as agents and not merely passive recipients, see, e.g., Coeckelbergh 2012.

14. http://www.robotcaresystems.com/robot-lea/.

15. It is also an important message, in order to enhance the self-respect of the elderly, that to be cared for is not to be a "burden." After all, if others enjoy contribut-ing, the so-called burden is often welcome. Furthermore, to the extent that one cares for the other, the well-being or suffering of the other is constitutive of the well-being or suffering of oneself. Or, in regard to professional caregivers, the patients' need to be cared for is the very presupposition of their very practice. People in the professional roles work for the person, but the word "burden" suggests that it is done reluctantly.

16. Some previous literature has seen care robots to secure older persons' intima-cy regarding toileting and showering better than human nurses (Vandemeulebroucke, Dierckx de Casterlé, and Gastmans 2018).

17. We thank an anonymous referee for pointing out the need to keep this aspect (standing as a relevant judge) systematically present in thinking about the effects of robotic care to the dignity of the elderly.

18. Cf. Arkin, Scheutz, and Tickle-Degnen (2014) and Pettinati and Arkin (2015) for a robotic mediator, that would reduce stigmatization of Parkinson's Disease (PD) patients via artificial moral emotions, thus enabling the carer-patient—relationship to be consistent with human dignity. So-called "facial masking" reduces the ability of PD patients to express moral emotions, and the robotic device aims to report these on their behalf (cf. also Hegel et al. 2011).

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