Biotechnologies and Human Dignity

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Modern biotechnologies are among the reasons explaining the new focus on the idea of human dignity in public, political and scientific discourses. Topics being debated range from assisted reproduction, cloning, genetic diagnostics and genetic intervention, neuroprosthetics, cyborgs or artificial life all the way to visions of 'transhumanism' or 'posthumanity'. With their potential for bringing about radical transformations, advanced biotechnologies are forcing the notion and boundaries of what is human to be revisited. The biological foundations of humankind are more and more accessible, can be modified in a targeted way, and thus become the object of decisions. Naturalistic self-descriptions are being questioned and replaced by forms of description which are explicitly culturally constructed. We have to rethink the very question of what it means to be human and how we are to construct human boundaries or the difference between human beings and their environment. This creates a new background for the normative concepts of human rights, rights of the individual and human dignity. Through reference to the dignity of a *human being* and to the idea of *dignity*, the concept of human dignity implies notions attached to what constitutes being human. This fundamental meaning is supported by the multifarious traditions of human dignity, by its function as a key concept in interdisciplinary debates and not least by its prominent status in legal texts and discourses. Views of the role of human dignity, though, could not be more divergent. The conviction that dignity is an essential normative concept is juxtaposed with criticism that it is useless, nebulous, incoherent or even reactionary.

This article starts by providing an overview of significant biotechnological fields and visions as well as of essential discussions referring to human dignity. The analysis identifies core problems and new challenges regarding human dignity and its use as an argument (I.). Since biotechnologies and the societal discourse on them develop, approaches to human dignity and potential violations become more nuanced (I. A-H.). The second part examines, particularly with regard to

new challenges of biotechnologies, legal contexts of human dignity, especially texts and documents enshrining human dignity (II. A.), legislation (II. B.), the reasoning of courts (II. C.) and scientific discourses (II. D.). In the final part of this article, I will focus on the need to contextualize and differentiate the concept of human dignity – a concept that is probably more obviously than ever before a social construction as well as an extraordinarily complex legal conception (III.). Biotechnologies will prove to be a productive field of reference for discourse about human dignity, and the idea of human dignity is by no means useless.

I – FIELDS, VISIONS AND DISCUSSIONS

In public discourse, biotechnologies are often contrasted in a sweeping manner with human dignity as a normative measure. However, biotechnologies cover numerous fields as well as different practices. Considering the word stem 'bíos' their fields encompass all areas of biological organisms or processes, for instance, manufacturing particular products, developing new species of plants, creating novel food, constructing bacteria or cloning animals. Even if the topic of human dignity confines the focus to the human being (while the question of how to describe the boundaries has to be kept in mind), the fields are wide-ranging and quite heterogeneous. At a fundamental level, we can observe groundbreaking developments, such as more and more sophisticated assisted reproduction or the ongoing construction and decoding of DNA structures[1], followed by the emergence of gene diagnostics or genome editing. Further biotechnologies, data processing and information technologies, neurotechnologies, nanotechnology, robotics and synthetic biology have entered the picture, and the synergies between different technologies are accelerating change. With regard to the increasing accessibility and modifiability of the biological foundations of humankind, which had previously seemed to be a self-evident given, the core of advanced biotechnologies may be described as 'the potential to alter and, to a degree, to control the phenomena of human life'[2] or as the 'management of life'[3] and, moreover, as the creation of life in the sense of targeted interventions in previously 'natural' functions. The manufacture of synthetic life shows that even the familiar distinction between technology and life is becoming blurred[4].

1 The familiar double helix model is a limited scientific construction, see for further developments RN Irobalieva, JM Fogg, DJ Catanese, T Sutthibutpong, M Chen, AK Barker, SJ Ludtke, SA Harris, MF Schmid, W Chiu and L Zechiedrich, 'Structural Diversity of Supercoiled DNA' (2015) 6 Nature Communications 8440, doi: 10.1038/ncomms9440.

2 The President's Council on Bioethics (ed), Beyond Therapy: Biotechnology and the Pursuit of Happiness (Washington D.C., 2003) 2.

3 T Vidalis, 'Meeting Darwin: The Gradual Emergence of Biolaw' (2009) 6 Journal of International Biotechnology Law 221, 222 ff.

4 See, with differentiations, A Grunwald, Technikzukünfte als Medium von Zukunftsdebatten und Technikgestaltung (Karlsruhe, KIT Scientific Publishing, 2012) 177 ff.

At a more concrete level, however, each field involves a wide range of different issues and areas of application.

Beside these requirements for more concrete specification, biotechnologies encompass different praxes. We may distinguish between technical methods or applications and technologies as scientific knowledge, although there is no clear-cut boundary between them. In addition, we can distinguish between technologies which can be applied today and technologies which are envisaged in future scenarios. If we assume that technologies are embedded in society, 'biotechnologies' are not defined in terms of technical knowledge alone. Comprehensive knowledge about biotechnologies is produced in society in general, as well as in various scientific disciplines[5]. This is all the more true when considering practices that are already being applied, scenarios based on available knowledge, and prognoses or futuristic visions. The latter can, even in the form of science fiction novels, promote technical ideas; but they cannot be regarded as scenarios which are certain to become reality in the future. The multitude and convergence of technologies and the broad spectrum ranging from unproblematic to widely rejected applications characterize biotechnologies just as much as the scope extending from applied techniques all the way to futuristic predictions and the plurality of knowledge, which is both a factor in and a product of the discussions.

Precisely this complexity makes biotechnologies one of the most interesting reference fields for discourse about human dignity. Although this is not always the case such questions can involve issues related to the very existence of humankind and also cause matters which had previously been regarded as self-evident truths to be contingent. Additionally, biotechnologies are advancing, many different fields and areas of application have already been developed, and the discussions are becoming more and more nuanced. Hence, the notion of human dignity and potential violations must also be more clearly delineated. The following analysis explores how human dignity is used in debates about particularly relevant biotechnologies.

A. Assisted Reproduction, Especially Surrogacy

Assisted reproduction suggests itself as a starting point. Discussions can draw upon more or less established practices as well as imaginable ones. Assisted reproduction already encompasses a variety of different approaches: In-vitro fertilization and the subsequent transfer of the embryo into the uterus,

5 cf A Grunwald, 'Philosophy and the Concept of Technology – On the Anthropological Significance of Technology' in A Grunwald, M Gutmann and E Neumann-Held (eds), On Human Nature (Berlin/Heidelberg/New York, Springer, 2002) 179 ff, with broader considerations on the concept of technology.

cryopreservation of gametes or fertilized egg cells for the purpose of a transfer at a later date ('social freezing'), sperm and egg cell donation or surrogacy. At times, even the technical nature and the artificiality of procreation are regarded as problematic because they are said to lead to a situation where new human life is no longer created in a 'natural' way and as the result of chance, but is instead planned and 'made', or because it is said that no 'natural' mother-child bonding can occur[6]. Mostly, however, it is the way the people involved, their bodies and their psychological and social needs are treated which dominates discussions of human dignity.

In this respect, surrogacy in particular is under discussion. There are different types of surrogacy. A genetic surrogate is inseminated naturally or artificially and carries the baby for the intended parents. In gestational surrogacy, the egg and sperm of the intended parents or of donors are used for in-vitro fertilization, and the embryo is placed into the womb of the surrogate. Globally speaking, surrogacy now numbers among the widely employed reproductive technologies[7]. At the center of issues concerning human dignity is the woman whose body is used for a pregnancy, with all the associated intense relationships in the context of the surrogate motherhood. The scenario, which is by no means far-fetched, of women being held captive and forced to produce children would be classified as a violation of human dignity[8]. Some argue that, in principle, surrogacy undermines the human dignity of the woman carrier, because her body and its reproductive function are brokered as a commodity[9]. The acquirement of an extensive hold over the body of the woman, considering the involvement of the whole body, the relationship between the pregnant woman and the embryo that develops during a pregnancy and the risks associated with pregnancy and giving birth, is highlighted[10]. Others reject a violation of human dignity to the

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6 Aside from being socially constructed 'naturalness' and 'artificiality', though, are comparative concepts: Things are more or less natural. Furthermore, the concept of natural can refer to the way something came into existence, its genesis, or to its quality and appearance. Both might diverge: an artificial genesis can lead to a result that is judged to be natural on the basis of its appearance. See D Birnbacher, Natürlichkeit (Berlin/New York: de Gruyter, 2006) 4 ff. But cf also for the far-reaching changes due to the 'the artificial recreation of life in the laboratory' C Delaunay, 'The Beginning of Human Life at the Laboratory: The Challenges of a Technological Future for Human Reproduction' (2015) 40 Technology in Society 14, 14 ff, 23.

7 See the estimate that more than 25000 children are thought to be born to Indian surrogates in P Shetty, 'India's Unregulated Surrogacy Industry' (2012) 380 The Lancet 1633, 1633. Cf also AH Elder, 'Wombs to Rent: Examining the Jurisdiction of International Surrogacy' (2014) 16 Oregon Review of International Law, 347, 352 ff.

8 For this scenario see, eg, Hague Conference on Private International Law, Private international law issues surrounding the status of children, including issues arising from international surrogacy arrangements, Preliminary Document No. 11 of March 2011, Sect. 34, http://www.hcch.net/index_en.php?act=publications.details&pid=6175.

9 See, eg, Parliamentary Assembly of the Council of Europe, Motion for a resolution: Human Rights and ethical issues related to surrogacy, Doc 13562, 1.7.2014, http://assembly.coe.int/nw/xml/XRef/Xref-XML2HTML-en.asp?file- id=21092&lang=en.

10 Secretariat of the Commission of the Bishop's Conferences of the European Community (COMECE), Opinion of the Reflection Group on Bioethics on Gestational Surrogacy, 2015, 7 f.

extent that willingness to act as a surrogate mother can be classified as based on a voluntary decision, for example when female family members or female friends volunteer[11]. If the autonomy of the surrogate mother is the focus of attention, considerations in connection with human dignity shift to the conditions that make free decisions possible or impossible and to the conditions of the surrogacy arrangement as a whole[12]. Poverty and commercialization are likely to create economic pressures[13]. Nevertheless, there is disagreement about whether such circumstances are sufficient to cause a violation of human dignity[14]. A further point of discussion is the selection of surrogate mothers on the basis of particular properties. Commercialization and specialized agencies might contribute to circumstances in which surrogates are chosen like goods for sale. As to the child, some emphasize that he or she might be seen as a commodity which has to feature particular properties and to fulfill particular expectations[15]. The scenario that a child might be 'rejected' has become reality in one case in which an Australian couple left a twin boy with Down syndrome ('Baby Gammy') with his Thai surrogate mother and only accepted the healthy baby girl. In addition, scenarios are conceivable in which children are 'produced' for the purpose of sexually abusing them, inflicting violence upon them or for forced labor. However, regarding babies as commodities or objects is in reality not the typical result of surrogacy and the implications depend not least on how surrogacy is regulated. Even this brief overview shows that the blanket assumption that human dignity is being violated by particular reproductive technologies is increasingly being superseded by arguments that can be differentiated in terms of content, reference point and level.

B. Embryo and Stem Cell Research

Techniques used in assisted reproductive technology have resulted in a cascade of new fields of biotechnology. Embryonic and stem cell research in particular have sparked debate on biotechnology and human dignity of varying

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11 See, eg, T Hörnle, 'Menschenwürde und Ersatzmutterschaft' in JC Joerden, E Hilgendorf and F Thiele (eds), Menschenwürde und Medizin (Berlin, Duncker & Humblot, 2013) 743, 748 f; P Jofer, Die Regulierung der Reproduktionsmedizin (Baden-Baden, Nomos, 2015) 310 ff.

12 See with different approaches CA Choudhury, 'The Political Economy and Legal Regulation of Transnational Commercial Surrogate Labor' (2015) 48 Vanderbilt Journal of Transnational Law 1, 50 ff, 63 f; K Galloway, 'Theoretical Approaches to Human Dignity, Human Rights and Surrogacy' in P Gerber and K O'Byrne (eds), Surrogacy, Law and Human Rights (Farnham/Burlington, Ashgate Publishing, 2015) 26 ff. For the difficulties of reaching an international regime see Y Ergas 'Babies Without Borders: Human Rights, Human Dignity, and the Regulation of International Commercial Surrogacy' (2013) 27 Emory International Law Review 117, 163 ff.

13 This is among the reasons why India aims at restricting the booming surrogacy industry, see The Surrogacy (Regulation) Bill, 2016, http://www.prsindia.org/billtrack/the-surrogacy-regulation-bill-2016-4470/.

14 See Dutch National Rapporteur on Trafficking in Human Beings, Human trafficking for the purpose of the removal of organs and forced commercial surrogacy (The Hague, 2012) 17 ff; cf also CA Choudhury, 'The Political Economy' 4 ff.

15 Secretariat of the Commission, Opinion (n. 10), 13.

intensity in different countries[16]. Assisted reproductive technology procedures inevitably result in surplus embryos. In addition, these procedures make it possible to fertilize egg cells in vitro and to allow them to develop into differentiated cell structures to a certain stage. In the initial stages the cells are totipotent, i.e., they can divide and develop into an entire individual provided the necessary conditions exist. This development potential that exists in principle, however, can in the meantime be suppressed from the outset using genetic engineering. Embryos in vitro also open up possibilities for harvesting embryonic stem cells, an area highly interesting to researchers[17]. Given the current state of research such a process results in the embryo being destroyed. Embryonic stem cells themselves are considered pluripotent; however, the extent of their potential for development has only been partly established and this potential can also be manipulated through artificial techniques. More recent research has derived stem cells not only from somatic cells (induced pluripotent stem cells) but also from parthenogenetic blastocysts (parthenogenetic stem cells)[18] and aims at developing effective methods to revert specialized cells back to an embryonic stage (reprogramming)[19].

In debate over this, the first complex of issues revolves around the question of whether embryos are protected by or, going even further, entitled to human dignity. As a consequence of the progress of natural sciences this question is increasingly being expanded to cover the – distinguishable but closely linked – question of the prerequisites for it to be possible to speak of an embryo at all, which, given the necessary additional conditions, can develop into a human being. Frequently, the view is expressed that human life and human dignity as its inherent worth begin at the time of the fusion of egg and sperm cell, through which its genetic uniqueness is established[20]. But this apparently 'natural' position either insinuates numerous further presuppositions[21] or is confronted with the problem that its scientific basis is increasingly being eroded,

16 See, eg, T Farajkhoda, 'An overview on ethical considerations in stem cell research in Iran and ethical recommendations: A review' (2017), 15 International Journal of Reproductive BioMedicine 67, 68 ff; JA Robertson, 'Embryo Stem Cell Research: Ten Years of Controversy' (2010) 38 Journal of Law, Medicine & Ethics 191, 191 ff; FS Oduncu, 'Stem Cell Research in Germany: Ethics of Healing vs. Human Dignity' (2003) 6 Medicine, Health Care and Philosophy 5, 5 ff.

17 More closely, also regarding the term 'embryo' Jofer, Regulierung (n. 11) 323 ff, 447 ff.

18 The question whether a non-fertilised human ovum whose division and further development have been stimulated by parthenogenesis is 'capable of commencing the process of development of a human being just as an embryo created by fertilisation of an ovum can do so' was the subject matter of a decision of the ECJ, see Case C-364/13 International Stem Cell Corporation (2014), accessible under curia.europa.eu.

19 See MZ Ratajczak, T Jadczyk, D Pędziwiatr and W Wojakowski, 'New Advances in Stem Cell Research: Practical Implications for Regenerative Medicine' (2014) 124 Polskie Archiwum Medycyny Wewnętrznej 418 ff; D Cyranowski, 'Stem Cells: The Black Box of Reprogramming' (2014) 516 Nature 162 ff.

20 cf, eg, EW Böckenförde, 'Menschenwürde als normatives Prinzip' (2003) JuristenZeitung 809, 812.

21 Especially in the context of Christian ethics, see Congregation for the Doctrine of the Faith, Instruction on respect for human life in its origin and on the dignity of procreation: replies to certain questions of the day (Donum Vitae) 1987.

for example as a result of the possibility of cell reprogramming, the suppression of cell development potential, or cloning. In the highly controversial and widely conducted debate over convincing criteria several categories such as species membership, identity, continuity and potentiality are being discussed. The spectrum of development phases being used to define the point where the protection of human dignity begins extends from early cell stages to nidation all the way to birth. The possibilities and results of recent research require further differentiations which are even more difficult to specify. Some proposals for classifying totipotent human artefacts, for example, draw a distinction between transient totipotence and totipotent transience to underline the criterion whether cell entities are or are not embedded in a possibly fictitious context of procreation[22]. Regardless of the stance adopted, it is becoming apparent that recognition of human dignity is a decision which, although in no way arbitrary, must be given reasons for in compliance with criteria accepted as more or less convincing in different cultures and contexts.

The second complex is also controversial, to a certain degree: Provided that the protection of human dignity applies, what is to be regarded as a violation of human dignity? Some people closely connect the protection of dignity with the protection of human life. As a result, they view, for example, the destruction of human embryos for obtaining stem cells as a violation of human dignity. Usually, however, arguments related to human dignity are based on independent criteria. Regarding the harvesting of stem cells from embryos, it is less the destroying than it is their consumptive use for research purposes benefiting third parties that is the central point[23]. In part, a further differentiation is made here between on the one hand surplus embryos which would not proceed their development anyway under these circumstances, and on the other hand embryos which might have had the chance of being transferred into a womb, for example in the course of an embryo adoption. In addition, there is the conceivable constellation that embryos could be farmed specifically for consumptive embryo stem cell research. In the case of recognition of the right to protection of human dignity, in both of the latter two constellations a violation of human dignity is overwhelmingly recognized based on the argument that a human being is being treated like an object and instrumentalized for purposes benefiting third parties. Here the guiding principle derives from historical experiences with research on living human beings, which contributed to establishing the concept of human dignity.

22 J Kersten 'Der rechtliche Status totipotenter menschlicher Artefakte – Transiente Totipotenz vs. totipotente Transienz' in T Heinemann, HG Dederer and T Cantz (eds), Entwicklungsbiologische Totipotenz in Ethik und Recht (Göttingen, V&R unipress, 2014), 137, 147 ff.

23 See, eg, Oduncu, 'Stem cell research' (n. 16), 11, 14.

C. Reproductive Cloning

In addition to embryo and stem cell research, reproductive cloning is a central topic in the human dignity debate. It is based on a future scenario, which, however, can be supported by reference to the already widely established cloning of animals. Meanwhile, techniques beyond cloning have entered the picture, e.g., the derivation of reproductively viable gametes via reprogramming (in vitro gametogenesis)[24]. These techniques raise their own problems as well as questions similar to those of cloning[25].

In the case of human beings, even the necessary research prompts objections on the grounds of human dignity. This is all the more true because cloning research would be a matter of consumptive embryo stem cell research. Human dignity is being discussed in scenarios where cloning takes place without the cloned person's consent. The requirement for consent is partly based on the use of body cells of the person, partly on the consequences the production and existence of a clone would have for the selfimage and the social position of the cloned person. From another perspective, discussion is focused on the human dignity of the clone. Some people reject human dignity as an argument because the clone only exists by virtue of cloning. However, the production of a clone as a potential violation of human dignity and the question of whether an existing clone can claim that a violation of human dignity is responsible for his or her existence are two separate questions. Some people regard the production of a clone as a violation of human dignity because they consider a person to be defined by his or her genetic uniqueness and a clone not to have the preconditions for or the possibility of a sufficient level of autonomy due to social expectations that the clone will resemble the cloned person[26]. Others point out that this perspective is based on genetic determinism which is incorrect and that it would be the inappropriate pressure or social expectations placed on the individual clone that challenge the clone's human dignity[27].

Usually uncontested violations of human dignity are, however, cloning scenarios such as clones bred as human beings that are deliberately stunted to do inferior works, clones bred to be enslaved or clones bred to serve as warriors

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24 See IG Cohen, GQ Daley and EY Adashi, 'Disruptive reproductive technologies' (2017), 9 (372) Science Translational Medicine 1 ff. (DOI:10.1126/scitranslmed.aag2959).

25 SM Suter, 'In vitro gametogenesis: just another way to have a baby?' (2016), 3 Journal of Law and the Biosciences 87, 91 ff.

26 See, eg, C Kaveny, 'Cloning and Positive Liberty' (1999) 13 Notre Dame Journal of Law, Ethics & Public Policy 15, 29 ff.

27 T Caulfield, 'Human cloning laws, human dignity and the poverty of the policy making dialogue' (2003) 4 BMC Medical Ethics, http://www.biomedcentral.com/1472-6939/4/3; RG Wright, 'Second Thoughts: How Human Cloning Can Promote Human Dignity' (2000) 35 Valparaiso University Law Review 1, 5 ff, 31 ff.

or as an organ bank[28]. The discussions show that the idea of human dignity is becoming increasingly complex in its construction and is being more clearly delineated. In addition, uncertainty and the assumptions people base their rationale on are playing a major role. In many cases it is assumptions about social or psychological consequences that are causing controversy, rather than normative judgments about violations of human dignity made on the basis of certain assumptions.

D. Genetic Diagnostics

The work on the decoding of the human genome and the development of a series of technologies that have the capacity to generate vast quantities of DNA sequence data rapidly and at relatively low cost (next-generation sequencing) have advanced genetic diagnostics in an unprecedented manner. Above all in the US, questions of human dignity are being examined in the context of biobanks, which are classified as research 'on' human beings, although they are a matter of data referring to a person and of bodily materials separated from the body[29]. At times, human dignity is understood as the basis of self-determination, which is reflected in the requirement for 'informed consent'[30]. In this respect, a link is made to the 'concept of human dignity that is predominantly informed by post--Holocaust humanrights deliberations'[31]. In part, reference is made to the argument that with the development of genetic diagnostics, extensive information about human beings is becoming possible in principle. Human dignity is intended to offer protection against people becoming (relatively) transparent to other people – others who with such knowledge would be in a position to block or influence their development prospects. Sometimes reference to human dignity is made to establish protection against fundamental discrimination[32].

28 Wright, 'Second Thoughts' (n. 27), 18 f; T Hörnle, 'Menschenwürde und reproduktives Klonen' in JC Joerden, E Hilgendorf, F Thiele (eds), Menschenwürde und Medizin (Berlin, Duncker & Humblot, 2013) 765, 770 f; for imaginable scenarios and their probability see also A Bühl, Reproduktives Klonen in "real life" und in der Science Fiction' in A Bühl (ed), Auf dem Weg zur biomächtigen Gesellschaft? (Wiesbaden, VS Verlag für Sozialwissenschaften, 2009) 273, 298 ff, 306 ff.

29 Biobanks collect samples of bodily materials and medical or genetic data and information as well as general information about the health status or lifestyle of the person in question, in varying combinations, see M Albers, 'Rechtsrahmen und Rechtsprobleme bei Biobanken' (2013) 31 Medizinrecht 483, 483 f.

30 T Caulfield and R Brownsword, 'Human dignity: a guide to policy making in the biotechnology era?' (2006) 7 Nature Review Genetics 72, 73: '[...] this is the most common application of human dignity – that is, as the foundation for specific legal entitlements, such as informed consent. It is the least contentious use of the concept of human dignity.' More differentiating J Allen and B McNamara, 'Reconsidering the Value of Consent in Biobank Research' (2011) 25 Bioethics 155, 156 ff.

31 Caulfield and Brownsword, 'Human dignity' (n. 30), 72, with references to the Universal Declaration of Human Rights, the Nuremberg Code and the Helsinki Declaration.

32 See, eg, CWL Ho and TSH Khan, 'The Notion of Genetic Privacy' in TSH Khan and CWL Ho (eds), Genetic Privacy: An Evaluation of the Ethical and Legal Landscape (London, Imperial College Press, 2013) 1, 1 ff.

In the case of embryos in vitro, certain genetic characteristics or dispositions can be detected by means of genetic testing prior to implantation in the womb. Whether and to what extent such pre-implantation testing is permissible and the decision to implant may be made dependent upon its results is being vigorously discussed in some countries from the human dignity perspective. In these discussions the central issue is less the possible death of the embryo and more the act of selection[33]. From the point of view of the individual, it is argued that the embryo could be 'discarded' because of its genetic make-up and thus not treated as an 'end in itself'. Looking at the matter more abstractly, objections related to human dignity are raised to the view that a life with certain genetic diseases should be avoided – because it devalues existing people who are living with such an illness, or because it promotes a view of human beings that does not adequately acknowledge imperfection as an element of human existence. The more extensive and refined the possibilities of pre-implantation diagnostics become, the less clearly defined the borders between selection and creation become even at this point in the process. 'Designer babies' is the popular catchword. Extensive selection decisions according to previously specified characteristics or dispositions – going beyond dispositions to illness to include for example, gender, hair and skin color, and intelligence – are being discussed in terms of human dignity. This involves, on the one hand, the individual person: using a distinction between born and made, some fear that fundamental impairments of identity, autonomy and recognition in the social community could be the outcome. On the other hand, human dignity is also taken into consideration in a more abstract way with a view to people who will live in the future or to humankind, which will be shaped by the technology-assisted selection of people living today.

E. Genetic Interventions

In addition to selection on the basis of information obtained through genetic diagnostics, genetic interventions are receiving increasing consideration. Like in other areas, technologies are developing quickly. Modern genome editing techniques, methods or tools allow for alterations of existing DNA sequences or insertion of new ones in a way that is considered to be surprisingly simple, controlled and cost-effective[34]. We can distinguish between interventions involving embryos, especially in case of assisted reproduction, and those

33 See, eg, D Birnbacher, 'Menschenwürde und Präimplantationsdiagnostik' in JC Joerden, E Hilgendorf and F Thiele (eds), Menschenwürde und Medizin (Berlin, Duncker & Humblot, 2013) 755, 760 ff.

34 cf, eg, JA Doudna and E Charpentier, 'The new frontier of genome engineering with CRISPR-Cas9' (2014) 346 Science 6231, doi: 10.1126/science1258096; JD Sander and JK Joung, 'CRISPR-Cas Systems for Editing, Regulating and Targeting Genomes' (2014) 32 Nature Biotechnology 347 ff. For further developments see F Richter, I Fonfara, R Gelfert, J Nack, E Charpentier, A Möglich, 'Switchable Cas9' (2017), in: 48 Current opinion in biotechnology, 119 ff.

involving born human beings who are or who may not be able to decide on their own. Furthermore, we can distinguish between interventions in germ cells and those in somatic cells. In the case of born human beings, genetic interventions via somatic gene therapy, gene transfer techniques or germline alterations are conceivable. Germline interventions affect all future generations. Transhumanist visions or science fiction narratives envisage the reshaping of humankind into a genetically modified post-human species.

Questions concerning violation of the dignity of individual people are being raised in connection with actions realized without their informed consent, even though they are in principle capable of making decisions. Clear cases are covert research on human beings or intervention by force in a person's genetic characteristics. The spectrum is more controversial in the case of genetic interventions in people who by virtue of lack of capacity to make decisions, are not in any way, no longer or not yet able to decide for themselves[35]. Interventions in the germline focus attention on relatively unknown future generations who could be affected by unpredictable mechanisms[36] or whose genes could be edited according to characteristics or dispositions chosen by others. Putting aside concerns about safety, however, despite germline alterations affect people not yet born, without their being able to agree to it, not every constellation raises problems in connection with human dignity. But constellations do exist where there is broad consensus on violations of human dignity. Scenarios include, for example, a situation where people are bred to take over various functions in a society featuring division of labor and people with brain functioning restricted by gene technology are used to carry out low-level work. Over and above the human dignity of individuals, some emphasize threats to humanity.

F. Neurotechnologies

Additional fields are attracting attention due to the convergence of biotechnology, neurotechnology and information technology: the possibilities of observing or intervening in the brain and the development of sophisticated human-machine interfaces[37]. Invasive or noninvasive techniques such as neuroimaging make it possible to examine brain structures and functions

35 cf, eg, M Salvi, 'Shaping Individuality: Human Inheritable Germ Line Gene Modification' (2001) 22 Theoretical Medicine 527, 529 ff; WC Radau, Die Biomedizinkonvention des Europarates (Berlin/Heidelberg/New York, Springer, 2006) 341 ff.

36 cf E Lanphier, F Urnov, SE Haecker, M Werner and J Smolenski, 'Don't Edit the Human Germ Line' (2015) 519 Nature 410 f (emphasizing safety concerns).

37 For an overview see R Merkel, G Boer, J Fegert, T Galert, D Hartmann, B Nuttin and·S Rosahl, Intervening in the Brain. Changing Psyche and Society (Berlin/Heidelberg/New York, Springer, 2007), 117 ff; RH Blank, Intervention in the Brain. Politics, Policy, and Ethics (Cambridge/London, MIT Press, 2013) 25 ff; M Albers, 'Grundrechtsschutz und Innovationserfordernisse angesichts neuartiger Einblicke und Eingriffe in das Gehirn' in J Lindner (ed), Die neuronale Selbstbestimmung des Menschen (Baden-Baden, Nomos, 2016) 63 ff.

thoroughly and in real time and to analyze interrelationships with behavior.[38] Direct brain intervention methods include for example neurogenetic measures, deep brain stimulation, neural prostheses in various forms, or chips implanted in the brain. Neurogenetics involves supplementing or blocking neurotransmitters or replacing defective genes. Deep brain stimulation is less or more invasive in the form of electronic stimulation or implantation of electrodes that carry electrical signals to specific brain locations and cause the brain cells to change their activity. Brain implants record, stimulate or block impulses from neurons and could influence sensory or cognitive functions. Advanced research is aiming at creating interfaces between neural and computer systems or even brain-to-brain interfaces[39]. Future scenarios envisage a symbiotic connection between the human biological system and various technical devices. The key word, although it is understood and used in a variety of different ways, is 'cyborg'[40].

Here too the fundamental question quickly arises of how human beings can be defined when the physical body is no longer the self-evident limit of a human being and criteria of internality and externality are subject to attacks[41], and which human-machine entity is still a human being who has a right to human dignity. Similar questions from the opposite point of view are emerging in robotics and artificial intelligence[42]. Again, this discourse casts light on questions related to the constructivity of human dignity. At a concrete level, interventions in the human brain or man-machine entities raise the problem of what actually defines the core of a human being and what happens when brain functions can be controlled by external technology or by other people. Many methods have not been sufficiently investigated in detail and many questions are still open[43]. However, it is widely accepted that complete external neurotechnological control of brain function with the resulting loss of identity and autonomy of the

38 Blank, Intervention in the Brain (n. 37) 49 ff.

39 Blank, Intervention in the Brain (n. 37) 38; K Choi and BK Min, 'Future Directions for Brain-Machine Interfacing Technology' in SW Lee, HH Bülthoff and KR Müller (eds), Recent Progress in Brain and Cognitive Engineering (Dordrecht, Springer, 2015) 3 ff; see also JB Trimper, PR Wolpe and KS Rommelfanger, 'When "I" becomes "We": ethical implications of emerging brainto-brain interfacing technologies' (2014) 7 frontiers in Neuroengineering 2014, Article 4; E Hildt, 'What will this do to me and my brain? Ethical issues in brain-to-brain interfacing' (2015) 9 frontiers in Systems Neuroscience 17.

40 Cybernetic organism; see R Kurzweil, Human Body Version 2.0 (2003), www.kurzweilai.net/human-body-version-20; A Clark, Natural-Born Cyborgs (Oxford, Oxford University Press, 2003) 3; G Jones and M Whitaker, 'Transforming the Human Body' in C Blake, C Molloy and S Shakespeare (eds), Beyond Human. From Animality to Transhumanism (London/New York, Continuum, 2012) 254, 259 ff.

41 cf A Clark, Natural-Born Cyborgs (n. 40), 3 ff.

42 See, eg, MC Gruber, 'Was spricht gegen Maschinenrechte?' in MC Gruber, J Bung and S Ziemann (eds), Autonome Automaten. Künstliche Körper und artifizielle Agenten in der technisierten Gesellschaft (Berlin, trafo, 2014) 191, 199 ff. Artificial intelligence and artificial life have become mature interdisciplines and thus demonstrate their complexity and possible significance for future generations, for an overview see W Banzhaf and B McMullin, 'Artificial Life' in G Rozenberg, T Bäck and JN Kok (eds), Handbook of Natural Computing (Berlin/Heidelberg, Springer, 2012) 1805, 1806 ff.

43 cf B Schmitz-Luhn, C Katzenmeier and C Woopen, 'Law and Ethics of Deep Brain Stimulation' (2012) 35 International Journal of Law and Psychiatry 130, 130 ff.

individual is incompatible with human dignity. 'Brainwashing' or destruction through deprivation are the historical parallels that have become known from wartime experiences.

G. 'Patents on Life'

Last but not least, biotechnologies and biotechnical inventions entail questions of patents. A patent gives its holder exclusive rights to the use of the patented invention for a specified time. On one hand, a patent can be granted as a product patent for an invented product or – in the narrower case of a new substance – as a substance patent. As a rule, the patented product is then protected absolutely, i.e., with regard to all known or still unknown functions and uses, regardless of whether the patent holder has specified them or even acknowledged their existence. On the other hand, patent holders can obtain a patent for a process they have invented, a patent also granting fundamental and absolute protection in connection with all applications and purposes with regard to that process. The protection provided by a process patent also extends to products resulting directly from applications. For the manufacture of a patented product or the application of a patented process third parties are required to obtain a license from the patent holder. Being purely an exclusive right, a patent does not grant permission to carry out the invention. But it would not make sense if it were already clear that this embodiment must be prohibited with lasting effect, for instance because it violates human dignity. Apart from this, an exclusive right can also be contrary to normative standards. Patent law and patent protection are by no means ethically neutral.

'Patents on life' is a catchphrase which has resulted in fierce discussions in which human dignity is a key point[44]. Today, the central distinction in patent law is no longer, as was the case in the past, the difference between living organisms and lifeless material, but the distinction – no longer based on this difference – between discoveries on the one hand and human inventions on the other[45]. In connection with this, substances that are found in nature but isolated and extracted from their natural environment and thus made readily available are, in principle, just as capable of being patented as are organisms manufactured by means of bioengineering or genetic engineering. Against this background, patent applications have claimed or claim patents for procedures or products

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44 See more thoroughly M Albers, 'Patente auf Leben' (2003) JuristenZeitung 275, 275 ff; C Meiser, Biopatentierung und Menschenwürde (Baden-Baden, Nomos, 2006) 15 ff.

45 See the landmark decision Diamond v Chakrabarty, decided 1980 by the US Supreme Court, 447 U.S. 303. See also US Court of Customs and Patent Appeals, in re Bergy, Chakrabarty, 596 F.2d 952 (C.C.P.A. 1979) 975: 'In fact, we see no legally significant difference between active chemicals which are classified as "dead" and organisms used for their chemical reactions which take place because they are "alive". Life is largely chemistry.'

involving human DNA sequences, cells, organs or tissue as well as chimeras, embryonic stem cells or embryos themselves. In this discourse, human dignity remains to some extent a vague standard against commodification of humans[46] creeping in by patenting human material[47]. However, the idea of granting a product patent on an embryo is, to the extent that the embryo can develop into a human being, a very clear example where human dignity sets limits for a systematically thought out logic of patent law.

H. Conclusion

In discussions of biotechnologies, human dignity sometimes seems merely to articulate 'a general social unease with a given technology'[48]. Nevertheless, understanding of human dignity is neither entirely indeterminate nor completely heterogeneous, nor is every aspect of it disputed. On the contrary, there is broad and widespread consensus about certain issues.[49] It would be incompatible with human dignity to enslave women for the purpose of forced surrogate motherhood. Children must never be treated as goods which are produced and required to have certain properties and which need not be accepted in the event of flaws. Once human life enjoys the protection of human dignity, consumptive use for research purposes benefiting third parties becomes a violation of human dignity. Secret gene analyses aimed at ascertaining the full genetic characteristics and dispositions of a particular person and linking these to discriminatory consequences or selling the results of such analysis to interested parties constitute violations of human dignity. An intervention in the brain of a person which leads to the thinking and behavior of this person being externally controlled by others is also a violation of human dignity. A human being cannot be the basis for a product patent.

There is also disagreement on many matters, however. In part, problems regarding knowledge and uncertainties form the basis of the controversy. Because the human is now subject to transformation and transgression in an unprecedented manner, we often do not know what consequences are to be expected. Numerous predictions are highly controversial, for example, whether cloned or genetically altered persons would no longer be able to see themselves as autonomous persons or as the authors of their own biographical histories,

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46 As to the (non-)commodification with a view to organ markets cf also I Schneider, 'The Body, the Law, and the Market: Public Policy Implications in a Liberal State' in M Albers, T Hoffmann and J Reinhardt (eds), Human Rights and Human Nature (Berlin/Heidelberg/New York, Springer, 2014) 197, 197 ff.

47 See (with criticism and an own approach) DB Resnik, 'DNA Patents and Human Dignity' (2001) 29 Journal of Law, Medicine & Ethics 152, 152 ff.

48 Caulfield and Brownsword, 'Human dignity' (n. 30), 72.

49 The point of reference here is current global society. Nothing changes with regard to the existing consensus due to the fact that there are always people and groups who dispute statements or evaluations.

or whether social relationships would change if human beings were cloned or genetic engineering conducted intentionally on embryos. Differing underlying assumptions and predictions may explain divergent assessments.

In part, appraisals and value judgments are at the heart of the controversies. When is a living creature a 'human being'? At what point do measures that restrict autonomy reach the point where they violate human dignity? What worth does the human body have and to what extent may body parts or bodily functions be commercialized? And what is the 'human body'? From an analytical perspective, knowledge and value judgments are separate issues, and breaking them down into their components is helpful. In complex biotechnological fields, however, this comes up against the problem that knowledge is no longer broadly shared and fundamental uncertainties are dealt with using values as guidelines[50]. That is among the reasons why discourse about human dignity is partly vague and heterogeneous. It can incidentally also be shown that the point of reference underlying considerations of consequences and evaluations varies. The point of reference is not the individual only. It is also the others who are affected to the same degree and have the same right to be considered; it is future human beings or an even more highly abstracted humanity as such. Human dignity is also being referred to in more abstract lines of argument involving the potential of a technology to change the framework of mutual human interactions in such a way that violations of human dignity are made possible and are increasingly actually occurring. In turn, what is convincing as the point of reference in a given constellation is disputed. But even where there are disagreements, it is not that human dignity offers no help in clarifying matters. On the contrary, the sorting out of the issues in each complex which is among the effects of the discussions contributes as much to understanding those issues as to understanding human dignity. Since the discussions of biotechnologies become more differentiated judgments using human dignity 'as a form of general condemnation'[51] are increasingly being replaced by more nuanced approaches. Human dignity is understood as a requirement calling for regulation, which does not ban the use of biotechnologies entirely but shapes it in such a way that imaginable violations of human dignity are avoided.

Discussions are being carried on in many contexts: throughout society, in the political system, and in various scientific disciplines. However, the theme of human dignity having legal status is, in a form specific to the given context, often implied. Especially in the area of biotechnology, the attractiveness of

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50 See M Albers, 'Enhancement, Human Nature, and Human Rights', in M Albers, T Hoffmann and J Reinhardt (eds), Human Rights and Human Nature (Dordrecht/Heidelberg/London/New York, Springer, 2014) 235, 258 ff.

51 Caulfield and Brownsword, 'Human dignity' (n. 30), 72.

human dignity as an argument is supported by the fact that its considerable legal value is generally known.

II – LEGAL CONTEXTS

The legal contexts, with their own independent characteristics, will now become the central focus of the further analysis. Texts establishing norms can serve as crystallization points, although the law is not defined by texts alone and codified norms play differing roles in different legal systems. Human dignity is enshrined in a series of legal documents, for example in the Universal Declaration of Human Rights, in national constitutions, in the European Union Charter of Fundamental Rights or in specific conventions in the field of biomedicine (A.). The picture becomes more complex, because there are several communication contexts within the legal system that operate relatively independently. These include in particular legislation (B.), jurisdiction (C.) and jurisprudence (D.).

A. Establishment of Human Dignity in Catalogues of Human Rights

The now quite widespread establishment of human dignity in legal texts and documents is a recent achievement, primarily a ‘postwar constitutional conception’[52] due to the horrendous experiences of the Second World War. The Charter of the United Nations, which was ratified and entered into force on October 24, 1945, declares in its Preamble that, after the scourge of war, the peoples of the United Nations are determined ‘to reaffirm faith in fundamental human rights, in the dignity and worth of the human person […]’. The Universal Declaration of Human Rights, which was proclaimed by the United Nations General Assembly in 1948, enshrines dignity both in its Preamble and in Article 1:

> All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood.

The text is relatively vague both in its contents and in its legal consequences. In addition, there is disagreement concerning the extent to which the Universal Declaration as such has legally binding effects. Some regard it as *ius cogens*, others acknowledge the binding nature in customary international law of at least some of its rights, while still others confine its effects to that of a simple appeal and guideline. Both factors lead to a situation where in this context human dignity can be understood as on the one hand a fundamental, on the other hand a relatively open concept.

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52 See LE Weinrib, ‘Constitutional Conceptions and Constitutional Comparativism’ in VC Jackson and MV Tushnet (eds), Defining the Field of Comparative Constitutional Law (Westport, Praeger, 2002) 23 ff.

It is certain that the Universal Declaration of Human Rights and its enshrinement of dignity have inspired further international declarations in various fields[53], particularly in bioethics and biotechnologies, as well as bills of rights in constitutional documents of national states. At the international level, human dignity is emphasized in the Convention of the United Nations on the Rights of Persons with Disabilities. The United Nations Declaration on Human Cloning states that Member States are called upon to prohibit all forms of human cloning inasmuch as they are incompatible with human dignity and to adopt measures necessary to prohibit the application of genetic engineering techniques that may be contrary to human dignity[54]. Obviously, the text requires interpretation[55], and the legal consequences are those of soft law. As a specialized agency of the UN, UNESCO has adopted three influential declarations on bioethical topics: The Universal Declaration on the Human Genome and Human Rights (1997), the International Declaration on Human Genetic Data (2003) and the Universal Declaration on Bioethics and Human Rights (2005). Each of their Preambles refers to human dignity, which is declared to be one of the main bioethical principles[56]. All declarations include general provisions for human dignity to be fully respected and provisions stressing the fundamental equality of all human beings in dignity and rights as well as nondiscrimination and non-stigmatization of individuals or groups. Beyond that, the Universal Declaration on the Human Genome and Human Rights makes use of human dignity in further respects: The human genome underlies the fundamental unity of all members of the human family, as well as the recognition of their inherent dignity and diversity, and is, in a symbolic sense, the heritage of humanity[57]. Everyone has a right to respect for their dignity and for their rights regardless of their genetic characteristics. That dignity makes it imperative not to reduce individuals to their genetic characteristics and to respect their uniqueness and diversity[58]. No one shall be subjected to discrimination based on genetic characteristics that is intended to infringe or has the effect of infringing human rights, fundamental freedoms or human dignity[59]. Practices which are contrary to human dignity, such as

53 cf K Dicke 'The Founding Function of Human Dignity in the Universal Declaration of Human Rights' in D Kretzmer and E Klein (eds), The Concept of Human Dignity in Human Rights Discourse (The Hague, Kluwer Law International, 2002) 111, 111 ff.

54 UN Resolution A/RES/59/280, adopted 2005.

55 See Caulfield and Brownsword, 'Human dignity' (n. 30), 75: at least three interpretive opportunities to narrow the scope of the cloning prohibition (by taking 'inasmuch as' to mean 'to the extent that' rather than 'for the reason that'; by adopting the empowerment rather than the constraint conception of human dignity; and by reading human life through a human-rights lens).

56 cf with view to human dignity as a principle of international bioethics R Andorno, 'First Steps in the Development of an International Biolaw' in C Gastmans, K Dierick, H Nys and P Schotmans (eds), New Pathways for European Bioethics (Antwerp, Intersentia, 2007) 121, 125 ff.

57 Art. 1 of the UDHGHR.

58 Art. 2 of the UDHGHR, see also Art. 6 of the UDHGHR.

59 Art. 6 of the UDHGHR; see also Art. 7 of the IDHGD emphasizing nondiscrimination and non-stigmatization of individuals, families, groups and communities.

reproductive cloning of human beings, shall not be permitted[60]. Benefits from advances in biology, genetics and medicine, concerning the human genome, shall be made available to all, with due regard for the dignity and human rights of each individual[61]. A review of these provisions reveals the multifaceted meanings and dimensions of protection in connection with which dignity is discussed and how greatly in need of interpretation it is. Dignity is mostly mentioned in the context of human rights. However, this does not mean that one can simply conclude that it is fundamentally different from a right, for instance merely a guiding principle. All three declarations are of a declaratory nature. This soft law character was explicitly chosen with a view to the constantly changing context, the broadest possible consensus to be reached among signatory countries, and the regulation-promoting effects of awareness raising and public debate[62].

The European Convention for the Protection of Human Rights and Fundamental Freedoms (1950) contains no express reference to dignity. Nevertheless, the European Court of Human Rights invokes human dignity as the basis of the Convention and its rights[63]. The later Convention on Human Rights and Biomedicine mentions human dignity in its preamble and purpose; the following articles develop more elaborated provisions in a variety of contexts. The preambles and purposes of its Additional Protocols refer to human dignity with regard to the prohibition of any intervention seeking to create a human being genetically identical to another human being[64], with regard to the prohibition of all forms of discrimination, in particular those based on genetic characteristics[65], and with regard to research involving interventions on human beings[66]. Unlike the UN or UNESCO declarations, the standards are binding. However, because of the institutional conditions of a framework convention they specify only minimum standards below which States having ratified must not fall[67].

60 Art. 11 of the UDHGHR.

61 Art. 12 of the UDHGHR.

62 For the functions of soft law see F Molnár-Gábor, 'Die Herausforderung der medizinischen Entwicklung für das internationale soft law am Beispiel der Totalsequenzierung des menschlichen Genoms' (2012) 72 Zeitschrift für ausländisches öffentliches Recht und Völkerrecht 695, 705 ff.

63 See, eg, ECtHR, Goodwin v UK, Appl. No. 28957/95, Reports of Judgments and Decisions, 2002-IV, 31 f: '[…] the very essence of the Convention is respect for human dignity and human freedom.'

64 Additional Protocol to the Convention for the Protection of Human Rights and Dignity of the Human Being with regard to the Application of Biology and Medicine, on the Prohibition of Cloning Human Beings, CETS 168.

65 Additional Protocol to the Convention on Human Rights and Biomedicine concerning Genetic Testing for Health Purposes, CETS 203.

66 Additional Protocol to the Convention on Human Rights and Biomedicine, concerning Biomedical Research, CETS 195.

67 For a closer analysis see M Albers, 'Die rechtlichen Standards der BiomedizinKonvention des Europarats' (2002) Europarecht 801, 801 ff.

The Charter of Fundamental Rights of the European Union gives human dignity explicitly highest priority. The title of the first chapter is 'Dignity'. Art. 1 of the EU Charter states that human dignity is inviolable and must be respected and protected[68]. The first chapter further includes the right to life, the right to the integrity of the person, the prohibition of torture and inhuman or degrading treatment or punishment and the prohibition of slavery and forced labor[69]. The right to the integrity of the person, anchored in Art. 3 of the EU Charter, includes rights in the fields of medicine and biology. In particular, the free and informed consent of the person concerned, according to the procedures laid down by law, the prohibition of eugenic practices, in particular those aiming at the selection of persons, the prohibition on making the human body and its parts as such a source of financial gain and the prohibition of the reproductive cloning of human beings must be respected. The fundamental rights of the Charter are binding for all institutions and bodies of the European Union, for the Member States only when they are implementing Union law[70]. Because the law of the European Union is expanding and the European Court of Justice interprets the term 'implementing Union law' broadly, the fundamental rights of the European Union are becoming increasingly important. As far as they are applicable, they are superseding the fundamental rights of the constitutions of Member States.

In many Nation States' constitutions, human dignity is incorporated as a significant norm in a central position[71]. The most prominent and influential example is the German Basic Law, adopted after the Second World War in 1949. Article 1 para. 1 of the German Basic Law establishes the inviolability or, in other words, the indefeasibility ('Unantastbarkeit')[72] of human dignity and the duty of all public authority to respect and to protect it. Hence, no reservation is added permitting limitation by or in terms of legislation. The provision is also safeguarded from constitutional amendment[73]. Although the high rank and

68 The enshrinement and the wording have been influenced by Art. 1 para 1 of the German Basic Law. The meaning of human dignity and its inviolability must and will be interpreted, though, in the context of the EU legal order, cf C Dupré, 'Article 1 – Human Dignity' in S Peers, T Hervey, J Kenner and A Ward (eds), The EU Charter of Fundamental Rights (BadenBaden/Munich/Oxford, Nomos/C.H. Beck/Hart Publishing, 2014) 01.18 ff, 01.39 ff.

69 See Dupré, 'Article 1' 01.05 (n. 68): 'Article 1 EUCFR is clearly related to all the rights enshrined under Title I "Dignity" […].'

70 Art. 51 para 1 EU Charter.

71 See the overviews in A Barak, Human Dignity (Cambridge, Cambridge University Press, 2015) 49 ff; in C McCrudden, 'Human Dignity and Judicial Interpretation of Human Rights' (2008) 19 The European Journal of International Law 655, 664 ff; in H Botha, 'Human Dignity in Comparative Perspective' (2009) 2 Stellenbosch Law Review 171, 175 ff; and in D Shulztiner and G Carmi, 'Human Dignity in National Constitutions: Functions, Promises and Dangers' (2014) 62 American Journal of Comparative Law 461 ff.

72 cf D Grimm, 'Dignity in a Legal Context: Dignity as an Absolute Right' in C McCrudden (ed), Understanding Human Dignity (Oxford, Oxford University Press, 2013) 381, 387.

73 cf Art. 79 para 3 of the German Basic Law. For a comprehensive analysis of the legal background and legal aspects of Art. 1 para 1 of the German Basic Law see M Hong, Der Menschenwürdegehalt der Grundrechte (Tübingen, Mohr Siebeck, 2017).

the binding character of Article 1 para. 1 of the German Basic Law have been made explicit, many aspects are open to interpretation. This does not apply only to the relatively vague contents. The legal nature and dimensions of the provision have to be developed as well: Is the guarantee of human dignity a founding value or principle, an objective norm serving as a guide to the interpretation of ordinary law, the basis of other human rights or a guideline to their interpretation, an individual right enforceable in the same way as any other right, a 'right to have rights' or a right protecting particular legal goods? Is it plausible to understand it, as the Federal Constitutional Court does, as a combination of several dimensions? Looking at other Constitutions, human dignity can be found in the preamble or in the provisions. The wordings range from a fundamental principle or value, often referred to in conjunction with other values such as freedom, equality, solidarity and social security[74], to an individual right that is enforceable before the courts. Interpretation may lead to interdependencies and multi-layered architectures, e.g., if the fundamental principle is understood as a source enabling interpreters to derive rights or if human dignity is understood as a 'motherright'[75]. Sometimes, multilayered dimensions are already laid down in the document. The Constitution of South Africa, for instance, acknowledges human dignity as a constitutional right, a supreme value and a guide to constitutional interpretation[76].

In national constitutions, there is seldom any direct mention of modern biotechnological developments. The Swiss Federal Constitution is an exception. Art. 119, adopted by a popular vote in 2015, states that the confederation shall legislate on the use of human reproductive and genetic material and in so doing ensure the protection of human dignity, privacy and the family and adhere to a number of principles. These include making any forms of cloning and interference with the genetic material of human reproductive cells and embryos illegal, forbidding inserting nonhuman reproductive and genetic material into human reproductive material, banning embryo donations and all forms of surrogate motherhood and safeguarding that a person's genetic material may only be analyzed, registered or made public under certain circumstances. To what extent and how exactly the idea of human dignity substantiates these provisions, however, is a matter of interpretation.

As a result, interdependencies among documents and wordings can be observed, as well as similarities or significant differences in the ways in which human dignity is incorporated as an element of positive law. Closer analysis

74 cf Botha (n. 71), 'Human dignity' 176, 196 ff.

75 cf A Barak, 'Human Dignity: The Constitutional Value and the Constitutional Right' in C McCrudden (ed), Understanding Human Dignity (Oxford, Oxford University Press, 2013) 361, 373 ff; A L Bendor and M Sachs, 'The Constitutional Status of Human Dignity in Germany and Israel' (2011) 44 Israel Law Review 25, 44 ff.

76 In more detail Botha, 'Human dignity' (n. 71), 175 ff.

uncovers the multitude of functions the reliance on human dignity serves. This is true in general terms, but also to the extent that provisions concern themselves specifically with modern biotechnologies[77]. Apart from this already complex picture, law goes beyond what is stipulated in texts. Instead, texts are consulted and referred to and applied in varying contexts.

B. Dignity in Legislative Processes and Laws

To analyze the role of human dignity in lawmaking a rough distinction can be made between the processes of lawmaking and the laws resulting from lawmaking. At least in democratic transnational or national societies contractual or constitutional rules of procedure define lawmaking processes in such a way that they are open to a greater or lesser extent to the impact of public debate. The forms this takes include participatory forums or platforms, many different forms of communication with members of parliament, coverage in the media and, especially in the fields of modern biotechnologies, participatory procedures initiated by ethics committees. Arguments based on human dignity often come into play here because they are firmly anchored in the public mind. From religious to atheist, from sophisticated to simplifying lines of argument, the range of views in society has a legally recognized place both in the above-mentioned contexts and in parliamentary debates. Beyond that, relevant transnational norms such as the European Convention on Human Rights and Biomedicine – to the extent that they have been ratified – exert legal influence on the lawmaking process as binding or soft law that impacts national law. Relevant rulings of transnational courts can be effective as well, although in strictly procedural terms the impacts of rulings are regularly limited to the case in question. Insofar as human dignity is established in the constitution as a principle or as a right, the resulting binding effects have to be taken into account in lawmaking. The vagueness and complexity of the idea of dignity result in varied interpretations. Whether this devalues its role or even gives it greater value is a question of the theoretical framework and perspective from which analyses and assessments are made. At least in recent decades, human dignity has played a major role in lawmaking processes involving regulation of modern biotechnologies.

Laws, as results of lawmaking, deal with the problems modern biotechnologies have raised within the context of the relevant specialized laws. These are quite different laws regarding the legal issues to be regulated, their legal classification and the contents. The concrete legal provisions are embedded in the specialized legal architecture and terminology of civil or criminal law, of medical or health law, of patent law or laws specific to various

77 See also M Albers, 'Bioethik, Biopolitik, Biorecht: Grundlagen und Schlüsselprobleme' in id (ed), Bioethik, Biorecht, Biopolitik: Eine Kontextualisierung (Baden-Baden, Nomos, 2016) 9, 28.

other domains. The concept of human dignity is rarely mentioned here; if at all, in preambles or statements of purposes. Nonetheless, particular legal provisions can be influenced by the criterion of human dignity without this concept being mentioned in the text of the law. This applies all the more in view of the fact that the guarantee of human dignity by no means necessarily leads to simple 'Yes/No' decisions. Laws can, of course, specify prohibitions or exception clauses in the context of their area of application. Examples include the prohibition of reproductive cloning in the laws of numerous countries, the prohibition of surrogacy in Switzerland[78], the frequent prohibition of creating embryos for research purposes[79], the in-principle prohibition of stem cell importation in Germany[80] or the exemption of processes for modifying the germ line genetic identity of human beings or uses of human embryos for industrial or commercial purposes from being patented[81]. However, prohibitions are not the only imaginable outcome. Frequently, the influence of human dignity is reflected in the fact that a law specifies conditions which are intended to prevent violations of human dignity from taking place. In a number of States, conditions have been laid down for surrogate motherhood as well as for other aspects of assisted reproduction[82]. Preimplantation and genetic diagnosis is often possible under specific conditions, but not without restriction or arbitrarily. For genetic and neurotechnological interventions, legal provisions have been enacted to some extent or are to be enacted on the basis of which particular measures are to be possible while maintaining respect for human dignity. Admittedly, appropriate regulation is lacking frequently enough. Human dignity then expressly prompts emphatic calls for regulation in public discourse.

Regardless of whether and to what extent guarantees of human dignity have had an effect, the law provides an independent text that is relatively autonomous from how it came into existence and develops its own binding nature. For the understanding and, not infrequently, acceptance of legal

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78 Art. 119 para 2d of the Swiss Constitution, Art. 4 SwissFMedG (Bundesgesetz über die medizinisch unterstützte Fortpflanzung; Federal Act on Assisted Reproduction). The Explanatory Statement of the Bundesrat states that surrogacy is seen as a instrumentalization of the surrogate mother, see Botschaft über die Volksinitiative 'zum Schutz des Menschen vor Manipulationen in der Fortpflanzungstechnologie (Initiative für menschenwürdige Fortpflanzung, FMF)' und zu einem Bundesgesetz über die medizinisch unterstützte Fortpflanzung (Fortpflanzungsmedizingesetz, FMedG), BBl 1996 III 205, 230, 254 (see also http://www.amtsdruckschriften.bar.admin.ch/viewOrigDoc.do?id=10053942).

79 See, eg, for France Art. L. 2151-2 du code de la santé publique; cf also I Kriari-Catranis, 'Embryo Research and Human Rights – An Overview of Developments in Europe' (1997) 4 European Journal of Health Law 43, 55f.

80 cf § 1 StZG (Stammzellgesetz; Stem Cell Act) mentioning human dignity among the purposes.

81 Art. 6 Directive 98/44/EC on the legal protection of biotechnological inventions; cf also recital 38. For a recent survey on the international regulatory landscape regarding human germline gene modification see M Araki and T Ishii, 'International Regulatory Landscape and Integration of Corrective Genome Editing into In Vitro Fertilization' (2014) Reproductive Biology and Endocrinology 12:108, 8 ff.

82 For an overview cf the articles in K Trimmings and P Beaumont (eds.), International Surrogacy Arrangements: Legal Regulation at the International Level (Oxford/Portland, Hart Publishing, 2013).

provisions it is often a matter of importance that these provisions are based not merely on issues of human dignity, but also on other grounds[83].

In this way, interpretation of the laws can to a certain extent be kept separate from disagreements related to human dignity. This plays a role especially for courts that are required to apply the laws in specific cases.

C. Dignity in the Reasoning of Courts

When investigating the role of human dignity in the context of court rulings[84] characteristics of and structural limitations to court proceedings and decisions must be kept in mind[85]. Courts are responsible for making binding decisions on cases brought before them as impartial bodies and on the basis of the law. Depending on the particular procedure – civil law dispute, criminal trial, judicial review, a human rights or constitutional complaint, preliminary ruling – procedural rules specify more or less broadly who can bring a complaint before the court and what the matter to be examined is, what additional jurisdictional requirements exist, what standard of proof is to be applied, that reasons must be given for decisions to a particular extent, and what legal consequences decisions have. Among the requirements is, first of all, a plaintiff being able to bring a case before the court and actually doing so. The ruling relates to the particular facts of the case and to the particular object of judicial review. For this reason, the ruling must always be interpreted in terms of the particular constellation or case and the claims brought before the court. The relevant normative measures have to be worked out in the course of the proceedings. The way the guarantee of human dignity comes into play as a normative standard depends on the type of proceedings. Administrative, criminal or civil courts have to interpret statutory laws but when doing so, they must take the binding effects of transnational or constitutional norms as well as those of legally binding rulings of higher courts into account[86]. Hence, the guarantee of human dignity as it applies in law is relevant within a context which is always also shaped by legal norms and legislative decisions. In human rights or constitutional proceedings before the European Court of Human Rights (ECtHR) or constitutional courts, on the other

83 As an example with a view to Germany: § 1 para 1 no. 7 ESchG (Embryo Protection Act [1990], for a translation see http://www.auswaertigesamt.de/cae/servlet/contentblob/480804/publicationFile/5162/EmbryoProtection Act.pdf) penalizing a person who carries out artificial fertilization in cases of women who are prepared to permanently hand over the child after its birth to a third party or implants an embryo under these circumstances, for instance, is not based on human dignity but on predicted negative consequences for the child and the surrogate and potential conflicts between the intended mother and the surrogate, see the Explanatory Statement, BTDrucks. 11/5460, 6 ff, dip21.bundestag.de/dip21/btd/11/054/1105460.pdf.

84 See, in general, McCrudden 'Human Dignity' (n. 71), 682 ff.

85 See more closely M Albers, 'Höchstrichterliche Rechtsfindung und Auslegung gerichtlicher Entscheidungen' in 71 Veröffentlichungen der Vereinigung der Deutschen Staatsrechtslehrer (VVDStRL), Grundsatzfragen der Rechtsetzung und Rechtsfindung (Berlin and Boston, de Gruyter, 2012) 257, 259 ff.

86 Albers, 'Rechtsfindung' (n. 85), 265, 267 f.

hand, the guarantee of human dignity can be a standard applying directly to the questions of the case. In the relationship between these courts and legislation, however, the scope of the courts' judicial powers is to a greater or lesser extent limited, whether because of the recognition of signatory states' margin of appreciation or because of institutional factors and distribution of powers. Specifically in the case of the guarantee of human dignity, this quite often has an impact in the form of judicial restraint. The way courts reach their legal findings is also determined by legal systems and judicial cultures[87].

Meanwhile, assisted reproduction and its consequences have been the frequent subject of court rulings. In some rulings human dignity has been applied as a standard. In the landmark case of *Evans v. The United Kingdom*, which was decided by the Grand Chamber of the ECtHR in 2007[88], the applicant and her former boyfriend had undertaken an IVF treatment before the applicants' ovaries had been removed and six fertilized eggs consigned to storage. A few months later the man withdrew his consent. The applicant commenced proceedings seeking an injunction requiring the man to restore his consent to the use and storage of the embryos and a declaration of incompatibility under the Human Rights Act 1998 to the effect that the domestic law allowing consent to be withdrawn at any stage as long as the embryo created has not been used for treatment breached her rights and neglected the protection embryos were entitled to. The Grand Chamber of the ECtHR considered a wide margin of appreciation of the member States in this field and held that the interests pursued by the legislation are legitimate and consistent with Article 8 ECHR:

Respect for human dignity and free will [...] underlay the legislature's decision to enact provisions permitting of no exception to ensure that every person donating gametes for the purpose of IVF treatment would know in advance that no use could be made of his or her genetic material without his or her continuing consent[89].

Contracting States also enjoy a margin of appreciation with regard to the issue of when the right to life begins as a result of the absence of any European consensus on the scientific and legal definition of the beginning of life. Because an embryo does not have independent rights or interests under English law, the Court concluded that the right to life, Article 2 ECHR, was not violated.

Provisions of the Austrian Artificial Procreation Act prohibiting the use of ova from donors and, under further circumstances, of sperm from donors

87 cf for the ECtHR NL Arold, The Legal Culture of the European Court of Human Rights (Leiden/Boston, Martinus Nijhoff Publishers, 2007) especially 67 ff.

88 Evans *v.* The United Kingdom, Appl. No. 6339/05 (2007), hudoc.echr.coe.int.

89 Evans *v.* The United Kingdom, para 89.

for in-vitro fertilization were the subject matter of the case *S. H. and others v. Austria*.[90] In the course of the procedure a Chamber of the First Section of the ECtHR held that the prohibitions violated rights under Art. 14 in conjunction with Art. 8 of the Convention. It found, inter alia, that concerns based on moral considerations or on social acceptability were not in themselves sufficient reasons for a complete ban on a specific artificial procreation technique, that the legal framework regulating this field must be shaped in a coherent manner and that risks, such as the risk of the exploitation of women or the selection of children, could be addressed by sufficient legal safeguards. In its subsequent ruling handed down in 2011, the Grand Chamber came to the opposite result by stressing that the questions touch on sensitive moral and ethical issues where there is not yet clear common ground among the member States and that the Austrian legislature did not exceed the wide margin of appreciation. It noted that there is no prohibition under Austrian law on going abroad to seek treatment of infertility that uses assisted reproductive technology not allowed in Austria, and that in the event of a successful treatment the Civil Code rules on paternity and maternity would be applicable. The deliberations do not refer to human dignity. Only the opinion of Judge de Gaetano stated separately, though quite vaguely, that the recognition of the value and dignity of every person may require the prohibition of certain acts in order to uphold the inalienable value and intrinsic dignity of every human being. The joint dissenting opinion of four judges criticized the broad margin of appreciation afforded and questioned the persuasiveness of the argument that there is no prohibition on going abroad.

Precisely the problems of cross-border use of assisted reproductive technologies are increasingly the subject of court rulings on surrogacy. In this respect the courts are dealing with issues arising from the use of surrogates in a foreign country, particularly with the legal status of the child. In the early stages, the famous court rulings in the US[91] and India[92] pointed to the not sufficiently regulated broad range of ethical and legal problems; especially the Indian Courts

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90 S. H. and others v Austria, Appl. No. 57813/00 (2011), hudoc.echr.coe.int.

91 Baby M, decided 1988 by the Supreme Court of New Jersey, 109 N.J. 396, 537 A.2d 1227, law.justia.com/cases/new-jersey/supreme-court/1988/109-n-j-3961.html; Johnson *v.* Calvert, decided 1993 by the Californian Supreme Court, 5 Cal4th 84, 851 P.2d 776 (1993), law.justia.com/cases/california/supremecourt/4th/5/84.html; cf meanwhile Sec. 7960-7962 California Family Code.

92 In the Baby Manji case the legal status of the child created from the sperm of the Japanese father and an egg harvested from an anonymous Indian woman and born to a surrogate mother was unclear after the Japanese couple got divorced and, in contrast to the father, the woman didn't want the child any more because she felt no genetical, biological, moral or legal obligation to the child. The Indian Supreme Court tried to solve the case which was settled by issuing Baby Manji a travel permission and directed the Indian legislature to enact legal rules governing surrogacy, Baby Manji Yamada v Union of India & ANR (2008) INSC 1656, http://indiankanoon.org/doc/854968/. In the landmark Balaz Twins-Decision the Gujarat High Court dealt with the legal status of twins created by using the father's sperm and an anonymous ova donation and given birth by a gestational surrogate; the Court mentioned ethical issues in detail, inter alia the right to privacy of the donor, worries about exploitation of women through surrogacy and the interests of otherwise childless couples; it reached, in the absence of Indian legislation, the decision that the surrogate is the legal mother, see Balaz *v.*

have stressed that 'a sound and secure legislation to deal with a situation created by the reproductive science and technology'[93] is necessary in order that courts can reach well-founded decisions. In the relevant judgments of the ECtHR this court focused on human rights, in particular on the children's right to respect for private life (Art. 8 ECHR). At least in cases in which one of the intended parents is also the child's biological parent, the court held, Art. 8 ECHR can be infringed by not obtaining recognition under domestic law of the legal parent-child relationship established abroad[94]. The German Federal Court of Justice for Civil Matters (FCJ) discussed, among other, the guarantee of human dignity, Art. 1 para. 1 German Basic Law, in a case in which two male partners sought recognition in Germany of their status as parents, which the Superior Court of the State of California had confirmed in a legally binding decision for a child which had been conceived with the sperm of one of the applicants and anonymously donated eggs; the pregnancy had been carried to term by a surrogate mother from California[95]. Recognition, the FCJ held, does not involve an infringement against the international public policy doctrine: Provided that it is guaranteed that consent to and carrying out of surrogate motherhood are in accordance with laws applied by a foreign court which safeguard the voluntary nature of the decision made by the surrogate mother to bear the child and after its birth to hand it over to the intended parents, the dignity of neither the surrogate mother nor the child is violated. By contrast, the dignity of the surrogate mother, the FCJ further explained, may in fact be violated if the surrogacy arrangement is carried out under circumstances which cast doubt on the voluntary participation of the surrogate mother, or if basic procedural guarantees were ignored in the foreign court process[96]. The legal status of a child from a surrogate mother has also been the subject matter of a constitutional complaint; however, the German Federal Constitutional Court (FCC) did not accept the case because the plaintiffs did not present relevant data concerning the status and role of the surrogate mother[97]. The fact that the FCC thus lacked a basis for an appropriate and legally

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Anand Municipality, LPA 2151/2009 (Gujarat H.C. 2009), http://www.legalcrystal.com/case/747551/jan--balaz-vs-anand- municipality-6-ors.

93 Gujarat High Court, Balaz v Anand Municipality, para 19.

94 Labassee *v.* France, Appl. No. 65941/11 (2014), Mennesson v France, Appl. No. 65192/11 (2014), hudoc.echr.coe.int. See also the far reaching decision of an ECHtR Chamber (Second Section) that has been overruled by the Grand Chamber Paradiso and Campanelli v Italy, Appl. No. 25358/12 (2015 and 2017), hudoc.echr.coe.int.

95 Case XII ZB 463/13 (2014), http://www.bundesgerichtshof.de. See also the differentiating decision (against the background of Art. 119 para 2d of the Swiss Constitution) of the Federal Supreme Court of Switzerland, 5A_748/2014, 54 ff.

96 Case XII ZB 463/13 (2014), http://www.bundesgerichtshof.de, 51.

97 Case 1 BvR 573/12 (2012), http://www.bundesverfassungsgericht.de. The grounds of the decision imply that the plaintiffs deliberately avoided presenting certain data because they feared the negative effect the information would have.

convincing decision illustrates the institutional limitations within which court decisions always operate.

The way in which embryos are handled in assisted reproduction or in embryo and stem cell research is occasionally the subject of court rulings. Considering the lack of consensus on the nature and status of the embryo and differing regulations in the member States of the Council of Europe, the ECtHR is exercising restraint: It explicates that it is not advisable for the Court to intervene in the debate as to who is a person and when life begins and that the issue of when the right to life begins comes within the margin of appreciation that member States enjoy[98]. Quite controversial was the judgment in the case of *Parillo v. Italy*[99]. Due to legal prohibitions, the applicant was precluded from donating cryopreserved embryos to scientific research after her partner´s death. The majority of the Grand Chamber held that the aim of protecting the "embryo´s potential for life" as well as "morals and the rights and freedoms of others" was legitimate and that, against the background of the "delicate moral and ethical questions" and the lack of European consensus, the legal ban did not overstep the margin of appreciation[100]. Prior to this, however, it argued that the right to respect for private life encompasses the applicant´s ability to exercise a conscious and considered choice regarding the fate of the embryos – a point of view some of the concurring, partly concurring, partly dissenting and dissenting opinions resolutely rejected on grounds of the respect for human dignity embryos should enjoy[101].

In France, the Constitutional Council handed down its decision in 1994 on referrals for review of the constitutionality of the Respect for the Human Body Act and the Donation and Use of Parts and Products of the Human Body, Medically Assisted Reproduction and Prenatal Diagnosis Act[102]. This statute allowed, under specific conditions and precautions, for instance, the use of particular techniques of artificial reproduction, the selection of embryos to be implanted, donation of surplus embryos to other couples and termination of the preservation of such embryos after at least five years of storage. The Constitutional Council recognized the protection of human dignity against all forms of enslavement or degradation as a principle having constitutional status and as a parameter for review. It then emphasized that the legislature had specified various forms of protection in the event of the conception, implantation

98 Vo v France, Appl. No. 53924/00 (2014) 81 ff.

99 Parillo v Italy, Appl. No. 46470/11 (2015), hudoc.echr.coe.int.

100 Parillo v Italy, Appl. No. 46470/11 (2015), 162 ff.

101 See Parillo v Italy, Appl. No. 46470/11 (2015), 149 ff.; Concurring Opinion of Judge Pinto de Albuquerque, 31 ff.; Partly Dissenting Opinion of Judges Casadevall, Ziemele, Power-Forde, De Gaetano and Yudkivska, 4 ff.; see also the divergent view of Judge Sajó in his Dissenting Opinion.

102 Décision no 94-343/344 DC (1994), www.conseil-constitutionnel.fr.

and preservation of embryos fertilized in vitro but had advanced the view that the principle of respect for human life and of equality was inapplicable and had not seen a need to provide for the preservation of all embryos, once formed, for all time and under all circumstances. Ultimately, the Constitutional Council did not question the provisions on the grounds that it does not have the same decision-making powers as Parliament[103]. It did not identify any provisions or principles having constitutional status and applicable to embryo selection that address protection of the human genetic heritage[104]. The German FCC has not yet made any decision on the constitutional protection of embryos in vitro. It is true that the protection of embryos was at the center of attention in the abortion decisions in which the FCC declared:

Wherever human life exists it is entitled to human dignity [...]. The potential capabilities inherent in human existence from the very beginning are adequate to establish human dignity[105].

But the court restricted these considerations explicitly to the context and the period of pregnancy, and refers to the life developing during pregnancy 'as a human being'[106]. Even so, human dignity is not acknowledged only in the case of those already capable of making autonomous decisions. In the field of genetic diagnostics human dignity is occasionally mentioned but rarely discussed in detail. At least up until now, practical court rulings have not focused on visions of the future involving conceivably genetically transparent human beings, but on specific genetic analyses. In cases involving provision of information on health prospects to insurance companies, German rulings do not regard human dignity as being affected as long as the genome itself is not made the criterion for legal disadvantages, but symptoms of an existing sickness and its confirmation based on a diagnostic gene test[107]. Pre-implantation diagnostics was the subject of *Costa and Pavan v. Italy*, a case in which the applicants, both asymptomatic carriers of cystic fibrosis, complained that they had no access to PGD for the purposes of selecting an embryo unaffected by the disease[108]. The blanket ban on the use of PGD in Italy was justified, among other reasons, with the interest in precluding a risk of eugenic selection. The ECtHR ruled that the applicants' desire to conceive a child unaffected by the genetic disease of which they are healthy carriers and to use PGD to this end enjoys the protection of Art. 8 ECHR. It further found that prohibiting the use of PGD whilst simultaneously permitting

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103 Décision no 94-343/344 DC (1994), www.conseil-constitutionnel.fr, 10.

104 Décision no 94-343/344 DC (1994), www.conseil-constitutionnel.fr, 11.

105 BVerfGE (Decisions of the FCC) 39, 1, 36 ff (1975); 88, 203, 251 ff (1993).

106 BVerfGE 88, 203, 251 f; see also BVerfGE 39, 1, 37.

107 See Case 5 W 220/11-98 (OLG Saarbrücken, 2011, http://www. rechtsprechung.saarland.de/cgi-bin/rechtsprechung/document.py?Gericht=sl&nr=3798.

108 Costa and Pavan v Italy, Appl. No. 54270/10 (2012).

abortion in cases the embryo is affected by the disease violates the right to respect for private and family life[109]. Pre-implantation diagnostics was also the subject of an influential decision by the German Federal Court of Justice for Criminal Matters, according to which a particular method does not constitute a criminal offense as defined by the Embryo Protection Act, and thus cannot be punished[110]. Human dignity is not mentioned in this decision. However, this is attributable to the fact that the disputed breadth of what constitutes a criminal offense was primarily defined according to the normative principle: 'No punishment without law'[111]. The admissibility of pre-implantation diagnosis for the purpose of 'savior siblings' was discussed in a landmark court decision of the Appellate Committee of the House of Lords in terms not of human dignity, but of the objection that this involves a slippery slope leading to 'designer babies' or 'treating the offspring to be born as a commodity'[112]. The Committee dismissed the appeal against the Human Fertilisation and Embryology Authority's license on the grounds of the specific circumstances of the case to be decided, the conditions imposed in the license, and the decision-making powers granted to the authority by law.

In the case of genetic diagnostics there are also follow-up questions for the courts to answer. These include cases in which incorrect genetic counseling of parents led to the birth of a disabled child. The FCC distinguishes between considering the existence of a child as tantamount to 'damage' to its parents – which would breach the human dignity of the child – and the non-detrimental assumption that the obligation of the parents to meet the costs of rearing the child constitutes damage. The court held that the application of the law on compensation, which aims at achieving just distribution of obligations, to personal relationships and the imposition of the responsibility for child support on the doctor does not lead to any commercialization of the human as a person and does not involve any moral stigma of being worthless being attached to the child. It further found that the human dignity of the child is also not violated by the fact that it could later learn that its birth was to have been prevented. Whether or not psychological harm results from this information is not determined by the economic relief of the parents as a result of damages payments, but depends on the individual parent-child relationship[113].

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109 Costa and Pavan v Italy, Appl. No. 54270/10 (2012), 52 ff. Meanwhile, the Italian Constitutional Court has decided two similar cases and declared that the relevant provisions of Law no 40 are unconstitutional, see Judgment No 96 of 2015, http://www.cortecostituzionale.it.

110 Case 5 StR 386/09 (2010), http://www.bundesgerichtshof.de. The decision was among the causes of an amendment of the ESchG with the result that PGD is explicitly permitted under particular circumstances.

111 cf Article 103 para 2 German Basic Law.

112 Quintavalle v Human Fertilisation and Embryology Authority (Secretary of State for Health Intervening), 2 A.C. 561 (2005), http://www.publications.parliament.uk/pa/ld200405/ldjudgmt/jd050428/quint-3.htm.

113 Cases 1 BvR 479/92 and 1 BvR 307/94 (1997), BVerfGE 96, 375, 399 ff.

Because of the limited competences of the European Union, the European Court of Justice (ECJ) only deals with cases in the field of modern biotechnologies to a certain extent, and only in connection with certain aspects. In the decisions handed down regarding the Directive on the legal protection of biotechnological inventions, however, the ECJ had to interpret Union law in the light of the guarantee of human dignity, Art. 1 EU Charter[114]. The court noted that the context and aim of the Directive show that the EU legislature intended to exclude any possibility of patentability where respect for human dignity could thereby be affected. Against this background it came to the result that the concept of 'human embryo' within the meaning of Article 6 of the Directive must be understood in a wide sense and comprises any fertilized human ovum and other organisms that have the inherent capacity of developing into a human being[115]. It is striking, though, what lengths the ECJ goes to to formulate its own decisions following the legislators' value judgments.

In the reasons given for court decisions human dignity thus clearly has a certain relevance, which also depends upon the circumstances of the particular case. Sometimes it is only a vague standard that is merely mentioned in the context of a line of argument supported by other considerations. Sometimes it becomes clear that a legal regulation is required which can prevent conceivable violations of human dignity. Sometimes it becomes apparent that certain behaviors lead to violations of human dignity. The details depend upon the particular understanding of human dignity, which has different normative bases in different legal systems. At the same time, it can be seen that the courts are usually (not always) inclined to exercise restraint in applying the guarantee of human dignity. This has to do with its status and weight, with the fact that where statutory rules are absent, courts have difficulty reaching a decision and try to base their judgments on broad-based grounds, and is related to the fact that if a legal framework exists, several lines of justification can be drawn upon by the courts in their findings. However, courts decide concrete cases with a focus on individual rights and legal entitlements at a later point in time than the passage of laws. Circumstances of the cases to decide, the focus on complaints and individual rights or new scientific developments may result in significant rulings which then trigger legal change, public debate or legislative proposals. Nevertheless, in court decisions human dignity plays a lesser role than in public and parliamentary debates or in scholarly discourse.

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114 Case C-34/10 Brüstle v Greenpeace e.V. (2011); Case C-364/13 International Stem Cell Corporation (2014), both accessible under curia.europa.eu.

115 Case C-34/10 Brüstle v Greenpeace e.V. (2011), 24 ff. Shortly after the Brüstle-decision the ECJ had to deal with the question what was meant by being 'capable of commencing the process of development of a human being just as an embryo created by fertilisation of an ovum can do so' and whether a non-fertilised human ovum whose division and further development have been stimulated by parthenogenesis really fulfils that condition, see Case C-364/13 International Stem Cell Corporation (2014) 21 ff.

D. Dignity in Scientific Approaches

Jurisprudence understands human dignity in a specifically scholarly and by its very nature varied way. It can be text-oriented and unfold human dignity as a normative measure embedded in catalogues of human rights from a doctrinal point of view. It can analyze the verdicts of courts that use human dignity in their reasoning, strive to guide in methodological terms the way in which 'correct' decisions are reached and then assess case law on this basis. It can also go beyond texts or decisions and focus on, for example, foundations of human dignity with approaches offered by other disciplines in mind. Hence, the context of a particular line of thought must be taken into account.

However, even in terms of specifying duties or rights to be derived from the guarantee of human dignity established in a legal text the spectrum of scientific approaches has always been broad and heterogeneous. For a long time, identifying those who enjoy the protection of human dignity was less problematic than defining what was to be protected. Against the background of differing theoretical foundations and differing legal texts approaches to delineating the contents of the obligation or right are very diverse. The guarantee of human dignity is interpreted as the basis of rights, as the right to have rights[116], or as a principle assisting the further explication of a catalogue of rights generated by the principle. When seen as being a right with specific content, human dignity is understood, e.g., as an inner transcendental kernel or as a person's intrinsic value as a human being, as a basis for autonomy, as the potential of every human being to lead a life marked by self-respect and respect by others, as the capabilities required for performing central human functions or with regard to Kantian ideas that a human being should always be treated as an end and never as a mere means and should neither be made an object nor instrumentalized. According to the 'object formula' which is of considerable significance in Germany, 'human dignity as such is infringed whenever a concrete person is degraded to an object, a mere means, a fungible element'[117]. However, due to its tautologous approach[118] the object formula elucidates neither what human dignity is nor how it can be violated. Its contribution is to be found in the fact

116 cf with regard to Hannah Arendt C Menke, 'Dignity as the Right to Have Rights: Human Dignity in Hannah Arendt' in M Düwell, J Braarvig, R Brownsword and D Mieth (eds), The Cambridge Handbook of Human Dignity (Cambridge, Cambridge University Press, 2013) 332 ff.

117 G Dürig, 'Der Grundrechtssatz von der Menschenwürde' (1956) 81 Archiv des öffentlichen Rechts, 117, 127. It would be a misunderstanding of the 'object formula' to judge the question of 'degradation' solely in terms of the motivation of the violator or of the State; the matter must rather be examined from an objective viewpoint while considering all circumstances at hand.

118 The concept which is to be defined is already contained in the definition as a prerequisite, see the above cited object formula in German: 'Die Menschen würde als solche ist getroffen, wenn der konkrete Mensch zum Objekt, zu einem bloßen Mittel, zur vertretbaren Größe herabgewürdigt wird', G Dürig, 'Grundrechtssatz' (n. 117), 127.

that 'human dignity' is not understood as a characteristic of human beings, but in terms of potential forms of violation. Human dignity is a relational concept. It is worked out in a similar manner when it is concretized with an inductive strategy and through exemplification against the background of the experiences of elementary injustice and the vulnerability of the individual: Practices are identified and categorized which are viewed as breaches of human dignity, such as particular encroachments of the individual's physical and psychological integrity as well as forms of social exclusion[119]. Some debate is centered on whether determining a violation of human dignity has occurred is the result of weighing this against other legally protected interests or whether human dignity resists such relativization[120]. Other discussions deal with how to concretize the multidimensional nature of the guarantee of human dignity: protection against impairments, duties to protect, procedural safeguards, horizontal effects[121]. These discourses refer back to the fundamental conceptions, the varying textual underpinnings and the heterogeneous content-related ways in which human dignity is made concrete.

The advancement of biotechnologies results in scientific approaches and arguments having to be readdressed in discourse and questions having to be posed in a new or a more salient way. As to legal-philosophical foundations, it is becoming increasingly difficult to found human dignity solely on being human. The self-evident manner in how it had previously been possible to assume a common understanding, to a certain extent, of what characterizes the 'human being' and how to construct human boundaries is clearly disintegrating. As to the understanding of human dignity as a general principle allowing interpreters to derive other particular rights, imaginable scenarios, such as extensive brain intervention, require answers whether and how this principle enables the

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119 See the contributions in P Kaufmann, H Kuch, C Neuhäuser and E Webster (eds), Humiliation, Degradation, Dehumanization. Human Dignity Violated (Dordrecht et al, Springer, 2011), and in A Masferrer and E Garcia--Sánchez (eds), Human Dignity of the Vulnerable in the Age of Rights (Dordrecht/Heidelberg/London/New York, Springer, 2016). Cf also O Schachter, 'Human Dignity as a Normative Concept' (1983) 77 American Journal of International Law 848, 852; J von Bernstorff, 'Der Streit um die Menschenwürde im Grundund Menschenrechtsschutz: Eine Verteidigung des Absoluten als Grenze und Auftrag' (2013) JuristenZeitung 905, 908 ff; A Pollmann, 'Human Rights Beyond Naturalism' in M Albers, T Hoffmann and J Reinhardt (eds), Human Rights and Human Nature (Berlin/Heidelberg/New York, Springer, 2014) 123, 132 f. of the State' in G Nolte (ed), European and US Constitutionalism (Cambridge et al, Cambridge University Press, 2005) 137, 143 ff.

120 See, eg, J von Bernstorff, 'Streit' (n. 119), 905 ff.

121 cf M Mahlmann, 'Human Dignity and Autonomy in Modern Constitutional Orders' in M Rosenfeld and A Sajó (eds), The Oxford Handbook of Comparative Constitutional Law (Oxford, Oxford University Press, 2012) 370, 383 ff. Elaborating the background and characteristics of the State's duty to protect (with regard to German constitutional law) D Grimm, 'The Protective Function See JC Bublitz, 'My Mind Is Mine!? Cognitive Liberty as a Legal Concept' in E Hildt and AG Franke (eds), Cognitive Enhancement. An Interdisciplinary Perspective (Dordrecht, Springer, 2013) 233, 241 ff; BJ Koops, 'Concerning "Humans" and "Human" Rights. Human Enhancement from the Perspective of Fundamental Rights' in BJ Koops, CH Lüthi, A Nelis, C Sieburgh, JPM Jansen and MS Schmid (eds), Engineering the Human. Human Enhancement Between Fiction and Fascination (Berlin/Heidelberg, Springer, 2013) 165, 174 ff; Albers, 'Grundrechtsschutz' (n. 37), 82 ff.

development of completely new kinds of liberties or rights, for example, cognitive liberty or rights to mental integrity, to emotions or to forget[122]. Regarding the questions who is protected by human dignity and who is a bearer of rights, the answers are no longer relatively clear cut but instead subject to greater and greater difficulties. Ever since artificial reproduction and in-vitro fertilization have made embryos available outside the mother's body, the question of at what point in human development does protection set in is being answered in a heterogeneous way. The spectrum of development phases being used to define the point where the protection of human dignity begins extends from early cell stages to nidation all the way to birth. However, fertilized ova and embryos are at least entities whose fundamental quality as 'human life' is not in question. But biotechnological advances in reprogramming cells or suppressing a particular development potential are increasingly blurring the boundaries[123]. Future visions of genetically and radically altered human beings, human--machine beings, chimeras or artificially constructed living beings also prompt debate over whether and under what circumstances human dignity includes or can be transferred to such beings[124] or whether and under what circumstances it, conversely, prohibits their development.

Due to these and other challenges, a more precise answer must also be formulated regarding what exact interests or rights worthy of protection actually merit protection on the grounds of human dignity and what can be classified as being a violation of those rights or interests. Here, approaches must contend with the problem that the interests helpful in making human dignity concrete must themselves be carefully thought through again. This is compounded by the problem that partly conceptual and partly empirical aspects are involved, but that quite a few empirical assumptions are uncertain and cannot be researched ex ante. For example, is cloning a problem of human dignity with a view to the cloned person because he or she would not enjoy sufficient autonomy as a 'copy' of someone else, or do such assumptions involve inadmissible genetic determinism? What are 'dignity' and 'autonomy' against the background of the

122 See JC Bublitz, 'My Mind Is Mine!? Cognitive Liberty as a Legal Concept' in E Hildt and AG Franke (eds), Cognitive Enhancement. An Interdisciplinary Perspective (Dordrecht, Springer, 2013) 233, 241 ff; BJ Koops, 'Concerning "Humans" and "Human" Rights. Human Enhancement from the Perspective of Fundamental Rights' in BJ Koops, CH Lüthi, A Nelis, C Sieburgh, JPM Jansen and MS Schmid (eds), Engineering the Human. Human Enhancement Between Fiction and Fascination (Berlin/Heidelberg, Springer, 2013) 165, 174 ff; Albers, 'Grundrechtsschutz' (n. 37), 82 ff.

123 By no means is the problem resolved by emphasizing that statements based on natural sciences and legal statements must be separated and that latter must be supported on their own, see for such an approach Böckenförde, 'Menschen-würde' (n. 20), 810 ff. For despite the fact that they can be differentiated analytically, both forms of statements are intertwined in many ways in concrete assessments.

124 N Bostrom, 'In Defense of Posthuman Dignity' in GR Hansell and W Grassie (eds), H +/Transhumanism and Its Critics (Philadelphia, Metanexus, 2011) 55 ff, 61 ff; MC Gruber, "Menschenwürde" – Menschlichkeit als Bedingung der Würde?' in H Baranzke and G Duttge (eds), Autonomie und Würde (Würzburg, Königshausen & Neumann, 2014) 417, 417 ff; cf also Koops, 'Concerning "Humans"' (n. 122), 179 f.

findings of brain research? Do these concepts, in the realm of human rights, have to be linked to a 'natural' person or how far do limits and descriptions change, for instance, in the case of human-machine combinations? Is dignity achieved in evaluations and decisions made by the individual person and does it therefore encompass any voluntarily chosen use of new technologies for 'enhancement', or is it an objectified concept that does not privilege persons own understanding at any rate and under certain circumstances can dispute such decisions?[125] Moreover, with the advent of biotechniques and their potential for intervention the very question arises whether there is a concept of human species which expresses the interest in preserving certain features of the human life-form and which provides underlying presuppositions for human dignity. Approaches to this question are manifold, answers divergent[126].

Legal considerations respond to these challenges, among other ways, by constructing the form, statements and effects of legal norms and rights anew. For example, objective legal statements and individual rights are differentiated and decoupled from each other in such a way that not every objective legal statement has a corresponding individual right the protected person can enforce. The duties following from the objective legal guarantee of human dignity can then be broken down in many ways and, if necessary, be tailored to new problems. The construct of an advance objective protection, for instance, attempts to solve the problem arising when the protection of human dignity shall be applied to human beings who do not yet exist. In the case of reproductive cloning, the protection of human dignity would comprise the cloned person and be effective before the protected person exists, since it would apply to the act which produces him or her as a clone[127]. In the constructions of individual rights, proposals such as that of giving a remainder interest to the embryo seek to model protection

125 For this debate see Albers, 'Enhancement' (n. 50), 235 ff.

126 Sometimes the concept of a dignity of the human species is not substantiated and introduced to justify prohibitions in an overall manner, see, eg, J Isensee, 'Die alten Grundrechte und die biotechnische Revolution' in J Bohnert, C Gramm, U Kindhäuser, J Lege, A Rinken and G Robbers (eds), Verfassung – Philosophie – Kirche (Berlin, Duncker & Humblot, 2001) 243, 253 f, 261 f. In a more elaborated way, the concept aims at preserving an 'ethical selfunderstanding of the species which is crucial for our capacity to see ourselves as the authors of our own life histories, and to recognize one another as autonomous persons', see J Habermas, The Future of Human Nature (Cambridge, Polity Press, 2003) 25. Cf also D Grimm, 'Das Grundgesetz nach vierzig Jahren' (1989) Neue Juristische Wochenschrift 1305, 1310; Meiser, Biopatentierung (2006) 93 ff; R Andorno, 'Human Dignity and Human Rights as a Common Ground for a Global Bioethics' (2009) 34 Journal of Medicine and Philosophy 223; M Nettesheim, 'Biotechnology and the Guarantee of Human Dignity' in S Elm and SN Willich (eds) Quo Vadis Medical Healing (Dordrecht, Springer, 2009) 143, 162 ff. For critical considerations see, eg, T Gutmann,

"Gattungsethik" als Grenze der Verfügung des Menschen über sich selbst?' in W van den Daele (ed), Biopolitik (Wiesbaden, VS Verlag für Sozialwissenschaften, 2005) 235, 242 ff.

127 See, eg, H Rosenau, ‚Reproduktives und therapeutisches Klonen' in K Amelung, W Beulke, H Lilie, H Rüping, H Rosenau and G Wolfslast (eds), Strafrecht, Biorecht, Rechtsphilosophie (Heidelberg, C.F. Müller, 2003) 761, 767, 776 ff.

understood as gradual and increasing protection in the different developmental stages of the embryo by using an appropriate legal construct[128].

As a result, the scientific approaches to human dignity are becoming even more multifaceted because of the biotechnological challenges. To some extent, they contradict and compete with each other. Considering their self--understanding and their convincibility, they must aim at internal consistency. From the perspective of each particular approach, diverging approaches are mutually irreconcilable. From an external perspective, however, that does not pose an insurmountable problem. Scientific approaches are not integrated within non-academic contexts directly and without change; they are always modified when being used in societal, political or judicial communication.

III – CONTEXTUALIZING AND DIFFERENTIATING HUMAN DIGNITY

Biotechnologies have proven to be a productive field of reference for discourse about human dignity and the resulting need to contextualize and differentiate the concept of human dignity becomes clearly evident. The more that, over time and upon closer examination, 'the' biotechnologies differentiate into numerous fields as well as into a broad spectrum of applications and the more nuanced their consequences, both actually observed and potential, are described, the more sophisticated levels, reference points and patterns of argumentation in connection with human dignity are fleshed out. The multifaceted nature of the technologies forces to make arguments related to human dignity more precise. It is no objection that it is not always entirely clear exactly what the features of biotechnology are or what is problematic about them; on the contrary, this is a driving power in the debate. Considered as a whole, discourse about biotechnologies in the various fields provides a substantial contribution to sharpening understanding of human dignity with regard to contexts (A.), functions (B.) or legal constructions (C.). Human dignity is by no means a useless concept.

A. Contexts

Human dignity is discussed in many fields: in society in general, in the political and in the legal system as well as in various scientific disciplines. The idea plays different roles in different contexts, and the particular actors involved contribute in their own ways to how it is understood. To a certain extent, its meaning is shaped by the particular context in which it is used. Of course, there are also interactions. Especially in the area of biotechnology, the juridical conceptualization of human dignity has been a topic of discourse throughout

128 Jofer, Regulierung (n. 17) 410 ff.

society, and the attractiveness of human dignity as an argument derives not least from the fact that the public is quite familiar with its legal value. Social discourse in various legal systems even differ according to whether human dignity simply has high legal value or whether it goes even further and is considered 'inviolable' in the sense of 'indefeasible' or 'untouchable' ('unantastbar'). For example, in contrast to the United States, questions of informed consent in connection with biobanks are being discussed in Germany – where the Basic Law enshrines the indefeasibility of human dignity – as a problem in terms of personality rights[129], but regularly not as a problem of human dignity.

When human dignity is used in a legal context, its meaning is shaped by the specific legal environment. Even if the idea has theological or philosophical roots, it is detached from them to a certain extent due to its being transferred to a legal context. Its legal meaning is the result of autonomous legal communication processes[130]. Communication contexts within the legal system are, in their turn, diverse. As this analysis has illustrated, a rough distinction can be drawn between legislation, jurisdiction and jurisprudence. Lawmaking procedures aim at establishing legal rules through procedures that ensure acceptance. In this way they are, to a certain extent, linked to public discourse. They are carried out at the various levels at which norms operate: as procedures for working out an international declaration or convention, as procedures for establishing a constitution, or as legislative procedures. Human dignity can be decisive as a norm or an argument in lawmaking procedures and/or be enshrined as a normative standard in the outcome of the norm-setting procedure. Lawmaking procedures and established legal standards can be interlinked due to the interdependencies between norms and their to some extent hierarchical relationship to each other: The enshrinement of human dignity as the result of a declaration or of the adoption of a constitution affects national legislative procedures in which the provisions of the declaration or constitution exert their influence, whether as soft law or as a binding standard, and are used as an argument in debates. Courts refer to human dignity in the context of decisions on particular cases. As courts are established at different levels and decide in different kind of judicial procedures, the court involved and the particular procedure determine the role human dignity plays as a normative measure. In the case of constitutional courts, the only standard is the constitution; human dignity may be relevant as an objective norm or as an individual right. Other courts apply constitutional standards such as human dignity only by also taking

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129 Personality rights are derived from Article 2 para 1 in conjunction with Article 1 para 1 of the Basic Law. The right to freely develop one's personality, Article 2 I of the Basic Law, is the guiding norm. Hence, personality rights do not enjoy the same legal value as human dignity; they are, for example, subject to limiting reservations.

130 See Grimm, 'Dignity' (n. 72), 381 ff, 384.

account of legal norms below the level of the constitution. The analysis of the use of human dignity in the reasoning of courts has shown that courts, as a rule, try to base their decisions not on references to human dignity alone, and that they depend, to a certain extent, on legislative guidelines or frameworks when addressing the challenges of biotechnologies. In view of the prospect of as yet unspecified future cases courts are not willing to commit themselves fully to a particular theory or foundation of human dignity but, on the contrary, keep their options open. In contrast, jurisprudence deals with human dignity in a specifically scholarly way. Profundity and consistency are quality standards that require the selection of a particular theoretical framework. Scientific approaches do not need to focus on embodiments of human dignity in texts, but instead can explore foundations or arguments offered by other disciplines. They are by their very nature varied.

Legislation, jurisdiction and jurisprudence differ from each other not simply on the basis of the distinction between theory and practice, but also through the forms of their own independent institutional contexts. The meaning of human dignity does not completely change when it is used in different contexts; however, as a result of its own internal differentiations, the legal system does not offer a uniform understanding of human dignity, but instead a multifaceted one.

B. Functions

Any description of functions depends on approaches, frameworks and perspectives. The use of human dignity in lawmaking or judicial procedures can be analyzed, for instance, from a sociological or political sciences' point of view with emphasis on the function a multi-faceted and ambiguous normative measure such as human dignity plays in 'keeping rival constituencies on board'[131] or in shifting power to courts. From a metaperspective, the function of the guarantee of human dignity can be seen in offering a basis for ongoing specification and reflection of descriptions how the human should be understood. This function is stimulated by the high rank of human dignity and by follow-up questions like the problem of universalizability of basic values and rights.

As to legal points of view, jurisprudential analyses comprise a wide variety of different approaches. Among other problems, although by no means exclusively, they contend with questions of how normative measures are to be interpreted in a methodologically well-founded manner. Against the background of concepts of the division of power, they might be especially interested in examining the capacity of the legally established guarantee of human dignity

131 Caulfield and Brownsword, 'Human dignity' (n. 30), 75.

to guide regulators and to constrain judicial decision-making. Traditional hierarchical models and ideas of 'steering' in the sense that courts merely subsume their cases under legal provisions, however, have in the meantime been superseded by more complex conceptions of how law functions. In addition, it is part of jurisprudential research interests to analyze, for instance, what legal concepts are suitable for putting the normatively desired influence of the public on legislative decisions into practice, or whether the guarantee of human dignity is, precisely because of its ambiguity and rich implications, helpful for courts to decide cases involving particular challenges of biotechnologies, whether in a situation where statutory rules do not yet exist, or at a later point in time than when laws have been enacted. Functional analyses will, in accordance with their particular approach, come to different results: they may highlight the role the guarantee of human dignity plays for the understanding and enforcement of individual rights as well as for satisfying particular protection needs or criticize that this guarantee fails in giving a clear guidance, 'may obscure the real rationales for, and the lack of consensus about, a given policy approach'[132] or 'is used by courts as a licence to illegitimately overrule democratic authority'[133]. However, even from a legal point of view, human dignity as a normative concept or as a normative measure is by no means in any respect unsuitable just because it is characterized by disparate traditions, by a heuristic character[134], by a 'remarkable plasticity'[135], by specific needs for concretization and by a relative openness to different interpretations.

The results of this article also show that the guarantee of human dignity does not lead to completely arbitrary outcomes. Quite the contrary, there is widespread consensus about the prohibition of, for instance, enslaving women for the purpose of forced surrogate motherhood, breeding human clones that are deliberately stunted to do inferior works, intervening in the brain of a person to gain complete external control or admitting a product patent on a human being. As far as there are disagreements on many matters, the results of this article have elucidated that, from a functional point of view, exactly the 'paradoxical nature'[136] of the guarantee of human dignity might explain its capacities. And

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132 T Caulfield, 'Stem Cells, Clones, Consensus, and the Law' in LP Knowles and GE Kaebnick (eds), Reprogenetics. Law, Policy and Ethical Issues (Baltimore, The John Hopkins University Press, 2007) 105, 113 ff.

133 M Rosen, 'Dignity: The Case Against' in C McCrudden (ed), Understanding Human Dignity (Oxford, Oxford University Press, 2013) 143, 152.

134 C Dupré, The Age of Dignity. Human Rights and Constitutionalim in Europe (Oxford, Hart Publishing, 2016) 16 f.

135 Botha, 'Human dignity' (n. 71), 217.

136 Botha, 'Human dignity' (n. 71), 173, 217 ff: 'Dignity is seen as a matter of cosmopolitan right [...] and yet [...] its precise meaning and contours are culturally mediated [...]; it suspends legal decision making between the universal and the particular, between the transcendental and the contingent; [...] dignity constrains legal meaning by excluding a range of interpretations which are incompatible with the inherent worth of the human person. At the same time, it institutes uncertainty by recognising each individual as a unique, selflegislating

even when human dignity is firmly anchored as 'inviolable', it does not present itself as an unchangeable conceptual complex. Biotechnologies are developing, social contexts are changing, in some respects empirical experience is accumulating. Understanding of human dignity is developing along with these, without becoming arbitrary as a result.

C. Legal Constructs

The guarantee of human dignity is enshrined in a series of legal documents, and the forms of text vary, as do the status and role of the various documents. How human dignity is to be understood and what legal effects are linked with it has to be determined in a relatively independent way in the context of a particular document. Interpreting legal guarantees does not stop at simply working out the meaning of texts but also involves and relies on doctrinal systems that can be described as a storehouse of knowledge which consists of, among others, structures, constituent elements and correlations derived from legal or supralegal concepts and to which science, legislation or court rulings contribute[137]. For instance, objective legal statements and individual rights have to be differentiated as well as the legal requirements and legal effects laid down in a provision; additionally, several dimensions of protection can be worked out, such as the protection against impairments, duties to protect or horizontal effects. Hence, appropriate legal responses to social conflicts or new challenges are not only reached by defining the contents of a legal guarantee or the bearer of a right but also by developing a variety of legal constructs and sophisticated legal architectures.

This article has pointed out that, although there have been manifold approaches ever since the legal protection of human dignity was established, the advancement of biotechnologies and their consequences have given rise to an even richer and more highly differentiated diversity of contents and legal constructs. For example, the construct of an advance objective protection derived from the guarantee of human dignity seeks to protect human beings who do not yet exist. Deliberations such as that of giving a remainder interest to embryos aim at introducing an appropriate legal construct to reflect a gradual and increasing protection in the different developmental stages of embryos. Some proposals understand the guarantee of human dignity as a bundle of rights that can be divided into separate elements in order to apply one part or another to artificial entities. Other approaches emphasize that the objective protection of human dignity does not refer to the individual alone, but also to human

human being, who has the moral right to question received interpretations and to challenge the normative closure […].'

137 More thoroughly Albers, 'Rechtsfindung' (n. 85), 260 ff.

species. Only infrequently this is meant in the sense that the 'species' as such enjoys the protection of dignity so that 'human nature' must not be altered. More convincing than such a thesis – which leads to unsolvable difficulties of how to find appropriate criteria for defining human 'species' or 'human nature' – is the assumption that there is a concept of human species which provides underlying preconditions for human dignity as a normative idea and which expresses the interest in preserving these preconditions. Such a content-related concept is needed, for instance, for delineating those living beings that are protected by human dignity. It is also needed for applying the protection of human dignity to human beings who do not yet exist and for preventing imaginable developments such as the breeding of people with brain functioning restricted by gene technology for carrying out lowlevel work. Many other thinkable constellations, though, involve grey zones and finding appropriate answers to them poses new challenges. As a human right that has to be acknowledged and therefore inherently possesses supra-individual values the guarantee of human dignity necessarily goes beyond the individual and transcends individual rights while moving the individual into the center of protection and ensuring that not only his or her interests but also his or her self-understanding of dignity and his or her autonomy are normatively relevant. This reflects once again the 'paradoxical nature'[138] of the guarantee of human dignity and leads to the conclusion that, although species-related arguments might be used for limiting the decisions of the individual, the normative idea of human species, in turn, is relatively variable.

With the development of biotechnologies and the resulting gray areas concerning what a human being is and when a living creature can be said to be human, the image of human dignity as a human being's inner kernel or intrinsic value considered self-evident loses its fundamental basis. More convincing is approaching 'human dignity' not in a way as if it were a characteristic of human beings, but as a relational concept and with a view to social relationships and potential forms of violation. But if we interpret the guarantee of human dignity as a human right that bases on experiences of human vulnerability how can it be handled when we move to biotechnical prospects and new areas characterized by a high level of uncertainties and when the human is subject to transformation and transgression in an unprecedented manner? The description of 'experiences of human vulnerability' – of course always a mixture of hindsight and foresight when used in the context of human dignity violations – will have to focus more on foresight than on hindsight. To a substantial extent, the effects and risks of biotechnologies refer to an unknown future, and the present constructions of this future which are continuously being made have to take uncertainties

138 Botha, 'Human dignity' (n. 71), 173, 217.

and the unknown, i.e., the constantly generated reverse of knowledge, into consideration[139]. Legal constructions must respond to such challenges by developing forms of proceduralization of law and legally guided decision--making[140]. The legal effects of the guarantee of human dignity are not restricted to prohibiting certain behaviors or to simple 'Yes/No' decisions. In the course of being elaborated in a more differentiated way, these legal effects can extend to providing normative standards such as legislative duties to observe the effects of and to rethink the regulatory approaches chosen or duties to implement risk assessment and evaluation procedures. Considering social and technological change and knowledge or experiences over time, the concrete measures the guarantee of human dignity provides must be regarded as being, to a certain extent, in flux, too[141]. Once again, this guarantee proves to be far from consisting of static statements only.

IV – OUTLOOK

As biotechnologies and the societal discourse on them develop the notion of the guarantee of human dignity is becoming increasingly differentiated. Human dignity does not turn out to be a useless concept[142]. Likewise, it is not 'little other than an umbrella term'[143] or reducible to a mere placeholder for other interests such as autonomy or equal respect. Faced with the potential of advanced biotechnologies for bringing about radical transformations, we need human dignity as a concept forcing us to continuously specify and reflect upon what constitutes being human. This is supported by the fact that the idea of human dignity is probably more obviously than ever before a social construction as well as an extraordinarily complex legal concept.

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139 cf Albers, 'Bioethik, Biopolitik, Biorecht' (n. 77), 32 ff.

140 See in more detail M Albers, 'Risikoregulierung im Bio-, Gesundheitsund Medizinrecht' in id (ed), Risikoregulierung im Bio-, Gesundheitsund Medizinrecht (Baden-Baden, Nomos, 2011) 13 ff.

141 This has nothing to do with a weighing or balancing of interests which is a specific form of relativizing the protection of the guarantee of human dignity – a relativization human dignity is exempted from in case it is established as being 'indefeasible (unantastbar)'.

142 See, however, R Macklin, 'Dignity Is a Useless Concept' (2003) 327 British Medical Journal, 1419 f. Nevertheless, it is true that more precision is required than simply asserting that human dignity is violated.

143 cf U Schüklenk and A Pacholczyk, 'Dignity's Wooly Uplift' (2010) 24 Bioethics ii (in the context of patients' needs where claiming 'human dignity', indeed, often might sum up various patients' needs that have to be concretized).