Jann Maatz*

Deanthropocentric Legal Subjectivity

On the Expansion of the Human Body Using the Example of the Protection of Personality under German Tort Law

https://doi.org/10.1515/jetl-2025-0014

Abstract: Keeping pace with the advances in bioinformatics and digitalisation has become one of the central tasks of today's legal system and its respective sub-areas. However, this will no longer be possible in the future without moving away from the ideal of a technology-free human individual as the only possible legal subject. Supreme Court case law recognises this necessity when it extends the boundaries of the human body beyond its 'skin and skullcap' and searches for 'functional units' of people and things in the world. Within the law, this can lead to legal subjectivity no longer being attributed exclusively to flesh-and-blood humans, but possibly also to non-human beings that have combined with them to form a single entity. Since the European Virtual Human Twins Initiative was launched by the European Commission in December 2023 to support the development and implementation of solutions for virtual human twins in the health and care sector, the protection of the human body has also shifted beyond the analogue world into a digital world. Legal protection concepts for digital body data that are analogous to ownership will no longer help people in the foreseeable future. Effective protection of the legal subject 'human being' in its entirety, ie including its technical self-extensions and images, is only possible by turning away from the traditional subject-object dualism and can only be found in a 'deanthropocentric legal subjectivity'. This involves renegotiating who or what can, and should, have the status of a legal subject under changed social conditions. The task of a technologically-enlightened law is to identify the new 'legal subject candidates' and examine their personification potential. Although the present treatise examines the phenomenon of bodily externalisations based on German tort law, the developed theses are universally applicable to other legal systems.

Note: Lukas Kalkofen is sincerely thanked for valuable assistance in adapting the manuscript.

***Corresponding author: Jann Maatz,** Legal trainee at Higher Regional Court Frankfurt am Main and doctoral student at the Law Faculty of the University of Giessen, Fernwald, Germany,
E-Mail: jann.maatz@web.de, ORCID: 0009-0002-2890-5680

In the words of Rudolf Wiethölter, 'work on the paradigm, not in the paradigm'.[1]

I The *one* body of man

In 1998, Andy Clark and David Chalmers posed a thought-provoking question in their essay entitled 'The Extended Mind': 'Where does the mind end and the rest of the world begin?'[2] Today, I echo this inquiry as Malte Gruber does: Is there still a singular human body whose personal legal protection necessarily concludes at the boundaries of 'skin and skullcap', or can the body within the realm of law extend to where nature ends or technology fulfils its functions?

Throughout history, we have intertwined ourselves with various 'things' such as computers, notebooks, glasses, hearing aids, smartwatches, blood glucose meters, and more to enhance, expand, and monitor our bodily and sensory functions. However, we do not perceive these 'things' as integral parts of our materialised body or our legal subjectivity unless they are permanently and firmly connected to us. In this context, education scholar Viktoria Flasche raises an important question: When does the 'cyborgization' of humans begin?[3] Is it only when these 'things' are embedded beneath our skin, or is a superficial connection – a mere touch – sufficient?

Legally speaking, these 'things', regarded as loose legal objects under sec 90 of the German Civil Code (*Bürgerliches Gesetzbuch*, BGB)[4], exist in a constant state of tension between expansion and alienation from us. As Werner Schneider notes: 'It is ... the foreign in the service of our own that is characterised by a special ambivalence of simultaneous familiarity and self-evidence alongside far-reaching foreignness and otherness.'[5] These foreign objects are not yet part of us; however, they

1 *R Wiethölter*, Begriffs- oder Interessenjurisprudenz – falsche Fronten im IPR und Wirtschaftsverfassungsrecht, in: A Lüderitz/J Schröder (eds), Internationales Privatrecht und Rechtsvergleichung im Ausgang des 20. Jahrhunderts. Festschrift für Gerhard Kegel (1977) 263.

2 *A Clark*/*D Chalmers*, The Extended Mind (1998) 58 Analysis 7; see also *M Gruber*, Neurotechnologisch modifizierte Rechtssubjektivität, in: O Müller et al (eds), Das technisierte Gehirn – Neurotechnologien als Herausforderung für Ethik und Anthropologie (2009) 87ff; *M Gruber*, Bioinformationsrecht: Zur Persönlichkeitsentfaltung des Menschen in technisierter Verfassung (2015) 30.

3 *V Flasche*, 'Linkische' Cyborgs. Jugendliche Selbstkonstitutionen als hybride Netzwerke zwischen Dingen und Räumen, in: A Tervooren/R Kreitz (eds), Dinge und Raum in der qualitativen Bildungs- und Biographieforschung (2018) 157.

4 'Only corporeal objects are things as defined by law'.

5 *W Schneider*, Der Prothesen-Körper als gesellschaftliches Grenzproblem, in: M Schroer (ed), Soziologie des Körpers (3rd edn 2005) 374.

need not remain mere legal objects indefinitely. With a bit of 'luck', they may succeed in becoming part of us through a process described as 'ascent'[6], wherein they metamorphose into components of the legal subject by symbiotically integrating with a body – a materialised person.[7] They perform bodily functions and share in our legal fate. Consider dental implants, prosthetics, and pacemakers: they become part of the body, part of the person, and part of the legal subject.

Conversely, transformations termed 'descents' can occur when body parts or substances are separated from the rest of the body – sometimes with the stipulation that this separation is permanent.[8] The majority of literature posits that severed body parts or removed bodily substances become the property of the individual – the legal subject – as things or legal objects at the moment their connection is severed, according to sec 953 BGB[9]. They are no longer considered part of the 'body', because '[h]ere, the protected property "body" [in terms of] sec 823 para 1 BGB is understood to be the living person as a unit which is not protected due to its materiality but limited by (unseparated) matter in its biological unity and entirety'.[10]

Then one may ask whether, for example, the destruction of an organ that was removed for a few minutes in the operating room to correct a malfunction truly should not constitute bodily injury.[11] And is it really relevant for classifying it as body or property damage whether a reconnectable body part is literally still hanging by a 'silken thread' when it is destroyed? Is this internal legal reconstruction concerning external aspects of the human body still socially adequate?

A The body and its extracorporeal components

In contrast to the overly narrow objective-materialistic understanding of the body, which defines the body and its components solely as that which is connected to flesh and blood, the Federal Court of Justice adopted a broader subjective-functional con-

6 More recent legal and social philosophies, on the other hand, describe the process of legal subjectivation as a subjugation of human beings.

7 *J Kersten*, Menschen und Maschinen. Rechtliche Konturen instrumenteller, symbiotischer und autonomer Konstellationen, Juristenzeitung (JZ) 2015, 1, 4.

8 BGH (Bundesgerichtshof, Federal Court of Justice), judgment of 9 November 1993 – VI ZR 62/93 = Neue Juristische Wochenschrift (NJW) 1994, 127.

9 'Products and other components of a thing, even after separation, belong to the owner of the thing, unless sections 954 to 957 lead to a different conclusion.'

10 *J Taupitz*, Der deliktsrechtliche Schutz des menschlichen Körpers und seiner Teile (1995) NJW 745.

11 *H Schünemann*, Die Rechte am menschlichen Körper (1985) 116.

cept of the body within the framework of sec 823 para 1 BGB[12]. This was evident in its ruling regarding frozen sperm, which was obviously not intended for reinsertion into one's own body. The court determined that this substance constituted a component of the body, and its destruction amounted to bodily injury. Unlike the Court of Appeal on 14 January 1993, the Federal Court granted the plaintiff a claim for damages for pain and suffering in the amount of DM 25,000.[13]

The judgment states: 'If components are removed from the body with the intention of reuniting them later according to the will of the legal entity for the preservation or realisation of bodily functions, then an interpretation that comprehensively protects bodily integrity under § 823 para 1 BGB – while preserving the right to self-determination – leads to the conclusion that these components continue to form a functional unit with the body even during their separation from it in terms of the protective purpose of this norm.'[14]

Thus, the body can be understood as bi- or even multi-local. This functionalist perspective on the human body, though predominantly rejected by existing literature[15], suggests that the Federal Supreme Court is able to adapt legal protection in tort law to new biotechnological realities and possibilities, such as the storage and preservation of bodily substances. As the human body expands both functionally and spatially, its potential risks also increase. The role of a technologically informed

12 'A person who, intentionally or negligently, unlawfully injures the life, limb, health, freedom, property or some other right of another person is liable to provide compensation to the other party for the damage arising therefrom.'

13 BGH, judgment of 9 November 1993 – VI ZR 62/93 = NJW 1994, 127.

14 BGH, judgment of 9 November 1993 – VI ZR 62/93 = NJW 1994, 127 (128).

15 Rejecting, eg, *G Wagner* in: Münchener Kommentar zum Bürgerlichen Gesetzbuch (MünchKomm) (9th edn 2024) § 823 no 222; *A Laufs*/*E Reiling*, Schmerzensgeld wegen schuldhafter Vernichtung deponierten Spermas? (1994) NJW 775; *A Laufs*, Die Entwicklung des Arztrechts 1993/1994 (1994) NJW 1562, 1563; *J Taupitz* (1995) NJW 745; *A Spickhoff*, Die Entwicklung des Arztrechts 2001/2002 (2002) NJW 1758, 1767; *J Neuner*, Das Schmerzensgeld (2013) Juristische Schulung (JuS) 577, 579; critical with regard to the 'subjectivising' orientation, for example *Gruber* (fn 2) 30: 'The bodily function cannot depend solely on the will of the individual. Neither the subjective determination of purpose nor the "self-determination" derived from the individual personality are suitable for determining bodily functions, functional units or even "bodily functional substances". Self-description does not – at least not alone – determine functions. It is also the social environments surrounding the individual that determine bodily functions generally and "recognisably" for all, for example on the basis of a certain description of the "nature of man".'; *A Röthel*, Leibsein als deliktisches Schutzgut. Menschliche Physis und Dogmatik des § 823 Abs. 1 BGB (2019) 219 Archiv für die civilistische Praxis (AcP) 420, 450, probably supports such a 'subjectification' as a result: 'As soon as the human physique is perceptible as a body, it opens up the possibility of a protection of being-body that goes beyond the protection of the body if a corresponding will to being-body is established … A legal protection of being-body presupposes having a body, but is then not exhausted in the protection of what is perceptible as a body, but can go beyond that.'

legal system is to recognise these expansion technologies and potentials while adapting existing protection concepts to address new types of hazards. Where traditional protective concepts for the human body fall short, legal innovation becomes necessary.

Ultimately, questions are raised about 'the "natural" determination of the body itself .... The "naturalness" of this description must be assessed by how well it makes recognizable, visible, and predictable from various observer perspectives what a body or part thereof is or could be.'[16] In this context, separating and removing body parts and substances does not negate their status as components of a legal subject if there is an intention to reconnect or if mere extracorporeal functioning is intended to be preserved. The offence of bodily harm thus protects all functions that an individual wishes to utilise for personal purposes and those that are 'naturally' available to them.[17]

Consequently, we no longer consider just one human body – the singular legal subject defined by 'skin and skullcap' – but also extracorporeal entities that are invisibly connected to this human body in a legal sense. These entities cannot be easily divided into traditional categories of subject and object; instead, they form a 'functional unit' with the legal subjectivity of human beings.

B The body and its 'outsourced' technical components

The expansion of the human body in the bioinformation age is not limited to extracorporeal body parts and substances that enhance its functionality. In everyday language, the term 'body' is still predominantly associated with its material substance, which is bound by space and time. However, it is also used to describe an invisible inner experiential space of the subject.[18] In philosophical anthropology, this dichotomy is articulated as the distinction between a body that a person has and a body that they are.[19] This ambiguity inherent in human existence is aptly captured in the term 'person', which originally referred to an external role ascription akin to a theatrical mask. The exterior – the visible aspect presented to an

16 *Gruber* (fn 2) 33.

17 *F Heubel*/*G Freund*, Vernichtetes Sperma als Körperverletzung (1996) 42 Zeitschrift für medizinische Ethik (ZfmE) 129 (140).

18 This inner space of experience is 'pre-linguistic and cannot be translated into quantitative units or visual signs ... Only the analogue human body has a bodily dimension', see *L Wiedemann*, Digitale und analoge Körper, in: R Gugutzer et al (eds), Handbuch Körpersoziologie (2nd edn 2022) 79, 80.

19 *Wiedemann* (fn 18) 79.

audience – reflects both the body and part of its personality, while the true essence of the individual remains hidden behind this mask.

Since the Federal Constitutional Court's decision on 'online searches' in 2008, it has become evident that part of a person's identity and personality can be 'outsourced' to information technology systems.[20] Technological advancements mean that personal computers, laptops, smartphones, and smartwatches serve as storage media that become a 'faithful reflection of personal interests, inclinations, economic situations, and not least, the physical and psychological states of their users'.[21] In transhumanist terms, these devices can be viewed as an 'outsourced brain', or an outsourced 'part of the body'.[22] As Andy Clark and David Chalmers articulate: '[i]n these cases, the human organism is linked to an external entity in a two-way interaction, creating a *coupled system* that can be seen as a cognitive system in its own right. All the components in the system play an active causal role, and they jointly govern behavior in the same sort of way that cognition usually does.'[23]

To keep pace with these developments, the Federal Constitutional Court refers to the core area doctrine within the general right of personality. This doctrine asserts that for individuals to fully express their inner processes – such as feelings, emotions, thoughts, opinions, and highly personal experiences – they must do so without fear of surveillance by State authorities.[24] The court ruled that there exists a risk of collecting personal data related to this core area when information technology systems are accessed secretly.[25] To safeguard this outsourced core area of human personality (art 2 para 1 GG[26] in conjunction with art 1 para 1 GG[27]), the Karlsruhe court developed a new fundamental right, much criticised by scholars[28], to ensure the confidentiality and integrity of information technology systems. It

20 BVerfG, judgment of 27 February 2008-1 BvR 370/07,1 BvR 595/07 = NJW 2008, 822.

21 *M Kutscha*, Mehr Schutz von Computerdaten durch ein neues Grundrecht? (2008) NJW 1042, 1043.

22 *W Hassemer*, Interview in: Süddeutsche Zeitung (11 June 2008); *W Hoffmann-Riem*, Der grundrechtliche Schutz der Vertraulichkeit und Integrität eigengenutzter informationstechnischer Systeme (2008) JZ 1009, 1012.

23 *A Clark*/*D Chalmers*, The Extended Mind (1998) 58 Analysis 7, 8.

24 BVerfG, judgment of 3 March 2004-1 BvR 2378/98, 1 BvR 1084/99 = NJW 2004, 999.

25 BVerfG, judgment of 27 February 2008-1 BvR 370/07, 1 BvR 595/07 = NJW 2008, 822, 833.

26 'Every person shall have the right to free development of his personality insofar as he does not violate the rights of others or offend against the constitutional order or the moral law.'

27 'Human dignity shall be inviolable. To respect and protect it shall be the duty of all state authority.'

28 *M Eifert*, Informationelle Selbstbestimmung im Internet – Das BVerfG und die Online-Durchsuchungen (2008) Neue Zeitschrift für Verwaltungsrecht (NVwZ) 521; *M Kutscha*, Mehr Schutz von Computerdaten durch ein neues Grundrecht? (2008) NJW 1042; *M Sachs*/*T Krings*, Das 'neue Grundrecht auf Gewährleistung der Vertraulichkeit und Integrität informationstechnischer Systeme' (2008) JuS 481.

clarified that 'the information technology system is not protected by fundamental rights for its own sake but only insofar as its confidentiality and integrity are relevant to personality rights.'[29]

The uniqueness of this decision lies in how it imbues the instrumental relationship between humans and machines with personality rights.[30] Unlike physical body parts or substances that may allow for potential reconnection through physical means, this relationship involves a psychological association between humans and machines. Individuals transfer aspects of their personal inner world into information technology systems that preserve these elements of personality 'as a digital library'[31] functioning as digital memory.

Thus, translated into terminology from the Federal Court's 'sperm decision', both the physical human being and technology form a 'functional unit'[32] or what Bruno Latour describes as an 'association of human and non-human beings'[33]. In other words: computers become integral components of technologised individuals whose bodies and minds can functionally extend beyond traditional boundaries defined by 'skin and skullcap'. Under these circumstances, information technology systems may appear as body-analogue components within an informationalised person whose physical and mental constitution encompasses both natural and artificial characteristics. Body parts, body data, body images – all contribute to forming what constitutes one's 'basis of personality'. Consequently, ensuring integrity and confidentiality within information technology becomes inherently personal.

The law must, therefore, protect the human body in its entirety by safeguarding both its physical integrity and the confidentiality of its informational aspects. Expanding our understanding of personhood beyond mere physical boundaries allows the development of a conception of the body in the bioinformation age that acknowledges not only the benefits offered by these expansion technologies but also their associated risks.[34]

29 *Hoffmann-Riem* (2008) JZ 1009, 1012.

30 *Kersten* (2015) JZ 1, 2.

31 BVerfG, judgment of 27 February 2008-1 BvR 370/07; 1 BvR 595/07 = NJW 2008, 822 (824).

32 BGH, judgment of 9 November 1993 – VI ZR 62/93 = NJW 1994, 127 (128).

33 *B Latour*, Die Hoffnung der Pandora (2002) 211ff; *B Latour*, Das Parlament der Dinge (5th edn 2021) 103ff; see also *Gruber* (fn 2) 60.

34 In this sense also the BVerfG, judgment of 27 February 2008-1 BvR 370/07, 1 BvR 595/07 = NJW 2008, 822 (824): 'Such a gap-filling guarantee is required in particular to counter new types of hazards that may arise in the course of scientific and technological progress and changed living conditions.'

C Tort law protection of the human-system network

The extension of legal subjectivity to encompass the machine extensions of the human body could, akin to the reasoning employed by the Federal Court of Justice in its 'sperm decision', justify an immaterial claim for damages under sec 253 para 2 BGB[35] in certain scenarios where the confidentiality and integrity of an information technology system are infringed upon by private actors.[36] The covert infiltration of an information technology system – representing a person's digital inner world – not only violates their right to informational self-determination,[37] which includes the ability 'to decide in principle when and within what limits personal life circumstances are disclosed',[38] but also infringes upon personal rights. This encompasses not just the tangible property rights associated with personal data but extends to violations against individuals' physical and psychological expansions.

A general statement from the Federal Court of Justice in 1957 regarding the significance of the general right of personality within tort law can help clarify the relationship between humans, their environment, and their bodies, as well as their functional relevance for protection: 'The right of man to respect for his dignity and the free development of his personality is to a certain extent a "mother fundamental right" or "universal right", from which concrete forms arise concerning various personality values, life goods, and environmental relationships. Thus, special provisions in previous law that protect ... physical integrity against violations have not become meaningless; rather, they have been extended by recognising that protection of personality can also be considered in other respects.'[39]

Is it truly convincing to frame these associations between humans and non-human entities solely within property relations? Or does this merely represent an attempt to confine the new 'technologised' human body within the private law framework of old European modernity, where things are strictly physical objects and persons are only material entities?[40] If we abandon the illusion of a 'socially

35 'If damages are to be paid for an injury to body, health, freedom or sexual self-determination, then equitable compensation in money also may be demanded for any damage that is not a pecuniary loss.'

36 *Gruber* (fn 2) 166f.

37 *M Eifert* (2008) Neue Zeitschrift für Verwaltungsrecht (NVwZ) 521.

38 BVerfG, judgment of 15 December 1983-1 BvR 209/83 = NJW 1984, 419 (421).

39 BGH, judgment of 2 April 1957 – VI ZR 9/56 = NJW 1957, 1146 (1147).

40 Admittedly, *M Bartsch*, Die 'Vertraulichkeit und Integrität informationstechnischer Systeme' als sonstiges Recht nach § 823 Abs. 1 BGB (2008) Computer und Recht (CR) 613, 617 also rejects this with a different argumentation structure: 'It is certain that the protection of confidentiality and integrity of information technology systems does not coincide with the protection of property, because the system user only has to be a user, but not the owner, and that it also does not coincide with the right to

typical obviousness'[41] regarding the rights and legal interests outlined in sec 823 para 1 BGB and instead take their interconnections seriously, we can view the Federal Court's decision on the 'concept of the body' as a signpost toward a 'socially typical' understanding of 'bodily analogous personal property' in a mechanised state.[42] This perspective would better align with the telos of the norm: 'The protected property under sec 823 para 1 BGB is not merely material; it encompasses the realm of being and determination of personality that is materialised in physical form. The provision protects the body as the foundation of personality.'[43]

In this context, the technologised body becomes a primary object of protection concerning integrity and confidentiality within information technology systems. The outsourced components are then safeguarded both in their financial and non-material aspects under 'other rights'.[44] A violation of an information technology system's integrity – considered an extension of the human body – constitutes a breach of rights related to integrity and confidentiality. This could lead not only to material claims for damages aimed at restoring system functionality but also to immaterial claims for compensation pursuant to sec 253 para 2 BGB.

If such an infiltration is simultaneously understood as infringing upon bodily integrity – the 'basis'[45] or 'core area'[46] of personality – it becomes clear how one might assume a 'serious violation of personality' as a prerequisite for immaterial compensation claims.[47] This approach would also offer the advantage that any corresponding non-material compensation claim – based on sec 253 para 2 BGB – could be inherited by heirs of the injured party, thereby enhancing protection under the general right to personality.

II Hegel and deanthropocentric legal subjects

The consideration of extending the legal concept of personhood and its protection to encompass 'things' has sparked criticism from those who argue that the unique

informational self-determination, because data protection is meant there, but here also undisturbed access to technology.'

41 *K Larenz/C Canaris*, Lehrbuch des Schuldrechts (13th edn 1994) 491.

42 *Gruber* (fn 2) 165.

43 BGH, judgment of 9 November 1993 – VI ZR 62/93 = NJW 1994, 127.

44 *Gruber* (fn 2) 165.

45 BGH, judgment of 9 November 1993 – VI ZR 62/93 = NJW 1994, 127.

46 MünchKomm/*Wagner* (fn 15) § 823 no 220.

47 *Gruber* (fn 2) 167.

status of humans within the legal system must be preserved.[48] Former judge of the Federal Constitutional Court, Udo Di Fabio, cautions against this trend, suggesting that ascribing legal personality to 'animals, nature, things, or automated systems' would undermine human exclusivity in a deconstructivist manner. He argues that such a shift could erode 'the support of a normative basic order that very consciously places the human being at the center of the legal order against the political aberrations of the 20th century.'[49]

However, an alternative perspective advocates for a more nuanced understanding. As Bruno Latour posits, 'The human [cannot] be grasped and saved if one does not give it back that other half of itself: the share of things.'[50] This viewpoint suggests that recognising the interconnectedness between humans and non-human entities does not necessarily diminish human dignity or status but rather enriches our understanding of personhood in a complex and technologically advanced world.

By acknowledging the relationships between humans and their environments – including technological systems – we can develop a more comprehensive legal framework that reflects contemporary realities. This approach allows for a recognition of how these interactions shape identity and agency while still maintaining a focus on protecting human rights and dignity. Ultimately, it invites us to reconsider traditional boundaries within legal discourse and explore how they might evolve to accommodate new understandings of personhood in an increasingly interconnected world.

A Deanthropocentricity as a strategy

The question of how to appropriately address the presence of unknown non-human entities 'out there' – those actors that currently exist outside the law – has been a topic of considerable debate among legal scholars. Positions on this issue have become entrenched, leading to a seemingly deadlocked discussion. On one side are those like Udo Di Fabio, who advocate for the ideal of a 'technology-free human being'. For them, everything non-human is merely a tool or a thing (as defined in sec 90 BGB) and should be treated as such.[51] They argue that it is absurd to suggest

48 See eg, *H Eidenmüller*, The Rise of Robots and the Law of Humans (2017) Zeitschrift für Europäisches Privatrecht (ZEuP) 765; *U Di Fabio*, Metamorphosen der Zurechnung (2020) JZ 1073, 1078.
49 *Di Fabio* (2020) JZ 1073, 1078.
50 *B Latour*, Wir sind nie modern gewesen (5th edn 2015) 181.
51 *K Cornelius*, Vertragsschluss durch autonome elektronische Agenten (2002) Multimedia und Recht (MMR) 353, 355; *D Paulus*/*R Matzke*, Smart Contracts und das BGB – Viel Lärm um nichts? (2018) Zeit-

that a computer could make a declaration of will on behalf of a human; rather, it is the human who remains aware of every articulation of will expressed by the machine. In this view, computers cannot act independently; only humans can.

Conversely, proponents of granting 'artificial' or 'electronic persons' full legal subject status argue for recognising these entities as legitimate subjects under the law. This recognition would allow society to utilise the technology behind these entities without facing potential damages or liability gaps.[52] Between these two extremes are advocates for partial legal capacity solutions or relative legal subjectivity. These individuals do not demand full legal personhood for non-human entities but recognise that in certain social situations – such as when an artificially intelligent entity makes legal declarations on behalf of a person – the individual may no longer be able to anticipate the content of those statements.[53]

A potential way out of this complex situation could lie in deanthropocentrising legal subjectivity. This concept serves as our 'twelfth camel'[54] suggesting that if traditional legal frameworks fail to resolve new types of conflicts, the legal system might need to 'enter an additional, admittedly unreal, artificial, invented world [that] resolves this blockage.' Fictionalization could provide pathways for resolving conflicts that seem morally and socially insoluble within existing frameworks.[55] Experimentation in this direction appears promising since it does not necessarily lead to irreversible states.[56]

This approach requires us to understand concepts like 'persons', 'actions', and 'attribution and responsibility' in law as constructs rather than fixed categories. If these phenomena result from specific constructions within the law, then different constructive solutions may be necessary under varying conditions. The decisive fac-

schrift für die gesamte Privatrechtswissenschaft (ZfPW) 431, 441f; *T Riehm*, Nein zur ePerson! Gegen die Anerkennung einer digitalen Rechtspersönlichkeit (2020) Recht Digital (RDi) 42, 44ff.

52 See *D Linardatos*, Autonome und vernetzte Aktanten im Zivilrecht. Grundlinien zivilrechtlicher Zurechnung und Strukturmerkmale einer elektronischen Person (2021) 479; *C Kleiner*, Die elektronische Person. Entwurf eines Zurechnungs- und Haftungssubjektes für den Einsatz autonomer Systeme im Rechtsverkehr (2021); *S Mayinger*, Die künstliche Person (2017); *M Gruber*/*J Maatz*, ePerson, in: T Dornis et al (eds), Stichwortkommentar Künstliche Intelligenz (1st edn 2025).

53 *G Teubner*, Elektronische Agenten und große Menschenaffen. Zur Ausweitung des Akteurstatus in Recht und Politik (2006) 27 Zeitschrift für Rechtssoziologie (ZfRSoz) 5, 17ff; *Gruber* (fn 2) 253f.

54 *N Luhmann*, Die Rückgabe des zwölften Kamels. Zum Sinn einer soziologischen Analyse des Rechts (2000) 21 Zeitschrift für Rechtssoziologie (ZfRSoz) 3f.

55 *G Teubner*/*P Zumbansen*, Rechtsentfremdungen. Zum gesellschaftlichen Mehrwert des zwölften Kamels (2000) 21 ZfRSoz 189, 195.

56 For subsequent monitoring, see *G Teubner*, Rechtswissenschaft und -praxis im Kontext der Sozialtheorie, in: S Grundmann/J Thiessen (eds), Recht und Sozialtheorie im Rechtsvergleich/Law in the Context of Disciplines. Interdisziplinäres Denken in Rechtswissenschaft und -praxis (2015) 156.

tor here is the structure of action involved.[57] Importantly, deanthropocentrism does not imply granting non-human beings an inherent 'right to rights'. Instead, it involves recognising real actions taken by non-humans within internal law by attributing limited legal capacity to them in specific social contexts and thus constructing them as subjects for responsibility attribution.

The capacity attributed to humans by law (cf secs 104 ff[58], 827 ff[59] BGB) is itself merely an 'institutionally established pattern of perception and attribution construct created for attribution purposes.'[60] This notion extends to the 'invention of the legal person', where human agency has been extended into communication processes.[61]

In practical terms within tort law, we might consider how an artificially intelligent entity could be held liable: if such a non-human entity infringes upon third-party rights or legal interests under sec 823 para 1 BGB, it would be rational to attribute that harmful act to the entity itself. The language of sec 823 para 1 BGB allows for this flexibility: it states that 'whoever unlawfully infringes [the rights or legal interests] of another person is obliged to compensate the other person for the resulting damage.' This open formulation permits responsibility for infringements to be assigned to non-human entities.

Liability considerations would then focus on whether a non-human entity has violated conduct rules from an established catalogue that classifies its actions as unlawful. Following the principle of 'respondeat superior', this decentralised form of liability would attach responsibility to the operator or owner of the acting entity.[62]

However, there are also scenarios – such as breaches involving information technology systems – where protecting human-machine associations becomes es-

57 *K Bayertz*, Eine kurze Geschichte der Herkunft der Verantwortung, in: K Bayertz (ed), Verantwortung: Prinzip oder Problem? (1995) 4.

58 'A person is incapable of contracting if
1. the person has not yet attained the age of seven years,
2. the person is in a state of pathological mental disturbance, which prevents the free exercise of will, unless the state by its nature is a temporary one.'

59 'A person who, in a state of unconsciousness or in a state of pathological mental disturbance precluding the free exercise of will, inflicts damage on another person is not responsible for such damage. If they have temporarily induced a state of this type by imbibing alcoholic beverages or similar means, then they are responsible for damages that they unlawfully cause in this state as if they were at fault for negligence; the responsibility does not ensue if they came into this state without fault.'

60 *Bayertz* (fn 57) 207.

61 *Teubner*/*Zumbansen* (2000) 21 ZfRSoz 189, 208.

62 *A Beckers*/*G Teubner*, Digitale Aktanten, Hybride, Schwärme. Drei Haftungsregime für künstliche Intelligenz (2024) 154.

sential. In these cases, machines should not merely be viewed as objects whose protection aligns with human property interests; instead, they should be regarded as externalised parts of human bodies and personalities. Thus, legal subjectivity must encompass both humans and their technological extensions.

Ultimately, this perspective leads us toward viewing human-machine associations as deanthropocentric legal subjects aimed at safeguarding humanity in our increasingly mechanised state in the twenty-first century. In essence, deanthropocentrisation can be understood as a form of reanthropocentrisation – an adaptation that seeks to protect human dignity while acknowledging our intertwined existence with technology.

B Giving yourself an existence in things

This perspective is notably illuminated by one of the key thinkers of modernity, Georg Wilhelm Friedrich Hegel. He recognised that '[t]he person ... must give himself an external sphere of his freedom in order to be as an idea'.[63] Hegel emphasises that the connection between humans and their external world – including objects – is essential for realising human freedom and identity. If we consider legal capacity and human freedom, these concepts risk becoming mere fictions if individuals cannot engage with 'things' beyond property relations. As Peter Landau points out, 'Hegel's insight that the legal capacity of the person demands a possibility of realisation in the "external sphere of his freedom" should be distinguished from equating this "external sphere" solely with private property.'[64]

Hegel further elaborates on this relationship by describing things as 'the external to natural existence and at the same time ... belonging to it without opposition'.[65] He articulates that 'free will must first, in order not to remain abstract, give itself an existence, and the first sensory material of this existence are things, that is, external things ... The freedom we have is what we call the person, that is, the subject that is free, free for itself, and gives itself an existence in things.'[66] Thus, the relationship between humans and things transcends mere legal recognition; it represents a fundamental dimension of human existence.

Given this intricate interweaving of humans and objects, it becomes reductionist to describe legal subjectivity as exclusively human. Such a view would imply

63 *G Hegel*, Grundlinien der Philosophie des Rechts (1820) 102.

64 *P Landau*, Hegels Begründung des Vertragsrechts, in: M Riedel (eds), Materialien zu Hegels Rechtsphilosophie vol 2 (1975) 179.

65 *Hegel* (fn 63) 103.

66 *Hegel* (fn 63) 91.

attributing action only to a select few powers while relegating everything else to mere intermediaries or passive forces. As Bruno Latour argues, redistributing action among all intermediaries leads to a more nuanced understanding – one that recognises a broader form of agency rather than reducing it solely to human actors.[67]

Exploring and visualising these human-thing connections – these hybrids – highlights the inadequacy of traditional dualisms such as (legal) subject/(legal) object or animate/inanimate in our digital age.[68] The primary aim here is not to confer legal subjectivity upon objects or reduce humans to mere legal objects but rather to expand our understanding of subject/object dualism. This involves acknowledging and taking seriously the interdependencies between humans and non-human entities.[69]

It is important to clarify that this discussion does not advocate for personifying information technology systems[70], though there may be valid reasons for doing so in other social contexts to stabilise expectations.[71] Instead, the focus lies on protecting humans as legal subjects by functionally broadening their boundaries to include those 'things' integral to their identity. This includes extracorporeal body parts and substances as well as personal computers and other interconnected associations that contribute to one's personality.[72]

The experimental extension of legal subjectivity to encompass the 'share of things' constituting human identity serves multiple purposes: it reduces complexity in attributing responsibility for actions arising from novel human-thing associations while also fostering trust – a crucial condition for technological innovation. Furthermore, it guarantees spaces for potential development within bio- and information-technological production regimes.

---

67 *Latour* (fn 50) 183.

68 *B Latour*, Faktur/Fraktur – vom Netzung zur Bindung, in: M Weiß (ed), Bios und Zoë – Die menschliche Natur im Zeitalter ihrer technischen Reproduzierbarkeit (2009); *M Gruber*, Mensch oder Maschine. Zur Humanität des Rechts nach dem Ende des Menschen, in: A Funkte/K Schmolke (eds), Menschenbilder im Recht (2019).

69 *V Karavas*, Das Computer-Grundrecht. Persönlichkeitsschutz unter informationstechnischen Bedingungen (2010) WestEnd. Neue Zeitschrift für Sozialforschung (WestEnd) 95.

70 *E Esposito*, Strukturelle Kopplung mit unsichtbaren Maschinen (2001) 7 Soziale Systeme, 241, 248: 'Since persons are internal constructions, society itself determines, on the basis of its own structures, who and under what circumstances is considered a person – ie what form and scope social exclusion takes … Today, personality is possibly attributed to computers.'

71 *J Maatz*, Rechtsubjektivität im digitalen Zeitalter – Privatrechtstheoretische Reflexionen zu unsichtbaren Maschinen (2024) Computer und Recht (CR) 323.

72 *Gruber* (fn 2).

In this context, legal personhood may extend beyond just the materialised human body; it could also encompass information technology systems. Ultimately, individuals become the normative linchpin for protecting functional extensions of their bodies. In other words, both now and in the future, safeguarding humanity necessitates protecting its functional unity as a whole.

III The *two* bodies of man

The human body and information technologies are increasingly evolving in tandem, leading to a redefinition of the boundaries of the human body in our technologising world. As noted, it is becoming less sensible to cling to fixed demarcation lines simply because they align with traditional European perspectives.[73] A glance at contemporary developments reveals that new entities – beings and things – are poised to connect, associate, and expand our understanding of what it means to be human.

One particularly promising candidate for this expansion is the concept of the digital twin[74], which serves as a virtual counterpart to an analogue body. Although this technology is still in its early stages, legal considerations are becoming increasingly urgent due to various political initiatives in the digital sector, especially from the European Commission. For instance, the EU initiative for Web 4.0 and virtual worlds aims to lead us into the next technological transformation. In a recent communication, the Commission stated: 'In the field of public health, the Commission will support the development of the European virtual human twin, which will serve to digitally reproduce the human body.'[75] This initiative emphasises linking cutting-edge digital technologies with high-performance computing and access to research and health data through the European Health Data Space.

The flagship initiative on the human virtual twin is expected to have significant implications for clinical decision support systems, personal health prediction tools, and personalised medicine concepts. Furthermore, in December 2023, the Commission launched the European Virtual Human Twins Initiative, aimed at fostering the development and implementation of solutions for virtual human twins within healthcare and caregiving sectors.

---

73 *Wiedemann* (fn 18) 79ff.

74 A digital twin of an entire human body is not yet in sight, although some companies and public research institutes have already developed digital twins of individual organs such as the heart, lungs and liver (see *J Iqbal et al*, The Use and Ethics of Digital Twins in Medicine (2022) 50 Journal of Law, Medicine & Ethics (J Law Med Ethics) 583, 588f.)

75 COM (2023) 442 final, 14f.

As these initiatives unfold, they raise important questions about legal frameworks surrounding identity, agency, and responsibility in relation to digital representations of individuals. The integration of digital twins into healthcare not only has potential benefits for personalised medicine but also necessitates a reevaluation of how we understand personhood and legal subjectivity in an increasingly interconnected world. The evolution of these technologies challenges us to rethink traditional boundaries and consider how they might be adapted or expanded to accommodate new realities that blur the lines between humans and their technological counterparts.

A Analogue and digital body

A digital twin in the healthcare context – while deliberately setting aside the associated data protection challenges – represents a precise real-time simulation of a human being. Its primary purpose is to predict future health developments, test treatment alternatives, and facilitate communication with the physical subject, such as providing warnings or recommending important lifestyle changes.[76] The foundational model of the digital twin consists of three essential elements: (1) a real object, which in this case is the (analogue) human body; (2) its digital counterpart; and (3) a constant data connection between the analogue and digital entities, facilitated by smart wearables and Internet of Things (IoT) applications.[77]

From a legal perspective, the emergence of the digital twin in society raises significant questions primarily related to data protection law.[78] However, traditional tort law standards also remain applicable in cases involving potential violations of personality rights. This includes both material and immaterial claims for damages under the General Data Protection Regulation (GDPR) and the Federal Data Protection Act (BDSG). A violation of personality rights could occur through actions such as spying on, inspecting, or manipulating the digital body and its associated data by third parties.

Before delving deeper into these legal implications, it is crucial to outline the relationship between the digital twin and the analogue body, as well as how they

76 *E Topol*, High-performance medicine: the convergence of human and artificial intelligence (2019) 25 Nature Medicine 44, 49; *M Braun*, Digitale Zwillinge und Verschiebungen im Verhältnis von Gesundheit und Krankheit (2022) 68 Zeitschrift für medizinische Ethik (ZfmE) 209, 210.

77 *P Korenhof et al*, Steering Representations – Towards a Critical Understanding of Digital Twins (2021) 34 Philosophy & Technology 1751, 1754.

78 *M Gruber*/*Z Zihlmann*, Körperdaten und Datenkörper. Zugänge zum digitalen Zwilling, in: S Augsberg et al (eds), Datenzugangsregeln. Zwischen Freigabe und Kontrolle (2024) 189 ff.

relate to human identity and legal subjectivity. The digital twin functions as a kind of proxy for the human body within the medical digital landscape. It exists within a conceptual tension between being merely a substitute for, and a comprehensive representative of, the human being. Importantly, it does not occupy the same space-time dimension as its analogue counterpart; rather, it exists solely as a digital entity within a virtual realm.[79] In this digital environment, it can represent the human being but cannot replace it in physical reality.

The digital data body thus visualises aspects of the human being indirectly; it is neither entirely synonymous with, nor completely alien to, the human being's own body.[80] As a representative entity, it stands in for the analogue body but lacks direct presence in terms of external materiality. Consequently, these two versions of 'body' are distinct entities that exist in asymmetrical dependence on one another. Without the analogue body and its data transmission, there can be no corresponding digital counterpart. Conversely, there may be scenarios where information from the digital data body becomes essential for ensuring the continued existence or well-being of the analogue body.

This asymmetrical relationship fosters interactivity that bridges both worlds – the analogue and digital – connecting two bodies that belong to the same individual. The virtual realm thus transforms from an incorporeal reference point distant from physical reality into an environment experienced concurrently through these interdependent entities. In this sense, the digital twin emerges as an integral extension of its analogue form – a new dimension of what constitutes human embodiment in an increasingly digitised world.

B Tort law protection of the digital body

In the future, it will no longer be sufficient to focus solely on protecting the physical body from 'unauthorised interference with the integrity of the physical state',[81] as this protection does not encompass the consent of the legal entity. Instead, it is essential to develop a comprehensive protection framework for the digital data body that effectively safeguards it – and ultimately the human being in hybrid form – from significant impairments due to its asymmetrical connection with the analogue body. Paradigmatic injury scenarios for this hybrid can be easily constructed. For instance, consider (1) unauthorised access by a third party or even disclosure of

79 *Braun* (2022) 68 ZfmE 209, 215.

80 *Braun* (2022) 68 ZfmE 209, 217.

81 BGH, judgment of 17 September 2013 – VI ZR 95/13 = NJW 2013, 3634.

sensitive bodily and health information; (2) manipulation of bodily data that generates false information about health status, potentially leading to misdiagnosis or inappropriate treatment; (3) software errors that result in (4) system failures, causing critical health information to be unavailable when needed. These potential impairments underscore that it is inadequate to subordinate the relationship between a person and their digital twin to a conventional subject-object dichotomy. In these instances, the analogue physical well-being is so intricately intertwined with the integrity of the digital data body that separating them into natural persons and objects – and thus depicting their relationship merely as one of property – seems inappropriate.

Furthermore, the protection afforded by property rights under sec 90 BGB proves ineffective when bodily data is 'disembodied' and stored in cloud systems. The individual whose interests are genuinely compromised may not be the same person who can assert an infringement of ownership over their data carrier.[82] While pursuing a property-like 'right to data' as a protected good under sec 823 para 1 BGB appears feasible,[83] it fails to adequately address the interconnectedness of analogue and digital bodies if we regard the digital twin merely as an outsourced part of the body and thus part of a person's personality.

According to case law from the Federal Constitutional Court, a person's self-determination over their physical and mental integrity is 'part of the very essence of personality'.[84] Therefore, under changing technological conditions, the digital integrity of the human data body must also be included in this protective framework. Its safeguarding will become one of the central tasks of future medical law and cannot be reconciled with previous interpretations of 'personality', 'body', and 'self-determination'. A modified and deanthropocentric concept of legal subjectivity is required that legally accommodates existing personal self-expansion techniques.

Nevertheless, a violation of general personality rights under sec 823 para 1 BGB due to impairment of the digital data body should not depend on whether actual health damage manifests in the analogue body. It is crucial to consider protecting the data body independently from physical harm to account for complex interactions between analogue and digital well-being while ensuring trust in safeguarding the integrity and confidentiality of one's digital body information.

To realise this protection within tort law, we can draw an important insight from medical malpractice law: in cases where medical intervention occurs without

82 MüchKomm/*Wagner* (fn 15) § 823 no 287.

83 Ibid, § 823 no 384.

84 BVerfG, judgment of 25 July 1979-2 BvR 878/74 = NJW 1979, 1925 (1931).

patient consent, a violation of general personality rights under sec 823 para 1 BGB is assumed, regardless of whether actual health damage has occurred.[85] If health damage does occur in relation to injury scenarios involving a digital twin – as described above – there would indeed be both a violation of general personality rights and an infringement upon bodily integrity as defined by sec 823 para 1 BGB. The existence of both material and non-material claims for damages under secs 249 para 1[86] and 253 para 2 BGB would then present no further difficulties in substantiation.

Conversely, if there is no injury to the analogue body, this precludes assuming a 'serious interference' with general personality rights and thus prevents the submission of a claim for non-material damages according to sec 253 para 2 BGB ('body'). This obligation for reasonable monetary compensation is neither unforeseeable nor unreasonable for the injuring party given the evident sensitivity and paramount importance of bodily and health information for those affected. The element 'body' must therefore be understood in its significance for general personality rights while considering the interconnectedness between analogue and digital spheres regarding freedom law.[87] Actual health damage becomes less critical; rather, impairment of the digital data body alone suffices to trigger liability.

In this context, 'body' has emerged as a normative focal point for protecting individuals' personal self-expansion technologies within medical fields. Ultimately, it is no longer solely about safeguarding one human body defined by 'skin and skullcap'; it encompasses the protection of both forms: analogue and digital. To conclude with Primo Levi's poignant words: 'I know that it will be difficult to understand me in this, and it may well be so. But think what value, what meaning even the smallest of our daily habits have in them – our hundred little things that even the poorest beggar calls his own: a handkerchief, an old letter, a photograph of a loved one. These things are parts of ourselves; they are almost like limbs of our body. It is inconceivable in our world that they could be taken from us because we would immediately find other things for them – other things that belong to us because they preserve and awaken our memories.'[88]

85 *J Maatz*, 10 Jahre Kodifikation der Patientenrechte und Selbstbestimmungsaufklärung – Versuch einer privatrechtstheoretischen Zwischenbilanz (2023) Medizinrecht (MedR) 351, 353f.

86 'A person who is liable in damages is to restore the position that would exist if the circumstance obliging them to pay damages had not occurred.'

87 *T Gutmann* in: J von Staudinger, Kommentar zum Bürgerlichen Gesetzbuch. Staudinger BGB – Buch 2: Recht der Schuldverhältnisse: §§ 630a-630h BGB (2021) Einleitung zu §§ 630a-h BGB no 21.

88 *P Levi*, Ist das ein Mensch? (13th edn 2023) 25.

IV Summary in theses

(1) The subjective-functionalist concept of the body, which has been extended by the case law of the Federal Court of Justice and goes beyond the traditional objective-materialist understanding, makes it possible to consider components that are temporarily separated from the body as part of the physical-functional unit, as long as reunification or extracorporeal use is intended.
(2) The decision of the Federal Constitutional Court on the protection of the integrity and confidentiality of information technology systems makes it possible, due to the advancing biotechnological developments, to extend this broader understanding of the body and to consider extracorporeal-technical entities as extensions of the body and thus integral components of the human personality in order to do justice to the new potential risks.
(3) Extending the legal concept of the person to non-human entities is necessary in order to recognise and protect the complex interdependencies between people and things in the digitised world. This requires a departure from the reductionist legal subject-legal object dualism in the human-machine context in order to ensure the most comprehensive protection of human personality possible.
(4) The progressive integration of digital bodies and twins in medicine requires a further reassessment of legal body and personality boundaries in order to counter the asymmetrical dependence of human physical existence on its analogue and digital form to do justice to the changing perception of human identity.
(5) The best way to protect people in digital form is to also understand the integrity of the data body as the 'basis of their personality' and to recognise it as a protected good via the general right of personality within the framework of sec 823 para 1 BGB. In the event of an impairment of the digital data body, a serious violation of personality can generally be assumed, which gives rise to an immaterial claim for damages – irrespective of any actual damage to health – in accordance with sec 253 para 2 BGB.

V Summary

The two judgments of the Federal Court of Justice and the Federal Constitutional Court discussed in this article expand the legal understanding of the boundaries of the human body. The beginning and end of the body are no longer marked only by 'skin and skullcap', but also by external physical and even technical components, insofar as they become part of a human's personality by fulfilling physical and mental functions. This expansion of the legal concept of personhood to include non-

human entities serves to protect humans in the digitised world. However, there is a need to move away from the reductionist legal subject-legal object dualism. The progressive integration of digital bodies and twins in medicine requires a further reassessment of the legal boundaries between body and personality in order to do justice to the asymmetrical dependence of human physical existence on its analogue and digital form and the associated change in the perception of human identity. The best way to protect people in digital form is to understand their digital integrity as the 'basis of their personality' and to recognise it as a protected right under § 823 para 1 BGB. In the event of an impairment of the digital body, a serious violation of personality can generally be assumed, which gives rise to a claim for immaterial damages – irrespective of damage to the analogue body – in accordance with § 253 para 2 BGB.