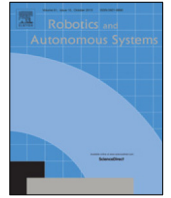




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Intelligent agents and criminal law—Negligence, diffusion of liability and electronic personhood

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HIGHLIGHTS

- The following text deals with the problem of criminal responsibility in robotics.
- The negligence regime of modern criminal law is questioned by autonomous robots.
- The adaption of the negligence regime is hindered by traditional legal structures.
- It will be discussed if “electronic personhood” could solve these problems.

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ABSTRACT

The recent development of robotics poses new challenges for the lawgiver as well as for jurisprudence, especially when it comes to criminal law. The ascription of criminal liability to a specific individual is difficult when confronted with an autonomous, adaptive and learning robot. One possible solution could be to adapt the negligence regime to the changes in robotics. Another possibility is to ascribe a specific legal status to autonomous machines, similar to the status of legal persons (corporations). It also has to be considered that the responsibility transfer onto machines will have repercussions onto normative concepts our society is based upon. Thus, the space for these changes has to be created consciously.

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0. Introduction

Intelligent Agents will interact with us more and more frequently in the years to come, be it in traffic [1], production of goods, household or warfare [2]. They will facilitate everyday life, not just in a technological sense, but also by disburdening humans of specific everyday actions and decisions such as when to stop when parking a car, what to shop when the fridge is empty, when to take one's medicine, how to word an email in a correspondence, when to call an emergency for an elderly relative who is staying at home by himself or even if to shoot a certain opponent in warfare. It is at least possible that for some of these tasks the decision of a machine might even be quicker, more rational, more informed than a human decision [3].

For performing these tasks, the machines have to become more and more “autonomous” [4] by approximating human thought patterns [5]. It is not possible to give detailed orders for all relevant situations beforehand. Therefore one has to create machines which are able to learn, to adapt (e.g. to the communication style of its user, to his eating habits, to his body functions) and to be trained to react in the best suited way for the user. When programming the

machine one cannot predict how it will act in a specific situation after its training and it also will become almost impossible to reconstruct ex post why the machine reacted in a specific way.

New technological developments often challenge society and its normative framework, thus, regulations have to be created to deal with new dangers such as robotics [6]. In the case of robotics, the traditional orientation of the legal system – especially criminal law – towards individual responsibility is questioned [7]. In the following, I want to discuss what the diffusion of responsibility in the case of robotics means for criminal liability and what role the introduction of electronic personhood could play for solving these problems.

1. Negligence—the traditional approach

The most important cases of criminal liability for using robots will be situations in which the robot causes damage, either by violating the bodily sphere or even by causing the death of a human being. Several individuals could be considered as perpetrator: the producer, the programmer, the seller or the user of the robot. We here assume that none of them intended to violate another human being. Thus the violation of another human being could lead to criminal liability arising from negligence. This kind of criminal

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liability can be connected to every stage of the production process and usage, including research and development.

1.1. Conflicts between external and internal standards

The first requirement of negligence is that the person whose liability is discussed acted without “reasonable care” [8]. The standard of care is usually determined by a person’s expected form of behaviour in a given situation. As indicators one can refer to non-legal standards, such as ISO and DIN standards [9]. When determining the standard of care for people involved in research and production of robots, there are, however, two important things to note:

First of all, at the moment, only few standards exist for the here relevant areas of robotics [10]. One reason for the slow development of standards is that it still is difficult to determine by which one can determine an expected form of behaviour because the machines these standards would be relevant to are still in development and the knowledge about possible risks (kind and intensity) is still low. Standardising institutions are challenged not just by determining how to avoid inadequate risks but also by deciding which risks actually are inadequate. In such cases, the general-social standard of rationality is applied additionally: How would a rational person have acted to avoid damage in a similar situation? This vague evaluation, though, offers only little help in complex technological fields such as robotics [11].

Secondly, it should be noted that non-legal norms only are indicators for whether the actions of a person were consistent with the legal standard of care. They also are, generally, developed with regard to civil liability instead of criminal law. Criminal law is not simply an accessory to the regulations of non-governmental groups, thus one must always additionally consider overall social morality [12]. If certain internal rules do not contradict social expectations and standards of rationality, and if any party in question has recognised this deficiency, liability for negligence must be included in the determination of criminal liability.

For general considerations on the few already existing standards in robotics as well as on the process of developing such standards it is necessary to consider the two relevant perspectives:

The perspective of standardising institutions can probably best be shown by quoting the German DIN-Institute itself (my own translation): “Standards foster global trade and serve rationalisation, securing of quality, protection of society as well as safety and communication. Economic growth is influenced stronger by standards than by patents or licences. Standards are strategic instruments in competition” [13]. Even if the protection of society is mentioned, it becomes clear that the standardising actors are also aiming for economic advantages [14].

This has to be contrasted with the perspective of criminal law: Criminal law does not only serve to minimise risks and prevent danger. It also stabilises the normative consciousness of society concerning actions that are regarded as socially inadequate. Thus the danger of a certain action is not sufficient to penalise it; it also is necessary that it violates social-moral rules [15]. These rules have to be – in theory – accepted by every member of society, which could be an indicator for specific norms based on singular interests (of specific groups) not fitting the criteria for enacting criminal laws. The same accounts for specific secondary norms allowing certain dangerous behaviour only in certain situations and by members of social subgroups. One has to be aware, though, that society accepts – and actually needs – specific subsystems such as research, economy, the health system. It would be inconsistent to rely on these systems on one side and not to accept their specific norms which regulate these subsystems and the interests of its parties on the other [16]. Thus the inclusion of economic interests in standardising procedures does not necessarily lead to their irrelevance for criminal law. Obviously, this acceptance has its limits if

the values of the subsystem outweigh society’s interests, but the turning point for such specialised norms becoming irrelevant for criminal law is difficult to locate. Just to give an example for the differences in values and normative premises: During a discussion about DIN-standards on the usage of robots in a working place the premise was set that if the interacting worker could only be endangered with bruises, the danger was acceptable—inacceptability would only start if the machine could cause bleeding. Obviously the results is not in accordance with the normative aspects of the crime “assault”, but this does not irrevocably lead to irrelevance for criminal law.

Another aspect that could help transferring standards into principles relevant for criminal law is the procedure of developing external standards by non-government institutions. One has to note that often, standardising institutions generally lack democratic legitimation and transparency [17]. Stories from members of DIN-standardising groups are quite enlightening in this respect: It is not just unclear how one actually becomes a member, who actually writes the standards and how the decisions about these standards are made—often there is not one member of a normative discipline in these groups to discuss the premises of the standards set.

Why are these considerations important for robotics?

First of all, because there is a very strong activity of standardising institutions in robotics at the moment, thus it seems, from a legal perspective, important to analyse these activities and relate them with legal evaluation. One might even have to consider interaction with the standardising institutions to secure plausible normative premises and processes.

Secondly, the reliance on these standards is also very high: Most researchers and producers are convinced to have acted legally when complying with the existing standards, even if they are somehow vague, not covering all relevant (dangerous) aspects of their activities and normatively questionable. It is necessary to discuss how to connect this strong conviction, supported not just by the official impression of standardising institutions but by the general custom in the actors community, with negligence liability; it might be worth to consider its relevance for the subjective aspects of negligence (guilt). The (potential) “sense of right and wrong” is part of liability for negligence as well [18]. Unavoidable mistake in the lawfulness of the action can therefore lead to negation of negligence. This is the case especially for the parties not directly involved in and profiting from the usage of the robot (researcher, programmer) who are surrounded by a community in which everyone is convinced that fulfilling the requirements of standards is sufficient to act lawfully.

1.2. Foreseeability

Another condition of criminal negligence is foreseeability of the damage [19]. The more autonomous and potentially dangerous a machine is, the more it can be – generally – foreseen during the research phase that it may, later on, bring harm to humans. The usage of robots for military purposes and the usage of autonomous cars in everyday traffic are plausible examples: It almost seems unavoidable that thereby human beings are (for warfare: unjustifiably) violated. On the other hand: The foreseeability is only connected to the general possibility of harming; the specific conditions and situations become more and more unforeseeable [20]. Robotics is therefore an opportunity to discuss how specific the foreseeability has to be: Does it have to be directed towards specific circumstances, causalities, harms, or is it sufficient to foresee the possibility of violating humans as such?

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