Paradoxophilia

by Philipp Sahm*

I. In the remote areas of legal scholarship ...

… far away from the legal mainstream, the boundaries of law are explored. These secret dimly lit societies fathom paradoxes in law. A paradox, so they say, is like God, an "indicable whole".[1] It "is an evanescent object, that is, a non-object oscillating between being […] and not being".[2] One can hardly even talk about it: "Paradoxologists are people speaking about something that cannot be spoken about (so easily)."[3] Rumour has it that spirits haunt this uncanny scenery: "The undecidable remains caught, lodged, at least as a ghost – but an essential ghost – in every decision, in every event of decision."[4] Needless to say, it is not particularly easy to decipher what these rumours may mean. To say the least, the combining of law with paradoxes has led to some rather obscure results.

For some scholars the notion of paradox has become the default term to denote the problem of the impossibility of a final justification, be it for the foundation of normative order or a philosophical position.[5] From this perspective the appearance of paradoxes and aporia can be understood as signs of uncertainty triggered by historical change or conceptual transition. The mysterious language employed by the paradoxologists can then at least partly be explained by the fact that these authors try to address the most difficult questions of ultimate justifications: They actually do speak about something that cannot be so easily spoken about. This article, however, takes a different perspective. There seems to be a more immediate and less transcendent relation between law and paradoxes that has not yet been explored. The current author is convinced that by sharpening one's analytical weapons, it is possible to establish a connection between law and paradoxes and speak about them without falling victim to obscurantism or poltergeists. This article argues that legal decision-making situations and paradoxes pose structurally identical problems. This insight allows for a better understanding of legal decision-making and, in addition, it explains why law is necessarily incomplete in a Gödelian sense. This is not merely a theoretical insight, but instead one that has valuable repercussions upon how we approach legal methodologies. Legal methodologies are supposed to guide the legal decision-making process: If legal decision-making is the

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1 *Jean Clam*, The Reference of Paradox: Missing Paradoxity as Real Perplexity in Both Systems Theory and Deconstruction, Paradoxes and Inconsistencies in the Law (2006), 77, 80.

2 *Clam*, (n. 1), at 81.

3 *Clam*, (n. 1), at 81.

4 *Jacques Derrida*, Force De Loi: Le Fondement Mystique De L'Autorité, 11 Cardozo Law Review (1990), 920, 965.

5 The usage of this phrasing was inspired by Rudolf Wiethölter speaking during a seminar discussion at the Cluster of Excellence Normative Orders at Frankfurt Goethe University on 21 January 2015.

problem and legal methodologies are the tool to solve this problem, then understanding the structure of the problem (i.e. the nature of legal decision-making) informs us of how the tool (the legal methodology) needs to be designed in order for the judicial process to function successfully.

This article aims to provide a new basis for the discussion about paradoxicality in law by demystifying the notion of legal paradox. It is structured as follows: In Part II, we will closely compare legal decision-making situations to the prototypical paradoxes of logic. In order to do so, four common features in paradoxes and legal decision-making situations have to be analysed. More precisely, it is argued that legal decision-making situations share at least four features with paradoxes. Firstly, legal cases, like paradoxes, lead to undecidable situations (which I would like to call the "*undecidability argument*"). Secondly, legal cases can, like paradoxes, be resolved by the introduction of a new distinction (*resolvability argument*). Thirdly, paradoxes drive the development of thought in their respective field and so do legal cases (*motor argument*). Fourthly, the difficulty of a legal question posed by a case can change over time, just as the paradoxicality of a paradox can alter (*dynamics argument*). Once the similarities are outlined, their nature has to be analysed and it has to be determined whether the similarities apply to all kind of legal decision-making situations or rather a unique type of legal case. Part III takes the above findings and looks at their consequences by outlining the lessons that can be learnt for legal methodologies.

II. The Paradoxicality of Legal Decision-Making Situations

A. The Objects of Comparison

To begin with, the objects of comparison need to be defined. The term "paradox" is commonly defined as an argument that, from apparently acceptable premises and by apparently sound reasoning, leads to self-contradiction or an absurdity.[6] Sometimes, the term paradox simply refers to the contradictory or absurd conclusion of such an argument, or it denotes a proposition that is intrinsically unreasonable. In this meaning, "paradox" is often used synonymously with "antinomy".[7]

On the other hand, one has to distinguish between the legal decision as the result of the decision-making process and the situation of legal decision-making. The object of comparison is not the *result* of rendering a decision but the situation in which a legal decision must be reached. Additionally, another specification must be made in order to define which decision is meant. Often it is not the legal question that is problematic, but the ascertainment of the facts that constitute the case. Then the parties do not dispute about the law on a case but rather about the facts of the case themselves. This enquiry, however, will only focus on the

6 Entry: „paradox" in: J. A. Simpson/E. S. C. Weiner (eds.), The Oxford English Dictionary Vol. XI (1989); *Franz von Kutschera*, Paradox, in: Joachim Ritter/Karlfried Gründer (eds.), Historisches Wörterbuch der Philosophie Vol. 7 (1989), col. 96; *Vann McGee*, Logical Paradoxes, in: Donald M. Borchert (ed.), Encyclopedia of Philosophy Vol. 5 (2006).

7 Entry: „Antinomy" in: Philip W. Goetz (ed.), The New Encyclopaedia Britannica Vol. 1, (1985), 458; Entry: „Antinomy" in: J. A. Simpson & E. S. C. Weiner (eds.), The Oxford English Dictionary Vol. I (1989); *Kutschera*, (n. 6), col. 96; *Andrea Cantini*, Paradoxes and Contemporary Logic, Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/entries/paradoxes-contemporary-logic/, last access: 25 April 2015.

legal and not the factual part of the issue: the *quaestio iuris* as opposed to the *quaestio facti*. Even where the facts of a case are uncontroversial, the law on the matter must still be decided. In the following, I will also speak of legal cases to refer to this legal decision-making situation.

B. Undecidability

Legal cases and paradoxes reveal a similarity amongst both that I would like to call "undecidability". This undecidability is caused by an overabundance of mutually exclusive answers that can be found in legal decision-making situations and paradoxes. It is exactly this *epistemic openness* of the question that paradoxes share with legal decisions. Epistemic openness does not, in this context, mean ignorance of something, but the fact that there are too many contradictory answers so that one is torn between them, there being very good reasons for each of the possible solutions. In law, undecidability describes the fact that legal cases cannot be decided on purely legal grounds. In the following, two example cases are used in order to show this feature. They should be understood as examples of reasonable legal disagreement over the right legal decision on a case within a certain jurisdiction. These sample cases can, however, be replaced by any legally controversial case from any other jurisdiction.

As the examples of the *Liar* and *Sorites* paradox suggest, undecidability is also found in paradoxes. Here too, one is torn between two apparently equally valid, but contradictory, options. Consequently, the questions posed by the paradoxes are also undecidable in the sense that the paradoxes provide us with too many good answers.

1. Case Undecidability

a) Staschynskij

In the so-called *Staschynskij* case, the German Federal Surpreme Court (BGH) had to adjudicate upon two political homicides committed by a KGB agent in Munich.[8] The court established that the accused had acted on the command of his superiors (Soviet generals) who had meticulously planned the murders, constructed a special poison pistol for the crime and ascertained the whereabouts of the victims who were exiled dissidents. Furthermore, the court knew that the accused had acted under coercion and that his commitment of the murder was automatic, like a machine. The criminal law at that time differentiated between perpetrators and accessories, while it also provided for the possibility of a crime to be committed jointly (§§ 47, 49 German Criminal Code). Since the law differentiated between different types of participation, courts had to apply this distinction between perpetrators and accessories, who could be punished differently. Hence, in the Staschynskij case, the court had to decide whether the accused was to be categorised as a perpetrator or an accessory. The definitions given by the German criminal code for this distinction were not of much help. A definition of the notion of "perpetrator" was not given and the definition of "accessory" was limited to a person who knowingly provides assistance, either by advice or action.

8 Bundesgerichtshof [BGH] Federal Court of Justice Oct. 19, 1962, Neue Juristische Wochenschrift [NJW] (1963), 355.

In the present case, one could argue that the agent was liable to be punished as the actual perpetrator. This view is supported by the fact that it was the agent and not the generals who pulled the trigger of the poison pistol, and that this was the decisive action that determined the success or failure of the criminal plan. Consequently, the term perpetrator would be defined as the main actor in the crime, who brings about the outcome of the criminal offence.

On the other hand, one could easily make the case for the generals being the perpetrators on the basis that the agent only acted as their remote weapon and so could only be convicted as an accessory. One may adduce that the Soviet generals had planned the murder a long time before and thus the pulling of the trigger by the agent was only a minor contribution to their plan. In addition, one could say that the agent acted as the generals' extended arm. Hence, the agent fulfilled the legal definition of an accessory and was therefore to be punished accordingly. This is how the court decided this case.

It should be noted that one could argue within the wording of the statute for two different solutions and that both solutions are equally defensible. The written law did *not* provide a criterion for how to apply the distinction between perpetrator and accessory. Neither could be resorted to an unwritten legal principle in order to demarcate the concepts of perpetrator and accessory. The *Staschynskij* case posed the legal question of how to distinguish perpetrators from accessories since the law did not provide an unequivocal answer. It rather provided an overabundance of equally strong, and equally defensible solutions.

b) Spinning Mill

The same situation of an overabundance of equally strong defensible solutions to a case also occurred in the following private law case.[9] It rested on the following facts. In May 1919, the plaintiff and the defendant agreed on the terms of a sale whereby the plaintiff purchased the defendant's spinning mill. The contract stipulated that the spinning mill was to be transferred and the price to be paid in January 1920. In the autumn of 1919, the depreciation of money amounted to a hyperinflation such that the monetary value decreased by 80%.[10] On account of his sure loss, the plaintiff brought an action requesting to have his obligation to sell under these conditions declared void. In response, the defendant, who profited from this development, demanded the implementation of the contract as stipulated. The legal question arose as to whether the defendant could, in 1920, be held to the conditions agreed upon in the 1919 contract, even though the price was – in real terms – reduced to a fifth of the stipulated value by the effects of hyperinflation.

In this case, the statutes of the German Civil Code did provide an answer: no legal possibility existed for the seller to withdraw from such a contract. This solution in favour of the defendant, however, grossly contradicts the intuition of fairness or justice. There is no reason why the plaintiff should be bound to give away his property for a completely unreasonable

9 Reichsgericht [RGZ] Feb. 3, 1922, Entscheidungen des Reichsgerichts in Zivilsachen 103 RGZ, 328.

10 The number is taken from *Hannes Rösler*, Grundfälle zur Störung der Geschäftgrundlage, Juristische Schulung (2004), 1058. And *Horst Eidenmüller*, Der Spinnerei-Fall: Die Lehre von der Geschäftsgrundlage nach der Rechsprechung des Reichsgerichts und im Lichte der Schuldrechtsmodernisierung, Juristische Ausbildung (2001), 824–825.

price. However, a ruling in favour of the plaintiff would contradict the intentions of the legislators of the German Civil Code, as they deliberately did not include clauses that would allow for the withdrawal from a contract under such conditions.[11]

The structure of the problem is identical. On the one hand, it could be argued that the authors of the Civil Code chose not to alter such contracts and therefore the most loyal solution to the intentions of the legislator would be not to allow the plaintiff to withdraw from the contract. On the other hand, one could make the case that this preference for the defendant, and the accompanying disadvantage for the plaintiff, contradicts the principle of fairness that is generally accepted as underlying German contract law. Consequently, the plaintiff's demand should be granted. To achieve a solution that safeguards a fair balance between both parties, one could take recourse to the general clause containing the principle of good faith (§ 242 BGB).[12]

The *Staschynskij* and the *Spinning Mill* case share this structure of two possible and equally defensible answers. In both cases, every solution is unsatisfying, precisely because there is another defensible solution. In the legal system the dissatisfaction even increases if one takes into consideration that the law has to provide a legal answer and give (legally) convincing reasons for the decision. Having both example cases and their structure in mind, one can compare them with paradoxes.

2. *Paradox Undecidability*

a) The Liar Paradox

A similar structure can be found in paradoxes such as the age-old "Liar" paradox. [13] The liar paradox in its original form states: "I am (hereby) lying". Here, the verb *to lie* produces some problems as it presupposes an intention to deceive. The liar paradox, however, can be reformulated in the following way: "This sentence is false". This short sentence leads immediately into strange confusion. Suppose the sentence is true. Then what it states is indeed the case. It states that it is false, so if the sentence is true it cannot be true. Hence, suppose the sentence is false. Then it is not the case what it states. It states that it is false, so if it is false it must be true. If the liar is true, it is false, but this is exactly what it says, so it must be true. The liar provokes a dangerous intellectual circle, oscillating between true and false.

11 *Benno Mugdan*, Die gesammten Materialien zum Bürgerlichen Gesetzbuch für das Deutsche Reich, Motive Vol. 1 (1899), 248f; Protokolle, Vol. II, 690f. Cf. furthermore: *Finkenauer*, in: Münchener Kommentar zum BGB (2012), § 313 par. 21; *Unberath*, in: Beckscher Online Kommentar BGB (2012), § 313 par. 2; *B. S. Markesinis et al.*, The German law of contract: a comparative treatise (2006), 323f.

12 *Eidenmüller*, (n. 10), at 826.

13 *Diogenes Laertius*, Lives of Eminent Philosophers, II. 108; PAULUS Titus, 1, 12; The Liar paradox has even been held responsible for the death of Philetas of Cos, ATHENAEUS, The Deipnosophists., 401e.

b) The Sorites *Paradox*

An equally if not even more worrisome problem can be found in the *Sorites* Paradox. [14] The *Sorites* starts from the fact that one grain of sand does not make a heap. If one grain is removed from a heap, it would still be a heap. So one grain does not make a difference. Now one can argue like this: One grain of sand does not make a heap. If one grain more does not make a difference, then two grains of sand do not make a heap. If two grains of sand do not make a heap and one grain more does not make a difference, then three grains of sand do not make a heap … and so on until one reaches an arbitrarily high number, say 10,000 grains of sand do not constitute a heap, which is absurd.

The argument can be formalised in the following way.[15] Let F stand for the predicate of "does not make a heap" and x_i represent "i grains of sand" where the index i ranges over the natural numbers.

Fx_1
If Fx_1 then Fx_2
If Fx_2 then Fx_3
...
If Fx_i then Fx_{i+1}

Fx_i

Intuitively, the *Sorites* argument seems to be a hair-splitting wordplay. Yet, it is not easy to pinpoint the error in the reasoning, which looks like a mathematical induction.[16] However, the problem is worse because the same problem applies to a large number of predicates such as red, tall or tadpole and similarly vague notions.[17] One is torn between the logical reasoning showing that there are no heaps/everything is a heap and the experience of heaps on sunny beach days.

In law, courts do decide upon cases despite the legal undecidability. However, when they do so, the judgment is based on something *different* from the (positive) law that is used to justify why one of the possible solutions is preferable. What enables judges to choose among the overabundance of answers in deciding a case and what makes paradoxes manageable, is to what I will turn now.

14 See *Diogenes Laertius*, Lives of Eminent Philosophers (1925), § 184. II. 108; *Rosanna Keefe/Peter Smith*, Introduction: theories of vagueness, in: Rosanna Keefe/Peter Smith (eds.), Vagueness: A Reader (1997), 1, 3; *Peter Unger*, There Are No Ordinary Things, 41 Synthese (1979), 117, 118; *Graham Priest*, Sorites and Identity, 135–136 Logique & Analyse (1991), 293; *Dominic Hyde*, Sorites Paradox, in: Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/entries/sorites-paradox/, last access: 25 April 2015; see also on Vagueness in Law and the *Sorites* Paradox in particular, *Timothy Endicott*, Vagueness in Law (2000), 77ff.

15 See *Keefe/Smith*, (n. 14), at 9f.; *Hyde*, (n. 14).

16 *Hyde*, (n. 14).

17 *Keefe/Smith*, (n. 14), 2, 5. See also *Crispin Wright*, On the Coherence of Vague Predicates, 30 Synthese (1975), 325, 333.

C. Resolvability

Paradoxes and legal decision-making situations are equal in terms of their resolvability. Once an additional distinction is introduced the cases just like the paradoxes become decidable. The common problem of legal decision-making situations and paradoxes of too many mutually exclusive solutions disappears once a distinction is introduced. The main point to note here is that both paradoxes and cases show exactly the same structure: Both can be resolved by introducing a new distinction. The similarity goes even further if one takes into account that in both, legal cases and paradoxes, the problem consists in an overabundance of equally good but contradictory answers and the same happens at the level of the solutions to the problem: there can be too many equally good but mutually exclusive solutions to the problem. In order to show this further structural connection, I shall first look at the solutions of the sample cases and then at the solutions offered for various paradoxes.

1. Case Resolvability

a) Staschynskij *Resolved*

In the first sample case, the German Federal Supreme Court convicted the KGB agent of being an accessory. The court relied on an old doctrine on how to differentiate perpetrators from accessories. According to this doctrine, the decisive fact was the inner attitude of the individual in question in relation to the deed.[18] Under this so-called "subjective" participation doctrine, a person is regarded as the perpetrator only if they want the deed to be their own and thus act with *animus auctoris* i.e. the will to be the author of the crime. By contrast, a person is an accessory if said person intends the deed to be somebody else's, and thus acts with *animus socii* i.e. the will to assist in somebody else's crime.[19] Given this doctrine, the decision now became relatively easy. If we recall the facts that the court had established, it was clear that the agent was acting by command and had no personal interest in the killing. Consequently, it was hardly possible to conclude that he intended the deed to be his own act. Rather, he subordinated himself to the will of his superiors and acted with *animus socii*. Hence, he was liable to be convicted as an accessory.

The court drew a distinction between participants in crimes with *animus auctoris* and participants with *animus socii* and used this distinction to apply the differentiation given by the statute between perpetrator and accessories. Suppose that the *animus auctoris/animus socii* distinction to demarcate perpetrators from accessories is plausible. In that case, the application of the legal concepts is possible without difficulty: participants with *animus auctoris* are perpetrators, whereas participants with *animus socii* are accessories. If the distinction is accepted the case becomes decidable and only one possible solution remains.

One important aspect of the distinction used by the court is that it is not based on the text of the statute. The rules applicable to the case do not differentiate between *animus socii* and *animus auctoris*. Neither do legal principles. The law does not prescribe that one should take the inner attitude of the individual towards the deed as the decisive criterion, nor does it provide a different criterion. It is rather a fact that there are participants in crimes with different mental states and this fact that is taken to form a demarcation line between the different legal

18 NJW (1963), (n. 8), 355, 356.

19 *Claus Roxin*, Täterschaft und Tatherrschaft (2006).

concepts of perpetrator and accessory. Hence, it is something *external* to the letter of the law that resolves the situation of two equally defensible but contrary solutions. A factual, non-legal distinction is introduced that ends the openness of the legal question and makes it decidable.

The distinction that the German Federal Supreme Court applied to solve the *Staschynskij* case was contended within legal scholarship. Instead of the purely subjective criterion which the court used to differentiate between perpetrators and accessories, the court could also have relied upon an objective criterion such as the factual control over the criminal action leading to a completely different result.[20] In scholarly literature on the differentiation between perpetrators and accessories opinions are wide-ranging and court rulings have been divergent.[21] The *Staschynskij* case could also have been made decidable by the introduction of a different distinction.

b) Spinning Mill *Resolved*

In the *Spinning Mill* case the same structure reappears. The court introduced a distinction between the foundations of the transaction and other circumstances. As foundations of the transaction, the court counted conditions on the basis of which the parties had concluded their contract. The court argued that if circumstances change that constitute the foundations of the transaction, then the contract must be treated differently and possibly adjusted.[22] From this, it follows that a change of other circumstances cannot justify the amendment of the contract. In the *Spinning Mill* case the value of money unforeseeably collapsed and therewith the basis for transactions founded on money. Consequently, in the *Spinning Mill* case the foundations of the transaction were shattered and thus the contract had to be adjusted. This distinction enabled the court to give a reason why it would be unfair to hold the parties to their original contract benefitting one party and penalising the other. It furthermore limits the cases in which such an adjustment is possible in order to preserve legal certainty.[23]

The concept of the foundation of the legal transaction was not a legal concept already existing in statute or unwritten legal principles.[24] Hence, it was again something from outwith the law that was used to solve the case.

The important feature to observe in both cases is that the addition of further information terminates the openness of the matter in question and ends the undecidability so that the case can be decided upon. Regardless of what distinction the court uses, the decision is not arbitrary in either case as long as it applies a plausible criterion that can be generalised. On the other hand, the decision cannot be explained in terms of law because the notion of the foundation of the transaction did not exist in statutes or in legal principles – at least until the decision was taken.

20 *Wolfgang Joecks*, in: Münchener Kommentar zum StGB (2011), § 25 Rn. 9ff.

21 For an overview: *Wolfgang Schild*, in: Kindhäuser/Neumann/Paeffgen (eds.), Strafgesetzbuch (2013), § 25 Rn. 23ff.

22 RGZ 103, (n. 9), 328, 332.

23 RGZ 103, (n. 9), 328, 331.

24 *Markesinis et al.*, (n. 11), 323f. (Chapter 7). Cf. *Paul Oertmann*, Die Geschäftsgrundlage. Ein neuer Rechtsbegriff (1921).

2. *Paradox Resolvability*

Paradoxes, too, can be solved by introducing a distinction that makes them manageable or even disappear. [25]

a) Sorites Resolved

In the case of the *Sorites* paradox, there are arguments for all kinds of solution.[26] Following Frege, Russell and Quine one can decry the vagueness of natural language as being paradox-generating and prefer an ideal language that eliminates *Sorites* paradoxes by eliminating vagueness.[27] Other scholars, for example, reject the premise that one grain more or less does not make a difference. One grain can be decisive, but it is not known which grain that is. Moreover, some authors contend that the borderline is not only a matter of lacking stipulation but a principally unknowable border.[28] This is taken to be the reason why classic logical inferences do not function with vague predicates, such as heaps and baldheads.

Another way of attacking the premises of the *Sorites* argument is called supervaluationism. This treats the indeterminacy of vague predicates not as a matter of ignorance, but as real.[29] Vague predicates fail to divide neatly between heaps and non-heaps, which leads to an equally far ranging consequence because the sentence "x grains constitute a heap" is neither true nor false in a borderline case. This approach must therefore deal with truth-value gaps and restrict the principle of bivalence (or the law of the excluded middle) prevalent in classical logic.[30]

Yet another approach attempts to solve the *Sorites* paradox by rejecting the reasoning.[31] If a n-grained collection is a heap then a n-1 grained collection is also a heap, but to a lesser degree. Hence, the reasoning continuously diminishes the truth-value instead of preserving it.[32] This in turn enters into the realm of degree theories of truth and many-valued logic.

25 See *Nicholas Rescher*, Paradoxes: their roots, range, and resolution (2001), 126.

26 For a very short overview: "Sorites, Recent", in: Glenn W. Erickson & John A. Fossa (eds.), Dictionary of Paradox (1998).

27 *Gottlob Frege*, Grundgesetze der Arithmetik – begriffsschriftlich abgeleitet Band 2 [1903] (1962). Vol. II., § 56ff.; *Bertrand Russell*, Vagueness, 1 Australasian Journal of Philosophy (1923), 84; *Willard Van Orman Quine*, What Price Bivalence, 78 The Journal of Philosophy (1981), 90.

28 *Timothy Williamson & Peter Simons*, Vagueness and Ignorance, 66 Proceedings of the Aristotelian Society, Supplementary Volumes (1992), 145, 153; *Timothy Williamson*, What Makes It a Heap?, 44 Erkenntnis (1996), 327, 337; *Roy A. Sorensen*, Vagueness, Measurement, and Blurriness, 75 Synthese (1988), 45; see also: *Richard M. Sainsbury*, Paradoxes (2009), 49f.

29 *Keefe & Smith*, (n. 14), 23; *Sainsbury*, (n. 28), 51f; *Hyde*, (n. 14).

30 *Hyde*, (n. 14); *Keefe & Smith*, (n. 14), 24f. See also: *Kit Fine*, Vagueness, Truth and Logic, Synthese Vol. 30 (1975), 265, 271ff.

31 *Sainsbury*, (n. 28), 56, 58f.

32 *Keefe & Smith*, (n. 14), 12.; *Sainsbury*, (n. 28), 58; *Hyde*, n. (14). For a three-valued approach: *Michael Tye*, Sorites Paradoxes and the Semantics of Vagueness, 8 Philosophical Perspectives (1994), 189; for a fuzzy logic approach: *Lotfi A. Zadeh*, Fuzzy Logic and Approximate Reasoning, Synthese Vol. 30 (1975), 407.

Finally, one can embrace the paradox and accept the conclusion. One would have to accept that indeed no grain accumulation constitutes a heap because the reasoning of the *Sorites* paradox is sound.[33] Vague terms such as "heap", "bald", and "red" "are devoid of application"[34] and are consequently not capable of describing the world.[35] This view is the least attractive solution to the sorites paradox, since it rules out a large amount of predicates as unusable for meaningful statements.[36]

There is no simple solution in sight. On the contrary, every solution seems to have some unattractive side effects that either affect supposedly unproblematic logical inference rules, the concept of truth, or imply strongly counter-intuitive notions. Every single variant offers reasons (although each quite different) to treat vague predicates differently. Consider for example the supervaluationist approach according to which vague predicates are problematic because they fail to provide a clear-cut limit for the concept. This is taken to be the reason why vague predicates lead to an absurd consequence and why classical logic must be amended if one wants to include vague predicates. The lesson from the *Sorites* paradox is that vague predicates are different, be it because the limit of vague concepts can principally not be known, or be it because they behave differently when applied in reasoning. Once the distinction between vague predicates and other predicates is made, the paradox ceases to be. The argument proving that nothing (everything) is a heap is no longer convincing if one knows that vague predicates either require different premises or different reasoning.

b) The Liar Resolved

The solutions for the *Liar* paradox differ greatly but they, too, motivate further differentiations of underlying concepts – especially the concept of truth. One possible response to the *Liar* is to accept truth-value gaps. Instead of the strict bivalence of either true or false, one can say the *Liar* sentence is neither true nor false.[37] A similar type of argument is to assert that *Liar*-like sentences do not have a stable truth-value as they continuously change between true and false.[38] These proposals come very close or may even necessarily lead to the acceptance of a third truth-value.[39] Alternatively, one could regard the *Liar* sentence as both true and false and thus adopt a paraconsistent solution that accepts truth-value gluts instead of truth-value gaps[40]. The common feature of all these approaches is that they abandon classical

33 *Unger*, (n. 14), 118; *Michael Dummett*, Wang's Paradox, Synthese Vol. 30 (1975), 301, 306; *Wright*, (n. 17), 330.

34 *Unger*, (n. 14).

35 *Sainsbury*, (n. 28), 48.

36 *Sainsbury*, (n. 28), at 49; *Hyde*, (n. 14).

37 *Saul A. Kripke*, Outline of a Theory of Truth, 72 The Journal of Philosophy 690 (1975). Compare *Keith Simmons*, Semantical and Logical Paradox, in: Dale Jacquette (ed.), A Companion to Philosophical Logic (2007), 115, 119.

38 *Anil Gupta*, Truth and Paradox, 11 Journal of Philosophical Logic (1982), 1; *Hans Herzberger*, Notes on Naive Semantics, 11 Journal of Philosophical Logic (1982), 61; *Philip Kremer*, The Revision Theory of Truth, in: Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/entries/truth-revision/, last access: 25 April 2015.

39 *Kripke*, (n. 37), 700 (footnote 18); *Scott Soames*, Understanding truth (1999), 193; *Hartry H. Field*, Saving truth from paradox (2008), 125. (fn. 6); *J.C. Beall & Michael Glanzberg*, Liar Paradox, in: Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/entries/liar-paradox/, last access: 25 April 2015.

40 *Graham Priest*, The Logic of Paradox, 8 Journal of Philosophical Logic (1979), 219, 226; *Graham Priest*, Logic of Paradox Revisited, 13 Journal of Philosophical Logic (1984), 153. See also *Field*, (n. 39), 361f.

logic.[41] For diverse reasons they distinguish liar-like sentences from other less problematic sentences and thus all of them introduce a distinction to solve the paradox. They conclude that apart from true and false statements, one has to distinguish statements of some other sort (neither true nor false, both true and false, ore unstably changing statements).

Other approaches, however, introduce not just one distinction but differentiate an infinite number of levels. Tarski's hierarchy of languages[42] replaces the common truth predicate with a multitude of hierarchically arranged truth predicates.[43] He maintains that the truth-value of a statement can only be assessed using a meta-language of a higher level.[44] Take the statement "snow is white". It is true if and only if snow is in fact white. The statement "'snow is white' is true" instead, is a higher order statement about a statement. Therefore its truth-value can only be assessed using a higher-order truth predicate ($true_1$).[45] A subscript number will then indicate the hierarchical level of the truth predicate. According to Tarski, the truth predicate in any statement can never refer to the same statement but only to statements of lower levels.[46] This of course leads to an infinite regress of hierarchical truth levels.[47] So, if the *Liar* sentence is nothing but an ill-formed sentence because the sentence refers to itself on the same level and thus commits a semantic error, then the paradox disappears.[48]

Another attempt to solve the paradox regards the truth predicate as being context dependent.[49] In this case, every use of the truth predicate refers to a specific occasion. When the context situation changes the truth-value of a statement can change.[50] The explanation of the oscillation between true and false in the case of the *Liar* sentence is explained by the characteristic indexicality of the truth predicate.[51] Instead of differentiating between different hierarchical levels, one would have to distinguish between the different situations in which the truth predicate is used. The assumption that the sentence is true in the *Liar* reasoning leads to the conclusion that it cannot be true. If one takes this result as the new premise (if the liar sentence is false, then …), a new situation arises and consequently the change of the result that the liar sentence, according to the new assumption, must be true, is no longer astounding.[52] The newly introduced distinction between different situations enables one to explain the instability of the *Liar* reasoning and makes the paradox disappear. Just like the cases became decidable once a distinction was introduced.

41 Cf. *Beall & Glanzberg*, (n. 39).
42 *Alfred Tarski*, Der Wahrheitsbegriff in den formalisierten Sprachen, Studia Philosophica (1936), 261.
43 *Sainsbury*, (n. 28), 134; *Rescher*, (n. 25), 187.
44 *Field*, (n. 39), 33; *Gila Sher*, Truth, the Liar, and Tarski's Semantics, in: Dale Jacquette (ed.), A Companion to Philosophical Logic (2007), 145, 147.
45 *Soames*, (n. 38), 67ff; *Sainsbury*, (n. 28), at 134.
46 *Tarski*, (n. 42), 281f.
47 *Tarski*, (n. 42), 390, 397; *Field*, (n. 39), 23f. (29); *Beall & Glanzberg*, (n. 39).
48 *Rescher*, (n. 25), 187.
49 *Tyler Burge*, Semantical Paradox, 76 The Journal of Philosophy (1979), 169, 179; *Jon Barwise & John Etchemendy*, The Liar: an Essay on Truth and Circularity (1987), 174; *Michael Glanzberg*, The Liar in Context, 103 Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition (2001), 217, 218. See also *Field*, (n. 39), 211; *Beall & Glanzberg*, (n. 39).
50 *Sainsbury*, (n. 28), 142.
51 *Beall & Glanzberg*, (n. 39).
52 *Barwise & Etchemendy*, (n. 49), 175.

D. Motor

Furthermore, paradoxes and legal decision-making situations are equal in terms of their role as epistemic motors. Legal cases pose legal questions that demand an answer by way of a judicial decision. They force one to think about the legal question and about the law in question; the legal case provokes the search for a legal answer. If an answer is found, it enriches law and will eventually lead to the development of new legal concepts. Paradoxes, likewise, force us to brood over them. One needs not to be obsessed with riddles to automatically start pondering the *Liar* sentence or an (apparently) consistent proof that heaps do not exist. The bewilderment caused by paradoxes is the driving force that can lead to new insights into logic, philosophy and mathematics. To illustrate this point I shall provide concrete examples of how legal decision-making situations and paradoxes drive the gain of knowledge.

1. Legal Cases as Motors

This feature can be split into three aspects. The first is the case causing a need for a solution. Legal cases are motors because they demand a solution and therefore create a need to search for a criterion. In this sense, the case as a starting point launches the search for a decisive criterion that makes it decidable. The second aspect consists of the decision advancing one possible solution to the legal issue. In this sense, the decisions can be regarded as statements in a discussion favouring one specific solution. The third aspect is the transformation of the solution into law. It rests on the fact that a legal judgment is qualitatively different from a scholarly opinion on a legal problem or a case. Consequently, the decision transforms a solution from the legal theoretical, doctrinal realm into a practical legal solution, and thus from theory into legal practice. Both sample cases effectively show this feature of legal decisions.

Both create the need to look for a solution to the respective legal problem. A purely abstract legal issue (of how to delimit two legal concepts or how to treat contracts in certain situations) becomes vivid and the prohibition of denial of justice deprives the judge of the possibility of ignoring the question. The legal system requires the court to take a position and in this way the cases drive legal thinking. In the *Staschynskij* case it means that a criterion has to be found in order to demarcate two legal concepts (perpetrator/accessory). In the *Spinning Mill* case, the question is one of how contracts are to be treated in the case of a considerable and unexpected decrease in the value of money.

In both cases, the decisions propose a criterion that enables one to draw a distinction and resolve the case. The *Staschynskij* case can be read as one opinion in favour of a subjective distinction between perpetrators and accessories. The *Spinning Mill* case can instead be regarded as a proposal for a different treatment of contracts in the event that the fundamentals of the transaction are disturbed. Even though in both cases the courts did not invent the decisive criterion, they can at least be read as statements in a larger context of doctrinal debate.[53] In this sense, the cases drive the doctrinal debates.

Furthermore, the subjective doctrine of participation and the concept of the foundations of the transaction are tested in concrete cases that serve as practical experiments. Both criteria have to prove their applicability in a concrete case. Because of the concreteness of the judicial decisions and their specific reference to a single situation, the court's contributions are not

53 Cf. *Wolfgang Joecks*, in: Münchener Kommentar zum StGB (2011), § 25 Rn. 9ff.; *Markesinis et al.*, (n. 11), chapter 7.

only general statements about which criterion is more apt to distinguish forms of participation, but also a practical test of the applicability of such criterion. Moreover, both criteria have been transformed into a legal act by a judgment of the highest instance. It means that the *Staschynskij* and the *Spinning Mill* case both develop law in their respective areas since, even though a legal decision is not binding as a statute in civil law countries like Germany, a legal decision still confers a certain authority. In the case of the *Spinning Mill* the advance is especially observable since the juridical concept of the disturbance of the foundation of the transaction, which had been first accepted by the court, was almost a hundred years later transformed into a statute of the German Civil Code (the new § 313 BGB) by the legislature in 2001.[54] Even if the *Spinning Mill* decision did not create the concept, it can still be considered as the foundation of the newly introduced statute, as it was the decision that first elevated a distinction taken from the scholarly debate to the legal system. The legislative acceptance of the foundation doctrine was not a reform in the strict sense, but it rather pinned an already existing legal concept to the Civil Code.[55] The codification of the foundation doctrine was thus merely the end of an evolutionary process that was triggered by the *Spinning Mill* decision.

2. Paradoxes as Motors

Paradoxes, too, drive the development of knowledge in their respective fields. It has already been argued that they uncover false presumptions and even that all paradoxes might just be the symptom of one major flaw in human thinking.[56] Recall the solutions proposed for the *Liar* and the *Sorites* paradox. All the different approaches consist in refining the common understanding of fundamental concepts such as vagueness of predicates, logical inferences and truth. The footnotes in the above review of the *Liar* and the *Sorites* paradox refer only to a small portion of the literature on paradoxes. This can be taken to clearly demonstrate that a huge amount of consideration has been devoted to paradoxes. Hence, the thought-provoking character of paradoxes becomes obvious. Some other paradoxes are not only fructiferous in the sense that they provoke philosophical thought, but also in the sense that they have led to concrete progress being made once they have been resolved.[57]

Consider the paradox of the *Ravens*.[58] It starts with the following hypothesis: (H) "Every raven is black." It is furthermore safe to assume that this hypothesis is confirmed by each of its instances. By confirmed, I mean that every black raven contributes to some small extent to make it reasonable to accept the general hypothesis. That is, each raven that is black confirms the hypothesis that all ravens are black. Moreover, one can analytically derive from the hypothesis that "everything not black is a not a raven" (S).[59] The statement (S) "everything not black is a non-raven" is logically equivalent to the hypothesis (H) "every raven is black". Now, paradox lurks if one observes something harmless like a white rose. The white rose confirms (S) and by analytical equivalence (H) too. This seems odd. Apparently, any non-

54 Gesetz zur Modernisierung des Schuldrechts vom 26. 11. 2001, BGBl. I S. 3138.

55 *Eidenmüller*, (n. 10), 830.

56 *Roy A. Sorensen*, Philosophical Implications of Logical Paradoxes, in: Dale Jacquette (ed.), A Companion to Philosophical Logic (2007), 131f.

57 *Cantini*, (n. 7).

58 *Carl G. Hempel*, Studies in the Logic of Confirmation I, 54 Mind (1945), 1, 11; *Janina Hosiasson-Lindenbaum*, On Confirmation, 5 The Journal of Symbolic Logic (1949), 133, 136.

59 *Hempel*, (n. 58), 11; *Rescher*, (n. 25), 225; *Sainsbury*, (n. 28), 95.

black non-raven can confirm the hypothesis of all ravens being black. On the one hand, the observation of the white rose has nothing to do with black ravens and it is hardly conceivable that a white rose could make it more plausible to assume that every raven is black. On the other hand, the confirmation principle as stated above seems intuitively highly plausible.

The resolution to the paradox of the *Ravens* contains an important lesson about inductive inferences.[60] Its resolution consists in pointing out the role of contextual knowledge. The hypothesis "all ravens are black" can only be falsified by a non-black raven. It can be proven if an examination of all ravens would show that all of them are black. Hence, every black raven confirms to some extent the hypothesis of all ravens being black. Another way to prove the hypothesis would be to examine all non-black things in order to show that there is no raven among them. Every instance of a non-black thing therefore confirms to some extent the hypothesis that all ravens are black. Now we happen to know that there are many more non-black things than ravens.[61] So the easier way to prove that all ravens are black would be to examine all ravens. And therefore every black raven supports our hypothesis to some greater extent than every instance of a non-black non-raven. This difference between the two kinds of supporting evidence (black ravens and non-black non-ravens) results from the additional knowledge that the class of ravens is smaller than the class of non-black non-ravens.[62] The paradox of the *Ravens* is paradoxical only because we already know that there are a zillion non-black non-ravens – so that one further non-black non-raven increases the probability of the hypothesis to a negligibly uninteresting extent.[63] If one only considers the hypothesis (all ravens are black) and the evidence given (a white rose) and ignores the additional knowledge about non-ravens, then the white rose does indeed confirm the hypothesis.[64] The paradox of the *Ravens* shows that inductive inferences are in some way dependent on the context and background information.[65] For sure, the inductive inferences are not free from controversy and the debate about inductive paradoxes continues. The paradox of the raven can, however, be considered as resolved. It has led to concrete progress, since it showed the context dependence of induction.[66] In the case of the paradox of the *Ravens*, Hempel who first stated the paradox also delivered the solution. Sometimes, the discovery of the solution takes more time.

This is the case with the paradox of the race between Achilles and the tortoise attributed to Zeno of Elea:[67] The fleet-footed Achilles and the tortoise compete in a race. The tortoise is given a head start, so that Achilles has to first make up for the additional distance. In the meantime, the tortoise moves forward so that Achilles again has to catch up the distance the tortoise has crawled forward. During that time the tortoise moves on a little bit and again Achilles has to make up for this small distance. Since this process continues infinitely and

60 *Hempel*, (n. 58), 18ff.; *Carl G. Hempel*, A Note on the Paradoxes of Confirmation, 55 Mind (1946), 79; *Sainsbury*, (n. 28), 95f; *Nelson Goodman*, Fact, fiction, and forecast (1965), 70ff.; *Rescher*, (n. 25), 224; *John Vickers*, The Problem of Induction, in: Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/entries/induction-problem/, last access: 25 April 2015.

61 *Rescher*, (n. 25), 226; *Vickers*, (n. 60).

62 *Rescher*, (n. 25), 226.

63 *Vickers*, (n. 60).

64 *Goodman*, (n. 60), 70.

65 *Vickers*, (n. 60).

66 *Vickers*, (n. 60).

67 Entry: „Zenon of Elea", in: William Smith (ed.), A Dictionary of Greek and Roman Biography and Mythology Vol. 3 (1867).

because an infinite number of actions take infinite time, he can never outrun the tortoise. Yet we know that Achilles will most probably win the race and thereby pass the tortoise. Zeno's argument shows that for logical reasons this race is not as easy for Achilles to win as would first appear, because Zeno apparently proves that Achilles can never reach the tortoise's position. It took two thousand years for the flaw in Zeno's reasoning to be pinpointed.[68] Zeno's reasoning is based on the presumption that an infinite number of actions cannot be done in finite time.[69] But, some 2000 years later, it was mathematically understood that an infinite sum can have a finite value if it converges. Contrary to Zeno's belief, the head start of the tortoise does not grow infinitely. In the nineteenth century, the French mathematician Augustin Louis Cauchy demonstrated that infinite sequences can converge to a finite value.[70] The paradox formulated by Zeno therefore exposed a serious misunderstanding of infinite sums and led to the insight that infinite sums can have a finite value. The heuristic value of paradoxes thus becomes particularly obvious in the racetrack paradox. Hence, it is again the same structure that can be found in both legal cases and paradoxes. Both function as epistemic motor by driving the development of knowledge in their respective field.

E. Dynamics

Finally, paradoxes and legal questions share another characteristic: The fact that their paradoxicality can vary over the time and change in degree. Paradoxicality is dynamic. Paradoxes can move along the scale of paradoxicality, becoming less paradoxical once a distinction is introduced and turning from genuine riddles into simply flawed arguments. Exactly the same occurs with legal decision-making situations. They can change from being highly problematic hard cases to easy cases.

1. Dynamics in Paradoxes

Paradoxes were defined above as arguments that lead, by valid reasoning, from acceptable premises, to an unacceptable conclusion. However, the problem is solved if either the premises are shown to be unacceptable, or the reasoning is known to be flawed and thus only apparently valid, or if the conclusion may be only counterintuitive but not unacceptable at all. Then, the paradox is merely an argument that by *apparently* valid reasoning leads from *apparently* acceptable conclusions to *apparently* unacceptable conclusions. Take as an example the following "proof".[71]

Let x=1. Then multiply both sides of the equation by x: x^2=x. Then, subtract 1: x^2-1=x-1 and then (x+1)(x-1)=x-1. Now, divide both sides of the equation by x-1: x+1=x. Consequently, since x=1, one arrives at: 2=1! This apparently consistent proof ceases to problematic once one discovers that it rests on an illicit division by zero (when the equation is divided by x-1 for x=1) that is not defined.

It is this transformation from an unsolvable riddle into a flawed argument that is characteristic of paradoxes. Once a paradox is solved, it ceases to be problematic and loses its paradoxicality. One could even argue that a paradox that has been solved can no longer be called a paradox because not every faulty argument is paradoxical. However, even uncontrover-

68 *Nick Huggett*, Zeno's Paradoxes, in: Stanford Encyclopedia of Philosophy, http://plato.stanford.edu/entries/paradox-zeno/, last visited: 12 June 2014.

69 *Max Black*, Achilles and the Tortoise, 11 Analysis (1951), 91, 94.

70 *Huggett*, (n. 68).

71 *Augustus De Morgan*, A budget of paradoxes Vol. II (1915), 242.

sially resolved paradoxes are still commonly called paradoxes, probably because of their initial paradoxicality and difficulty.[72] Zeno's paradox of the race between Achilles and the tortoise is now easily explicable as it starts from a false premise. However, it has not always been like this. Zeno's paradox caused serious confusion for a long time, up until the complex issue about infinite sums was finally fully understood. The *Achilles and the tortoise* paradox was a real challenge for Zeno and his contemporaries and it continued being like this for the following centuries till modern mathematics eventually resolved the puzzle.[73] Zeno's paradox turned from an intellectual challenge into a flawed argument that no longer poses a real problem. Quine puts it in the following way: "the paradoxes of Zeno must have been, in his day, genuine antinomies. We in our latter-day smugness point to a fallacy: the notion that an infinite succession of intervals must add up to an infinite interval. But surely this was part and parcel of the conceptual scheme of Zeno's day."[74] So, even the hard paradoxes like the *Sorites* and the *Liar* paradox might in future be downgraded to paradoxes of a lesser degree of paradoxicality "give or take a couple of thousand years."[75]

2. Dynamics in Legal Decisions

The same structure can be found in legal decisions. A legal case can pose a legal question that is highly problematic in the sense that more than one solution is possible on legal grounds. The *Staschynskij* and the *Spinning Mill* have shown in what sense legal cases are problematic and that different equally defensible legal solutions are at the judge's disposal. The cases can be decided by the introduction of a distinction and this new distinction reduces their degree of "problematicity". Once the distinction is introduced the cases become decidable and no longer pose a serious problem.

The subjective criterion (the distinction between *animus auctoris* and *animus socii*), for example, allows for the application of the legal notions of perpetrator and accessory. For sure, the same applicability can be generated by a different criterion that draws a different distinction (the objective criterion that takes the factual control over the deed as decisive). The problem is solved, however, as long as there is any criterion to draw a distinction with. By now, the problem can be considered resolved because there is a broad agreement that the distinction between perpetrators and accessories is to be drawn on the basis of both subjective and objective criteria and problems only remain in very specific cases.[76] The overabundance of equally defensible legal answers to a case can come to an end.

The same occurred in the Spinning Mill case. Since the doctrine of the foundations of the transaction was codified, all *Spinning-Mill*-like cases have lost their problematicity. The by-now enriched law provides a fair solution and the conflict has vanished. The *Spinning Mill* case after the codification of the foundation doctrine is exactly like the *Liar* paradox after the introduction of a Tarskian hierarchy of languages. The problem simply ceases to be: the *Liar* is nothing but an ill formed statement and the *Spinning Mill* case has a fair solution.

72 *Sainsbury*, (n. 28), 1f.
73 *Huggett*, (n. 68).
74 *Willard Van Orman Quine*, The ways of paradox, and other essays (1966), 9.
75 *Quine*, (n. 74), 9.
76 *Kudlich*, in: Beckscher Onlinekommentar StGB, 18th ed., § 25, par. 13, 17.

There remains of course the difficult question as to when a paradoxical situation (be it a paradox or a legal case) can be considered resolved. In the case of Zeno's paradox the mathematical innovation of the concept of limit adjusts the mathematical description to the observation that Achilles wins the race. The paradox disappears as soon as the flaw in the argument is found. In the case of legal decision-making situations, it might be less clear. Cases such as *Spinning Mill* are clearly resolved now that the foundation doctrine has been pinned to the Civil Code. Here, the legislative change solves the conflict beyond doubt. However, if there is no explicit legislative answer to a case, it is less clear when the case can be regarded as solved. This is what we see happening in *Staschynskij*-like cases. Here, it is a competition amongst the different doctrinal solutions that decides when the case is solved. The subjective doctrine of the *animus auctoris/animus socii* distinction can only be a solution to the paradoxical openness of the case if it is the sole solution. It must be unique and for some reason better than all the other possible criteria to distinguish between perpetrators and accessories. What makes one solution the better, and therefore the only solution, is a highly problematic question. In current German legal doctrine, however, it is consensus to rely on both subjective and objective criteria at the same time to determine an actor's classification as perpetrator or accessory.[77] Such a consensus may however change, and a legal question that is today unanimously considered resolved could tomorrow break open anew and happen to be paradoxical again. In this sense, it is also conceivable that the paradoxicality of legal cases can also increase.

F. All Legal Cases?

1. Generalisation Argument

So far, it has been shown that legal cases and paradoxes share structural similarities. However, these findings can be carefully generalised. They do not only rest on an anomaly of the *Staschynskij* and the *Spinning Mill* case. On the contrary, *all* cases show the four outlined paradoxical features: undecidability, resolvability by distinctions, epistemic motor and dynamics.

The central axis for this claim is the dynamics argument. It proves that paradoxicality comes in degrees: it is not an all or nothing question, but there can rather be intermediate levels of paradoxicality. Hard cases, to be sure, show the highest level of paradoxicality as they are undecidable on legal grounds and in these cases the characteristic openness of the legal question becomes especially prominent. At the other end of the scale would be the so-called "easy cases". For an example of an easy case, one has to think of the *Spinning Mill* case after the reform of the Civil Code. Previously, the problem arose between the intentional lack of legal means to resolve the now only unilaterally profitable contract and the fairness principle that demanded an adjustment. After the reform, the Civil Code now provides the new criterion of the foundation of the transaction. It allows for the adjustment or resolution of those contracts in which the foundations of the transaction have changed. In the post-reform-situation, the Civil Code contains an answer to the question of whether to resolve or adjust the contract. The answer is yes if the foundations of the transaction have considerably changed. Thus, the epistemic openness of the question seems to have vanished. Just like in the race paradox, the mathematical concept of a limit reveals that Zeno's premise is wrong and there-

77 *Kudlich*, in: Beckscher Onlinekommentar StGB, 18th ed., § 25, par. 13; *Wolfgang Joecks*, in: Münchener Kommentar zum StGB (2011), § 25 par. 32ff.

fore nobody needs to be torn between the logical argument that proves Achilles' impossibility to overtake the tortoise and the practical experience of a tortoise's slowness. Likewise, the question whether or not to adjust or resolve the contract is no longer open – it can be answered legally. Now the *Spinning Mill* case no longer resembles the liar paradox, but rather Zeno's paradox of the race.

However, the problematic openness of the legal question in the easy spinning mill case has not completely vanished. On the contrary, there is always a slight residual element of it that remains, just as Zeno's racetrack paradox still provokes a second of astonishment and requires some minutes of thought to find the solution, despite it being merely a flawed argument. Imagine a similar case involving a sudden and blatant loss of monetary value after the reform of the Civil Code, say *Spinning Mill* case 2.0. The question of whether to adjust or resolve the contract in the new spinning mill case still remains, since it has to be decided whether the present case fulfils the requirements set out by the norm. A similar case to the original that once triggered the foundations of the transaction doctrine certainly falls under the exception that allows the adjustment of the contract. But there is an important constraint to take into account: Even in this easy case, an (admittedly small) residual element of undecidability and openness can still be found. It has to be *decided* whether in this specific case the foundations of the transaction have been shattered; whether this case falls under the norm or not. To be sure, the answer is clear and not problematic, but nevertheless a *decision* is necessary.

2. Systemic Argument: Law's open structure

One reason why there remains a small residual element of the paradoxical features in every single decision-making situation can be found in law's openness to external standards. Most, if not all, legal systems remit to principles and provide for legal means to include those values via various escape routes like general clauses or by conferring the judge discretion to create new rules. The legal system may contain a safety valve for those circumstances.[78] That means that, even in easy cases, one must not forget the possibility that the system might contain a rule-avoidance strategy for special circumstances in which the mechanical application of the rule would contradict the external values the law refers to.[79] Since the principles or other external standards to which the law refers can change at any time, it is reasonable to ask even in the easiest of the cases whether the principles or external standards have changed and now demand a different solution that might conflict with the one provided for by statute. Consequently, easy cases can become hard cases because their solution might only be temporarily plausible; as soon as public ethics change the cases can be highly problematic again. As an example, one has only to bear in mind cases such as the conviction for procuration of parents who allowed a couple, who were engaged to be married, to share a room[80], or the regret of the court that apologised for its duty to convict in a case of adultery even though it felt the legal norms were outdated and wrong.[81] Even if the written statutes in these cases contained an unequivocal answer to a case and they thus appeared to be decidable on statutory grounds, a conflict with the requirements of principles to which the statutes refer arose because public morality had changed. Before the change of public opinion regarding unmar-

78 *Brian Bix*, Law, language, and legal determinacy (1993), 67.
79 *Frederick Schauer*, Formalism, 97 The Yale Law Journal (1988), 509, 515ff.
80 BGH, Urteil vom 9. März 1962, 4 StR 527/61 = NJW 1962, 1403.
81 LG Frankenthal, Urteil vom 6. März 1968, 5 Ms 9/67 = NJW 1968, 1685.

ried couples (when it was still inconceivable for an unmarried couple to share a room), such cases would have clearly counted as easy cases. If the statutes reference standards like generally held values (fairness, common conventions and morals) then these principles depend on public morality and can consequently change. The commonly held principles can change in such way that they are no longer in line with the solution provided for by the statutes. Thus, an apparently already decided case can turn out to be difficult and show the same high-grade paradoxical features that could be observed in the examples of the *Staschynskij* and the original *Spinning Mill* case.

Exactly because there is always the possibility of a conflict with legal unwritten principles or external standards the law might remit to, the answer of an easy legal question always includes a new *negative judgment* that there is no conflict with a generally held legal principle or other external value. It is this value judgment that makes for the residual undecidability of the legal question. Hence it is valid to talk about undecidability here because the question whether an exception is to be made or not or whether the rule avoiding strategies of the legal system are to be applied cannot be regulated by law itself. The legal system itself cannot provide the criteria for which cases the safety valves have to be used: they have to come from outwith the written law each time anew.

3. Mind the Gap

There is also a more general philosophical reason why every application of a norm contains a moment of openness, viz. the characteristic undecidability. Even in a legal system without "safety valves" there always remains a gap between the rule and its application to a concrete case to the effect that every rule application is inevitably haunted by a moment of openness. There are different philosophical conceptualisations of this problem. Kant defines the power of judgement as the faculty of thinking the particular as contained under the universal. He dedicates the Critique of the Power of Judgement to the complex cognition which is taking place when subsuming facts under rules and stresses the propositional function of a judgement over its inferential role.

A very forceful formulation of the gap between the rule and its application can be found in the writings of Ludwig Wittgenstein. He says in his Philosophical Investigations: "What has the expression of a rule – say a signpost – to do with my actions?"[82] Even though it is a highly contested issue what position Wittgenstein himself takes,[83] he nevertheless expresses the powerful thought that there is a difference between the rule and its application to a concrete case. Indeed, there is no fact of the matter in the symbol "←" itself that makes it point to the right or to the left. Thus, the distinction between a rule and the instances of its application seems to be highly plausible. Moreover, there seems to be a gap between the general rule and the concrete instances of its application since nothing in the rule connects the rule with its application.

82 *Ludwig Wittgenstein*, Philosophische Untersuchungen [1953] (2010), § 198.

83 Cf. *Saul A. Kripke*, Wittgenstein on rules and private language: an elementary exposition (1982).

This view has been contested by Peter Hacker and Gordon Baker.[84] According to their opinion "nothing can be inserted between a rule and its application as mortar is inserted between two bricks".[85] They argue that a rule and what accords with it are internally related and that the act of understanding a rule and determining what accords with the rule cannot be separated.[86] Referring to the famous Wittgensteinian example of the rule "+2" that constitutes the series of even integers: 2, 4, 6 … , 998, 1000 they assert:

> *The rule '+2' for forming the series of even integers would not be the rule it is if '1002' were not the correct answer to the question 'What is the result of applying the rule +2 to the integer 1000?'*[87]

In the realm of mathematics, Baker and Hacker are certainly right. One would have misunderstood the rule if the answer were not 1002.[88] The rule +2 seems to be an abbreviation that already contains this concrete application. However, the objection is no longer convincing if one abandons the field of logic and mathematical precision and turns to law. The scepticism formulated by Wittgenstein reappears if one wants to apply a legal rule to a concrete fact situation. As put by Herbert Hart:

> *Particular fact situations do no await us already marked off from each other, and labelled as instances of the general rule, the application of which is in question; nor can the rule itself step forward to claim its instances.*[89]

When a rule is applied to a particular fact situation, it is never a safe logical inference from the rule to its instance nor is it a matter of ontological identity. To take up the famous example of the Hart/Fuller debate, imagine someone wants to drive a car through a public park under a rule that forbids vehicles in the park.[90] Even though the specific car[91] certainly falls in the core of the vehicle rule, this conclusion is never automatic. It is neither a relation of identity between the car and the general rule prohibiting vehicles, nor is it a safe logical inference that enables us to subsume the individual car under the no vehicles rule. The certainty of a logical inference, or an ontological identity can never be reached when bridging the gap between the factual and the conceptual in law. In this sense, every application of legal norms has to deal with the problem that the accord of the facts with the concepts is never fully certain. There must rather be something mediating between the concrete instances of rule following and the general rule.[92] Philosophers have provided different accounts of what it is that mediates between the general rule and its application in each instance. Whatever it may be that makes some cases easy, the interesting point is that the question of accordance never

84 *Gordon P. Baker & Peter Michael Stephan Hacker*, Wittgenstein, rules, grammar, and necessity (1985). Chapter III; *Gordon Baker & Peter Michael Stephan Hacker*, Malcolm on Language and Rules, in: Peter Michael Stephan Hacker (ed.), Wittgenstein: Connections and Controversies (2001), 310, 310ff.

85 *Baker & Hacker*, (n. 84), 91.

86 *Gordon P. Baker & Paul M. S. Hacker*, Scepticism, rules and language (1984), 96.

87 *Baker & Hacker*, (n. 84), 311; see also *Baker & Hacker*, (n. 84), 89f. (96).

88 *Baker & Hacker*, (n. 84), 89f.

89 *Herbert Lionel Adolphus Hart*, The Concept of Law (1994), 126.

90 Cf. *Herbert Lionel Adolphus Hart*, Positivism and the Separation of Law and Morals, 71 Harvard Law Review (1958), 593, 607; *Lon F. Fuller*, Positivism and Fidelity to Law: A Reply to Professor Hart, 71 Harvard Law Review (1958), 630, 669.

91 E.g. a white Fiat Cinquecento, license plate OF – A 569.

92 *Norman Malcolm*, Wittgenstein on Language and Rules, 64 Philosophy (1989), 5, 7; *Dennis Michael Patterson*, Law's Pragmatism: Law as a Practice & Narrative, 76 Virginia Law Review (1990), 937, 955.

fully disappears, showing that even easy cases share the same structure with paradoxes. Thus, the difference between the facts of a concrete case and the legal concepts will always give rise to the question of whether the facts fall under the legal concepts or not. The question arises inevitably in every application of legal rules, since the ascertainment of the accordance of facts with legal concepts is never an automatic process. Hence, the characteristic openness appears to a small extent even in easy cases in which the law already provides an answer. This, however, does not mean that law is radically indeterminate. On the contrary, easy cases nevertheless do exist and law can be determinate at least in those cases. In some cases, the legal question can be answered. This shows that the interesting question is not so much about hard cases, but about what makes easy cases easy.

So far, I have mainly focussed on the undecidability feature, but also the other similarities can be found in easy cases. Easy cases show all of the four characteristics, but to such a small extent that they do not pose a problem anymore. As to the feature of undecidability, one finds a certain (small) remainder of undecidability even in easy cases, since the gap between the factual and the conceptual cannot be bridged with logical certainty. The legal question as to whether or not to apply a legal concept is resolved by a distinction: the specific case is distinguished from those cases that do (not) fall under the legal concept and this in turn enriches legal knowledge to a certain, admittedly small, extent. And finally, the paradoxicality of easy cases is dynamic as it can increase and easy cases can turn into hard cases as the examples of public morality show. In this sense, some cases resemble the liar paradox and other cases resemble Zeno's race paradox: They are structurally identical, but the level of problematicity changes. One could describe this correlation adapting Quine's words ("catastrophe may lurk […] in the most innocent paradox"[93]) to legal cases: paradox lurks in the most innocent looking case.

G. Similarity vs. Identity

Thus far, I have only claimed that legal decision-making situations and paradoxes share these features. From this, it does not follow that legal decision situations are paradoxes themselves in the sense that decision-making situations are a subclass of paradoxes. Legal decision-making situations are not paradoxes, because legal cases are neither arguments nor statements. Paradoxes, on the other hand, are not rooted in social conflicts. However, the circumstance that one has to decide upon a social fact constellation by legal means produces the same problem as a paradox. Consequently, legal decision-making situations are paradoxical in the sense that they pose the same problem as paradoxes.

The four described features characterize the problem posed by a paradox. What makes a paradox problematic and interesting is the situation of epistemic openness that I have called undecidability. The situation of being torn between an (apparently) valid reasoning and (apparently) acceptable premises on the one hand and the absurd conclusion on the other hand can be found in all the paradoxes analysed so far and this is precisely what makes a paradox problematic. This problem is further characterized by its resolvability through the introduction of a new distinction and the fact that it is dynamic as its problematicity can vary in its degree. The analysis of paradoxes has revealed that this is specific to paradoxes. Furthermore, all the discussed paradoxes have different degrees of problematicity and sometimes their problematicity has changed over time.

93 *Quine*, (n. 74), 1.

Exactly the same problem occurs in legal decision-making situations, which are characterized by the same features. The undecidability on legal grounds, the need to introduce new distinctions to solve cases and the fact that legal problems can vary in their problematicity describe the problem of a legal decision-making situation. Legal cases are problematic because of the epistemically open situation of undecidability on legal grounds. This problem has the same qualification as in the case of the paradoxes because it can also be resolved by the introduction of a new distinction and it also varies in its degree of problematicity.

These features (undecidability, resolvability by the introduction of a new distinction and dynamics) describe the problem posed by a paradox and the very same features characterize the problem of a legal decision-making situation. The property of working as a motor by driving the gain of knowledge is then an after-effect of the problem that can be found in both legal cases and paradoxes. Thus, the similarity concerns an important point of connection between paradoxes and legal decision-making situations. Both produce the same type of problem that is described by the four characteristics that have been detected in cases and in paradoxes. In short, the problems posed by paradoxes and legal cases are structurally identical. This insight deepens the knowledge about the structure of the decision-making problem in law. The consequences of the above findings will be specified in the following part.

III. Consequences

The discovery of paradoxophilia is not meant as an excellent way to frighten law students and to cause 'paradoxophobia'. On the contrary, it is useful in the sense that it has some consequences for the understanding of law in general and legal methodology in particular. Firstly, it shows that law is necessarily incomplete. Secondly, it shows that legal methodologies work as importers of external criteria into law and thus opens up a perspective under which legal methodologies can be assessed.

A. Gödelian Incompleteness

The discovery of the paradoxical structure in legal decision-making situations leads to a shift in the theoretical perspective. In the light of the paradox, the problem of legal decision-making situations presents itself differently. The structural analysis unveiled that the paradoxical problem of legal cases are resolved through the introduction of a new distinction. Moreover, the case-deciding criteria have for general reasons to be *external* criteria taken from outwith the written law. This does not mean that those external criteria are not legal criteria. It shows that a pure positivistic legal system is impossible. The problem does, however not disappear if one looks at cases in which the problem consists in conflicting legal principles. In this situation, too, a new criterion is needed to decide the clash of incommensurable principles. This becomes obvious in hard cases, because in hard cases law does not provide the needed criteria for a distinction and it is especially in those cases where a legal methodology is needed. However, even in easy cases the law depends on freshly generated criteria as has been shown in the generalisation argument. Then, too, a criterion is needed in order to classify a fact situation as an instance of a rule and thus to distinguish it from other fact situations. The decisive criterion for assessing the correspondence of a particular factual situation with a legal provision cannot be provided by only positive law itself. Thus, law seems to be necessarily incomplete and always in need of and open to external completion in order to be applied. One could even consider this as a translation of the Gödelian incompleteness theo-

rem from formal systems into legal systems.[94] The paradoxicality shows the inherent limitations of law and explains why a self-contained and self-sufficient legal system is not possible. All legal orders are equally incomplete or open for conceptual reasons. This renders efforts to prove the "self-sufficiency" of legal orders pointless.[95]

B. Assessing Legal Methodologies

The insight into the structure of the legal decision-making problem also explains something about legal methodologies. If legal methodologies are supposed to guide the decision-making and decision-making is paradoxical then legal methodologies must provide answers on how to deal with it. The doctrines of how to resolve cases must consequently allow for a sort of *paradoxicality-management*. Because the solution to the paradoxical problem is the introduction of an external criterion into law in order to draw a new distinction, a methodology has to work as an importer of external criteria in order to be successful. Consequently, the success and the usefulness of a legal methodology can be judged by the extent to which it generates reliable criteria. Some methodological doctrines are generators of reliable criteria, whereas other methodologies fail in that respect. The latter do not provide the needed guidance in the decision-making situation and are therefore weak. They diminish legal determinacy instead of increasing it and are thus open for political abuse.[96] The more concrete and the more verifiable the criteria, the easier the doctrine is to apply and the better it fulfils its purpose. This can be shown by the help of the following examples.

1. The Canons of Interpretation

In statutory law, the famous canons of interpretation are the most basic techniques of how to overcome the undecidability problem in legal cases. Nowadays, the most widely accepted canons comprise of: Grammatical interpretation; historical interpretation; systematical interpretation; and teleological interpretation.

Grammatical interpretation draws the interpreter's attention to the words and the grammar of the statute.[97] As law is a textual enterprise and statutes come in words and sentences, it is barely a new insight that the meanings of words and grammatical rules need to be taken into account in the first place. Consequently, a focus on the wording can contribute hardly to the resolution of any case. One of the main arguments developed above states exactly that criteria from outwith written law are needed, which cannot be provided by a method that only focuses on the words of statute itself. Therefore, the grammatical element of interpretation is the necessary starting point for every rule application but it cannot work as the generator of the distinctive new criterion for the undecidability problem.

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94 *Kurt Gödel*, Über formal unentscheidbare Sätze der „Principia Mathematica" und verwandter Systeme I, 38 Monatshefte für Mathematik und Physik (1931), 173, shows how one can construct a *Liar* sentence for each formal system and proves thus that every formal system contains true statements that are undecidable within the system.

95 E.g. the research carried out by *Hans-Wolfgang Micklitz* and *Yane Svetiev* funded by the European Research Council. He tries to show that a "self sufficient european private law" is emerging, Micklitz, EUI Working Paper 2012/31, p. 5; see also *Marta Cantero Gamito*, ibd. p. 165.

96 *Andreas Fischer-Lescano & Ralph Christensen*, Auctoritatis interpositio. Die Dekonstruktion des Dezisionismus durch die Systemtheorie, Der Staat (2005) 213, 235.

97 Cf. *Klaus F. Röhl & Hans Christian Röhl,* Allgemeine Rechtslehre: ein Lehrbuch (2010), 613f.; *Joachim Rückert & Ralf Seinecke*, Zwölf Methodenregeln für den Ernstfall, in: Joachim Rückert & Ralf Seinecke (eds.), Methodik des Zivilrechts – von Savigny bis Teubner, (2012), par. 47f.

The historical element, by contrast, can connect to something outwith the statute that serves as a concrete criterion to draw the decisive distinctions in legal cases. It takes into account two different aspects: On the one hand it points to the preparatory legislative materials, which document the process of the genesis of the norm[98]; on the other hand, it focuses on the previous status of the regulated matter. Through these means, the historical element aims at finding the reason why a legislator adopted a certain rule. This reason can then be the decisive criterion for distinguishing interpretations and applications of the rule that fit with the legislator's reason from those applications that are not comprised by the historical findings. Hence, a decision can be reached and the historical perspective provides a criterion to decide in favour of one application and against another.

The systematical element, too, can be a powerful criterion that ends the undecidability. It asks the judge to look at the system of a legal order and give preference to the application that allows for the highest degree of coherence within that legal order.[99] From more than one possible norm application, the most coherent understanding has to be chosen for the sake of consistency, be it in regard to the formal structure of the respective codification or to the value judgements made in it. The systematical interpretation method thus offers a criterion for distinguishing between systematically fitting rule interpretations and other non-systematic understandings. Of these, the "systematic" interpretations are to be preferred because of the overriding value of coherence.

The teleological method reasons along the lines of the purpose of a given statute. The purpose serves as a criterion to discern rule applications that advance the intention of the rule from applications that run counter to the rule's *raison d'être*. This might seem to be very intuitive, but the criterion provided by the teleological method is not clear-cut. The purpose of the statute may be a very general formulation. It can, however, be sufficiently specified by resorting to the aforementioned methods in order to avoid the problem that any value could be taken as the decisive purpose.[100] Otherwise, it would not guide the rule application process, but would instead increase the indeterminacy if it allowed for the introduction of any purpose, even one that runs contrary to the wording of the statute.

To sum up, the canons can only serve as case solving techniques to the extent they provide extra-legal criteria to treat the undecidability problem. In light of the paradoxical problem of the legal decision-making situation one can understand them more profoundly and measure their efficacy.

2. Economic Analysis of Law

The economic analysis of law is a similar technique. It can also serve as a criteria generator. The economic analysis of law is a form of consequentialism that analyses the economic efficiency of the outcomes of legal norms.[101] It focuses on the allocation of wealth in the society and thus offers a measurable criterion that enables a comparison of the results of legal decisions. The Kaldor-Hicks efficiency denominates transactions as efficient if they produce enough surplus to compensate individuals who are harmed by the transaction.[102] This can serve as a criterion to distinguish between efficient rule applications and non-efficient rule-

98 Cf. *Röhl & Röhl*, (n. 97), 619; *Rückert & Seinecke*, (n. 97), par. 52f.
99 Cf. *Röhl & Röhl*, (n. 97), 622.
100 *Rückert & Seinecke*, (n. 97), par. 57.
101 Cf. *Richard A. Posner*, Economic analysis of law (2007), 24ff.
102 *Posner*, (n. 97), 13.

applications whereof the efficient solution is to be preferred. The economic analysis of law thus offers a concrete and objectively measurable criterion that makes different norm applications commensurable. This particularly tangible criterion explains the extraordinary success of the economic analysis of law movement.

3. Methodological Doctrines

While the application of the above-presented case solving techniques is limited to some specific types of legal decision-making situations, such as statute interpretation (in the case of the canons) or economically quantifiable matters (in case of the economic analysis of law), there are also more complete doctrines that cover the whole process of legal decision-making for all cases. The observation to be made here is that these methodological approaches, too, work as generators of extra-legal criteria to solve the undecidability problem. Instead of advancing one single criterion like coherence (systematical interpretation) or efficiency (economic analysis), some doctrines rather offer a general procedure on how to determine the decisive criterion. This can be shown with the help of two very influential methodological doctrines developed by Robert Alexy and Josef Esser.[103] Esser analyses the role the judge's predisposition plays when he is about to choose the method to decide upon a case. He translates the hermeneutic circle onto the process of legal decision making by stating that the judge chooses the method to decide a case according to his previous understanding of the facts of the case, which is in turn based on his understanding of the law on the matter and the underlying values of law he has absorbed.[104] He argues that the judge attempts to find a "fair and reasonable"[105] solution to cases and therefore orients himself towards what would be regarded as just by the community.[106] The guiding principle is therefore the horizon of expectations (Erwartungshorizont) of the societal groups that the judge anticipates when understanding the norm in the light of the facts.[107]

Alexy's theory of legal argumentation works in a similar way. In the footsteps of Habermas' discourse theory,[108] he regards discourse as a test for the truth of statements.[109] For Alexy, legal discourse is a special type of discourse.[110] Discourses need to obey certain rules that guarantee the rationality of the procedure to a certain extent.[111] For legal discourse, he proposes rules that take into account a variety of aspects (the canons of interpretation, dogmatics, precedents etc.).[112] Hence, it is the procedure of legal discourse to which Alexy entrusts the task of producing the distinctive criteria in order to end the undecidability problem.

103 It must be noted again that the following rudimentary remarks do not even try to do justice to both theories. The aim is rather to expose the structure of the doctrines and point to possible ways of critique.

104 *Esser*, Vorverständnis und Methodenwahl in der Rechtsfindung (1972), 22–25, 144.

105 *Esser*, (n. 104), 24 (English in the original).

106 *Esser*, (n. 104), 25. Cf. *Prott*, Updating the Judicial „Hunch": Esser's Concept of Judicial Predisposition, The American Journal of Comparative Law Vol. 26 (1978), 461, 465.

107 *Esser*, Vorverständnis und Methodenwahl in der Rechtsfindung (1972), 140.

108 *Alexy* builds on *Habermas*, Wahrheitstheorien, in: Fahrenbach (ed.), Wirklichkeit und Reflexion. Walter Schulz zum 60. Geburtstag (1973), 211.

109 *Alexy*, A theory of legal argumentation (1989), 179.

110 *Alexy*, (n. 109), 211ff.

111 *Alexy*, (n. 109), 179.

112 *Alexy*, (n. 109), 231ff.

For methodological doctrines, the critical question is whether the procedures they propose can fulfil the task of being a generator of new legal criteria. They succeed in their task if they can reliably deliver concrete and clear-cut criteria. In that case, they prove to be more than vague standards and empty formulae. Vague standards and empty formulae do not fulfil the function of guiding the decision-making process with a concrete criterion, but they also increase the danger of political abuse. The paradoxicality in legal decision-making is at first glance a merely theoretical insight into how the problem of legal cases is structured. It has, however, a practical relevance, reminding us that the choice of the external criteria-generator is genuinely political. This in turn, is a perspective under which legal methodologies can be assessed.

IV. Conclusion

Despite the whispering and groaning that surrounds the subject of paradoxes – whether in the general sense or the legal – this article has argued that the connection between law and paradoxes is not quite so inexplicable as many other things that go bump in the night. Some authors talking about paradoxes in the legal context tend to obscurity in their descriptions of paradoxicality in law, be it because they want to induce paradoxophobia or because they try to speak about something that cannot be spoken about (so easily). However, from the particular perspective taken here, the paradoxologists' intuition proves to be correct in a surprisingly different sense.

An analytical comparison between paradoxes and legal decision-making situations has shown that both pose structurally identical problems. Both share the characteristic openness (undecidability) and both can be resolved by the introduction of a distinction. The paradoxes' and legal decision-making situations' problematicity can move along a scale from easy cases at the one end to hard cases on the other. Finally, both legal cases and paradoxes work as motors as they drive progress in their particular field of knowledge.

Given the scope of this article, the consequences of these findings could only be outlined preliminarily. However, they seem to have some explanatory power. The *generalisation argument* and the *dynamics argument* account for the inherent incompleteness of every legal system. Legal decision-making does never exclusively rest on legal grounds. Furthermore, if legal methodologies are the tool to solve the legal decision-making problem then the insight into the structure of the problem helps to understand how the tool needs to be designed. In order to function well, the tool (legal methodology) needs to provide the distinctive criterion that will solve the paradox-like situation of openness in legal decision-making situations. This insight into the structure of the decision-making problem also explains something solid about legal methodologies that can now better be assessed.