



Neutral Citation [2020] EWHC 2412 (Pat)

**IN THE HIGH COURT OF JUSTICE
BUSINESS AND PROPERTY COURTS OF ENGLAND AND WALES
PATENTS COURT (ChD)**

On appeal from the decision of Huw Jones (Deputy Director, acting for the Comptroller of the United Kingdom Intellectual Property Office) dated 4 December 2019

Sitting remotely at:
The Royal Courts of Justice
Rolls Building
Fetter Lane
London EC4A 1NL

Date: 21 September 2020

UKIPO Decision: BL O/741/19
Appeal No: CH-2019-000339

Before:

THE HONOURABLE MR JUSTICE MARCUS SMITH

BETWEEN:

STEPHEN L THALER

Appellant
(Applicant in the proceedings below)

-and-

THE COMPTROLLER-GENERAL OF PATENTS, DESIGNS AND TRADE MARKS

Respondent
(Respondent in the proceedings below)

Mr Robert Jehan (of **Williams Powell Patent Attorneys**) and **Professor Ryan Abbott**
(instructed by **Williams Powell Patent Attorneys**) for the Appellant

Dr Stuart Baran (instructed by the **Treasury Solicitor**) for the Respondent

Hearing date: 15 July 2020

Approved Judgment

I direct that pursuant to CPR PD 39A para 6.1 no official shorthand note shall be taken of this Judgment and that copies of this version as handed down may be treated as authentic.

Mr Justice Marcus Smith:

A. INTRODUCTION

(1) The patent applications

1. On 17 October 2018 and 7 November 2018 respectively, the Appellant filed two patent applications – GB1816909.4 and GB1818161.0 – in his own name, Stephen Thaler (the **Applications**). Although the Applications are separate and distinct patent applications, the process of their application has been handled concurrently and there is no purpose, in the context of this appeal, in differentiating between them. The documents in the Applications referred to in this judgment are, in all material respects, the same in each.
2. The Request for Grant forms (Patent Form 1) accompanying the Applications stated that Dr Thaler was not an inventor of the inventions specified in the Applications. That, in itself, is not surprising. Although an inventor may, of course, make an application for a patent, patents, patent applications and the right to apply for a patent are all transferable (amongst other provisions) under section 30 of the Patents Act 1977.
3. In this case, Dr Thaler was notified by two letters (respectively dated 19 November 2018 and 27 November 2018) from the Intellectual Property Office (**IPO**) that he would need to file a statement of inventorship and of right of grant to a patent (Patent Form 7) within 16 months of the filing date. These are requirements pursuant to section 13 of the Patents Act 1977, a provision that I shall be returning to.
4. Dr Thaler filed statements of inventorship on separate Patent Form 7s for both Applications on 23 July 2019. The Patent Form 7s and a letter that accompanied it stated that the inventor was an artificial intelligence machine called **DABUS** and that Dr Thaler had acquired the right to grant of the patents in question by “ownership of the creativity machine DABUS”.

(2) The basis for the Applications by Dr Thaler

5. It is important that I set out precisely what the Form 7s said in relation to DABUS:¹

“A machine called “DABUS” conceived of the present invention

The invention disclosed and claimed in this British patent application was generated by a specific machine called “DABUS”, which is a type of “Creativity Machine”. A Creativity Machine is a particular type of connectionist artificial intelligence. Such systems contain a first artificial neural network, made up of a series of smaller neural networks, that has been trained with general information from various knowledge domains. This first network generates novel ideas in response to self-perturbations of connection weights between neurons and component neural nets therein. A second “critic” artificial neural network monitors the first neural network for new ideas and identifies those ideas that are sufficiently novel compared to the machine’s pre-existing knowledge base. The critic net also generates an effective response that in turn injects/retracts perturbations to selectively form and ripen ideas having the most novelty, utility, or value.

¹ Emphases as in original. Footnotes omitted.

In the case of the present invention, the machine only received training in general knowledge in the field and proceeded to independently conceive of the invention and to identify it as novel and salient. If the teaching had been given to a person, that person would meet inventorship criteria as inventor.

In some instances of machine invention, a natural person might qualify as an inventor by virtue of having exhibited inventive skill in developing a program to solve a particular problem, or by skillfully selecting data to provide to a machine, or by identifying the output of a machine as inventive. However, in the present case, DABUS was not created to solve any particular problem, was not trained on any special data relevant to the present invention, and the machine rather than a person identified the novelty and salience of the present invention.

A detailed description of how DABUS and a Creativity Machine functions is available in, among others, the following US patent publications: 5,659,666; 7,454,388 B2; and 2015/0379394 A1.

Inventorship should not be restricted to natural persons. A machine which would meet inventorship criteria if a natural person should also qualify as an inventor.

Neither the Patents Act 1977 nor the European Patent Convention explicitly prohibits protection for autonomous machine inventions.

Inventorship is directed to natural persons under British and EPO practice, intended to prevent company inventorship. It was not the result of seriously considering autonomous machine invention and should not therefore prohibit subsistence of intellectual property rights where there is no natural person who qualifies as an inventor.

The output of autonomously inventive machines should be patentable if it meets the requirements of patentability set out in law. The primary purpose of patent law is to incentivize innovation, together with incentivizing the disclosure of information, and the commercialization and development of inventions. Allowing patents for machine outputs incentivizes the development of inventive machines, which ultimately promotes innovation. To the extent that patents are incentivizing commercialization and disclosure of information, there is no change in this function as between a human and a machine generated invention. Failure to permit patent protection for the output of autonomously inventive machines threatens to undermine the patent system by failing to encourage the production of socially valuable inventions. This will be particularly important as artificial intelligence becomes more sophisticated and likely a standard part of industrial research and development. Clarifying now that patents are available for the output of autonomously inventive machines would provide certainty to industry and innovators.

Patent law also protects the moral rights of human inventors and acknowledging machines as inventors would facilitate this function. At present, individuals are claiming inventorship of autonomous machine inventions under circumstances in which those persons have not functioned as inventors. This is fundamentally wrong and it weakens moral justifications for patents by allowing individuals to take credit for the work of machines. It is not unfair to machines who have no interest in being acknowledged, but it is unfair to other human inventors because it devalues their accomplishments by altering and diminishing the meaning of inventorship. This could equate the hard work of creative geniuses with those simply asking a machine to solve a problem or submitting a machine's output. By contrast, acknowledging machines as inventors would also acknowledge the work of a machine's creators.

An "autonomous machine invention" should be assigned to the owner of the machine.

Machines should not own patents. They do not have legal personality or independent rights, and cannot own property.

The machine's owner should be the default owner of any intellectual property it produces and any benefits that would otherwise subsist in a natural person owner. This is most consistent with current ownership norms surrounding personal property (including both machines and patents).

In the present application, we submit that DABUS should be acknowledged as the inventor of any resultant patents, with Stephen Thaler, the machine's owner, as the assignee of any such patents.

If a machine cannot be an inventor, the first person to recognize the inventive nature of autonomous machine input may qualify as an inventor.

It has been argued that a natural person may claim inventorship of an autonomous machine invention even where that person was not involved in the development or operation of a machine by virtue of recognizing the relevance of a machine's output. This approach is questionable in cases where the natural person has not made an inventive contribution to the disclosed invention in the accepted meaning of the term.

In some cases, recognition of the inventive nature of a computer's output may require significant skill, but in others, the nature of inventive output may be obvious. In the present case, DABUS identified the novelty of its own idea before a natural person did."

6. Clearly, this is a far from usual Patent Form 7. It is important that some preliminary points be made:
 - (1) First, the Patent Form 7 contains a number of factual assertions regarding DABUS, its capabilities and its role in the inventions specified in the Applications. None of these factual assertions has been tested in these proceedings. I proceed on the assumption – as has everyone in these proceedings – that these factual assertions are true. However, I should stress that I am making an assumption in Dr Thaler's favour, not a finding.
 - (2) Secondly – and this is in no sense a criticism – the Patent Form 7 contains far more argument than would normally be expected. That is because of the novel nature of these Applications. The argument set out in the Patent Form 7 was that which was pursued before me on appeal. Essentially:
 - (a) Inventorship was not confined to natural persons. A non-natural person or something not a person at all, whether natural or legal, i.e. a thing, could be the "inventor" of an invention.
 - (b) It is important to understand that it was not being contended by Dr Thaler that DABUS had legal personality. Indeed, the Patent Form 7 asserted an absence of legal personality on the part of DABUS and the Applications were not in the name of DABUS but in the name of Dr Thaler.
 - (c) Thus, what was being contended for was an extremely wide definition of an "inventor", but without seeking to stretch or rearticulate the conventional limits of the law of persons.

- (d) Assuming this wide definition of “inventor” to be correct, an immediate paradox opened itself: it becomes possible for an “inventor”, if not also a person, to be incapable of owning or applying for a patent and equally incapable of transferring such rights to another. The question therefore arose as to how rights that might otherwise vest in the “inventor” could vest in someone other than the “inventor”. The Patent Form 7 contended that the answer to this paradox was that the rights to an invention of an inventor who was not a person vested in the owner of that inventor.

It is thus apparent that the Applications raised fundamental points regarding artificial intelligence and the Patents Act 1977.

(3) The IPO’s response and the Decision

7. The IPO responded to these contentions on the part of Dr Thaler to say that the naming of a machine as inventor did not meet the requirements of the Patents Act 1977 and that a person – meaning a natural person and not merely a legal person – must be identified as the inventor. Furthermore, the IPO was not satisfied as to the manner in which Dr Thaler acquired rights that would otherwise vest in the inventor and required Dr Thaler to state how he derived the right to the grant of the patent from the inventor. The IPO thus recognised, correctly, that Dr Thaler was not asserting that he was the inventor.
8. Dr Thaler was not satisfied with this response and requested a hearing on the matter. A hearing took place before Mr Huw Jones, acting for the Comptroller. Mr Jones identified three issues that arose for decision out of the Applications:²
- (1) Can a non-human inventor be regarded as an inventor under the Patents Act 1977?
 - (2) In what way has the right to the grant of a patent, which rests primarily with the inventor or actual deviser of the invention, been transferred to Dr Thaler? Or, if it has not been transferred, is Dr Thaler entitled to apply for a patent in preference to DABUS simply because Dr Thaler is the owner of DABUS?
 - (3) If the answer to these questions is “No”, then at what point can the applications be treated as withdrawn?
9. In his decision (the **Decision**), Mr Jones determined that:
- (1) Because DABUS was a machine, and not a natural person, it could not be regarded as an inventor for the purposes of the Patents Act 1977.³
 - (2) There could be no transfer of DABUS’ rights to Dr Thaler. On one level, that is an inevitable consequence of Mr Jones’ first determination that DABUS was not a person and, so, not an inventor: DABUS could own nothing capable of being

² Decision at [8].

³ Decision at [20].

transferred. However, Mr Jones went on to determine that DABUS had no power to assign any rights it might have:⁴

“...DABUS, as a machine, cannot own intellectual property, which in this case would be the two patent applications in question. This appears problematic for [Dr Thaler] because DABUS has no rights to its inventions and cannot enter into any contract to assign its right to apply for a patent to [Dr Thaler]....”

It was thus impossible see how any rights in the Applications could have been derived by or transferred to Dr Thaler.⁵ As I have noted, Dr Thaler was not contending for any capacity in DABUS to effect a transfer of property, first because DABUS lacked the capacity to own and secondly because DABUS also lacked the capacity to transfer. Dr Thaler was effectively contending that the rights of an inventor lacking personality vested in the owner of that inventor. Thus, to this extent, the Decision was in line with the submissions being advanced by Dr Thaler.

- (3) Dr Thaler was not entitled to the grant of a patent as the owner of DABUS. As I have noted, Dr Thaler contended that whilst DABUS was the inventor for the purpose of the Applications, Dr Thaler derived the right to apply for the grant of a patent in the case of each application by virtue of his ownership of DABUS:⁶

“[Dr Thaler] indicates that he acquired the rights to the patent by virtue of ownership of the inventor and is therefore the successor in title to the inventor...There appears to be no law that allows for the transfer of ownership of the invention from the inventor to the owner in this case, as the inventor itself cannot hold property.”

- (4) In light of these determinations, the Applications should be taken to be withdrawn at the expiry of the 16 month period specified by Rules 10(3) of the Patents Rules 2007.⁷

(4) This appeal and the structure of this judgment

10. Dr Thaler seeks to appeal the Decision on various grounds. The grounds of appeal are diffuse and unnumbered. I propose to consider them under the following heads and in the following order:

- (1) Dr Thaler contended that Mr Jones had prejudged the outcome of the Decision and that, in effect, Dr Thaler did not receive an impartial hearing. I consider this ground of appeal in Section B below.
- (2) Dr Thaler contended that Mr Jones had misdirected himself in his approach to construing the relevant legislation. This ground of appeal is considered in Section C below.

⁴ Decision at [21].

⁵ Decision at [21].

⁶ Decision at [23].

⁷ Decision at [27].

- (3) Dr Thaler articulated various grounds of appeal relating to section 13 of the Patents Act 1977, in effect contending that this section had been used as an illegitimate means of denying Dr Thaler a right, under the 1977 Act, that he would otherwise have. These grounds are closely related, and for that reason are considered together in Section D below.
11. There was no appeal in relation to Mr Jones' holding as to when the Applications should be deemed withdrawn under the Patents Act 1977. Of course, Dr Thaler contended that Mr Jones had erred in reaching this conclusion but, if Mr Jones was correct in his other holdings, Dr Thaler took no issue in relation to this part of the Decision and for that reason I consider it no further myself.

B. PREJUDGMENT OF DR THALER'S CASE

12. Dr Thaler contended that Mr Jones had prejudged the outcome of the Decision. The basis for this contention is a statement made in paragraph 3.05 of the IPO's Formalities Manual, which provides as follows:

“Where the stated inventor is an ‘AI Inventor’, the Formalities Examiner [should] request a replacement [Patents Form 7]. An ‘AI Inventor’ is not acceptable as this does not identify ‘a person’ which is required by law. The consequence of failing to supply this is that the application is taken to be withdrawn under section 13(2) [of the Patents Act 1977].”

13. We will come to section 13 of the Patents Act 1977 in due course. The point made by Dr Thaler was that the IPO had pre-determined the outcome of the hearing before Mr Jones and that the Decision had not properly been reached.⁸

14. Paragraph 3.05 of the IPO's Formalities Manual was drawn to Mr Jones' attention. Mr Jones commented on the paragraph at [7] of the Decision:

“Mr Jehan [patent attorney for Dr Thaler] objected to this passage as it suggests, in his words, that “the [IPO] had prejudged [Dr Thaler's] case before having given [Dr Thaler] an opportunity to present [his] case”. I assured Mr Jehan that this was not the case. In fact, I was not aware of this update until I saw it mentioned in his skeleton arguments. I explained that inclusion of this passage merely reflects the process that had been followed during the processing of these two applications and that it was likely added to ensure a consistent procedure would be followed in similar situations in the future. While the timing of the update was unfortunate, I explained that it was necessary for the [IPO] to ensure consistency of practice in the absence of any existing guidance. I assured Mr Jehan that I would decide the matter based on the requirements of the Act and the Rules and upon whatever case law exists. If the practice as currently stated in the Formalities Manual is inconsistent with my finding in this decision, then that practice will need to change.”

15. Dr Thaler was quite right to draw the Formalities Manual to Mr Jones' attention. However, as a ground of appeal against the Decision the point is unarguable and should never have been taken. To be fair to him, Mr Jehan did not press the point very hard in the oral submissions before me.
16. As a ground of appeal, the point is misconceived because there is no basis for suggesting that Mr Jones was seeking to do anything other than apply the law in

⁸ See paragraph 3 of Dr Thaler's grounds of appeal.

accordance with his duty. His view of paragraph 3.05 of the Formalities Manual was that it in no way fettered or affected the decision he had to make. Depending on Mr Jones' decision, paragraph 3.05 might state a process consistent with the law or it might state an incorrect process. To suggest that paragraph 3.05 informed the Decision is simply wrong: rather, the Decision would determine whether paragraph 3.05 could continue to stand as a correct articulation of the IPO's processes.

17. In short, this ground of appeal puts things the wrong way round. It assumes – without any basis for that assumption – that the Decision was influenced by the Formalities Manual. In fact, in the considering the appeal, and in reaching the Decision, Mr Jones was indirectly determining whether the IPO's processes were correctly stated or not in the Formalities Manual. For these reasons, the first ground of appeal is dismissed.

C. INCORRECT PURPOSIVE CONSTRUCTION

18. Both Dr Thaler (in his grounds of appeal) and the IPO (in its written submissions) made general points regarding the manner in which Mr Jones had, and I should, approach the process of statutory construction that essentially determines the questions that arise in this appeal.
19. Thus, Dr Thaler suggested that Mr Jones had “incorrectly focussed” on the inventor's motivation to innovate and disclose.⁹ The grounds of appeal in particular refer to [28] and [29] of the Decision, in which Mr Jones made some “final observations”:

“28 The fundamental function of the patent system is to encourage innovation by granting time-limited monopolies in exchange for public disclosure. As [Dr Thaler] acknowledges..., an AI machine is unlikely to be motivated to innovate by the prospect of obtaining patent protection. Instead the motivation to innovate will have been implemented as part of the development of the machine; in essence, it will have been instructed to innovate. Given that at present an AI machine cannot hold property rights, the question then becomes in what way can they be encouraged to disseminate information about invention? [Dr Thaler] argues that enabling the owner of the machine to acquire the right to the patent is the only way to achieve this. However, I have to disagree with this assessment as dissemination of innovation from an AI machine could occur freely in a number of ways, such as via the internet. At any rate, it is not clear to me how recognising a machine as an inventor will affect the likelihood of dissemination of innovation to the public, as this decision will be down to the owner or developers of the AI machine.

29 As [Dr Thaler] says, inventions created by AI machines are likely to become more prevalent in future and there is a legitimate question as to how or whether the patent system should handle such inventions. I have found that the present system does not cater for such inventions and it was never anticipated that it would, but times have changed and technology has moved on. It is right that this is debated more widely and that any changes to the law be considered in the context of such a debate, and not shoehorned arbitrarily into existing legislation.”

20. I do not consider that the Decision can sensibly be criticised on the basis of these paragraphs, and this ground of appeal must be dismissed. I accept that it is appropriate to consider the practical implications of a particular statutory construction and – where

⁹ See paragraphs 14 and 15 of the grounds of appeal.

appropriate – to allow a purposive approach to affect the construction of a statute.¹⁰ In these paragraphs, Mr Jones was doing no more than test the conclusions he had reached regarding the true construction of the Patent Act 1977 against their likely consequences in this and other cases. He found nothing to suggest that these consequences should undermine the conclusions he had reached.

21. There is nothing wrong in such an approach, and I do not consider that Mr Jones’ focus in these paragraphs was incorrect. More importantly, I do not consider that what he said unduly influenced his approach to construction of the relevant provisions of the Patents Act 1977. Indeed, these paragraphs appear to be little more than a “cross-check” on the soundness of conclusions that Mr Jones had already reached.

22. In [28] and [29] of the Decision, Mr Jones rightly stressed that it was his function – as it is mine – to construe and not to re-write the Patents Act 1977. This was a concern that the IPO itself articulated before me. In its written submissions, the IPO suggested that the recognition of artificial intelligence in all areas of law – including but not limited to intellectual property – involved only questions of how the law should be, rather than applying the law as it is, and so constituted a question much more for the legislature than for the courts. Thus, the IPO stated in its written submissions:

“4. ...Dr Thaler’s true complaint is that the law should not be so: that it *should* recognise some form of personality (or, at least, recognise inventorship) for artificially intelligent machines.

5. The Comptroller takes no position, for this appeal, on that debate about what the law *should* say about artificially intelligent systems. Certainly, the Comptroller has no desire to be dismissive of Dr Thaler’s viewpoint on that issue. This is an important debate, and as artificial intelligence develops it can only become more so.

6. But that is a complex policy issue whose resolution must engage issue of law and policy way beyond the remit of intellectual property. Several relevant public bodies (including the World Intellectual Property Organisation (WIPO) and the UK Information Commissioner’s Office (ICO)) have launched consultations on accounting in our laws for developments in artificial intelligence. The European Commission has also recently published a white paper about artificial intelligence in the EU.

7. But that wider debate about how artificial intelligence fits into the concept of legal personality in the UK law, including how and whether it should be protected and/or credited by the law of intellectual property, is not properly germane to determining this appeal.”

23. Clearly, it is right that this court can only construe legislation and cannot itself legislate, no matter how great the policy need. Nevertheless, a note of caution regarding these submissions on the part of the IPO must be sounded:

(1) First, I am unsure whether the IPO’s description of Dr Thaler’s contentions can be said to be a correct characterisation of those contentions. Dr Thaler expressly disavowed a contention that DABUS was a natural (or legal) person, and focussed instead on the contention that the “inventor” of statute is a legal

¹⁰ See Bailey and Norbury, *Bennion on Statutory Construction*, 7th ed (2017) at ch 11.

construct detached from the question of personality. In other words, it was perfectly possible to be an inventor without being a person. That is a point that I shall obviously come to, and I say nothing about its correctness here. But I am unconvinced that Dr Thaler was in fact seeking to re-write the law of persons as he thought it should be.

- (2) Secondly, whilst I am very conscious that it is not for the courts to legislate or to make policy, these are not questions that can be assessed at the outset of a case like this. It may very well be that the common law or a scheme laid down in statute does – when appropriately construed or understood – cater for future developments, including developments that were – until they surfaced in litigation – unforeseen. To take a somewhat extreme example, were an alien from outside the galaxy to present itself before the courts of England and Wales, I would like to think that it would not be denied legal personality simply on the grounds of unforeseen extraterritoriality. The courts are well able to differentiate between an alien artefact (say a meteorite, a thing) and an alien (which if capable of interacting as a natural person, is or ought to be a person). The courts of England and Wales have long taken their own view as to the status of a person appearing before them. Thus, the fact that a foreign law regards a person as a slave cuts little ice for “by the laws of England one man cannot have an absolute property in the person of another man”.¹¹

D. SECTION 13 OF THE PATENTS ACT 1977

(1) The relevant legislation

24. Various of the grounds of appeal advanced by Dr Thaler turn, to a greater or lesser extent, on section 13 of the Patents Act 1977. Before considering Dr Thaler’s contentions on appeal, it is necessary to set out the relevant legislation.
25. Section 1 of the Patents Act 1977 defines an invention, and sections 2 to 6 of the Act qualify and further define/refine the nature of a patentable invention. For the purposes of this appeal, I proceed on the basis that the Applications disclose patentable inventions.
26. Section 7 of the Patents Act 1977 concerns the right to apply for and obtain a patent and provides as follows:
- “(1) Any person may make an application for a patent either alone or jointly with another.
- (2) A patent for an invention may be granted –
- (a) primarily to the inventor or joint inventors;
- (b) in preference to the foregoing, to any person or persons who, by virtue of any enactment or rule of law, or any foreign law or treaty or international convention, or by virtue of an enforceable term of any agreement entered into with the inventor before the making of the invention, was or were at the time of

¹¹ *Chamberline v. Harvey*, (1700) 5 Mod 182, 87 ER 598.

the making of the invention entitled to the whole of the property in it (other than equitable interests) in the United Kingdom;

- (c) in any event, to the successor or successors in title of any person or persons mentioned in paragraph (a) or (b) above or any person so mentioned and the successor or successors in title of another person so mentioned;

and to no other person.

- (3) In this Act ‘inventor’ in relation to an invention means the actual deviser of the invention and ‘joint inventor’ shall be construed accordingly.

- (4) Except so far as the contrary is established, a person who makes an application for a patent shall be taken to be the person who is entitled under subsection (2) above to be granted a patent and two or more persons who make such an application jointly shall be taken to be the persons so entitled.”

27. Section 13 of the Patents Act 1977 concerns the mention of the inventor in any patent granted for the invention and provides as follows:

“(1) The inventor or joint inventors of an invention shall have a right to be mentioned as such in any patent granted for the invention and shall also have a right to be so mentioned if possible in any published application for a patent for the invention and, if not so mentioned, a right to be so mentioned in accordance with rules in a prescribed document.

(2) Unless he has already given the Patent Office the information hereinafter mentioned, an applicant for a patent shall within the prescribed period file with the Patent Office a statement –

(a) identifying the person or persons whom he believes to be the inventor or inventors; and

(b) where the applicant is not the sole inventor or the applicants are not the joint inventors, indicating the derivation of his or their right to be granted the patent; and, if he fails to do so, the application shall be taken to be withdrawn.

(3) Where a person has been mentioned as sole or joint inventor in pursuance of this section, any other person who alleges that the former ought not to have been so mentioned may at any time apply to the comptroller for a certificate to that effect, and the comptroller may issue such a certificate; and if he does so, he shall accordingly rectify any undistributed copies of the patent and of any documents prescribed for the purposes of subsection (1) above.”

(2) Dr Thaler’s contentions as to the primacy of section 13

28. I found Dr Thaler’s reliance on section 13 of the Patents Act 1977 confusing and difficult to follow. Dr Thaler’s appeal, so far as it concerned the construction of the 1977 Act, began not with section 7, but with section 13. Thus, it was suggested that section 13 had been deployed so as to apply an unjustified sanction against Dr Thaler.¹² Quoting from paragraph 5 of the grounds of appeal:

¹² See paragraphs 4 to 6 of the grounds of appeal.

“Section 13 permits the Comptroller to deem an application to be withdrawn for failure to file a statement setting out the position on inventorship and entitlement. Section 13 does not permit the Comptroller to use section 13 as a mechanism to refuse an application, in this case by refusing to accept a statement from [Dr Thaler] (in this case made by way of Forms 7) that honestly and correctly identifies the actual deviser of the invention and indicates [Dr Thaler’s] derivation of the right to the patent. Doing so is to use section 13 to apply a sanction against [Dr Thaler] that amounts to refusing the application. Section 13 does not empower the Comptroller in this manner. Furthermore, there is nothing to suggest that [Dr Thaler] has decided to withdraw his applications.”

29. I reject this contention:

(1) The suggestion that nothing more than a subjective belief on the part of an applicant that that applicant is entitled to apply for a patent, supported by a statement from that applicant setting out and asserting that subjective belief, is sufficient to entitle that applicant to the grant of a patent is, quite simply, nonsense.

(2) I am quite prepared to accept that Dr Thaler subjectively, and honestly, believed that he was entitled to make the Applications on the basis articulated by him. But to suggest that, simply on the basis of such a subjective, albeit honestly held, belief, an otherwise ill-founded application for a patent should succeed is to render otiose the provisions of section 7 of the Patents Act 1977, which set out in mandatory terms the circumstances in which a person may apply for, and be granted, a patent.

(3) In *Yeda Research and Development Company Ltd v. Rhone-Poulenc Rorer International Holdings (Yeda)*,¹³ the House of Lords expressed the view that section 7 contained an exhaustive code for determining who was entitled to the grant of a patent:

“Section 7(2), and the definition in section 7(3), are in my opinion an exhaustive code for determining who is entitled to the grant of a patent. That is made clear by the words “and to no other person.” In saying that the patent may be granted “primarily” to the inventor, section 7(2) emphasises that a patent may be granted only to the inventor or someone claiming through him. The claim through an inventor may be made under one of the rules mentioned in paragraph (b), by which someone may be entitled to patent an invention which has been made by someone else (the right of an employer under section 39 is the most obvious example) or the claim may be made under paragraph (c) as successor in title to an inventor or to someone entitled under paragraph (b).”

(4) The effect of Dr Thaler’s contentions is to add an entirely subjective additional ground for the grant of a patent that is inconsistent with the statutory scheme. In my judgment, section 13 of the Patents Act 1977 cannot (as Dr Thaler seeks to do) be read alone, and must be read in context. Critical to that context is section 7 of the Patents Act 1977. It seems to me that unless an applicant for a patent can bring him- or herself within the parameters of section 7, the IPO is entirely justified – indeed, obliged – in finding that the application is insufficient and liable to be withdrawn or deemed to be withdrawn.

¹³ [2007] UKHL 43 at [18].

- (5) I accept, of course, that section 13(2) contains terms referencing the subjective state of mind of the applicant. Thus, section 13(2)(a) requires the applicant to identify “the person or persons whom he believes to be the inventor or inventors”;¹⁴ similarly, section 13(2)(b) requires the applicant – if not the or an inventor – to “indicat[e] the derivation of his or their right to be granted the patent”.¹⁵ An applicant may believe A to be the inventor (and so identify A in the application) and/or believe that A has assigned his or her rights to the applicant (and so indicate as much in the application) and be wrong on both counts. Such an error – which will not necessarily be apparent on the face of the application – will generally speaking enable the application to proceed, because the IPO cannot possibly audit every such statement in every application for the grant of a patent.
- (6) However, where an error has been made, such that the application is misconceived because the requirements of section 7 are not met, any patent granted is liable to be revoked. Section 72(1)(b) of the Patents Act 1977 provides:
- “Subject to the following provisions of this Act, the court or the comptroller may by order revoke a patent for an invention on the application of any person (including the proprietor of the patent) on (but only on) any of the following grounds, that is to say –
- ...
- (b) that the patent was granted to a person who was not entitled to be granted that patent...”
- (7) Thus, the statutory process for the application for and grant of a patent proceeds on the basis that certain statements (specifically as regards the identity of the inventor and any chain of title from the inventor to the actual applicant) are not necessarily examined or adjudicated upon during the course of the application process.¹⁶ The basis for this approach derives from section 7(4) of the Patents Act 1977,¹⁷ which provides for a presumption that an applicant (or applicants) for a patent shall be taken to be entitled under section 7(2).
- (8) The presumption is neither irrebuttable nor preclusive of investigation or inquiry. That would be to sanction, without possibility of correction, unjustified (albeit honestly intended and *bona fide*) applications; and there would, on this basis, be no place for or point in section 72(1)(b) of the Patents Act 1977. If, therefore, an application is on its face bad or, to put the same point another way, incapable of justification within the terms of section 7, the IPO will be justified in refusing to proceed with the application. Thus, for example:
- (a) Even if an applicant honestly believed his or her cat to be the inventor, and identified the cat as such in his or her Patent Form 7, unless the IPO was satisfied that a cat was capable of being an inventor within the meaning of

¹⁴ Emphasis added.

¹⁵ Emphasis added.

¹⁶ See, for example, the decision of Whitford J in *Nippon Piston Ring Co Ltd's Applications*, [1987] RPC 6, where this point was clearly made.

¹⁷ Set out in paragraph 26 above.

section 7, the applicant's statement as to the identity of the inventor under section 13 would be deficient (no matter what the applicant's state of mind).

- (b) Equally, were the applicant to assert that the inventor had transferred the right the grant of a patent to him- or herself by reference to some form of transmission of ownership unknown in law (e.g. the applicant's own assertion of right, without act, knowledge or acquiescence of the inventor), the IPO would be justified in treating the applicant's statement under section 13 as deficient.

30. In short, Dr Thaler's contention that section 13 of the Patents Act 1977 was dispositive of his right to be granted a patent without reference to the provisions of section 7 is fundamentally misconceived and wrong. The suggestion that section 13 was being used by the IPO to abrogate an entitlement or right that Dr Thaler would otherwise have was made in two other ways in the grounds of appeal. Thus:

(1) The grounds of appeal assert that section 13 was being used to set a new requirement as to patentability.¹⁸ Paragraph 7 asserts that "[i]n refusing to accept the naming of an AI system as an inventor on Form 7, the Comptroller is setting a further test for patentability that is not provided for in law and contradicts the generally held principle that inventorship should not be a substantial condition for the grant of patents".

(2) The grounds of appeal also assert that the IPO "exceeded the powers conferred by section 13(2)(b)" because Dr Thayer "did satisfy the requirements of section 13(2)(b)".¹⁹

31. These points add nothing to the point articulated in paragraphs 4 to 6 of the grounds of appeal (summarised in paragraph 28 above), and the answer to them is as set out in paragraph 29 above.

32. In short, I reject Dr Thaler's contention that the effective starting point in analysing the law in this area is section 13 of the Patents Act 1977; and I do not accept without more that in rejecting the applications because the requirements of section 13 were not satisfied the IPO acted wrongly. It seems to me that Dr Thaler's contentions begin at the wrong place, and that the correct starting point is section 7 of the Patents Act 1977.

33. That, of course, does not mean to say that Dr Thaler's contentions as to his entitlement to be granted a patent are in substance wrong. To reach such a conclusion at this stage would be to prejudge the meaning and effect of section 7 of the Patents Act 1977. Accordingly, I now turn to consider the substance of this provision, and I consider Dr Thaler's submissions in the light of this provision.

¹⁸ Paragraphs 7 and 8 of the grounds of appeal

¹⁹ Paragraphs 9 to 13 of the grounds of appeal. The quotations derive from paragraphs 10 and 11 respectively.

(3) Section 7 of the Patents Act 1977

(a) *The applicant for a patent must be a person*

34. It is common ground that DABUS is not a person, whether natural or legal. DABUS is not a legal person because (unlike corporations) it has not had conferred upon it legal personality by operation of law. It is not a natural person because it lacks those attributes that an entity must have in order to be recognised as a person in the absence of specific (statutory) legal intervention.
35. It is, therefore, clear, that DABUS cannot make an application for a patent, whether by itself or jointly with another. Section 7(1) of the Patents Act 1977 provides that “[a]ny person may make an application for a patent either alone or jointly with another”.²⁰
36. As I have noted, in this case DABUS is not the applicant: Dr Thaler is. The requirements of section 7(1) are, therefore, met.

(b) *Classes to whom a patent may be granted*

37. The provisions of section 7(2) of the Patents Act 1977 are set out in full in paragraph 26 above. The nature of the provisions in section 7(2) is helpfully described in *Bentley on Intellectual Property Law*:²¹

“The starting point for determining issues of entitlement and ownership is section 7(2)(a). This provides that the right to be granted a patent is *primarily* given to the inventor or joint inventors. This focus upon the inventor follows the common practice whereby the creator is accorded the privileged status of first owner of intellectual property rights. Although the process of invention is frequently presented as being less creative than the production of literary or artistic works, patent law bears many of the marks of the romantic author. It is, at the very least, based on a model of an individual inventor – a matter emphasised in the 1977 Act by the requirement that the inventor is the ‘actual deviser’ of the invention.

The assumption that the inventor is the person who is properly entitled to grant of the patent can be overridden in two situations. The first of these is set out in section 7(2)(b). The states that the presumption in favour of the inventor as owner does not apply where it can be established that at the time the invention was made, another person was entitled to the invention by virtue of (i) any enactment or rule of law, (ii) any foreign law, treaty or international convention, or (iii) an enforceable term of any agreement entered into with the inventor before the making of the invention. Although the precise meaning of the section is unclear, it is widely accepted that it deals with employee inventions caught by section 39.

The second situation where the presumption that the inventor is the owner is overridden is set out in section 7(2)(c). This states that a patent may be granted ‘to the successor or successors in title of any person or persons mentioned in section 7(2)(a) or (b)’. This provision allows for the rights in the invention to be transferred to third parties...”

38. I shall, for the sake of convenience, refer to the classes defined in section 7(2) as **Class (a)**, **Class (b)** and **Class (c)** respectively. Before turning to Dr Thaler’s contentions, a number of points need to be made clear:

²⁰ Emphasis added.

²¹ Bentley, Sherman, Gangee and Johnson, *Intellectual Property Law*, 5th ed (2018) at 623-624.

- (1) First, the concluding words of section 7(2) (“...and to no other person...”) establish that there are only three classes to whom a patent for an invention may be granted – the three classes described in section 7(2).²²
- (2) Secondly, Class (b) and Class (c) are defined by reference to the transfer to them of a property right. That right cannot be the patent itself, for section 7(2) is concerned with the classes to whom a patent may be granted. The right that is being transferred is the invention and/or the right to apply for a patent for the invention. Property rights in the context of patents are defined in section 30(1) of the Patents Act 1977:

“Any patent or application for a patent is personal property (without being a thing in action), and any patent or any such application and rights in or under it may be transferred, created or granted in accordance with subsections (2) to (7) below.”

- (3) Thirdly, the law differentiates between the first creation of a right and the subsequent transfer of that right. In this case, the invention is first created by the inventor (or inventors). That act of creation gives the inventor(s) the primary right to apply for and be granted a patent for the invention. They comprise Class (a). Classes (b) and (c) are derivative: their right to be granted a patent arises because of a transfer to them from the inventor(s) in Class (a). This point was made with great clarity in *Yeda* at [19]:

“In my opinion, therefore, the first step in any dispute over entitlement must be to decide who was the inventor or inventors of the claimed invention. Only when that question has been decided can one consider whether someone else may be entitled under paragraphs (b) or (c). In many cases, including the present, there will be no issue about paragraphs (b) or (c). If the invention was made by the Weizmann scientists, there is no dispute that Yeda is entitled under paragraphs (b) or (c). Likewise if the invention was made by Dr Schlessinger and his team.”

(c) *The members of Classes (a), (b) and (c) are persons*

39. The question arises as to whether the members of Classes (a), (b) and/or (c) must be persons. Since the Applications were not made by DABUS, but by Dr Thaler, it was not necessary for Dr Thaler to contend that Classes (a), (b) and/or (c) were so wide as to embrace things as well as persons. Nevertheless, it is necessary to be clear as to the ambit of these classes, because Dr Thaler undoubtedly was contending that an “inventor” within the meaning of section 7 was not necessarily a person. It is important, before turning to the meaning of the term “inventor”, to be clear about the scope of Classes (a), (b) and (c).
40. It is quite clear from the statutory scheme contained in the Patents Act 1977 that – whatever the meaning of the term “inventor” – a patent can only be granted to a person. I reach this conclusion explicitly without considering the meaning of the term inventor. In my judgment, a patent can only be granted to a person falling within Classes (a), (b) or (c) for the following reasons:

²² See also, *Yeda* at [18], quoted in paragraph 29(3) above.

- (1) First, and most fundamentally, only a person can hold property and an invention, an application for the grant of a patent and the patent itself are all property rights. Were the 1977 Act to contemplate a thing owning another thing, then I would expect extremely clear language to be used in the Act to compel such a conclusion.
 - (2) In fact, the language of the Patents Act 1977 makes clear that the holder of a patent must be a person:
 - (a) Since a patent is only granted on application, it follows from section 7(1) (“[a]ny person may make an application for a patent”) that the grant of a patent can only be to a person, because only a person may make an application for a patent.²³
 - (b) Classes (b) and (c) explicitly refer to and define themselves by reference to the “person” that is the transferee of the inventor’s rights.²⁴
 - (c) Class (a) does not – section 7(2)(a) refers only to “the inventor or joint inventors”. However, it seems to me that either an inventor must be a person or at section 7(2)(a) must be read as stating “primarily to the person(s) who are the inventor or joint inventors”, given the points made in paragraphs 40(1) and 40(2)(a) above.
41. I turn to the question of whether Dr Thaler falls within any of these three classes, he being the person making the Applications. I propose to consider each class in turn in the following paragraphs.
- (d) *Class (a)*
42. Although, as I understood Dr Thaler’s case, he abjured all reliance on Class (a), it is nevertheless necessary to understand exactly why the Applications by Dr Thaler do not fall within Class (a).
43. For his own part, Dr Thaler positively asserted that DABUS was the inventor and denied that status for himself. Thus, it appeared to be Dr Thaler’s position that neither he nor DABUS could fall within Class (a) because:
- (1) Dr Thaler was a person but not the inventor; and
 - (2) DABUS was the inventor but not a person.
44. Although the consequence of this is that Class (a) is not engaged, it is nevertheless necessary to determine the meaning of the term “inventor”, for the scope of this term (and, specifically, that DABUS fell within it) was central to Dr Thaler’s submission that he was entitled to the grant of a patent.
45. It is, as I have found, possible to construe section 7(2)(a) in such a way that only persons fall within the scope of Class (a), but that the term “inventor” extends to both

²³ Emphasis supplied in the quotation. See further paragraphs 34 to 36 above.

²⁴ See the express words of sections 7(2)(b) and 7(2)(c).

persons and to things.²⁵ Whilst it is, in theory, possible for the definition of “inventor” to be stretched in this way, that seems to me an unlikely construction of the 1977 Act, which I reject. That is for a number of reasons:

- (1) Absent a case falling within Class (b) or Class (c), the default person entitled to the grant of a patent for an invention is the “inventor”. It seems to me that the 1977 Act proceeds on the basis that there is a correlation between the inventor and the invention in that every invention has an inventor such that every inventor can fall within Class (a). It may be that the advent of artificial intelligence causes this scheme to fracture, but it seems to me that it would be wrong as a matter of construction to invite such a fracture, rather than to avoid it if that can be done:
 - (a) It seems to me that it would be altogether a curious, and probably indefensible, reading of the 1977 Act were it possible for a thing (like DABUS) to be recognised as the inventor of an invention without thereby falling within Class (a).
 - (b) That, however, is the consequence of Dr Thaler’s construction. DABUS is, according to him, both a thing and the sole inventor of the inventions described in the Applications. On this basis, there is an invention, but no person falling within Class (a).
 - (c) The consequence of Dr Thaler’s construction would be that there is a class of invention – inventions where the inventor is not a person but a thing lacking personality, a machine – that is unpatentable not because the invention is not a patentable one, but because of the nature of the inventor.

This, as it seems to me, is a powerful argument in support of the definition of the “inventor” as the person who is the actual deviser of the invention.²⁶ As will be seen, this construction derives powerful support both from the 1977 Act and the case-law.

- (2) The Patents Act 1977 provides in section 130(1) that “inventor” has the meaning assigned to it by section 7. Section 7(3) of the Patents Act 1977 provides:

“In this Act, ‘inventor’ in relation to an invention means the actual deviser of the invention and ‘joint inventor’ shall be construed accordingly.”

²⁵ See paragraph 40 above. For the reasons I have given, it is my conclusion that Class (a) includes only persons. The question I am now considering is whether that conclusion is reached by virtue of the fact that an “inventor” within the meaning of section 7 is inevitably a person.

²⁶ I heard no argument on the converse question of whether the owner of the machine that has “invented” an invention can him- or herself be regarded as the “inventor”. Dr Thaler, as has been seen, denied that he was the inventor and the IPO – entirely rightly – therefore did not address the point. I raise this question, but without resolving it, in paragraph 52(2) below. It is entirely possible, for different reasons, that in the case of machine-created inventions, there is no “inventor”, and that the outcome I am seeking to avoid – an invention without an inventor – is reached because the person owning the machine is not the “actual deviser” of the invention. As I explain in paragraph 52(2) below, this is not a question on which I can reach a view, as the point was not before me. However, it is important that I make clear that I consider the point an open one and that nothing in this judgment is to be taken as determining it.

Dr Thaler quite correctly submitted that section 7(3) contains no express statement that an inventor must be a person. However, the term “deviser” at least implies someone devising something. In short, the natural reading is that the inventor is a person and the invention a thing.

- (3) In *Yeda*, Lord Hoffmann said this about the definition in section 7(3):²⁷

“The inventor is defined in section 7(3) as “the actual deviser of the invention”. The word “actual” denotes a contrast with a deemed or pretended deviser of the invention; it means, as Laddie J said in *University of Southampton’s Applications* [2005] RPC 220, 234, the natural person who “came up with the inventive concept.” It is not enough that someone contributed to the claims, because they may include non-patentable integers derived from prior art: see *Henry Brothers (Magherafelt) Ltd v Ministry of Defence* [1997] RPC 693, 706; [1999] RPC 442. As Laddie J said in the *University of Southampton* case, the “contribution must be to the formulation of the inventive concept”. Deciding upon inventorship will therefore involve assessing the evidence adduced by the parties as to the nature of the inventive concept and who contributed to it. In some cases this may be quite complex because the inventive concept is a relationship of discontinuity between the claimed invention and the prior art. Inventors themselves will often not know exactly where it lies.”

This is very high authority supporting the meaning of “inventor” as a person. Indeed, in *Yeda*, Lord Hoffmann went further, and refers to the inventor as the natural person who came up with the inventive concept.²⁸ As to this:

- (a) There is no authority to which I was referred or which I have myself been able to find which explains why the inventor is limited to natural persons only, as opposed to including also legal persons. Whilst one can see the need to limit Class (a) and so the term “inventor” to someone having personality, the exclusion of legal persons from the definition seems less clear-cut. The 1977 Act could, after all, have explicitly referred to “natural persons” rather than just the “inventor”.
- (b) On one level, the point may not matter in this case, since (on any view) DABUS is not a person. But because Dr Thaler’s arguments regarding the Patents Act 1977 ranged widely, I consider that it is important to reach a holistic view of the operation of the relevant provisions in the 1977 Act.
- (c) It seems to me that, when once the notion of an “inventive step” is factored in, the restriction of the term “inventor” to natural person becomes inevitable. An “invention” by definition²⁹ must involve an “inventive step”, which is something “not obvious to a person skilled in the art”.³⁰ It is difficult to see how an inventive step can be conceived of by a corporation – which must act through agents – without also striking one of

²⁷ At [20].

²⁸ Although Lord Hoffmann referred to Laddie J’s decision in *University of Southampton’s Applications* [2005] RPC 220 at 234, there is no discussion of this point in Laddie J’s decision. He simply refers to “who came up with the inventive concept or concepts. He or they are the inventors...”.

²⁹ See section 1(1)(b) of the Patents Act 1977.

³⁰ Section 3 of the Patents Act 1977.

those agents. In other words, the inventive step in the mind of a natural person is attributed to the corporation, which only has the inventive step in its “mind” by virtue of such attribution.³¹ There is some sense in keeping the definition of inventor close to that which must arise out of the mind of an individual.

- (d) This construction is supported by two other aspects in the Act:
- (i) First, sections 39ff contain detailed provisions regarding employees’ inventions. In essence, whilst the employee remains the inventor, there are many circumstances in which the invention is statutorily transferred to the employer. Given that the employee will typically be a natural person and the employer typically a legal person, these sections seem to me to underline that the inventive concept is very much a matter arising from the mind of a natural person, whilst the economic benefits of the invention pass to another, in this case the employer.
 - (ii) Section 7(3) refers to the “actual deviser of the invention”.³² Some meaning must be given to this word: it seems to me that the point of the use of this term is to emphasise that attribution of an inventive concept to a non-natural person is not something that falls within the meaning of the term “inventor”, because such a person is not the “actual” deviser of the invention.
- (4) I shall come to consider the scope of Classes (b) and (c) in greater detail, but at least at first sight these classes concern the transfer (in different ways) of a right that originally vested in the inventor. As I have noted,³³ the law differentiates between the first creation of rights in property and their subsequent transfer. Class (a) is an instance of the former; and Classes (b) and (c) instances of the latter. It follows that persons falling within Classes (b) and (c) can only derive their rights (whether directly or indirectly, for there may be multiple transfers) from an inventor, who must be capable of holding and transferring property, viz the invention and the right to apply for a patent. Again, this is a strong indicator that an inventor must be a person, particularly when section 7(2)(a) refers to an “inventor” and not to a “person”. The inevitable reading, as it seems to me, is that an “inventor” is a person.

46. I should stress that nothing in this analysis should be taken to suggest that DABUS is not itself capable of an inventive concept. As I have noted, I am proceeding on the basis that DABUS has “invented” the inventions the subject of the Applications. Nevertheless, I conclude that DABUS is not, and cannot be, an inventor within the meaning of the 1977 Act, simply because DABUS is not a person.

³¹ Hence Lord Hoffmann’s reference, in s reference, in *Yeda*, to a “deemed” or “pretended” deviser: see paragraph 45(3) above.

³² Emphasis added.

³³ See paragraph 38(3) above.

(e) *Classes (b) and (c)*

47. It is convenient to deal with these two classes together because (in different ways) they concern transfers of property to persons within each class in accordance with the mechanisms described.
48. It is – as I have noted – plain that the members of both classes are and must be persons. That, in itself, is not a difficulty in the case of the Applications: Dr Thaler is, undoubtedly, a person. It is unnecessary to decide whether Classes (b) and (c) are, like Class (a), limited to natural persons to the exclusion of legal persons. Such a conclusion would be a surprising one: unlike in the case of inventors, there is no intrinsic reason why corporations should be excluded from being granted patents in the case of Class (b) and Class (c); and the economic disruption of a conclusion that legal persons were excluded would be considerable. To my mind, the reason why section 7(2)(a) referred to an “inventor” and not to “the person inventing”, whilst sections 7(2)(b) and (c) refer to a “person” was precisely to underline this distinction.
49. In my judgment, Dr Thaler’s contention that he is entitled to the grant of patents pursuant to the Applications because he falls within one of Class (b) or Class (c) is hopeless and must fail:
- (1) Dr Thaler has abjured the status of inventor. He says DABUS is the inventor, whilst conceding that DABUS is not a person. Even if I accepted that DABUS was capable of being an “inventor” – which, for the reasons I have given, I do not – Dr Thaler’s application would be hopeless, because DABUS would – by reason of its status as a thing and not a person – be incapable of conveying any property to Dr Thaler. In short, the ability to transfer, which DABUS lacks, is fatal to Dr Thaler’s contentions. The same point can be put in a different way: because DABUS is a thing, it cannot even hold property, let alone transfer it.
 - (2) Dr Thaler is a person quite capable of being the transferee of a property right. The problem that he has is that there is nothing to be transferred to him and nobody capable of transferring it. This difficulty was highlighted in Dr Thaler’s inability to identify any mechanism or transaction (whether within section 7(2)(b) or (c) or otherwise) whereby rights could pass to him. The best that Dr Thaler could do was to rely on his ownership and control of DABUS, which for the purposes of this appeal I am prepared to accept.³⁴ In his written submissions, Dr Thaler advanced the contention that “if you own the machine, you own the output of that machine”.³⁵ In particular, at paragraph 67, Dr Thaler contended:

“A product made by a machine, such as an industrial product, belongs to the owner or beneficial owner of the machine. This applies whether or not the product is precisely as intended by the operator of the machine or if the product is altered in some way, for instance by a malfunction of the machine or by a modification brought

³⁴ I proceed on the basis that Dr Thaler is the only person involved in the ownership and operation of DABUS. If – contrary to my conclusion – ownership or something like it were sufficient to effect a transfer of the invention or the right to apply for a patent, it would be necessary to articulate clearly what forms of ownership and/or control would suffice. These are not matters that I need to consider in this judgment.

³⁵ See, for instance, paragraphs 66ff of Dr Thaler’s written submissions.

about by machine learning. There has never been any suggestion and there is no law that would entitle the machine to own any rights in a product it manufactured, whether or not the resultant product was precisely in accordance with the intentions of the operator of the machine. There is no reason to consider the position to be any different if the manufacture of that product *per se* results in the generation any other rights such as intellectual property rights.”

Dr Thaler relied on an analogous case arising out of the law of copyright. The relevant law is helpfully set out in *Copinger and Skone James on Copyright*.³⁶

“Few people would have any difficulty with the concept that someone who uses word-processing software to write a document is the author of that document. The software is a tool for writing, it does not supply the necessary ingredient of “originality”, i.e. the skill, labour and judgment (intellectual creativity) required for the composition of the document. Software can, however, assist in the creative process to a much greater degree. Many types of software, for example, enable complex images and structures to be designed with the assistance of graphical libraries and rules. Software can perform extremely complex calculations to generate data for scientific and other uses, and from this generate complex outputs, including music, still or moving images, and other computer programs. The question then arises as to whether a work created with the aid of such software has a human author, and if so, who it is. In many cases, of course, the software will merely be a tool used by an individual to create a work. When framing the [Copyright, Design and Patents Act 1988], however, it was recognised that there may be circumstances when it may be impossible to identify a human author of such a work, the only immediate human involvement perhaps being the activation of a machine. Against this eventuality, the 1988 Act provides for a special category of works, namely those which are “computer-generated”, being those works generated by a computer in circumstances such that there is no human author. In relation to such works, the author is to be taken to be the person by whom the arrangements necessary for the creation of the work are undertaken. This definition uses the same terminology as is used in relation to the definition of “producer” in the context of determining the author of a film. So, where arcade video games generated composite frames, each of which was a computer-generated work, then the arrangements necessary for the creation of the works were considered to have been undertaken by the person who had devised the appearance of the various elements of the game and the rules and logic by which each frame was generated and who had written the relevant computer program. The player of the game was not, however, an author of any of the artistic works created in the successive frame images. His input was not artistic in nature and he had contributed no skill or labour of an artistic kind. Nor had he undertaken any of the arrangements necessary for the creation of the frame images. All he had done was to play the game.

The differences between such works and works of which there is a human author are significant. Not only is the question of authorship and thus ownership affected but also there is problem in understanding how a computer-generated work could satisfy the requirement of originality under the Act.”

- (3) As to this:
- (a) Although the IPO rightly warned against over-generalisation, I am quite prepared to accept that there is a general rule that the owner of a thing is

³⁶ Davies, Caddick and Harbottle, *Copinger and Skone James on Copyright*, 17th ed (2016) at [4-25].

owner of the fruits of that thing. Thus, the owner of a fruit tree will generally own the fruit produced by that tree.

- (b) The problem – as the passage from *Copinger* quoted above illustrates – is that such rules need to be framed with a degree of care and specificity, at least where the rules regarding the property in question are statutory.³⁷ No such rules have been framed in the context of patents, the statutory regime for which is contained in the Patents Act 1977.
- (c) Moreover, in the context of patents, there are particular difficulties. That is because – unlike in the case of the hypothetical fruit tree or, indeed, copyright – merely inventing something does not result in a patent being granted to the inventor. As has been seen, in order to be granted, a patent must be applied for – and that must be done by a person. It is therefore quite impossible to say that simply because (i) DABUS has invented something and (ii) Dr Thaler owns DABUS, Dr Thaler is entitled to the grant of a patent. There must either be an application by the inventor within section 7(2)(a) (which cannot be made because DABUS is not an inventor nor a person) or the inventor must have transferred the right to apply enabling Dr Thaler to apply under one of section 7(2)(b) or (c) (which again cannot be in this case).
- (d) It would be far easier to contend that Dr Thaler was entitled to the grant of a patent pursuant to section 7(2)(a) of the Patents Act 1977, on the ground that he (Dr Thaler) owned the machine that did the inventing. That would actually be a much closer analogy to the general proposition advanced by Dr Thaler that “if you own the machine, you own the output of that machine”. However, as I have noted, this was not a contention advanced by Dr Thaler: indeed, it was positively not advanced.

(4) Conclusion

- 50. For all these reasons, the various grounds of appeal advanced by Dr Thaler in relation to section 13 of the Patents Act 1977 (but, for the reasons I have given, really engaging section 7 of that Act) fail and must be dismissed.

E. DISPOSAL AND POSTSCRIPT

- 51. For all these reasons, the grounds of appeal fail and Dr Thaler’s appeal must be dismissed. I will leave it to the parties to frame the appropriate order.
- 52. There are two points that I should make by way of postscript:
 - (1) I have reached my conclusions essentially by reference to the Patents Act 1977, and the law relating to that Act, with a minor detour into copyright. Both sides put before me legal materials ranging well beyond the Patents Act 1977. I have considered that material, but it did not assist me, both because (as it seems to me) the provisions of the Patents Act 1977 are extremely clear and because nothing

³⁷ The common law can proceed on its usual, incremental, basis.

particularly clear-cut in terms of analogy could be derived from these other areas of law.

- (2) As I have noted, the question of whether the owner/controller of an artificially intelligent machine that “invents” something can be said, him- or herself, to be the inventor was not a matter that was argued before me. Dr Thaler expressly declined to advance that submission not merely because he considered it bad in law, but more importantly because (in moral terms) he considered that he would illegitimately be taking credit for an invention that was not his. Clearly, what arguments are or are not framed in relation to patent applications are matters for the applicant. However, I would wish to make clear that I in no way regard the argument that the owner/controller of an artificially intelligent machine is the “actual deviser of the invention” as an improper one. Whether the argument succeeds or not is a different question and not one for this appeal: but it would be wrong to regard this judgment as discouraging an applicant from at least advancing the contention, if so advised.