Innovation, Sciences et Développement économique Canada
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Innovation, Science and Economic Development Canada
Canadian Intellectual Property Office

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June 9, 2025

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Application No.	:	**3,137,161**
PCT No.	:	**IB2019057809**
Owner	:	THALER, STEPHEN L.
Title	:	**FOOD CONTAINER AND DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION**
Classification	:	B65D 6/02 (2006.01)
Your File No.	:	**93150003**
Our File No.	:	**FA 2270**

Dear Sir/Madam,

Please find enclosed a Commissioner's Decision concerning the above-mentioned patent application.

Yours sincerely,

Tara Derickx
Chair,
Patent Appeal Boad.

TD/ssp
Encl.

Canada

Citation: Thaler, Stephen L. (Re), 2025 CACP 8
Commissioner's Decision #1689
Décision du commissaire nº1689
Date: 2025-06-05

TOPIC: M00 Miscellaneous

SUJET: M00 Divers

Application No. 3,137,161
Demande nº 3 137 161

IN THE CANADIAN PATENT OFFICE

DECISION OF THE COMMISSIONER OF PATENTS

Patent application number 3,137,161 was referred to the Patent Appeal Board for review in order to make a recommendation as to whether or not the application complied with subsection 27(2) of the *Patent Act* (R.S.C., 1985, c. P-4) and subsection 54(1) of the *Patent Rules* (SOR/2019-251). It is the recommendation of the Patent Appeal Board and the decision of the Commissioner to refuse the application.

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INTRODUCTION

[1] This recommendation concerns the review of Canadian patent application number 3,137,161, which is entitled "FOOD CONTAINER AND DEVICES AND METHODS FOR ATTRACTING ENHANCED ATTENTION." As will be discussed below, at issue in this case is whether a valid "inventor" has been identified and by extension, a valid "applicant". Nonetheless, for the purposes of this review we refer to the listed applicant on the application, Mr. Stephen L. Thaler, as the "Applicant". The review has been conducted by the Patent Appeal Board ("the Board") upon referral to the Board by the Commissioner of Patents.

[2] The Board's recommendation is that the Commissioner of Patents refuse the application on the basis that the artificial intelligence system listed as the "inventor" on the application is not a valid "inventor" within the meaning of that term under the *Patent Act* (R.S.C., 1985, c. P-4, "*Patent Act*") and *Patent Rules* (SOR/2019-251, "*Patent Rules*").

BACKGROUND

The application

[3] The application was filed under the provisions of the *Patent Cooperation Treaty* and has an effective filing date in Canada of September 17, 2019. It was laid open to public inspection on April 23, 2020.

[4] The subject-matter of the application relates to both a food and beverage container and an enhanced signalling device. The container and device were devised by the artificial intelligence system known as DABUS (Device for Autonomous Bootstrapping of Unified Sentience), which Stephen L. Thaler created and owns. However, the subject-matter of the application is not at issue here, rather what is at issue is whether the application has a valid "inventor".

Procedural background

[5] In a letter dated November 8, 2021, the Applicant was notified that under subsection 27(2) of the *Patent Act* and section 54 of the *Patent Rules* a patent application must be filed by an "inventor" or the legal representative of the "inventor", that the "inventor" must be identified and that an applicant must file a statement of entitlement to file the application (a requirement for an application filed under the provisions of the *Patent Cooperation Treaty*). The letter also indicated that because the "inventor" is an artificial intelligence ("AI") system, it cannot have or transfer rights and therefore the application is not compliant with the *Patent Act* and *Patent Rules*. It was further indicated that a statement on behalf of the AI system could be filed by the Applicant identifying himself as the legal representative of the system, as an attempt to make the application compliant.

[6] The Applicant provided an affidavit identifying himself as the legal representative of DABUS with the response dated July 22, 2022. The Applicant also provided various legal arguments in favor of his ownership of any inventions created by DABUS, as well as policy considerations as to why DABUS should be an eligible "inventor".

[7] In a letter dated August 15, 2024, the Acting Commissioner of Patents informed the Applicant that the instant application was being referred to the Board for review and to make a recommendation as to whether an "inventor" under the *Patent Act* and *Patent Rules* could be a non-natural person such as the DABUS system.

[8] A Panel of the Board, consisting of the undersigned members ("the Panel"), conducted a review of this matter and we informed the Applicant of our preliminary opinion in a Preliminary Review letter dated November 21, 2024 ("PR letter"). Our preliminary opinion was that "inventor" as used in the *Patent Act* and *Patent Rules* is limited to a natural person or persons. We further stated our

preliminary view that, in the absence of a valid "inventor", there can be no valid legal representative since the rights that would normally be accorded to a valid inventor can neither be assigned (by the DABUS system) nor assumed (by Mr. Thaler).

[9] A response to the PR letter was received on February 18, 2025 ("R-PR") in which the Applicant provided further arguments in favor of the DABUS system being a valid "inventor". The Applicant also submitted that the principle of accession applies in the present case and that the owner of the AI system is the legal representative of the system.

[10] An oral hearing was held on February 26, 2025, with submissions being made by the Applicant's counsel. At the oral hearing, the Applicant made reference to caselaw and documents that were not before the Panel. The relevant references were provided to us later that same day (the "post-hearing submissions"), which we have reviewed and taken into account in our analysis below.

ISSUES

[11] As we set out in the PR letter at page 3, the determinative issue in this case is whether the term "inventor" as used in the *Patent Act* and *Patent Rules* includes the DABUS AI system. If it does not, then there is no valid "inventor" or "inventor's legal representative" and the application does not comply with subsection 27(2) of the *Patent Act* and subsection 54(1) of the *Patent Rules*. More specifically, if there is no valid "inventor", our understanding is that there can be no valid "inventor's legal representative", because the right to apply for a patent under subsection 27(2) of the *Patent Act* cannot be validly transferred from the inventor, nor can that right be assumed by anyone as their legal representative.

[12] The nature of the issues expressed above are consistent with the nature of the patent regime as a whole. Support for what is included within the meaning of "inventor" must be found in the *Patent Act* and *Patent Rules* and how they have been interpreted by Canadian courts. Canadian patent law is entirely statutory. A person's right to obtain a patent, as well as the requirements an applicant must satisfy to do so, arise solely from the Act and Rules (*Richards Packaging Inc. v. Canada (Attorney General)*, 2007 FC 11 [*Richards Packaging*] at para 25).

THE MEANING OF "INVENTOR"

Subsection 27(2) of the *Patent Act* and subsection 54(1) of the *Patent Rules*

[13] As stated in the PR letter at page 3, subsection 27(2) of the *Patent Act* sets out the requirements for filing a patent application, including that it must be filed by the "inventor" or the "inventor's legal representative" [Emphasis added]:

> **Application requirements**
>
> (2) The prescribed application fee must be paid and the application must be filed in accordance with the regulations by the inventor or the inventor's legal representative and the application must contain a petition and a specification of the invention.

[14] We further noted that the term "inventor" is defined neither in the *Patent Act*, nor in the *Patent Rules*.

[15] In respect of the other requirements of subsection 27(2), we also noted that there is no dispute that the listed Applicant, Mr. Thaler, paid the prescribed application fee or that the application included a petition and specification of the invention.

[16] As explained above, if the AI system known as DABUS cannot be considered an "inventor" under the *Patent Act*, then subsection 27(2) cannot be complied with,

since there is no valid "inventor" or legal representative of such an "inventor" that could file an application.

[17] The subsection of the *Patent Rules* relevant to this review is 54(1), which sets out the relevant information that must be provided in a patent application:

> **Information on inventors**
>
> 54 (1) The application must indicate the name and postal address of each inventor of the subject-matter of the invention for which an exclusive privilege or property is claimed.

[18] If DABUS cannot be considered as an "inventor" then the requirements of subsection 54(1) of the *Patent Rules* cannot be met.

[19] As stated in the PR letter at page 4, the Commissioner of Patents has no discretion to grant or refuse a patent. Subsection 27(1) of the *Patent Act* provides that the Commissioner shall grant a patent to an "inventor" or their legal representative where it is filed in accordance with the *Patent Act* and all other requirements under the Act are met. Section 40 requires the Commissioner to refuse a patent application when the applicant is not by law entitled to be granted a patent.

[20] None of the above was contested by the Applicant in the R-PR, at the oral hearing or in the Applicant's post-hearing submissions.

[21] We next set out the principles of statutory interpretation that were used in the PR letter to determine the meaning of the term "inventor" as used in the *Patent Act* and *Patent Rules*, and that are applied in this final analysis.

The principles of statutory interpretation

[22] None of the principles of statutory interpretation set out in the PR letter and repeated below, which have been used in our analysis, were contested by the Applicant.

[23] The Supreme Court of Canada in *Canada (Minister of Citizenship and Immigration) v Vavilov*, 2019 SCC 65 [*Vavilov*] at paras 117-118 reaffirmed the "modern principle" of statutory interpretation, requiring administrative decision makers to interpret legislation in a manner consistent with this principle [Emphasis added]:

> [117] A court interpreting a statutory provision does so by applying the "modern principle" of statutory interpretation, that is, that the words of a statute must be read "in their entire context and in their grammatical and ordinary sense harmoniously with the scheme of the Act, the object of the Act, and the intention of Parliament": *Rizzo & Rizzo Shoes Ltd.*, (Re), [1998] 1 S.C.R. 27, at para. 21, and *Bell ExpressVu Limited Partnership v. Rex*, 2002 SCC 42, [2002] 2 S.C.R. 559, at para. 26, both quoting E. Driedger, *Construction of Statutes* (2nd ed. 1983), at p. 87. Parliament and the provincial legislatures have also provided guidance by way of statutory rules that explicitly govern the interpretation of statutes and regulations: see, e.g., *Interpretation Act*, R.S.C. 1985, c. I-21.
>
> [118] This Court has adopted the "modern principle" as the proper approach to statutory interpretation, because legislative intent can be understood only by reading the language chosen by the legislature in light of the purpose of the provision and the entire relevant context: Sullivan, at pp. 7-8. Those who draft and enact statutes expect that questions about their meaning will be resolved by an analysis that has regard to the text, context and purpose, regardless of whether the entity tasked with interpreting the law is a court or an administrative decision maker. An approach to reasonableness review that respects legislative intent must therefore assume that those who interpret the law — whether courts or administrative decision makers — will do so in a manner consistent with this principle of interpretation.

[24] The Supreme Court in *Vavilov* also acknowledged that a statutory interpretation exercise undertaken by an administrative decision maker may look different than that done by a Court and that the administrative decision maker's specialized expertise and experience may bring different considerations to the exercise:

> [119] Administrative decision makers are not required to engage in a formalistic statutory interpretation exercise in every case. As discussed above, formal reasons for a decision will not always be necessary and may, where required, take different forms. And even where the interpretive exercise conducted by the administrative decision maker is set out in written reasons, it may look quite different from that of a court. The specialized expertise and experience of administrative decision makers may sometimes lead them to rely, in interpreting a provision, on considerations that a court would not have thought to employ but that actually enrich and elevate the interpretive exercise.

[25] The Supreme Court cautioned however that, whatever the form of the analysis, the interpretation must be consistent with the accepted statutory interpretation principles:

> [120] But whatever form the interpretive exercise takes, the merits of an administrative decision maker's interpretation of a statutory provision must be consistent with the text, context and purpose of the provision. In this sense, the usual principles of statutory interpretation apply equally when an administrative decision maker interprets a provision. Where, for example, the words used are "precise and unequivocal", their ordinary meaning will usually play a more significant role in the interpretive exercise: *Canada Trustco Mortgage Co. v. Canada*, 2005 SCC 54, [2005] 2 S.C.R. 601, at para. 10. Where the meaning of a statutory provision is disputed in administrative proceedings, the decision maker must demonstrate in its reasons that it was alive to these essential elements.

[26] Since this review involves consideration of compliance with subsection 54(1) of the *Patent Rules*, the Court's views on how regulations are to be interpreted are also relevant. In *Bristol-Myers Squibb Co v Canada (Attorney General)*, 2005

SCC 26 at para 38, the Supreme Court again referred to Elmer A. Driedger, *Construction of Statutes* (2nd ed.1983) ("Driedger") as cited in *Rizzo & Rizzo Shoes Ltd.*, Re, [1998] 1 S.C.R. 27 (cited in *Vavilov*, above) for how the scope of a regulation is constrained by its enabling statute:

> 38 The same edition of Driedger adds that in the case of regulations, attention must be paid to the terms of the enabling statute:
>
> > It is not enough to ascertain the meaning of a regulation when read in light of its own object and the facts surrounding its making; it is also necessary to read the words conferring the power in the whole context of the authorizing statute. The intent of the statute transcends and governs the intent of the regulation.
> >
> > (Elmer A. Driedger, *Construction of Statutes* (2nd ed.1983), at p. 247)
>
> This point is significant. The scope of the regulation is constrained by its enabling legislation. Thus, one cannot simply interpret a regulation the same way one would a statutory provision.

Analysis: Statutory interpretation of "inventor"

The grammatical and ordinary sense of the term "inventor"

[27] In the PR letter at pages 6-7, we first considered the grammatical and ordinary meaning of "inventor", drawing upon the process of statutory interpretation conducted by the Supreme Court of Canada in the context of interpreting terms used in the *Patent Act*:

> Despite not being defined in either the *Patent Act* or *Patent Rules*, "inventor" is a term well-known to those both inside and outside the patent realm.

In *Harvard College v. Canada (Commissioner of Patents)*, 2002 SCC 76 [*Harvard*] at paras 159, 162 and 163, in interpreting the terms "manufacture" and "composition of matter", the Court looked to dictionary definitions of the terms to provide clues as to their meaning in the *Patent Act*.

According to *The Oxford English Dictionary*, (2nd ed 1989) ("*Oxford*"), vol VIII, at page 41, an inventor is:

> One who finds out, a discoverer (whether by chance, or by investigation and effort)…One who devises or contrives…One who devises or produces something new (as an instrument, an art, etc.) by original contrivance; the originator of a previously unknown method or means of doing something…

The *Oxford English Dictionary*, s.v. "inventor (*n.*), sense 3," June 2024, https://doi.org/10.1093/OED/7396985539, similarly identifies "inventor" as:

> One who devises or produces something new (as an instrument, an art, etc.) by original contrivance; the originator of a previously unknown method or means of doing something; 'the first finder-out'.

In the above interpretations "one" is used in the sense of an indefinite pronoun, denoting a person in the general sense, as opposed to a particular or specific person, but nonetheless, a person [Emphasis added]:

> a person or being whose identity is left undefined; some one, a certain one, an individual, a person (*Oxford*, vol X at page 805).

The *Canadian Oxford Dictionary* ((2004). inventor. In Barber, K. (Ed.), *The Canadian Oxford Dictionary*. : Oxford University Press. Retrieved 24 Oct. 2024, from https://www.oxfordreference.com/view/10.1093/acref/9780195418163.001.0001/m_en_ca0035611.2nd ed 2005) considers an inventor to be [Emphasis added]:

> a person who invents things, esp. as an occupation.

Similarly, *Le Grand Robert de la langue française*, (2nd ed 2001), vol IV, at page 349 defines "inventeur, trice" as [Emphasis added]:

> Personne qui invente, qui a inventé…L'inventeur d'une machine, d'un art…, d'un procédé, d'une science…

[28] We noted that the references considered indicate that the grammatical and ordinary sense of "inventor" is generally understood as connoting a person rather than an AI system such as DABUS.

[29] While the Applicant did not dispute any specific points of the above analysis, the general use of dictionary definitions was contested at the hearing. As set out above from the PR letter, the Supreme Court undertook a similar exercise when considering whether or not a higher life form was patentable subject-matter.

[30] At the oral hearing and in the post-hearing submissions, the Applicant made reference to "inventor" being limited to natural person(s) (the preliminary view in the PR letter) as too limited since the meaning of words can evolve over time. The Applicant pointed to the definition of "calculator" taken from the online Merriam Webster dictionary at CALCULATOR Definition & Meaning - Merriam-Webster, where it is defined as: "one that calculates: such as a: a usually electronic device for performing mathematical calculations; b: a person who operates a calculator." As a further attempt to illustrate the evolution of the meaning of a term, the Applicant pointed to "*When Computers Were Human*", a November 2, 2016 article found at: https://www.nasa.gov/centers-and-facilities/jpl/when-computers-were-human/. The article discusses the women that performed hundreds of thousands of mathematical calculations crucial to the early US space program. They are referred to in the article as human "computers".

[31] With respect to the reference to "calculator", it may be that some people refer to the person operating a calculator as a "calculator", but that does not mean that

"inventor" within the meaning of the *Patent Act* and *Patent Rules* has also evolved such that it refers to both natural person(s) and machines. We note that we could find no definition for "inventor" *per se* in the Merriam-Webster database.

[32] With respect to human "computers", in our view, while the people performing the calculations may have been referred to as "computers" at the time in that they were performing computations, the word takes on a different meaning in the modern context and generally refers to the device that is used for performing such computations. With reference to the online Merriam Webster dictionary used by the Applicant, "computer" is taken to imply a device, being defined as "…*specifically*: a programmable usually electronic device that can store, retrieve, and process data" (see https://www.merriam-webster.com/dictionary/computer).

[33] In our view, whatever evidence there may be that words such as "calculator" or "computer" may have such a scope as to encompass humans or machines, there is no evidence that the meaning of "inventor", either in its grammatical and ordinary meaning or in the context of the *Patent Act* and *Patent Rules* (as discussed below), has evolved such that both natural persons and machines fall within its scope.

The context surrounding the term "inventor"

[34] At pages 7-10 of the PR letter, we considered the context of the term "inventor" in both the *Patent Act* and *Patent Rules* and its influence on the understanding of the term. We reproduce below our preliminary analysis of this part of the statutory interpretation exercise:

> *The context of "inventor" in the Patent Act*
>
> The first occurrence of the term inventor in the *Patent Act* is in the definition of "applicant" in section 2 [Emphasis added]:

> includes an inventor and the legal representatives of an applicant or inventor; (*demandeur*).

Similarly, the French equivalent "demandeur" is defined as:

> Sont assimilés à un demandeur un inventeur et les représentants légaux d'un demandeur ou d'un inventeur. (*applicant*)

"Legal representatives" is defined in that same section as a group that [Emphasis added]:

> includes heirs, executors, administrators of the estate, liquidators of the succession, guardians, curators, tutors, transferees and all other persons claiming through applicants for patents and patentees of inventions or through holders of certificates of supplementary protection; (*représentants légaux*).

and in the French version as [Emphasis added]:

> Sont assimilés aux représentants légaux les héritiers, exécuteurs testamentaires, administrateurs successoraux, liquidateurs de la succession, curateurs, tuteurs, cessionnaires, ainsi que toutes autres personnes réclamant par l'intermédiaire de demandeurs et de titulaires de brevets ou de certificats de protection supplémentaire. (*legal representatives*)

The use of "other persons" at the end of the lists in the English and French definitions indicates that this group is in addition to the "persons" previously identified. In this manner, "legal representatives" suggests a person or group of persons.

Before proceeding we note that "applicant" or "legal representatives" under the *Patent Act* as set out above includes a non-natural person, since it is common that patent rights are assigned to a corporation. In this respect, the *Patent Act* in section

2 defines "patentee" as "the person for the time being entitled to the benefit of a patent; (breveté ou titulaire d'un brevet)." Importantly, this is consistent with how "person" is defined in subsection 35(1) of the *Interpretations Act* (R.S.C, 1985, c. I-21), "person, or any word or expression descriptive of a person, includes a corporation; (personne). The French equivalent is "Personne physique ou morale; l'une et l'autre notions sont visées dans des formulations générales, impersonnelles ou comportant des pronoms ou adjectifs indéfinis. (person)". As such, a patentee can be a legal person or personne morale rather than a natural person or personne physique, compared to the general connotation of "inventor" as a natural person or personne physique. Unless a contrary intention appears, the definitions provided in the *Interpretations Act* apply to the interpretation of statutes and regulations, and so it is appropriate to consider how this applies to "applicant", "legal representative" and other words descriptive of persons at this point. However, the fact that "person" in general within the *Patent Act* may not be limited to a natural person does not mean that "inventor" is not so limited, as we further explore below.

At para 161 of *Harvard*, the Court accepted as a well-known principle of statutory interpretation that the meaning of questionable words or phrases in a statute may be ascertained by reference to the meaning of the words or phrases associated with them (citing P.-A. Côté, *The Interpretation of Legislation in Canada* (3rd ed. 2000) at pages 313-314, see also *Sullivan on the Construction of Statutes*, 6th ed./Ruth Sullivan, LexisNexis Canada Inc, 2014 ("*Sullivan*") at pages 230-234). Since "legal representatives" suggests a person or persons and is seemingly directed to a larger group than "inventor" as discussed above, it is logical that "inventor" is also limited to a person or persons.

"Inventor" shows up again in subsection 7(2) of the *Patent Act*, this time dissociated from any "legal representatives." There is a restriction on Patent Office employees in dealing in patents in subsection 7(1), the exception being under subsection 7(2) and defined as an employee who is an original inventor or who acquired patent rights "under the last will, or by the intestacy, of a deceased person." An "officer or employee of the Patent Office" (subsection 7(1)) is certainly a "person" and any original inventor or acquired rights by such an officer or employee would therefore

involve a "person". We further note that in this context any officer or employee of the Patent Office or deceased person involved would be natural persons, rather than a person represented by a legal entity. The French version of subsection 7(1) similarly refers to "personnel du Bureau des brevets."

The same is true of section 20 of the *Patent Act*, which deals with Crown officers, servants or employees that invent any instruments or munitions of war in subsection 20(1), where such individuals are described as a "person" in subsection 20(2) and as an "inventor" in subsection 20(3). Similarly, the French version of 20(1) refers to "Tout membre de l'administration publique fédérale ou du personnel d'une personne morale qui est un agent ou au service de la Couronne", with 20(2) and 20(3) referring to "personne" as well as "inventeur" [Emphasis added]:

> Assignment to Minister of National Defence
>
> 20 (1) Any officer, servant or employee of the Crown or of a corporation that is an agent or servant of the Crown, who, acting within the scope of his duties and employment, invents any invention in instruments or munitions of war shall, if so required by the Minister of National Defence, assign to that Minister on behalf of Her Majesty all the benefits of the invention and of any patent obtained or to be obtained for the invention.
>
> Idem
>
> (2) Any person other than a person described in subsection (1) who invents an invention described in that subsection may assign to the Minister of National Defence on behalf of Her Majesty all the benefits of the invention and of any patent obtained or to be obtained for the invention.
>
> Inventor entitled to compensation
>
> (3) An inventor described in subsection (2) is entitled to compensation for an assignment to the Minister of National Defence under this Act and in the event that the consideration to be paid for the assignment is not agreed on, it is the duty of the Commissioner to determine the amount of the consideration, which decision is subject to appeal to the Federal Court.

Cession au ministre de la Défense nationale

20 (1) Tout membre de l'administration publique fédérale ou du personnel d'une personne morale qui est un agent ou au service de la Couronne, qui, dans l'exercice de ses fonctions ou dans le cadre de son emploi, réalise une invention portant sur des instruments ou munitions de guerre, est tenu, s'il en est requis par le ministre de la Défense nationale, de céder à celui-ci, pour le compte de Sa Majesté, le plein bénéfice de l'invention et de tout brevet obtenu ou à obtenir pour celle-ci.

Idem

(2) Toute autre personne qui est l'auteur d'une telle invention peut céder au ministre de la Défense nationale, pour le compte de Sa Majesté, le plein bénéfice de l'invention et de tout brevet obtenu ou à obtenir pour celle-ci.

L'inventeur a droit à une indemnité

(3) L'inventeur visé au paragraphe (2) a droit à une indemnité pour une cession au ministre de la Défense nationale prévue dans la présente loi. S'il n'a pas été convenu de la considération à verser pour une telle cession, le commissaire en détermine le montant, mais il peut être interjeté appel de sa décision à la Cour fédérale.

A term used in a piece of legislation is generally taken to have the same meaning throughout the legislation (*Sullivan* at pages 217-218). Therefore if "inventor" clearly connotes a natural person in some provisions, such as 7(1), 7(2) and 20(1)-20(3), above, such a meaning is to be attributed to the term in general, unless there is a clear conflict with the manner in which it is used elsewhere, which is not the case here.

Subsection 27(1) of the *Patent Act* specifies that the Commissioner of Patents shall grant a patent to "the inventor or the inventor's legal representative" [Emphasis added] ("l'inventeur ou à son représentant légal" in French) if an application filed in accordance with the *Patent Act* and all other requirements (including those set out in the *Patent Rules*, per subsection 27(2) of the *Patent Act*). In this respect, "legal

representative" would take on the same connotation as set out above, namely being directed to a person or persons.

Section 31 of the *Patent Act* deals with joint patent applications. Subsection 31(1) deals with situations where one of two or more inventors refuses to proceed with a patent application or "his whereabouts cannot be ascertained after diligent inquiry." In such a case, the other inventors or their legal representatives may proceed with an application and be granted a patent. The idea of an inventor refusing to proceed with a patent application does not align with a situation where an artificial intelligence system is an inventor. Further, reference to "his whereabouts" not being known (the gender usage reflective of past drafting practices) suggests inventors as individuals or natural persons, rather than a legal person or corporation. The whereabouts of an inventor not being known is also not aligned with "inventor" encompassing an artificial intelligence system, corporation or anything other than a natural person. Equivalent language is provided in the French version.

There are other references in the *Patent Act* to "inventor" (e.g., subsection 27(3), section 48), but they do not provide any further clarification on the scope of the term.

The context of "inventor" in the Patent Rules

Subsection 27(2) of the *Patent Rules* specifies the conditions under which a patent agent must be appointed to represent the interests of an applicant, patentee or other person before the Patent Office. The first condition is if the application is filed by "a person other than the inventor" [Emphasis added]. This language also characterizes an inventor as a person. Equivalent language is provided in the French version.

Subsection 54(1) of the *Patent Rules*, which is one of the provisions identified in the 2021 Notice, requires that "[t]he application must indicate the name and postal address of each inventor…" (equivalent language being provided in the French version). While DABUS may be identified by its acronym and the computer system on which it operates could be located at an address, it is difficult to imagine that

those who drafted the *Patent Rules* contemplated the name and postal address requirements as applying to an artificial intelligence system.

There are other references in the *Patent Rules* to inventor. However, in our preliminary view, the context does not provide any further clarification on the scope of the term.

[35] Based on the above analysis we indicated in the PR letter at page 10 our preliminary view that "inventor" and "inventeur" as used in the *Patent Act* connotes a natural person, rather than a legal person (e.g., corporation) or an AI system, such as DABUS.

[36] We further indicated that, keeping in mind that the scope of regulations is constrained by the enabling statute, we reviewed the regulation making authority set out in section 12 of the *Patent Act* and found no provision for ascribing a different meaning to terms such as "inventor". There was also no suggestion in the relevant provisions of the *Patent Rules* that would ascribe a different meaning or context regarding the term "inventor" than that of the *Patent Act*.

[37] In the PR letter at pages 11-12, we canvassed other provisions of the *Patent Act* to determine what they may suggest in relation to the scope of the term "inventor":

Further context for "inventor"

The term "patentee" is defined in section 2 of the *Patent Act* as "the person for the time being entitled to the benefit of a patent; (*breveté ou titulaire d'un brevet*)." [Emphasis added] If an inventor does not assign the rights to another party and a patent is granted, they become the patentee. In this way, the definition of patentee implies that inventors must also be a person or persons.

Section 28.2 of the *Patent Act*, which deals with the novelty requirement, specifies that the subject-matter defined by a claim in an application must not have been

disclosed "…before the claim date by the applicant, or by a person who obtained knowledge, directly or indirectly, from the applicant…", "…before the claim date by a person…" or "in an application for a patent that is filed in Canada by a person other than the applicant…" [Emphasis added]. Prior disclosures that may invalidate a claim are those made by the applicant or by another person, the implication being that an applicant is a "person" as well. Since "applicant" includes "inventor" in section 2 of the *Patent Act*, then an inventor must also be a person. Similar language is used in section 28.3 in respect of obviousness. The French versions of 28.2 and 28.3 similarly refer to "personne."

Section 32 of the *Patent Act* refers to rights accorded to patents for "improvements", specifying that:

> [a]ny person who has invented any improvement on any patented invention may obtain a patent for the improvement, but he does not thereby obtain the right of making, vending or using the original invention…

The French version refers to "Quiconque est l'auteur d'un perfectionnement à une invention brevetée…" and "Il n'obtient pas de ce fait le droit de…".

There is a clear link in this provision between a person and an inventor, with the use of the singular pronoun indicating again that the person who may have invented the improvement is an individual or natural person rather than a legal person such as a corporation.

Other references to person(s) include: who may file prior art with the Commissioner (section 34.1); who may request examination of a patent (section 35); who may appeal to the Federal Court from a refusal to grant a patent (section 41, "celui" in the French version); who may request re-examination of a patent (subsection 48.1(1)); who is liable for infringement of a patent (subsection 55(1) "Quiconque" in the French version); what actions do not constitute infringement (subsections 55.2(1) and 56(1)); who may initiate impeachment proceedings against a granted patent

(subsection 60(1) "any interested person", "un intéressé" in the French version); and who may make an application alleging abuse of patent rights (subsection 65(1) "any person interested", "tout intéressé" in the French version). All of these provisions specify actions by a "person" in relation to securing patent rights, being affected by them and challenging them (or clearly connote a person in the French equivalents).

[38] Based on the above, the PR letter at page 12 indicated our preliminary view that there was a clear inference that patent rights were intended to be awarded to, and transferred between, natural or legal persons. It would seem inconsistent with that intent if the creations which led to those rights could be conceived of and given a practical form by an entity other than a person, such as the DABUS AI system.

[39] At para 37 of the R-PR, the Applicant noted that there is nothing in the *Patent Act* or *Patent Rules* that prohibits designating an AI system as an "inventor". It is true that nothing in the legislation specifically prohibits such a designation, but the lack of an exclusion cannot be determinative of whether such a designation is appropriate. If it were, there would presumably be no need for statutory interpretation regarding what falls within a piece of legislation and what does not. Silence in the legislation does not imply an unrestricted authority as to who or what can be named as an "inventor" (see, for example, *Antiballistic Security and Protection Inc. v. Canada (Commissioner of Patents)*, 2008 FC 587 at paras 27-29, aff'd 2008 FCA 391, finding that a common law right not prohibited in legislation is not necessarily allowable).

[40] At the oral hearing, the Applicant made the point that the PR letter gave too much weight to the grammatical and ordinary meaning of the word "inventor" and its contextual use within the Act. A significant portion of the Applicant's submissions relate instead to Parliamentary intention and the object and scheme of the *Patent Act*, which we address next.

The object and scheme of the Patent Act and Parliamentary Intention

[41] In the PR letter at page 12, we considered the known objectives behind the *Patent Act* and the intent behind the scheme laid out in it [Emphasis in original]:

> In *Harvard* at para 185 the Supreme Court referred to *Free Word Trust v Électro Santé Inc*, 2000 SCC 66 at para 42 to identify two of the central objects of the *Patent Act* as "to advance research and development and to encourage broader economic activity." The Court in *Harvard* in the same paragraph also spoke of the necessity of incentives to engage in inventive activity, further specifying that a product of human ingenuity must fall within the terms of the *Patent Act* in order for it to be patentable.
>
> The scheme of the Act and Rules embodies the above objects in that a patent for an invention will be granted to the inventor (or their legal representative) as long as the inventor (or their legal representative) files an application that complies with all of the filing requirements that are set out in the Act and Rules, including identifying the inventor(s), their name(s) and postal address(es), and that all other requirements for the issuance of a patent under the *Patent Act* are met.
>
> The scheme of the *Patent Act* provides a *quid pro quo*: an inventor must fully disclose an invention in exchange for a patent giving the inventor the right to exclude others from making, using, importing, or selling the invention for a limited time period. Patents are generally recognized as a form of reward for inventive activity.
>
> The goal of incentivising innovation would not seem to apply to an innovator that is an artificial intelligence system. Artificial intelligence systems such as the DABUS system do not need incentives and would not benefit in any way from the reward of a granted patent. An artificial intelligence system does not need encouragement nor does it have a need to enforce exclusivity of an innovation. Rather, such a system simply operates based on programming and algorithms.

> In our preliminary view, the accepted objects and scheme of the patent system do not fit with the idea of an artificial intelligence system being an inventor.

[42] In support of preserving the intention of Parliament, the Applicant pointed to several court cases in the R-PR at paras 21-23 to illustrate the position that statutory interpretation must use a "dynamic approach" and that the meaning ascribed to legislation must evolve over time in response to "evolving social and material realities." The Applicant first pointed to *R v 974649 Ontario Inc*, 2001 SCC 81, quoting from para 38 of that decision:

> **The intention of Parliament or the legislatures is not frozen for all time** at the moment of a statute's enactment, such that a court interpreting the statute is forever confined to the meanings and circumstances that governed on that day. **Such an approach risks frustrating the very purpose of the legislation** by rendering it incapable of responding to the inevitability of changing circumstances. Instead, we recognize that the law speaks continually once adopted … **Preserving the original intention of Parliament or the legislatures frequently requires a dynamic approach to interpreting their enactments, sensitive to evolving social and material realities** [Emphasis added by Applicant in R-PR at para 21].

[43] This case dealt with whether a provincial court justice acting under the *Ontario Provincial Offences Act*, R.S.O. 1990, c. P.33 had the power to order costs against the Crown for failure to comply with the *Canadian Charter of Rights and Freedoms* [*Charter*]. In particular, the question was whether such a court was a "court of competent jurisdiction" under subsection 24(1) of the *Charter* and therefore could make such an order.

[44] We first note that the Court indicated at para 18 that *Charter* provisions command "a broad and purposive interpretation", and since the relevant section was a vital part of the *Charter*, it must be "construed generously, in a manner that best ensures the attainment of its objects." Further, since the relevant section is remedial, it "benefits from the general rule of statutory interpretation that accords

remedial statutes a 'large and liberal' interpretation." The Court also noted that the particular language used in this provision appears "to confer the widest possible discretion on a court to craft remedies for violations of Charter rights." In our view, such considerations do not apply to the interpretation of "inventor" within the *Patent Act* and *Patent Rules*.

[45] While the Court did speak of the need for dynamic interpretation of legislation, this was in the context of considering the effect of enactment of the *Charter* on the remedial powers of a pre-existing court acting under the *Ontario Provincial Offences Act*. The Court did not, without any indication from the legislature, arrive at a new interpretation of the powers of a provincial court. Legislative intent in the form of enactment of the *Charter* was found to lead to the interpretation of the remedial powers of the provincial courts:

> It follows that the remedial powers of courts and tribunals — even those that antedate the *Charter* — must be interpreted in light of the *Charter*'s enactment. (para 39)
>
> …
>
> The *Charter* itself provides insight into how the powers of pre-existing courts and tribunals should be approached. In this regard, I note that the *Charter*'s enactment is an expression not only of Parliament's will, but also of that of the respective provincial legislatures by adoption. (para 40)

[46] The above situation does not compare well with the present one where the Applicant would like to disregard what is, in our view, the grammatical and ordinary sense of "inventor" as well as its meaning based on the context of the *Patent Act* and *Patent Rules*, without any legislative indication to do so.

[47] The Applicant also pointed to *John v. Ballingall*, 2017 ONCA 579 [*John*] at para 24, where the Court indicated that legislation may be interpreted to apply to technology that did not exist when a provision was enacted:

> The courts have interpreted legislation to apply to advances in technology that did not exist when the provision was enacted. For example, courts have found the *Telegraph Act*[1] applies to telephones, and a fibre optic system is a "cable" within the meaning of the *Income Tax Act*, despite the fact that neither of these technologies existed at the time the relevant provisions were enacted: see *Attorney General v. Edison Telephone Co. of London* (1880), 6 Q.B.D. 244 (Eng. Q.B.); and *British Columbia Telephone Co. v. R.* (1992), 139 N.R. 211 (Fed. C.A.).
>
> [1] 1868, Vict. c. 110.

[48] *John* dealt with whether the online version of a newspaper could be considered a "newspaper" within the *Libel and Slander Act*, R.R.O. 1990, c. L.12. The Court found at paras 22-23 that both versions of a newspaper, the print and online editions, should be treated equally and drew support from a previous case where it was found that a newspaper does not cease to be a newspaper when published online (citing *Weiss v. Sawyer* (2002), 61 O.R. (3d) 526 (Ont. C.A.)). It was therefore not difficult to envision "newspaper" as including both versions.

[49] The Court in *Attorney General v. Edison Telephone Co. of London* (1880), 6 Q.B.D. 244 (Eng. Q.B.) [*Edison*] did interpret "telegraph" within the *Telegraph Act*, (1863, Vict. c. 112 and 1869, Vict. c. 73) to include a telephone, but that was because the definitions of "telegraph" and "telegram", when read together, encompassed a telephone, its components and function (*Edison* at 248). This is in contrast to the present situation where no definition of "inventor" is provided in the *Patent Act* or *Patent Rules*.

[50] *British Columbia Telephone Co. v. R.* (1992), 139 N.R. 211 (Fed. C.A.) addressed whether a fibre optic cable could be considered as a "wire or cable" under the *Income Tax Act* , R.S.C. 1952, c. 148 (am. S.C. 1970-71-72, c. 63). The Court found no difficulty in considering fibre optic cable to fall within "cable". This case is unlike the present situation in that the Commissioner is being asked to interpret

the term "inventor" in a more expansive way than interpreting one particular type of cable to fall within the mearing of "cable".

[51] While the Applicant has used these cases to illustrate that advances in technology should be included within the scope of legislation that did not foresee their creation, the instant application does not present the same questions. In the present case, "inventor", if interpreted to include an AI system, would not represent a technological evolution from what the legislators contemplated since "inventor" was not contemplated as being a piece of "technology", but rather a natural person or persons. In our view, the change in meaning would be drastic in comparison.

[52] The Applicant also pointed in the R-PR at paras 24 and 27-28 to cases dealing specifically with patents.

[53] The Applicant pointed to *Amazon.com, Inc. v. Canada (Attorney General)*, 2010 FC 1011, where at para 54, the Court stated that:

> ...the *Patent Act* is broad and encompasses "unforeseen and unanticipated technology" ([*Harvard*] at paragraph 158). **The *Patent Act* is not static; it must be applied in ways that recognize changes in technology** such as the move from the industrial age to the electronic one of today. [Emphasis added by Applicant]

[54] The Applicant pointed to *Free World Trust v. Électro Santé Inc.,* 2000 SCC 66, where at para 42 the Court indicated that "[t]he patent system is designed to advance research and development and to encourage broader economic activity", as well as *Teva Canada Ltd. v. Pfizer Canada Inc.*, 2012 SCC 60 at para 32 [*Teva*], where the Court stated that:

> The patent system is based on a "bargain", or *quid pro quo*: **the inventor is granted exclusive rights in a new and useful invention for a limited period in exchange for disclosure of the invention so that society can benefit from this knowledge**. This is the basic policy rationale underlying the Act. **The patent**

> **bargain encourages innovation and advances science and technology**.
> [Emphasis added by Applicant]

[55] We agree that the above guidance from our Courts makes it clear that the patent system is to be applied in a way that encourages and recognizes advances in science and technology.

[56] Nevertheless, the patent system has limits on what may fall within its purview. For example a mouse, even if produced by an innovative process, cannot be protected by a patent as it does not fall within the scope of "manufacture" or "composition of matter" as used in the *Patent Act* (*Harvard*). A method of medical treatment, however innovative, also cannot be the subject-matter of a patent as it does not fall within the scope of "art" or "process" (*Tennessee Eastman Co. v. Commissioner of Patents*, [1974] S.C.R. 111).

[57] In our view, the passages cited from our Courts by the Applicant on the goals of the patent system refer to the scope of "what" should be the subject-matter of a patent, rather than "who" should be permitted to obtain the exclusive rights granted by it.

[58] It is our view that the patent-related cases cited by the Applicant do not justify such a significant shift in the meaning of "inventor" that it would include an AI system such as DABUS.

Caselaw relating specifically to the meaning of "inventor"

[59] In the PR letter at pages 13-14, we pointed to patent-related cases that speak to what is meant by "inventor" in the *Patent Act*, those cases indicating that our Courts consider "inventor" to be limited to a natural person(s) rather than a juridical or legal person such as a corporation, and that invention in terms of the *Patent Act* relates to the results of human ingenuity. We reproduce our analysis from the PR letter below:

The Canadian courts have also spoken on what is meant by inventor, albeit not in the context of whether or not an artificial intelligence system fits within its definition. Nevertheless, their views seem clear. In *Sarnoff Corporation v The Attorney General of Canada*, 2008 FC 712 [*Sarnoff*] at para 9, the Federal Court stated that "inventor" is assumed to be limited to a natural person, pointing to the Supreme Court decision in *Apotex Inc v Wellcome Foundation Ltd*, [2002] 4 SCR 153 [*Apotex*] at paras 94 to 109 [Emphasis added]:

> In Canada, the language of the jurisprudence assumes that an "inventor" is a natural person as opposed to a juridical person such as a corporation. A good example is the decision of the Supreme Court of Canada in *Apotex Inc. v. Wellcome Foundation Ltd.*, [2002] 4 S.C.R. 153 at paras. 94 to 109. I repeat paragraph 95 of that decision to show that a natural person is clearly contemplated:
>
> > ***95*** *Inventors come in all shapes and sizes. As long ago as 1831, the London Journal of Arts and Sciences commented (with gender assumptions no doubt common at the time):*
> >
> > *Useful inventors are of three classes; the first are men of genius, capable of producing important inventions that involve the entire projecting of new machines, or remodelling of existing ones, and the organization of new or complicated processes and systems of working. These are very few.*
> >
> > *The second are men who have not so extensive a scope of imagination and intellect as to project new systems or great changes, and to organize the means of effecting them, but who are capable of making marked improvements upon existing systems and machinery, or partial changes in them. This class is considerable.*
> >
> > *The third class is made up of men of small imagination, who are not capable of any great originality of thought, but who have a certain ingenuity which they can apply to the things that come within the range of their*

> *observation, and possess a tact for correctly and accurately executing that which they conceive.*
>
> *... Happily this class is immense, being spread thickly over the whole body of mechanics, from the manufacturer and engineer down to the lowest workman. Such men constitute expert mechanicians, who are never at a loss for expedients for overcoming the practical difficulties of detail that occur in their business, and are perpetually making trifling inventions which they require for immediate application.*
>
> *(Quoted in Godson on Patents (2nd ed. 1851), at pp. 33- 34.)*

The Court in *Sarnoff* also noted in the same paragraph that:

> some European applications for patents are filed naming corporate entities as the inventor. Not so in Canada or the United States.

The Supreme Court in *Apotex* at para 96 also made clear their inference that an inventor is a person [Emphasis added]:

> Inventorship is not defined in the Act, and it must therefore be inferred from various sections. From the definition of "invention" in s. 2, for example, <u>we infer that the inventor is the person or persons who conceived of the "new and useful" art, process, machine, manufacture or composition of matter, or any "new and useful" improvement thereto</u>. The ultimate question must therefore be: who is responsible for the inventive concept?

From the above passages, in the Canadian Courts' view, juridical or legal persons under subsection 35(1) of the *Interpretations Act* (R.S.C, 1985, c. I-21), such as corporations, cannot be named as an "inventor", the reason being that "inventor" is assumed to be limited to comprising natural persons. This view reinforces our preliminary impression of the meaning of inventor and is consistent with Harvard at

para 185 referred to earlier indicating that invention in terms of the *Patent Act* is the product of human ingenuity.

[60] At the oral hearing, the Applicant contended that the cases discussed above dealt with a natural person versus a corporation as an "inventor" rather than any question as to whether an AI system such as DABUS could be considered an "inventor".

[61] *Sarnoff* was a case about who could properly pay the maintenance fees for a pending patent application. The meaning of "inventor" was canvassed as well as the meaning of several other terms related to persons mentioned in the *Patent Act* and *Patent Rules*. The comments surrounding "inventor" as a natural person rather than a juridical person or corporation were made in a general discussion of what is meant by "inventor" rather than to make a specific point relevant to the Court's analysis. In our view, it was conveyed as the generally accepted meaning of "inventor" in the Canadian patent context.

[62] *Apotex*, at least in part, dealt with inventorship and whether certain individuals should be named as inventors on the patent. We recognize that the Court was not considering whether a non-natural person could be named as an "inventor". However, the Court did express its general understanding of the term.

[63] In our view, Canadian Courts have not indicated any intention to interpret "inventor" as used in the *Patent Act* and *Patent Rules* to include a non-natural person or an entity such as DABUS and have instead taken the term to be limited to natural person(s).

Ownership Considerations

[64] In the PR letter at pages 15-16, we set out the analysis as to why, in our preliminary view, the claim by the Applicant that he derives entitlement to the

subject-matter of the invention through the ancient Roman principle of "accession" does not apply in the present circumstances:

In the 2022 Response, the Applicant contended that he derives entitlement to file an application by his ownership of DABUS. According to the Applicant, his ownership derives from the ancient principle under Roman law known as "accession" where the owner of a thing is, by default, the owner of the fruits of such a thing. The Applicant cited the Supreme Court of Canada's decision in *Banque Canadienne Nationale v Tencha*, [1928] SCR 26 at 36 [*Tencha*] and the following passage [Emphasis added by Applicant]:

> The doctrine of property arising from accession is also grounded on the right of occupancy. By the Roman Law, if any given corporeal substance received afterwards an accession by natural or by artificial means, as by the growth of vegetables, the pregnancy of animals, the embroidering of cloth, or the conversion of wood or metal into vessels and utensils, the original owner of the thing was entitled by his right of possession to the property of it under such its state of improvement ...

The Applicant noted that essentially the same language is used in the decision of the Saskatchewan Court of Appeal in *Regina Chevrolet Sales Ltd v Riddell*, [1942] SJ No 49 at para 16 [*Riddell*] and by the Ontario Court of Queen's Bench in *Dillaree v. Doyle*, [1878] O.J. No. 109 at para 24.

The Applicant also pointed to a passage from *Riddel* at para 15 defining "accession" [Emphasis added by Applicant]:

> "Accession is defined generally as increase by something added; that which is added; addition, increase, augmentation. As a legal term, it is defined as the right to all that which one's own property produces ..."

The *Tencha* case dealt with a transfer of farmland and a question of to whom crops produced on such land belonged. The Roman principles cited therein can be seen as relevant to such situations given the examples of what kind of accession or addition was contemplated by those principles, namely additions such as growth of vegetable, pregnancy of animals, etc.

However, the principles cited in *Tencha* do not suggest that what is produced by a corporeal substance and received by accession may itself be non-corporeal or intangible, such as the conception and description of an invention. It is hard to imagine that such a situation was envisioned for such principles. We also note that though the Applicant has emphasized language from *Riddel* that on its face appears very broad regarding what kinds of accessions are protected, the quoted language from *Riddel* was used in conjunction with the same principles set out in *Tencha*.

We note that the Applicant also asserted the principle of accession in pursuit of his application before the UK Supreme Court, the Court rejecting its applicability to the present situation (*Thaler v Comptroller-General of Patents, Designs and Trade Marks* [2023] UKSC 49):

> 87. In particular, Dr Thaler's reliance on the doctrine of accession in this context is misguided. The doctrine concerns new tangible property produced by existing tangible property. Dr Thaler contends that, upon the application of this doctrine, the owner of the existing property also owns the new property. In this way, the farmer owns the cow and the calf. By analogy, Dr Thaler continues, he, as owner of DABUS, is the owner of all rights in all developments made by DABUS.
>
> 88. We are not concerned here with a new item of tangible property produced by an existing item of tangible property, however. We are concerned with what appear (and which for present purposes we must assume) to be concepts for new and non-obvious devices and methods, and descriptions of ways to put them to into practice, all of

> which, so Dr Thaler maintains, have been generated autonomously by DABUS. There is no principled basis for applying the doctrine of accession in these circumstances.
>
> In the present case, the DABUS system is said to have created a design for a type of food and beverage container as well as an enhanced signalling device and these have been described in the instant application. But the fruits of the DABUS system that are sought to be protected are intellectual property, an intangible asset, rather than physical property. In our preliminary view, the principle of accession, as it has been used, does not fit with such a situation and the Applicant has not provided any references that support the expansion of this principle.

[65] In the R-PR at paras 44-45, the Applicant reiterated the position that the principle of accession applies in the present circumstances, as the owner of a thing is the owner of the fruits of that thing and the same logic must apply to intellectual property produced by an AI system. The Applicant also argued at para 45 that it is only logical that the owner of such an AI system should be the legal representative of that AI system.

[66] Applying the principle of accession in the patent context is not supported by the *Patent Act* or *Patent Rules*. As previously noted, a person's right to obtain a patent, as well as the requirements an applicant must satisfy to do so, arise solely from the Act and Rules (*Richards Packaging* at para 25). Further, nothing in the caselaw interpreting this legislation supports the adoption of the principle of accession in this context.

[67] At the oral hearing, the Applicant took the position, aside from whether or not the principle of accession *per se* applies in this case, that the intellectual property produced by DABUS, while intangible, has value and is owned by Mr. Thaler, the owner of DABUS. The Applicant pointed to caselaw in the post-hearing submissions, domestic and foreign, in an attempt to illustrate that a piece of property can generate an intangible asset and the ownership of such an

intangible asset flows to the owner of the piece of property, rather than the piece of property itself. In the Applicant's view, based on the foregoing, whatever is invented by DABUS, the right to it and the right to protect it, lies with the owner.

[68] The Applicant pointed to *Manitoba Fisheries Ltd. v. The Queen*, [1979] 1 SCR 101 [*Manitoba Fisheries*] at pages 107-108 where the Court characterized the goodwill established by a business, although intangible in character, as a part of the property of a business as much as the physical machinery and equipment employed in the production of a product.

[69] The Applicant also pointed to *Veuve Clicquot Ponsardin v. Boutiques Cliquot Ltée*, 2006 SCC 23 [*Veuve Clicquot*] at paras 50-55. This case discussed the depreciation of goodwill associated with a trademark that can occur when another party uses a similar mark and the two are confused or likely to be confused. While *Veuve Clicquot* speaks of an intangible asset (goodwill) being associated with another intangible asset (a trademark), the intangible goodwill is not generated by the trademark itself. Rather, it is something generated by the effort of those people that make up the business entity.

[70] The Applicant further pointed to the example of bitcoin currency, contending that if one possesses cryptocurrency mining equipment that produces a bitcoin, ownership of the bitcoin belongs to the owner of the equipment, rather than the equipment itself. The Applicant pointed to a decision of the UK Court of Appeal (Civil Division), *Tulip Trading Ltd v Bitcoin Association for BSV*, [2023] EWCA Civ 83, [2023] 4 W.L.R. 16 [*Tulip*], where cryptocurrency was described as property (para 7). We note that the cryptocurrency mining equipment, which is property owned by the miner, does not produce bitcoin. Rather, new bitcoin is produced (or issued) by the bitcoin network software and then paid to the owner of the mining equipment as a reward or compensation for services rendered: paras 23-25, *Tulip*.

[71] We concede that all of the above cases speak to the point that an intangible asset can be a piece of property, just as intangible intellectual property can be property. However, none of them speak to the point of a piece of property producing an intangible asset and to whom or what the rights to that intangible asset may ultimately flow, which is the question we face here in the relationship between Mr. Thaler, DABUS and the alleged invention described and claimed in the instant patent application.

[72] Further, none of the caselaw cited in the Applicant's 2022 Response or in the R-PR support the expansion of the principle of accession to the production of an intangible asset by a piece of property and the ownership of that intangible asset flowing back to the owner of the piece of property.

[73] As to the question of who is a valid legal representative, in our view, given that our earlier analysis tells us that an "inventor" under the *Patent Act* and *Patent Rules* must be a natural person or persons, there is no valid "inventor" in the present case. As a consequence, it is also our view that with no valid "inventor", there can be no valid transfer of rights, whether by agreement or operation of the law, to a legal representative that would then be permitted to file a valid patent application.

Entitlement to file an application

[74] In the 2022 Response, the Applicant attempted to satisfy the entitlement requirement to file an application under section 54 of the *Patent Rules* by asserting his ownership of DABUS. He was, in his view, therefore entitled to file a patent application for the alleged invention produced by DABUS. We addressed this contention in the PR letter:

> As we have discussed above, it is our preliminary view that the principle of accession does not apply to the alleged invention produced by DABUS. Therefore this principle cannot be used for the Applicant to claim ownership.

> The Applicant also attempted to assert caselaw regarding a situation where an employee has a legal duty to assign rights to an invention to an employer. Viewing DABUS as an employee is not easily reconciled with the Applicant's earlier position that DABUS is a piece of property owned by the Applicant and that any property that results from it flows to the Applicant by the principle of accession. DABUS and Mr. Thaler do not have an employee/employer relationship and so the cases cited do not fit with the present situation. Further, the caselaw relates to employee-inventors that are natural persons and the Applicant has provided no references supporting the extension of the legal duty to assign rights to an artificial intelligence system such as DABUS.

[75] The Applicant has asserted, as part of his claim to the subject-matter of the instant application, that DABUS is his property. Such a position would mean that an "inventor" within the *Patent Act* and *Patent Rules* could be a piece of property, rather than a natural person or persons. Based on our analysis above, that interpretation does not align with the grammatical and ordinary sense of "inventor", the context surrounding the term in the *Patent Act* and *Patent Rules*, or the object and scheme of the *Patent Act*.

[76] In relation to the employer/employee relationship addressed in the PR letter, at the oral hearing the Applicant discussed how in many cases, patent applications are filed with rights having been transferred to an employer, since inventions created by an employee as part of their duties are assigned either by operation of the law or by formal assignment to their employer. In this manner, an "inventor" in such a situation may never have the rights themselves to obtain patent protection for their invention. Since the same situation would apply to DABUS, then DABUS, like the employee that may not be granted the patent rights to their invention, should be listed as the "inventor".

[77] The Applicant's position assumes that a valid "inventor" has been identified, which according to our analysis, is not the case. Further, in our view, whether rights to a patented invention may be transferred to a third party such as an

employer, either voluntarily or by operation of the law, does not change the nature of who is encompassed by the term "inventor" in the *Patent Act*. As discussed at the oral hearing, having a class of inventors such as an AI system that, while being an "inventor", could never have any patent rights, including the right to apply for a patent (since according to the Applicant, it is the Applicant's property and any rights to its creations flow to its owner) and another class of inventors that are natural person(s) with an inherent right to their own creations, (even if those rights are given up), seems contrary to the intention of Parliament in crafting the *Patent Act*. There is no evidence or indication that Parliament had any intention to create two such classes of inventors when setting out who can apply for a patent and be granted the related exclusive rights.

[78] Regardless of to whom patent rights may be assigned, as noted by the Supreme Court in *Astrazeneca Canada Inc. v. Apotex Inc.*, 2017 SCC 36 at para 39, the exclusive rights originate with the "inventor", who is the focus of the patent bargain that is central to the patent regime (quoting *Teva* at para 32). As such, the idea of an "inventor" under the *Patent Act* never having any right to an invention created by them is inconsistent with the patent regime.

[79] With respect to DABUS specifically, the machine cannot be accorded "inventor" rights since it is not a natural person and in the absence of a valid "inventor" the rights that would normally be accorded to a valid "inventor", including the right to file a patent application, can neither be assigned by the DABUS system nor assumed by Mr Thaler. Accordingly, our view is that Mr. Thaler does not qualify as the "inventor's legal representative" based on his ownership of DABUS.

The Applicant's policy considerations arguments

[80] In the PR letter, we responded to the policy considerations put forward by the Applicant in the 2022 Response:

The 2022 Response at page 3-4 set out policy considerations that in the Applicant's view were relevant to the question of whether DABUS could be an inventor and whether the Applicant was therefore entitled to file a patent application.

The Applicant contended that by denying the instant application, no one could obtain a valid patent for an invention developed by artificial intelligence. Such policy considerations do not serve as the basis of our analysis, which is instead grounded in an interpretation of the meaning of inventor as contemplated by the legislation, the associated regulations and the relevant caselaw.

The Applicant also noted that if one attempted to avoid the issue of artificial intelligence as an inventor, one may list the human creator of the artificial intelligence as inventor instead. The Applicant noted that this could be considered as an untrue material allegation in a patent application petition under subsection 53(1) of the *Patent Act* and that such a false representation could have serious consequences under Section 76 of the *Patent Act*. While what the Applicant asserts may be true, these issues are not before us.

[81] The Applicant's submissions in the R-PR and at the oral hearing included points with respect to the consequences of concluding that the term "inventor" is limited to a natural person or persons. The Applicant contended that such an interpretation would make it impossible to obtain a patent if the "inventor" is an AI system. There would be no reason to publicly disclose such an invention and developers would be encouraged to conceal inventions created by AI systems. In addition, according to the Applicant, investing in, creating, training and testing AI systems would diminish and the efficiencies gained by using AI systems in relation to creating inventions would be lost (R-PR at paras 30-34).

[82] While such policy arguments are not part of the statutory interpretation exercise that we have undertaken, we address the Applicant's related evidence below, for completeness.

[83] In support of its assertions, the Applicant referred to the following three documents (R-PR at para 6):

> Mucci, T. "The history of artificial intelligence" *IBM*, October 21, 2024, https://www.ibm.com/think/topics/history-of-artificial-intelligence, accessed February 5, 2025.
>
> Buchholz, K. "The Extreme Cost Of Training AI Models" *Forbes*, August 23, 2024 updated August 26, 2024, https://www.forbes.com/sites/katharinabuchholz/2024/08/23/the-extreme-cost-of-training-ai-models/, accessed January 22, 2024.
>
> Morales, J. "AI models that cost $1 billion to train are underway, $100 billion models coming - largest current models take 'only' $100 million to train: Anthropic CEO" *Tom's Hardware*, July 7, 2024, https://www.tomshardware.com/techindustry/artificial-intelligence/ai-models-that-cost-dollar1-billion-to-train-are-indevelopment-dollar100-billion-models-coming-soon-largest-current-models-takeonly-dollar100-million-to-train-anthropic-ceo, accessed February 14, 2025.

[84] The first reference sets out a history of AI development, but does not discuss any related cost implications. While the second and third references do discuss the high costs of developing and training such AI systems, neither of them discuss any links between the possible denial of patent protection and reduction in AI investment.

[85] The Applicant also pointed to the use of AI systems in drug development, pointing to the following four documents (R-PR at para 7) to support the contention that AI systems are used to discover new drugs and that such systems are costly:

Paul, D. *et al.* 2021. Artificial Intelligence in Drug Discovery and Development, *Drug Discovery Today*, 26(1): 80 (https://pmc.ncbi.nlm.nih.gov/articles/PMC7577280/pdf/main.pdf).

Lou, B. and Wu, L. 2021. AI on Drugs: Can Artificial Intelligence Accelerate Drug Development? Evidence from a Large-scale Examination of Bio-pharma Firms, *MISQ*, 45 (3) (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3524985).

Mouchlis, V.D. *et al.* 2021. Advances in De Novo Drug Design: From Conventional to Machine Learning Methods, *Int. J. Mol. Sci.*, 22(4), 1676 (https://www.mdpi.com/1422-0067/22/4/1676).

Ayers, M. *et al.*, "Adopting AI in Drug Discovery" *BCG*, Mar. 29, 2022, https://www.bcg.com/publications/2022/adopting-ai-in-pharmaceutical-discovery, accessed February 14, 2025.

[86] We have reviewed the above documents and can find no discussion of *per se* inventing by AI systems. Certainly, the documents refer to the use of AI as a tool in the drug development process, making predictions and narrowing the field of potential drug candidates, but we can find no evidence of AI systems inventing a new drug on their own.

[87] We also note that the Lou and Wu document makes reference to their study of AI use in patented inventions between 1995 and 2019 and founds thousands of patents granted to pharma companies that used AI tools as part of the development process. Despite the Applicant's assertions, there would seem to be a healthy use of AI tools in the pharmaceutical domain, and no apparent barriers to innovation or the use of the patent system.

[88] In summary, none of the documents referred to by the Applicant support the assertions that if AI generated inventions cannot be patented, then there will be a reduction in investment of AI system development and an associated reduction in drug development.

CONCLUSION AS TO THE MEANING OF "INVENTOR"

[89] In view of the above considerations, it is our view that the term "inventor" as used in the *Patent Act* and *Patent Rules* is limited to natural persons, as opposed to legal or juridical persons (e.g., a corporation) or an AI system such as DABUS.

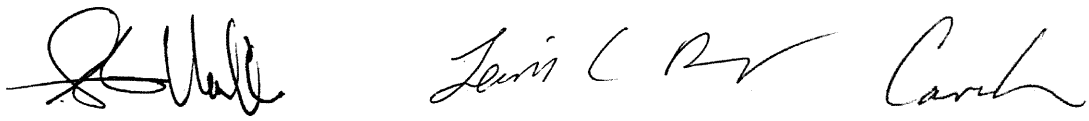
[90] To use the words of the Supreme Court of Canada in *Harvard* at para 166, in our view, including an artificial intelligence system within the meaning of "inventor" "would involve a radical departure" from the general understanding of that term and its intended meaning in the *Patent Act* and *Patent Rules*.

[91] Since DABUS is an artificial intelligence system, it cannot be recognized as the "inventor" and therefore the application cannot be filed by "the inventor or the inventor's legal representative" as required by subsection 27(2) of the *Patent Act*. In addition, an "inventor" cannot be identified according to the requirements of subsection 54(1) of the *Patent Rules*.

RECOMMENDATION OF THE BOARD

[92] In view of the above, the undersigned recommend that the application be refused on the grounds that:

- "inventor" as used in the *Patent Act* and *Patent Rules* is limited to a natural person or persons;
- since DABUS is an artificial intelligence system, it cannot be recognized as the "inventor" and therefore the application cannot be filed by "the inventor or the inventor's legal representative" as required by subsection 27(2) of the *Patent Act*; and
- a valid "inventor" cannot be identified according to the requirements of subsection 54(1) of the *Patent Rules*.



Stephen MacNeil Member	Lewis Robart Member	Cara Weir Member

DECISION OF THE COMMISSIONER

[93] I concur with the conclusions and recommendation of the Board that the application be refused on the grounds that:

- "inventor" as used in the *Patent Act* and *Patent Rules* is limited to a natural person or persons;
- since DABUS is an artificial intelligence system, it cannot be recognized as the "inventor" and therefore the application cannot be filed by "the inventor or the inventor's legal representative" as required by subsection 27(2) of the *Patent Act*; and
- a valid "inventor" cannot be identified according to the requirements of subsection 54(1) of the *Patent Rules*.

[94] In accordance with section 40 of the *Patent Act*, I refuse to grant a patent on this application. Under section 41 of the *Patent Act*, the Applicant has six months within which to appeal my decision to the Federal Court of Canada.

Konstantinos Georgaras

Commissioner of Patents
Dated at Gatineau, Quebec
this 5th day of June, 2025