

Syllabus

J. E. M. AG SUPPLY, INC., DBA FARM ADVANTAGE,
INC., ET AL. *v.* PIONEER HI-BRED
INTERNATIONAL, INC.

CERTIORARI TO THE UNITED STATES COURT OF APPEALS FOR
THE FEDERAL CIRCUIT

No. 99–1996. Argued October 3, 2001—Decided December 10, 2001

Respondent Pioneer Hi-Bred International, Inc. (Pioneer), holds 17 utility patents issued under 35 U.S.C. § 101 that cover the manufacture, use, sale, and offer for sale of its inbred and hybrid corn seed products. Pioneer sells its patented hybrid seeds under a limited label license that allows only the production of grain and/or forage, and prohibits using such seed for propagation or seed multiplication or for the production or development of a hybrid or different seed variety. Petitioner J. E. M. Ag Supply, Inc., doing business as Farm Advantage, Inc., bought patented seeds from Pioneer in bags bearing the license agreement and then resold the bags. Pioneer filed this patent infringement suit against Farm Advantage and distributors and customers of Farm Advantage (collectively Farm Advantage or petitioners). Farm Advantage filed a patent invalidity counterclaim, arguing that sexually reproducing plants, such as Pioneer's corn plants, are not patentable subject matter within § 101. Farm Advantage maintained that the Plant Patent Act of 1930 (PPA) and the Plant Variety Protection Act (PVPA) set forth the exclusive statutory means for protecting plant life because these statutes are more specific than § 101, and thus each carves out subject matter from § 101 for special treatment. The District Court granted Pioneer summary judgment. Relying on this Court's broad construction of § 101 in *Diamond v. Chakrabarty*, 447 U.S. 303, the District Court held that § 101 clearly covers plant life. It also held that in enacting the PPA and the PVPA, Congress neither expressly nor implicitly removed plants from § 101's subject matter. In particular, the District Court noted that Congress did not implicitly repeal § 101 by passing the more specific PVPA because there was no irreconcilable conflict between the two statutes. The Federal Circuit affirmed.

Held: Newly developed plant breeds fall within the subject matter of § 101, and neither the PPA nor the PVPA limits the scope of § 101's coverage. Pp. 130–146.

(a) In approaching the question presented here, this Court is mindful that it has already recognized that § 101's language is extremely broad and has concluded that living things are patentable under that provision,

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Chakrabarty, supra, at 308, 313, 315. Since 1985, the Patent and Trademark Office (PTO) has had an unbroken practice of conferring utility patents for plants. Nonetheless, petitioners argue that the PPA and the PVPA are the exclusive means of protecting new varieties of plants, and so awarding utility patents for plants upsets the scheme contemplated by Congress. Pp. 130–132.

(b) Neither the PPA's original nor its recodified text indicates that its protection for asexually reproduced plants was intended to be exclusive. The 1930 PPA amended the general patent provision to protect only the asexual reproduction of a plant. And Congress' 1952 revision, which placed plant patents into a separate chapter 15, was only a housekeeping measure that did not change the substantive rights or the relaxed requirements for such patents. Plant patents under the PPA thus continue to have very limited coverage and less stringent requirements than § 101 utility patents. Importantly, chapter 15 nowhere states that plant patents are the exclusive means of granting intellectual property protection to plants. The arguments that petitioners advance for why the PPA should preclude assigning utility patents for plants are unpersuasive because petitioners fail to take account of the forward-looking perspective of the utility patent statute and the reality of plant breeding in 1930. Pp. 132–138.

(c) That the PVPA specifically authorizes limited patent-like protection for certain sexually reproduced plants does not evidence Congress' intent to deny broader § 101 utility patent protection for such plants. While the PVPA creates a comprehensive statutory scheme with respect to its particular protections and subject matter, giving limited protection to plant varieties that are new, distinct, uniform, and stable, nowhere does it restrict the scope of patentable subject matter under § 101. The PVPA contains no statement of exclusivity. Furthermore, at the time the PVPA was enacted, the PTO had already issued numerous utility patents for hybrid plant processes, which reaffirms that such material was within § 101's scope. Petitioners also err in arguing that the PVPA altered § 101's subject-matter coverage by implication. Repeal by implication requires that the earlier and later statutes be irreconcilable, *Morton v. Mancari*, 417 U. S. 535, 550. The differences in the requirements for, and coverage of, utility patents and PVPA plant variety certificates, however, do not present irreconcilable conflicts because the requirements for a § 101 utility patent are more stringent than those for a PVP certificate, and the protections afforded by a utility patent are greater than those afforded by a PVP certificate. Petitioners' suggestion that dual protection cannot exist when statutes overlap and purport to protect the same commercially valuable attribute or thing is rejected as well. This Court has given effect to two over-

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lapping statutes, so long as each reaches some distinct cases, see *Connecticut Nat. Bank v. Germain*, 503 U. S. 249, 253, and it has allowed dual protection in other intellectual property cases, see, e. g., *Kewanee Oil Co. v. Bicron Corp.*, 416 U. S. 470, 484. In this case, many plant varieties that are unable to satisfy § 101's stringent requirements might still qualify for the PVPA's lesser protections. Pp. 138–144.

(d) The PTO has assigned utility patents for plants for at least 16 years, and there has been no indication from either Congress or agencies with expertise that such coverage is inconsistent with the PVPA or the PPA. Congress has not only failed to pass legislation indicating that it disagrees with the PTO's interpretation of § 101; it has even recognized the availability of utility patents for plants. Pp. 144–145.

200 F. 3d 1374, affirmed.

THOMAS, J., delivered the opinion of the Court, in which REHNQUIST, C. J., and SCALIA, KENNEDY, SOUTER, and GINSBURG, JJ., joined. SCALIA, J., filed a concurring opinion, *post*, p. 146. BREYER, J., filed a dissenting opinion, in which STEVENS, J., joined, *post*, p. 147. O'CONNOR, J., took no part in the consideration or decision of the case.

Bruce E. Johnson argued the cause for petitioners. With him on the briefs was *S. P. DeVolder*.

Edmund J. Sease argued the cause for respondent. With him on the brief were *Herbert H. Jervis*, *Daniel J. Cosgrove*, and *Richard G. Taranto*.

Deputy Solicitor General Wallace argued the cause for the United States as *amicus curiae* urging affirmance. With him on the brief were *Solicitor General Olson*, *Acting Assistant Attorney General Schiffer*, *Austin C. Schlick*, *Barbara Biddle*, *Alfred Mollin*, *John M. Whealan*, *Bruce J. Chasan*, *Stephen Walsh*, and *James Michael Kelly*.*

*Briefs of *amici curiae* urging reversal were filed for the American Corn Growers Association et al. by *Joseph Mendelson III*; and for *Malla Pollack*, *pro se*, et al.

Briefs of *amici curiae* urging affirmance were filed for the American Bar Association by *Martha W. Barnett* and *Reid G. Adler*; for the American Crop Protection Association by *David L. Kelleher*; for the American Intellectual Property Law Association by *Robert L. Baechtold* and *Warren D. Woessner*; for the American Seed Trade Association by *Gary Jay Kushner*; for the Biotechnology Industry Organization by *Jeffrey P. Ku-*

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JUSTICE THOMAS delivered the opinion of the Court.

This case presents the question whether utility patents may be issued for plants under 35 U. S. C. § 101 (1994 ed.), or whether the Plant Variety Protection Act, 84 Stat. 1542, as amended, 7 U. S. C. § 2321 *et seq.*, and the Plant Patent Act of 1930, 35 U. S. C. §§ 161–164 (1994 ed. and Supp. V), are the exclusive means of obtaining a federal statutory right to exclude others from reproducing, selling, or using plants or plant varieties. We hold that utility patents may be issued for plants.

I

The United States Patent and Trademark Office (PTO) has issued some 1,800 utility patents for plants, plant parts, and seeds pursuant to 35 U. S. C. § 101. Seventeen of these patents are held by respondent Pioneer Hi-Bred International, Inc. (Pioneer). Pioneer's patents cover the manufacture, use, sale, and offer for sale of the company's inbred and hybrid corn seed products. A patent for an inbred corn line protects both the seeds and plants of the inbred line and the hybrids produced by crossing the protected inbred line with another corn line. See, *e. g.*, U. S. Patent No. 5,506,367, col. 3, App. 42. A hybrid plant patent protects the plant, its seeds, variants, mutants, and trivial modifications of the hybrid. See U. S. Patent No. 5,491,295, cols. 2–3, *id.*, at 29–30.

Pedigree inbred corn plants are developed by crossing corn plants with desirable characteristics and then inbreeding the resulting plants for several generations until the resulting plant line is homogenous. Inbreds are often weak

shan, Marinn F. Carlson, and Stephan E. Lawton; for Cargill, Inc., by Frank P. Porcelli, Michael E. Florey, Richard J. Anderson, Jonathan E. Singer, John A. Dragseth, Timothy S. Bishop, and Thomas B. Nachbar; for the Delta and Pine Land Co. by Shawn N. Sullivan; for the Monsanto Co. by Richard L. Stanley; and for the Washington Legal Foundation et al. by Daniel J. Popeo and R. Shawn Gunnarson.

Thomas E. Friebe filed a brief for BASF Corp. as *amicus curiae*.

and have a low yield; their value lies primarily in their use for making hybrids. See, *e. g.*, U. S. Patent No. 5,506,367, col. 6, *id.*, at 43 (describing the traits and applications of the inbred corn line PHP38 by reference to the qualities exhibited in hybrid plants created with PHP38).

Hybrid seeds are produced by crossing two inbred corn plants and are especially valuable because they produce strong and vibrant hybrid plants with selected highly desirable characteristics. For instance, Pioneer's hybrid corn plant 3394 is "characterized by superior yield for maturity, excellent seedling vigor, very good roots and stalks, and exceptional stay green." U. S. Patent No. 5,491,295, cols. 2-3, *id.*, at 29-30. Hybrid plants, however, generally do not reproduce true-to-type, *i. e.*, seeds produced by a hybrid plant do not reliably yield plants with the same hybrid characteristics. Thus, a farmer who wishes to continue growing hybrid plants generally needs to buy more hybrid seed.

Pioneer sells its patented hybrid seeds under a limited label license that provides: "License is granted solely to produce grain and/or forage." *Id.*, at 51. The license "does not extend to the use of seed from such crop or the progeny thereof for propagation or seed multiplication." *Ibid.* It strictly prohibits "the use of such seed or the progeny thereof for propagation or seed multiplication or for production or development of a hybrid or different variety of seed." *Ibid.*

Petitioner J. E. M. Ag Supply, Inc., doing business as Farm Advantage, Inc., purchased patented hybrid seeds from Pioneer in bags bearing this license agreement. Although not a licensed sales representative of Pioneer, Farm Advantage resold these bags. Pioneer subsequently brought a complaint for patent infringement against Farm Advantage and several other corporations and residents of the State of Iowa who are distributors and customers for Farm Advantage (referred to collectively as Farm Advantage or petitioners). Pioneer alleged that Farm Advantage has "for a long-time

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past been and still [is] infringing one or more [Pioneer patents] by making, using, selling, or offering for sale corn seed of the . . . hybrids in infringement of these patents-in-suit.” *Id.*, at 10.

Farm Advantage answered with a general denial of patent infringement and entered a counterclaim of patent invalidity, arguing that patents that purport to confer protection for corn plants are invalid because sexually reproducing plants are not patentable subject matter within the scope of 35 U. S. C. § 101 (1994 ed.). App. 12–13, 17. Farm Advantage maintained that the Plant Patent Act of 1930 (PPA) and the Plant Variety Protection Act (PVPA) set forth the exclusive statutory means for the protection of plant life because these statutes are more specific than § 101, and thus each carves out subject matter from § 101 for special treatment.¹

The District Court granted summary judgment to Pioneer. Relying on this Court’s broad construction of § 101 in *Diamond v. Chakrabarty*, 447 U. S. 303 (1980), the District Court held that the subject matter covered by § 101 clearly includes plant life. 49 USPQ 2d 1813, 1817 (ND Iowa 1998). It further concluded that in enacting the PPA and the PVPA Congress neither expressly nor implicitly removed plants from § 101’s subject matter. *Id.*, at 1819. In particular, the District Court noted that Congress did not implicitly repeal § 101 by passing the more specific PVPA because there was no irreconcilable conflict between the PVPA and § 101. *Id.*, at 1821.

The United States Court of Appeals for the Federal Circuit affirmed the judgment and reasoning of the District

¹ Petitioners favor a holding that the PVPA is the only means of protecting these corn plants primarily because the PVPA’s coverage is generally less extensive and the hybrid seeds at issue do not have PVPA protection. App. 14. Most notably, the PVPA provides exemptions for research and for farmers to save seed from their crops for replanting. See *infra*, at 140. Utility patents issued for plants do not contain such exemptions.

Court. 200 F. 3d 1374 (2000). We granted certiorari, 531 U. S. 1143 (2001), and now affirm.

II

The question before us is whether utility patents may be issued for plants pursuant to 35 U. S. C. § 101 (1994 ed.). The text of § 101 provides:

“Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.”

As this Court recognized over 20 years ago in *Chakrabarty*, 447 U. S., at 308, the language of § 101 is extremely broad. “In choosing such expansive terms as ‘manufacture’ and ‘composition of matter,’ modified by the comprehensive ‘any,’ Congress plainly contemplated that the patent laws would be given wide scope.” *Ibid.* This Court thus concluded in *Chakrabarty* that living things were patentable under § 101, and held that a manmade micro-organism fell within the scope of the statute. As Congress recognized, “the relevant distinction was not between living and inanimate things, but between products of nature, whether living or not, and human-made inventions.” *Id.*, at 313.

In *Chakrabarty*, the Court also rejected the argument that Congress must expressly authorize protection for new patentable subject matter:

“It is, of course, correct that Congress, not the courts, must define the limits of patentability; but it is equally true that once Congress has spoken it is ‘the province and duty of the judicial department to say what the law is.’ *Marbury v. Madison*, 1 Cranch 137, 177 (1803). Congress has performed its constitutional role in defining patentable subject matter in § 101; we perform ours in construing the language Congress has em-

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ployed. . . . The subject-matter provisions of the patent law have been cast in broad terms to fulfill the constitutional and statutory goal of promoting ‘the Progress of Science and the useful Arts’ with all that means for the social and economic benefits envisioned by Jefferson.” *Id.*, at 315.

Thus, in approaching the question presented by this case, we are mindful that this Court has already spoken clearly concerning the broad scope and applicability of § 101.²

Several years after *Chakrabarty*, the PTO Board of Patent Appeals and Interferences held that plants were within the understood meaning of “manufacture” or “composition of matter” and therefore were within the subject matter of § 101. *In re Hibberd*, 227 USPQ 443, 444 (1985). It has been the unbroken practice of the PTO since that time to confer utility patents for plants. To obtain utility patent protection, a plant breeder must show that the plant he has developed is new, useful, and nonobvious. 35 U. S. C. §§ 101–103 (1994 ed. and Supp. V). In addition, the plant must meet the specifications of § 112, which require a written description of the plant and a deposit of seed that is publicly accessible. See 37 CFR §§ 1.801–1.809 (2001).

Petitioners do not allege that Pioneer’s patents are invalid for failure to meet the requirements for a utility patent. Nor do they dispute that plants otherwise fall within the terms of § 101’s broad language that includes “manufacture”

²JUSTICE BREYER argues that *Diamond v. Chakrabarty*, 447 U. S. 303, 315 (1980), cannot determine the outcome of this case because it did not answer the precise question presented. See *post*, at 147–149 (dissenting opinion). But this simply misses the mark. *Chakrabarty* broadly interpreted the reach of § 101. This interpretation is surely germane to the question whether sexually reproduced plants fall within the subject matter of § 101. In addition, *Chakrabarty*’s discussion of the PPA and the PVPA is relevant to petitioners’ primary arguments against utility patent protection for sexually reproduced plants. See 447 U. S., at 310–314; see also *infra*, at 134–135.

or “composition of matter.” Rather, petitioners argue that the PPA and the PVPA provide the exclusive means of protecting new varieties of plants, and so awarding utility patents for plants upsets the scheme contemplated by Congress. Brief for Petitioners 11. We disagree. Considering the two plant specific statutes in turn, we find that neither fore-closes utility patent coverage for plants.

A

The 1930 PPA conferred patent protection to asexually reproduced plants. Significantly, nothing within either the original 1930 text of the statute or its recodified version in 1952 indicates that the PPA’s protection for asexually reproduced plants was intended to be exclusive.

Plants were first explicitly brought within the scope of patent protection in 1930 when the PPA included “plants” among the useful things subject to patents. Thus the 1930 PPA amended the general utility patent provision, Rev. Stat. §4886, to provide:

“Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant, not known or used by others in this country, before his invention or discovery thereof, . . . may . . . obtain a patent therefor.” Act of May 23, 1930, § 1, 46 Stat. 376.

This provision limited protection to the asexual reproduction of the plant. Asexual reproduction occurs by grafting, budding, or the like, and produces an offspring with a genetic combination identical to that of the single parent—essentially a clone.³ The PPA also amended Revised Statutes

³By contrast, sexual reproduction occurs by seed and sometimes involves two different plants.

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§ 4888 by adding: “No plant patent shall be declared invalid on the ground of noncompliance with this section if the description is made as complete as is reasonably possible.” *Id.*, § 2, 46 Stat. 376.

In 1952, Congress revised the patent statute and placed the plant patents into a separate chapter 15 of Title 35 entitled, “Patents for plants.” 35 U. S. C. §§ 161–164.⁴ This was merely a housekeeping measure that did nothing to change the substantive rights or requirements for a plant patent. A “plant patent”⁵ continued to provide only the exclusive right to asexually reproduce a protected plant, § 163, and the description requirement remained relaxed, § 162.⁶ Plant patents under the PPA thus have very limited coverage and less stringent requirements than § 101 utility patents.

Importantly, chapter 15 nowhere states that plant patents are the exclusive means of granting intellectual property protection to plants. Although unable to point to any language that requires, or even suggests, that Congress intended the PPA’s protections to be exclusive, petitioners advance three reasons why the PPA should preclude assigning utility patents for plants. We find none of these arguments to be persuasive.

⁴The PPA, as amended, provides: “Whoever invents or discovers and asexually reproduces any distinct and new variety of plant, including cultivated sports, mutants, hybrids, and newly found seedlings, other than a tuber propagated plant or a plant found in an uncultivated state, may obtain a patent therefor, subject to the conditions and requirements of this title.” 35 U. S. C. § 161 (1994 ed.).

⁵Patents issued under § 161 are referred to as “plant patents,” which are distinguished from § 101 utility patents and § 171 design patents.

⁶To obtain a plant patent under § 161 a breeder must meet all of the requirements for § 101, except for the description requirement. See § 162 (“No plant patent shall be declared invalid for noncompliance with section 112 [providing for written description] of this title if the description is as complete as is reasonably possible”).

First, petitioners argue that plants were not covered by the general utility patent statute prior to 1930. Brief for Petitioners 19 (“If the patent laws before 1930 allowed patents on ‘plants’ then there would have been no reason for Congress to have passed the 1930 PPA . . .”). In advancing this argument, petitioners overlook the state of patent law and plant breeding at the time of the PPA’s enactment. The Court in *Chakrabarty* explained the realities of patent law and plant breeding at the time the PPA was enacted: “Prior to 1930, two factors were thought to remove plants from patent protection. The first was the belief that plants, even those artificially bred, were products of nature for purposes of the patent law. . . . The second obstacle to patent protection for plants was the fact that plants were thought not amenable to the ‘written description’ requirement of the patent law.” 447 U. S., at 311–312. Congress addressed these concerns with the 1930 PPA, which recognized that the work of a plant breeder was a patentable invention and relaxed the written description requirement. See §§ 1–2, 46 Stat. 376. The PPA thus gave patent protection to breeders who were previously unable to overcome the obstacles described in *Chakrabarty*.

This does not mean, however, that prior to 1930 plants could not have fallen within the subject matter of § 101. Rather, it illustrates only that in 1930 Congress *believed* that plants were not patentable under § 101, both because they were living things and because in practice they could not meet the stringent description requirement. Yet these premises were disproved over time. As this Court held in *Chakrabarty*, “the relevant distinction” for purposes of § 101 is not “between living and inanimate things, but between products of nature, whether living or not, and human-made inventions.” 447 U. S., at 313. In addition, advances in biological knowledge and breeding expertise have allowed plant breeders to satisfy § 101’s demanding description requirement.

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Whatever Congress may have believed about the state of patent law and the science of plant breeding in 1930, plants have always had the *potential* to fall within the general subject matter of § 101, which is a dynamic provision designed to encompass new and unforeseen inventions. “A rule that unanticipated inventions are without protection would conflict with the core concept of the patent law that anticipation undermines patentability.” *Id.*, at 316.

Petitioners essentially ask us to deny utility patent protection for sexually reproduced plants because it was unforeseen in 1930 that such plants could receive protection under § 101. Denying patent protection under § 101 simply because such coverage was thought technologically infeasible in 1930, however, would be inconsistent with the forward-looking perspective of the utility patent statute. As we noted in *Chakrabarty*, “Congress employed broad general language in drafting § 101 precisely because [new types of] inventions are often unforeseeable.” *Ibid.*

Second, petitioners maintain that the PPA’s limitation to asexually reproduced plants would make no sense if Congress intended § 101 to authorize patents on plant varieties that were sexually reproduced. But this limitation once again merely reflects the reality of plant breeding in 1930. At that time, the primary means of reproducing bred plants true-to-type was through asexual reproduction. Congress thought that sexual reproduction through seeds was not a stable way to maintain desirable bred characteristics.⁷

⁷The Senate Report accompanying the bill notes: “All such plants must be asexually reproduced in order to have their identity preserved. This is necessary since seedlings either of chance or self-pollination from any of these would not preserve the character of the individual.” S. Rep. No. 315, 71st Cong., 2d Sess., 3 (1930).

This Report, like the text, indicates Congress’ intent to limit plant patent coverage to asexual reproduction, but explains that this limitation “recognizes a practical situation”—*i. e.*, that propagation by seeds does not preserve the character of the original. See *id.*, at 4 (“[T]he patent right granted is a right to propagate the new variety by asexual

Thus, it is hardly surprising that plant patents would protect only asexual reproduction, since this was the most reliable type of reproduction for preserving the desirable characteristics of breeding. See generally E. Sinnott, *Botany Principles and Problems* 266–267 (1935); J. Priestley & L. Scott, *Introduction to Botany* 530 (1938).

Furthermore, like other laws protecting intellectual property, the plant patent provision must be understood in its proper context. Until 1924, farmers received seed from the Government's extensive free seed program that distributed millions of packages of seed annually. See Fowler, *The Plant Patent Act of 1930: A Sociological History of its Creation*, 82 *J. Pat. & Tm. Off. Soc.* 621, 623, 632 (2000).⁸ In 1930, seed companies were not primarily concerned with varietal protection, but were still trying to successfully commodify seeds. There was no need to protect seed breeding because there were few markets for seeds. See Kloppenburg 71 (“Seed companies’ first priority was simply to establish a market, and they continued to view the congressional distribution as a principal constraint”).

By contrast, nurseries at the time had successfully commercialized asexually reproduced fruit trees and flowers. These plants were regularly copied, draining profits from those who discovered or bred new varieties. Nurseries

reproduction. It does not include the right to propagate by seeds. This limitation in the right granted recognizes a practical situation and greatly narrows the scope of the bill”). The limitation to asexual reproduction was a recognition of the “practical situation” that seedlings did not reproduce true-to-type. An exclusive right to asexual reproduction was the only type of coverage needed and thought possible given the state of plant breeding at the time.

⁸At its high point in 1897, over 20 million packages of seed were distributed to farmers. See N. Klose, *America's Crop Heritage* 98 (1950). Even at the time the program was eliminated in 1924, it was the third largest line item in the Department of Agriculture's budget. See J. Kloppenburg, *First the Seed: The Political Economy of Plant Biotechnology* 1492–2000, p. 71 (1988) (hereinafter Kloppenburg).

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were the primary subjects of agricultural marketing and so it is not surprising that they were the specific focus of the PPA. See Fowler, *supra*, at 634–635; Kneen, Patent Plants Enrich Our World, *National Geographic* 357, 363 (1948).

Moreover, seed companies at the time could not point to genuinely new varieties and lacked the scientific knowledge to engage in formal breeding that would increase agricultural productivity. See Kloppenburg 77; Fowler, *supra*, at 633 (“Absent significant numbers of distinct new varieties being produced by seed companies, variety protection through something like a patent law would hardly have been considered a business necessity”). In short, there is simply no evidence, let alone the overwhelming evidence needed to establish repeal by implication, see *Matsushita Elec. Industrial Co. v. Epstein*, 516 U. S. 367, 381 (1996), that Congress, by specifically protecting asexually reproduced plants through the PPA, intended to preclude utility patent protection for sexually reproduced plants.⁹

Third, petitioners argue that in 1952 Congress would not have moved plants out of the utility patent provision and into § 161 if it had intended § 101 to allow for protection of plants. Brief for Petitioners 20. Petitioners again rely on

⁹The dissent relies on *United States v. Estate of Romani*, 523 U. S. 517 (1998), for the proposition that “a later, more specific statute trumps an earlier, more general one.” See *post*, at 156. Yet in *Estate of Romani* this purported rule was applied because the meaning of the earlier statute was “unresolved.” 523 U. S., at 530. The Court noted that “despite the age of the statute, and despite the fact that it has been the subject of a great deal of litigation,” its meaning had not been definitively established. *Id.*, at 529. By contrast, the statutory terms “manufacture or composition of matter” were not similarly unresolved at the time the PPA was passed. In addition, these subject-matter terms have been interpreted broadly to evolve with developments in science and technology. See *Chakrabarty*, 447 U. S., at 315. Moreover, even in *Estate of Romani*, the Court considered that there was no “plain inconsistency” between the earlier and later statutes. 523 U. S., at 533.

negative inference because they cannot point to any express indication that Congress intended § 161 to be the exclusive means of patenting plants. But this negative inference simply does not support carving out subject matter that otherwise fits comfortably within the expansive language of § 101, especially when § 101 can protect different attributes and has more stringent requirements than does § 161.

This is especially true given that Congress in 1952 did nothing to change the substantive rights or requirements for obtaining a plant patent. Absent a clear intent to the contrary, we are loath to interpret what was essentially a house-keeping measure as an affirmative decision by Congress to deny sexually reproduced plants patent protection under § 101.

B

By passing the PVPA in 1970, Congress specifically authorized limited patent-like protection for certain sexually reproduced plants. Petitioners therefore argue that this legislation evidences Congress' intent to deny broader § 101 utility patent protection for such plants. Petitioners' argument, however, is unavailing for two reasons. First, nowhere does the PVPA purport to provide the exclusive statutory means of protecting sexually reproduced plants. Second, the PVPA and § 101 can easily be reconciled. Because it is harder to qualify for a utility patent than for a Plant Variety Protection (PVP) certificate, it only makes sense that utility patents would confer a greater scope of protection.

1

The PVPA provides plant variety protection for:

“The breeder of any sexually reproduced or tuber propagated plant variety (other than fungi or bacteria) who has so reproduced the variety” 7 U.S.C. § 2402(a).

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Infringement of plant variety protection occurs, *inter alia*, if someone sells or markets the protected variety, sexually multiplies the variety as a step in marketing, uses the variety in producing a hybrid, or dispenses the variety without notice that the variety is protected.¹⁰

Since the 1994 amendments, the PVPA also protects “any variety that is essentially derived from a protected variety,” § 2541(c)(1), and “any variety whose production requires the

¹⁰Title 7 U. S. C. § 2541(a) provides in full:

“(a) Acts constituting infringement

“Except as otherwise provided in this subchapter, it shall be an infringement of the rights of the owner of a protected variety to perform without authority, any of the following acts in the United States, or in commerce which can be regulated by Congress or affecting such commerce, prior to expiration of the right to plant variety protection but after either the issue of the certificate or the distribution of a protected plant variety with the notice under section 2567 of this title:

“(1) sell or market the protected variety, or offer it or expose it for sale, deliver it, ship it, consign it, exchange it, or solicit an offer to buy it, or any other transfer of title or possession of it;

“(2) import the variety into, or export it from, the United States;

“(3) sexually multiply, or propagate by a tuber or part of a tuber, the variety as a step in marketing (for growing purposes) the variety;

“(4) use the variety in producing (as distinguished from developing) a hybrid or different variety therefrom;

“(5) use seed which had been marked ‘Unauthorized Propagation Prohibited’ or ‘Unauthorized Seed Multiplication Prohibited’ or progeny thereof to propagate the variety;

“(6) dispense the variety to another, in a form which can be propagated, without notice as to being a protected variety under which it was received;

“(7) condition the variety for the purpose of propagation, except to the extent that the conditioning is related to the activities permitted under section 2543 of this title;

“(8) stock the variety for any of the purposes referred to in paragraphs (1) through (7);

“(9) perform any of the foregoing acts even in instances in which the variety is multiplied other than sexually, except in pursuance of a valid United States plant patent; or

“(10) instigate or actively induce performance of any of the foregoing acts.”

repeated use of a protected variety,” § 2541(c)(3). See Plant Variety Protection Act Amendments of 1994, § 9, 108 Stat. 3142. Practically, this means that hybrids created from protected plant varieties are also protected; however, it is not infringement to use a protected variety for the development of a hybrid. See 7 U. S. C. § 2541(a)(4).¹¹

The PVPA also contains exemptions for saving seed and for research. A farmer who legally purchases and plants a protected variety can save the seed from these plants for replanting on his own farm. See § 2543 (“[I]t shall not infringe any right hereunder for a person to save seed produced by the person from seed obtained, or descended from seed obtained, by authority of the owner of the variety for seeding purposes and use such saved seed in the production of a crop for use on the farm of the person . . .”); see also *Asgrow Seed Co. v. Winterboer*, 513 U. S. 179 (1995). In addition, a protected variety may be used for research. See 7 U. S. C. § 2544 (“The use and reproduction of a protected variety for plant breeding or other bona fide research shall not constitute an infringement of the protection provided under this chapter”). The utility patent statute does not contain similar exemptions.¹²

Thus, while the PVPA creates a statutory scheme that is comprehensive with respect to its particular protections and subject matter, giving limited protection to plant varieties that are new, distinct, uniform, and stable, § 2402(a), nowhere does it restrict the scope of patentable subject matter under § 101. With nothing in the statute to bolster their view that

¹¹ It is, however, infringement of a utility patent to use a protected plant in the development of another variety. See *infra*, at 143.

¹² The dissent argues that our “reading would destroy” the PVPA’s exemptions. *Post*, at 155. Yet such bold predictions are belied by the facts. According to the Government, over 5,000 PVP certificates have been issued, as compared to about 1,800 utility patents for plants. Tr. of Oral Arg. 41. Since 1985 the PTO has interpreted § 101 to include utility patents for plants, and there is no evidence that the availability of such patents has rendered the PVPA and its specific exemptions obsolete.

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the PVPA provides the exclusive means for protecting sexually reproducing plants, petitioners rely on the legislative history of the PVPA. They argue that this history shows the PVPA was enacted because sexually reproducing plant varieties and their seeds were not and had never been intended by Congress to be included within the classes of things patentable under Title 35.¹³

The PVPA itself, however, contains no statement that PVP certificates were to be the exclusive means of protecting sexually reproducing plants. The relevant statements in the legislative history reveal nothing more than the limited view of plant breeding taken by some Members of Congress who believed that patent protection was unavailable for sexually reproduced plants. This view stems from a lack of awareness concerning scientific possibilities.

Furthermore, at the time the PVPA was enacted, the PTO had already issued numerous utility patents for hybrid plant processes. Many of these patents, especially since the 1950's, included claims on the products of the patented process, *i. e.*, the hybrid plant itself. See *Kloppenborg* 264. Such plants were protected as part of a hybrid process and not on their own. Nonetheless, these hybrids still enjoyed protection under § 101, which reaffirms that such material was within the scope of § 101.

2

Petitioners next argue that the PVPA altered the subject-matter coverage of § 101 by implication. Brief for Petitioners 33–36. Yet “the only permissible justification for a repeal by implication is when the earlier and later statutes

¹³ Petitioners point to a House Report that concluded:

“Under patent law, protection is presently limited to those varieties of plants which reproduce asexually, that is, by such methods as grafting or budding. No protection is available to those varieties of plants which reproduce sexually, that is, generally by seeds.” H. R. Rep. No. 91–1605, p. 1 (1970); Brief for Petitioners 40.

are irreconcilable.” *Morton v. Mancari*, 417 U. S. 535, 550 (1974). “The rarity with which [the Court has] discovered implied repeals is due to the relatively stringent standard for such findings, namely, that there be an irreconcilable conflict between the two federal statutes at issue.” *Matsushita*, 516 U. S., at 381 (internal quotation marks omitted).

To be sure, there are differences in the requirements for, and coverage of, utility patents and PVP certificates issued pursuant to the PVPA. These differences, however, do not present irreconcilable conflicts because the requirements for obtaining a utility patent under §101 are more stringent than those for obtaining a PVP certificate, and the protections afforded by a utility patent are greater than those afforded by a PVP certificate. Thus, there is a parallel relationship between the obligations and the level of protection under each statute.

It is much more difficult to obtain a utility patent for a plant than to obtain a PVP certificate because a utility patentable plant must be new, useful, and nonobvious, 35 U. S. C. §§ 101–103. In addition, to obtain a utility patent, a breeder must describe the plant with sufficient specificity to enable others to “make and use” the invention after the patent term expires. § 112. The disclosure required by the Patent Act is “the *quid pro quo* of the right to exclude.” *Kewanee Oil Co. v. Bicron Corp.*, 416 U. S. 470, 484 (1974). The description requirement for plants includes a deposit of biological material, for example, seeds, and mandates that such material be accessible to the public. See 37 CFR §§ 1.801–1.809 (2001); see also App. 39 (seed deposits for U. S. Patent No. 5,491,295).

By contrast, a plant variety may receive a PVP certificate without a showing of usefulness or nonobviousness. See 7 U. S. C. § 2402(a) (requiring that the variety be only new, distinct, uniform, and stable). Nor does the PVPA require a description and disclosure as extensive as those required under § 101. The PVPA requires a “description of the vari-

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ety setting forth its distinctiveness, uniformity and stability and a description of the genealogy and breeding procedure, when known.” 7 U. S. C. § 2422(2). It also requires a deposit of seed in a public depository, § 2422(4), but neither the statute nor the applicable regulation mandates that such material be accessible to the general public during the term of the PVP certificate. See 7 CFR § 97.6 (2001).

Because of the more stringent requirements, utility patent holders receive greater rights of exclusion than holders of a PVP certificate. Most notably, there are no exemptions for research or saving seed under a utility patent. Additionally, although Congress increased the level of protection under the PVPA in 1994, a PVP certificate still does not grant the full range of protections afforded by a utility patent. For instance, a utility patent on an inbred plant line protects that line as well as all hybrids produced by crossing that inbred with another plant line. Similarly, the PVPA now protects “any variety whose production requires the repeated use of a protected variety.” 7 U. S. C. § 2541(c)(3). Thus, one cannot use a protected plant variety to produce a hybrid for commercial sale. PVPA protection still falls short of a utility patent, however, because a breeder can use a plant that is protected by a PVP certificate to “develop” a new inbred line while he cannot use a plant patented under § 101 for such a purpose. See 7 U. S. C. § 2541(a)(4) (infringement includes “use [of] the variety in producing (as distinguished from developing) a hybrid or different variety therefrom”). See also H. R. Rep. No. 91–1605, p. 11 (1970); 1 D. Chisum, *Patents* § 1.05[2][d][i], p. 549 (2001).

For all of these reasons, it is clear that there is no “positive repugnancy” between the issuance of utility patents for plants and PVP coverage for plants. *Radzanower v. Touche Ross & Co.*, 426 U. S. 148, 155 (1976). Nor can it be said that the two statutes “cannot mutually coexist.” *Ibid.* Indeed, “when two statutes are capable of coexistence, it is the duty of the courts, absent a clearly expressed congressional inten-

tion to the contrary, to regard each as effective.” *Morton, supra*, at 551. Here we can plainly regard each statute as effective because of its different requirements and protections. The plain meaning of § 101, as interpreted by this Court in *Chakrabarty*, clearly includes plants within its subject matter. The PPA and the PVPA are not to the contrary and can be read alongside § 101 in protecting plants.

3

Petitioners also suggest that even when statutes overlap and purport to protect the same commercially valuable attribute of a thing, such “dual protection” cannot exist. Brief for Petitioners 44–45. Yet this Court has not hesitated to give effect to two statutes that overlap, so long as each reaches some distinct cases. See *Connecticut Nat. Bank v. Germain*, 503 U.S. 249, 253 (1992) (statutes that overlap “do not pose an either-or proposition” where each confers jurisdiction over cases that the other does not reach). Here, while utility patents and PVP certificates do contain some similar protections, as discussed above, the overlap is only partial.

Moreover, this Court has allowed dual protection in other intellectual property cases. “Certainly the patent policy of encouraging invention is not disturbed by the existence of another form of incentive to invention. In this respect the two systems [trade secret protection and patents] are not and never would be in conflict.” *Kewanee Oil, supra*, at 484; see also *Mazer v. Stein*, 347 U.S. 201, 217 (1954) (the patentability of an object does not preclude the copyright of that object as a work of art). In this case, many plant varieties that are unable to satisfy the stringent requirements of § 101 might still qualify for the lesser protections afforded by the PVPA.

III

We also note that the PTO has assigned utility patents for plants for at least 16 years and there has been no indica-

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tion from either Congress or agencies with expertise that such coverage is inconsistent with the PVPA or the PPA. The Board of Patent Appeals and Interferences, which has specific expertise in issues of patent law, relied heavily on this Court's decision in *Chakrabarty* when it interpreted the subject matter of § 101 to include plants. *In re Hibberd*, 227 USPQ 443 (1985). This highly visible decision has led to the issuance of some 1,800 utility patents for plants. Moreover, the PTO, which administers § 101 as well as the PPA, recognizes and regularly issues utility patents for plants. In addition, the Department of Agriculture's Plant Variety Protection Office acknowledges the existence of utility patents for plants.

In the face of these developments, Congress has not only failed to pass legislation indicating that it disagrees with the PTO's interpretation of § 101; it has even recognized the availability of utility patents for plants. In a 1999 amendment to 35 U. S. C. § 119, which concerns the right of priority for patent rights, Congress provided: "Applications for plant breeder's rights filed in a WTO [World Trade Organization] member country . . . shall have the same effect for the purpose of the right of priority . . . as applications for patents, subject to the same conditions and requirements of this section as apply to applications for patents." 35 U. S. C. § 119(f) (1994 ed., Supp. V). Crucially, § 119(f) is part of the general provisions of Title 35, not the specific chapter of the PPA, which suggests a recognition on the part of Congress that plants are patentable under § 101.

IV

For these reasons, we hold that newly developed plant breeds fall within the terms of § 101, and that neither the PPA nor the PVPA limits the scope of § 101's coverage. As in *Chakrabarty*, we decline to narrow the reach of § 101 where Congress has given us no indication that it intends

this result. 447 U. S., at 315–316. Accordingly, we affirm the judgment of the Court of Appeals.

It is so ordered.

JUSTICE O’CONNOR took no part in the consideration or decision of this case.

JUSTICE SCALIA, concurring.

This case presents an interesting and difficult point of statutory construction, seemingly pitting against each other two perfectly valid canons of interpretation: (1) that statutes must be construed in their entirety, so that the meaning of one provision sheds light upon the meaning of another; and (2) that repeals by implication are not favored. I think these sensible canons are reconcilable only if the first of them is limited by the second. That is to say, the power of a provision of law to give meaning to a previously enacted ambiguity comes to an end once the ambiguity has been authoritatively resolved. At that point, use of the later enactment produces not clarification (governed by the first canon) but amendment (governed by the second).

In the present case, the only ambiguity that could have been clarified by the words added to the utility patent statute by the Plant Patent Act of 1930 (PPA) is whether the term “composition of matter” included living things. The newly enacted provision for plants invited the conclusion that this term which preceded it did not include living things. (The term “matter,” after all, is sometimes used in a sense that excludes living things. See Webster’s New International Dictionary 1515 (2d ed. 1950): “Physical substance as made up of chemical elements and distinguished from incorporeal substance, action, qualities, etc. . . . ‘Matter is inert, senseless, and lifeless.’ *Johnson*.”) It is important to note that this is *the only way* in which the new PPA language could have clarified the ambiguity: There was no way in which “composition of matter” could be regarded as a

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category separate from plants, but not separate from other living things.

Stare decisis, however, prevents us from any longer regarding as an open question—as ambiguous—whether “composition of matter” includes living things. *Diamond v. Chakrabarty*, 447 U. S. 303, 312–313 (1980), holds that it does. As the case comes before us, therefore, the language of the PPA—if it is to have any effect on the outcome—must do so by way of *amending* what we have held to be a statute that covers living things (and hence covers plants). At this point the canon against repeal by implication comes into play, and I agree with the Court that it determines the outcome. I therefore join the opinion of the Court.

JUSTICE BREYER, with whom JUSTICE STEVENS joins, dissenting.

The question before us is whether the words “manufacture” or “composition of matter” contained in the utility patent statute, 35 U. S. C. § 101 (1994 ed.) (Utility Patent Statute), cover plants that also fall within the scope of two more specific statutes, the Plant Patent Act of 1930 (PPA), 35 U. S. C. § 161 *et seq.* (1994 ed. and Supp. V), and the Plant Variety Protection Act (PVPA), 7 U. S. C. § 2321 *et seq.* I believe that the words “manufacture” or “composition of matter” do *not* cover these plants. That is because Congress intended the two more specific statutes to exclude patent protection under the Utility Patent Statute for the plants to which the more specific Acts directly refer. And, as the Court implicitly recognizes, this Court neither considered nor decided this question in *Diamond v. Chakrabarty*, 447 U. S. 303 (1980). Consequently, I dissent.

I

Respondent and the Government claim that *Chakrabarty* controls the outcome in this case. This is incorrect, for *Chakrabarty* said nothing about the specific issue before us.

Chakrabarty, in considering the scope of the Utility Patent Statute's language "manufacture, or composition of matter," 35 U.S.C. § 101 (1994 ed.), asked whether those words included such living things as bacteria—a substance to which neither of the two specific plant Acts refers. 447 U.S., at 313–314. The Court held that the Utility Patent Statute language included a "new" bacterium because it was "a nonnaturally occurring manufacture or composition of matter" that was "not nature's handiwork." *Id.*, at 309–310. It quoted language from a congressional Committee Report indicating that "Congress intended statutory subject matter to 'include anything under the sun that is made by man.'" *Id.*, at 309 (quoting S. Rep. No. 1979, 82d Cong., 2d Sess., 5 (1952); H. R. Rep. No. 1923, 82d Cong., 2d Sess., 6 (1952)). But it nowhere said or implied that this Utility Patent Statute language also includes the very subject matter with which the two specific statutes deal, namely, plants. Whether a bacterium technically speaking is, or is not, a plant, the Court considered it a "life form," and not the kind of "plant" that the two specific statutes had in mind. 447 U.S., at 314 (noting that the PVPA specifically excluded bacteria, and that the Court of Customs and Patent Appeals had held that bacteria were not plants for purposes of the PPA).

The Court did consider a complicated argument that sought indirectly to relate the two specific plant statutes to the issue before it. That argument went roughly as follows: (1) Congress enacted two special statutes related to plants. (2) Even though those two statutes do not cover bacteria, the fact that Congress enacted them shows that Congress thought the Utility Patent Statute's language ("manufacture, or composition of matter") did not cover any living thing, including bacteria. (3) Congress consequently must have intended the two special Acts to provide exclusive protection for all forms of "life" whether they do, or do not, count as the kinds of "plants" to which the specific statutes refer.

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The Court, in reply, wrote that Congress, when enacting the specific statutes, might have (wrongly) believed that the Utility Patent Statute did not apply to plants, probably because Congress thought that plants were “natural products,” not human products. *Id.*, at 311. It added that Congress also might have believed that it was too difficult for plant inventors to meet patent law’s ordinary “written description” requirement. *Id.*, at 312. In addition, the Court pointed out that the relevant distinction between unpatentable and patentable subject matter was not between living and inanimate things, but rather between products of nature and human-made inventions. *Id.*, at 312–313. As such, the bacteria at issue were patentable because they were products of human invention. And the Court concluded that “nothing” in Congress’ decision to *exclude* bacteria from the PVPA supported “petitioner’s position,” namely, that Congress intended no utility patent protection for any living thing. *Id.*, at 313–314.

Neither this refutation nor the argument itself decides the question here. That question is *not* about general coverage for matters that the special statutes *do not* mention (namely, nonplant life forms such as bacteria). It *is* about general coverage for matters to which the special plant statutes do refer (namely, plants). *Chakrabarty* neither asked, nor answered, this latter question, the question now before us. And nothing in the Court’s opinion indicates the contrary.

II

The critical question, as I have said, is whether the two specific plant statutes embody a legislative intent to deny coverage under the Utility Patent Statute *to those plants to which the specific plant statutes refer*. In my view, the first of these statutes, the PPA, reveals precisely that intent. And nothing in the later history of either the Utility Patent Statute or the PVPA suggests the contrary.

As initially enacted in 1930, the PPA began by amending the Utility Patent Statute to read as follows:

“Any person who has invented or discovered any new and useful art, machine, manufacture, or composition of matter, or any new and useful improvements thereof, *or who has invented or discovered and asexually reproduced any distinct and new variety of plant, other than a tuber-propagated plant . . . may . . . obtain a patent therefor[e].*” Rev. Stat. §4886, as amended by Act of May 23, 1930, §1, 46 Stat. 376 (language added by the PPA italicized).

This language refers to *all* plants. It says that an inventor—in principle—can obtain a patent on *any* plant (the subject matter of the patent) that meets three requirements. It must be distinct; it must be new; and on one or more occasions it must have been “asexually reproduced,” *e. g.*, reproduced by means of a graft.

This last-mentioned “graft” requirement does not separate (1) those plants that can reproduce through grafting from (2) those plants that can reproduce by seed. The two categories are not mutually exclusive. P. Raven, R. Evert, & S. Eichhorn, *Biology of Plants* 179–180, 255 (6th ed. 1999). Many plants—perhaps virtually any plant—can be reproduced “asexually” as well as by seed. S. Rep. No. 315, 71st Cong., 2d Sess., 5 (1930). Rather, the “asexual reproduction” requirement sought to ensure that the inventor was capable of reproducing the new variety “asexually” (through a graft) because that fact would guarantee that the variety’s new characteristics had genetic (rather than, say, environmental) causes and would prove genetically stable over time. See *ibid.* (“A plant patent covers only the exclusive right of asexual reproduction, and obviously it would be futile to grant a patent for a new and distinct variety unless the variety had been demonstrated to be susceptible to asexual reproduction”); cf. *Dunn v. Ragin*, 50 USPQ 472, 474 (1941)

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(noting that asexual reproduction “determine[s] that the progeny in fact possess the characteristic or characteristics which distinguish it as a new variety”).

Although the section defining the PPA’s coverage does not limit its scope to plants that reproduce primarily through grafting, a later section does so limit the protection that it offers. That section specifies that the patent holder will receive “the exclusive right to asexually reproduce the plant,” *e. g.*, the right to reproduce it through grafting, but he will not receive an exclusive right to reproduce the plant sexually, *i. e.*, the right to reproduce it through seeds. 46 Stat. 376. And this is true *regardless* of whether the patent holder could reproduce true to type offspring through seeds. See S. Rep. No. 315, at 4 (“On the other hand, [the PPA] does not give any patent protection to the right of propagation of the new variety by seed, irrespective of the degree to which the seedlings come true to type”). This was a significant limitation because, the Court’s contrary claim notwithstanding, *ante*, at 135, and n. 7, it was readily apparent in 1930 that a plant’s desirable characteristics *could* be preserved through reproduction by seed. See Fowler, *The Plant Patent Act of 1930: A Sociological History of its Creation*, 82 *J. Pat. & Tm. Off. Soc.* 621, 635, 644 (2000).

In sum, the PPA permits patenting of new and distinct varieties of (1) plants that breeders primarily reproduce through grafts (say, apple trees), (2) plants that breeders primarily reproduce through seeds (say, corn), and (3) plants that reproduce both ways (say, violets). See C. Chong, *Plant Propagation*, reprinted in 1 *CRC Handbook of Plant Science in Agriculture* 91–92, 94, 104 (B. Christie & A. Hanson eds., 1987); Raven, Evert, & Eichhorn, *supra*, at 179. But, because that statute left plant buyers free to keep, to reproduce, and to sell seeds, the statute likely proved helpful *only* to those in the first category. Both the PPA’s legislative history and the earliest patents granted under the Act fully support this interpretation. See S. Rep. No. 315, at 3

(explaining that varieties that “resul[t] from seedlings of cross pollenization of two species” were patentable under the Act); Plant Patent Nos. 1–2, 5–6, 8–11 (roses); Plant Patent Nos. 7, 15 (peach trees).

Given these characteristics, the PPA is incompatible with the claim that the Utility Patent Statute’s language (“manufacture, or composition of matter”) also covers plants. To see why that is so, simply imagine a plant breeder who, in 1931, sought to patent a new, distinct variety of plant that he invented but which he has *never been able to reproduce through grafting, i. e., asexually*. Because he could not reproduce it through grafting, he could not patent it under the more specific terms of the PPA. Could he nonetheless patent it under the more general Utility Patent Statute language “manufacture, or composition of matter?”

Assume the court that tried to answer that question was prescient, *i. e.*, that it knew that this Court, in *Chakrabarty*, 447 U. S., at 311–312, would say that the Utility Patent Statute language (“manufacture,” or “composition of matter”) in principle might cover “anything under the sun,” including bacteria. Such a prescient court would have said that the Utility Patent Statute did cover plants had the case reached it in 1929, before Congress enacted the more specific 1930 law. But how could any court decide the case similarly in 1931 after enactment of the 1930 amendment? To do so would virtually nullify the PPA’s primary condition—that the breeder have reproduced the new characteristic through a graft—reading it out of the Act. Moreover, since the Utility Patent Statute would cover, and thereby forbid, reproduction by seed, such a holding would also have read out of the statute the PPA’s more limited list of exclusive rights. Consequently, even a prescient court would have had to say, as of 1931, that the 1930 Plant Patent Act had, in amending the Utility Patent Statute, placed the subject matter of the PPA—namely, plants—outside the scope of the words “manufacture, or composition of matter.” See *United States*

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v. *Estate of Romani*, 523 U. S. 517, 530–533 (1998) (holding that a later, specific statute trumps an earlier, more general statute).

Nothing that occurred after 1930 changes this conclusion. In 1952, the Utility Patent Statute was recodified, and the PPA language I have quoted was given its own separate place in the Code. See 35 U. S. C. § 161 *et seq.* (1994 ed. and Supp. V). As Pioneer itself concedes, that change was not “substantive.” Brief for Respondent 7; see also *ante*, at 133. Indeed, as recodified the PPA still allows a breeder to obtain a patent when he “invents or discovers and asexually reproduces *any* distinct and new variety of plant,” 35 U. S. C. § 161 (1994 ed.) (emphasis added), but it only allows the patent holder to “exclude others from *asexually* reproducing the plant or selling or using the plant so reproduced,” § 163 (emphasis added).

Nor does the enactment of the Plant Variety Protection Act of 1970 change the conclusion. The PVPA proved necessary because plant breeders became capable of creating new and distinct varieties of certain crops, corn, for example, that were valuable only when reproduced through seeds—a form of reproduction that the earlier Act freely permitted. See S. Rep. No. 91–1246, pp. 2–3 (1970). Just prior to its enactment a special Presidential Commission, noting the special problems that plant protection raised and favoring the development of a totally new plant protection scheme, had recommended that “[a]ll provisions in the patent statute for plant patents be deleted” President’s Commission on the Patent System, To Promote the Progress of Useful Arts, S. Doc. No. 5, 90th Cong., 1st Sess., 20–21 (1967) (hereinafter S. Doc.). Instead Congress kept the PPA while adding the PVPA. The PVPA gave patent-like protection (for 20 years) to plants reproduced by seed, and it excluded the PPA’s requirement that a breeder have “asexually reproduced” the plant. 7 U. S. C. §§ 2402, 2483. It imposed certain specific requirements. § 2402 (variety must be new,

distinct, uniform, and stable). And it provided the breeder with an exclusive right to sell, offer to sell, reproduce, import, or export the variety, including the seeds. §2483.

At the same time, the PVPA created two important exceptions. The first provided that a farmer who plants his fields with a protected plant “shall not infringe any right hereunder” by saving the seeds and planting them in future years. §2543. The second permitted “use and reproduction of a protected variety for plant breeding or other bona fide research.” §2544.

Nothing in the history, language, or purpose of the 1970 statute suggests an intent to reintroduce into the scope of the general words “manufacture, or composition of matter” the subject matter that the PPA had removed, namely, plants. To the contrary, any such reintroduction would make meaningless the two exceptions—for planting and for research—that Congress wrote into that Act. It is not surprising that no party argues that passage of the PVPA somehow enlarged the scope of the Utility Patent Statute.

III

The Court replies as follows to the claim that its reading of the Utility Patent Statute nullifies the PPA’s limitation of protection to plants produced by graft and the PVPA’s exemptions for seeds and research: (1) The Utility Patent Statute applies only to plants that are useful, novel, nonobvious, and for which the inventor provides an enabling written description of the invention. 35 U. S. C. §§ 101, 102, 103, 112 (1994 ed. and Supp. V). (2) The PVPA applies to plants that are novel, distinct, uniform, and stable. 7 U. S. C. § 2402. (3) The second set of criteria seem slightly easier to meet, as they do not include nonobviousness and a written description (Pioneer does not argue that the “useful” requirement is significant). (4) And Congress could reasonably have intended the planting and research exceptions to

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apply only to the set of plants that can meet the easier, but not the tougher, criteria.

I do not find this argument convincing. For one thing, it is not clear that the general patent law requirements are significantly tougher. Counsel for Pioneer stated at oral argument that there are many more PVP certificates than there are plant patents. But he added that the major difference in criteria is the difference between the utility patent law's "nonobviousness" requirement and the specific Acts' requirement of "newness"—a difference that may reflect the Patent Office's more "rigorous" examination process. See Tr. of Oral Arg. 26, 30. But see S. Doc., at 20–21 (suggesting little difference because patent office tends to find "nonobviousness" as long as the plant is deemed "new" by the Department of Agriculture).

In any case, there is no relationship between the criteria differences and the exemptions. Why would anyone want to limit the exemptions—related to seedplanting and research—only to those new plant varieties that are slightly less original? Indeed, the research exemption would seem more useful in respect to more original, not less original, innovation. The Court has advanced no sound reason why Congress would want to destroy the exemptions in the PVPA that Congress created. And the Court's reading would destroy those exemptions.

The Court and JUSTICE SCALIA's concurrence also rely upon the interpretive canon that disfavors repeal by implication. The Court, citing *Matsushita Elec. Industrial Co. v. Epstein*, 516 U. S. 367 (1996), says that "there is simply no evidence" that the PPA was meant to preclude § 101 protection for sexually reproduced plants. *Ante*, at 137. But reliance on the canon of "implied repeal" is misplaced. The canon has traditionally been embraced when a party claims that a later statute—*that does not actually modify an earlier statute*—implicitly repeals the earlier legislation. *E. g.*, 516 U. S., at 380–381. That canon has *no* relevance to the

PPA—which *explicitly* amended the Utility Patent Statute by limiting protection to plants produced by graft. Even were that not so, the Court has noted that a later, more specific statute will ordinarily trump the earlier, more general one. See *United States v. Estate of Romani*, 523 U. S., at 530–533.

Regardless, canons are not mandatory rules. They are guides to help courts determine likely legislative intent. See *Chickasaw Nation v. United States*, *ante*, p. 84; see also *Circuit City Stores, Inc. v. Adams*, 532 U. S. 105, 115 (2001); *id.*, at 137–140 (SOUTER, J., dissenting). And that intent is critical. Those who write statutes seek to solve human problems. Fidelity to their aims requires us to approach an interpretive problem not as if it were a purely logical game, like a Rubik’s Cube, but as an effort to divine the human intent that underlies the statute. Here that effort calls not for an appeal to canons, but for an analysis of language, structure, history, and purpose. Those factors make clear that the Utility Patent Statute does not apply to plants. Nothing in *Chakrabarty* holds to the contrary.

For these reasons, I dissent.