

**United States Court of Appeals
for the Federal Circuit**

**MULTILAYER STRETCH CLING FILM HOLDINGS,
INC.,**
Plaintiff-Appellant

v.

BERRY PLASTICS CORPORATION,
Defendant-Cross-Appellant

2015-1420, 2015-1477

Appeals from the United States District Court for the
Western District of Tennessee in No. 2:12-cv-02108-WGY-
cgc, Judge William G. Young (by designation).

Decided: August 4, 2016

MELISSA HUNTER SMITH, Stites & Harbison, PLLC,
Nashville, TN, argued for plaintiff-appellant. Also repre-
sented by JOEL T. BERES, Louisville, KY.

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FROEMEL.

Before DYK, PLAGER, and TARANTO, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* DYK.

Opinion dissenting in part filed by *Circuit Judge*
TARANTO.

DYK, *Circuit Judge*.

Multilayer Stretch Cling Film Holdings, Inc. (“Multilayer”) brought suit against Berry Plastics Corp. (“Berry”), alleging infringement of at least claim 1 of U.S. Patent No. 6,265,055 (“the ’055 patent”), which relates to multilayered plastic cling wrap films. The district court construed the claims of the ’055 patent as not covering (i.e., closed to) blends of the four resins expressly recited by those claims or unlisted resins, instead requiring that each of five inner layers within the film be composed of only one of the listed resins. *Multilayer Stretch Cling Film Holdings, Inc. v. Inteplast Grp. Ltd.* (“*Multilayer v. Inteplast*”), No. 2:12-cv-2107, 2013 WL 5972195, at *27 (W.D. Tenn. Nov. 8, 2013) (claim construction order). The court subsequently granted Berry’s motion for summary judgment of non-infringement based on its claim construction. *Multilayer Stretch Cling Film Holdings, Inc. v. Berry Plastics Corp.* (“*Multilayer v. Berry*”), 63 F. Supp. 3d 786, 795 (W.D. Tenn. 2014). The district court also invalidated claim 10 of the ’055 patent under 35 U.S.C. § 112(d). *Multilayer v. Inteplast*, 2013 WL 5972195, at *39–40. The district court denied Berry’s request for sanctions against Multilayer under Rule 11 of the Federal Rules of Civil Procedure (“Fed. R. Civ. P.”).

We hold that the district court erred in one aspect of its claim construction, and we reverse in part its construction of claims 1 and 28. We vacate the court’s summary judgment of non-infringement, which was predicated on this aspect of its claim construction, and remand for

further proceedings consistent with this opinion. We affirm the district court's conclusion that claim 10 of the '055 patent is invalid and the court's decision not to impose sanctions against Multilayer under Rule 11.

BACKGROUND

Multilayer's '055 patent claims multilayered thermoplastic stretch wrap films. In the words of the patent, "[t]he present invention relates to multi-layer stretch cling films having at least seven individual layers in the film composition offering acceptable cling performance, good balance of strength and good elongation properties." '055 patent col. 1 ll. 5–8. Such stretch films cling to themselves and can be used to securely wrap boxes, furniture, and other items. The plastic films of the '055 patent are distinguished by their structure: the films contain two outer layers and at least five inner layers, each of which is compositionally distinct from its immediate neighbors. According to the patent, the outer layers contribute "moderate to high controlled cling," and the inner layers "assist in producing mechanical strength and stretchability." *Id.* col. 1 ll. 55–58.

The '055 patent underwent three rounds of *ex parte* reexamination by the United States Patent & Trademark Office ("PTO"), during which its claims were amended. Claim 1 is the broadest claim; as amended, it recites,

1. A multi-layer, thermoplastic stretch wrap film containing seven separately identifiable polymeric layers, comprising:
 - (a) two identifiable outer layers, at least one of which having a cling performance of at least 100 grams/inch, said outer layer being selected from the group consisting of linear low density polyethylene, very low density polyethylene, and ultra low density polyethylene resins, said resins being

homopolymers, copolymers, or terpolymers, of ethylene and alpha-olefins; and

(b) five identifiable inner layers, with each layer being selected from the group consisting of linear low density polyethylene, very low density polyethylene, ultra low density polyethylene, and metallocene-catalyzed linear low density polyethylene resins; said resins are homopolymers, copolymers, or terpolymers, of ethylene and C₃ to C₂₀ alpha-olefins;

wherein each of said two outer layers and each of said five inner layers have different compositional properties when compared to a neighboring layer.

U.S. 6,265,055 C2 col. 1 l. 43–col. 2 l. 3 (as corrected by the Certificate of Correction of July 14, 2009).

Most of the language of claim 1 describes the multiple layers of the film and the various types of polymeric “resins”—plastics prepared by polymerization of one or more olefin compounds—that are suitable for use in preparing those layers. Claim 1 describes outer layers that contain linear low density polyethylene (“LLDPE”), very low density polyethylene (“VLDPE”), or ultra low density polyethylene (“ULDPE”) resins and inner layers that contain these three resins or a fourth resin, metallocene-catalyzed linear low density polyethylene (“mLLDPE”).

Claim 28 is the only other independent claim of the ’055 patent. Like claim 1, claim 28 recites a plastic film that contains at least seven layers, but claim 28 further specifies that at least one of the inner layers must comprise an mLLDPE resin:

28. A multi-layer, thermoplastic stretch wrap film containing seven polymeric layers, comprising:

(a) two outer layers, at least one of which having a cling performance of at least 100 grams/inch, said outer layer being selected from the group consisting of linear low density polyethylene, very low density polyethylene, and ultra low density polyethylene resins, said resins being homopolymers, copolymers, or terpolymers, of ethylene and alpha-olefins; and

(b) five inner layers, with each layer being selected from the group consisting of linear low density polyethylene, very low density polyethylene, ultra low density polyethylene, and metallocene-catalyzed linear low density polyethylene resins; said resins being homopolymers, copolymers, or terpolymers, of ethylene and C₃ to C₂₀ alpha-olefins,

wherein at least one of said inner layers comprises a metallocene catalyzed linear low density polyethylene resin with a melt index of 0.5 to 3 dg/min and a melt index ratio of 16 to 80; and wherein each of said two outer layers and each of said five inner layers have different compositional properties when compared to a neighboring layer.

U.S. 6,265,055 C2 col. 2 ll. 4–27.

In 2012, Multilayer sued Berry in the U.S. District Court for the Western District of Tennessee for infringement of the '055 patent. Multilayer's complaint accused various plastic stretch films manufactured by Berry of infringing at least claim 1. The district court issued its claim construction order on November 8, 2013. *Multilayer v. Intoplast*, 2013 WL 5972195. While the court formally construed thirteen claim terms, only three are relevant to this appeal. The first relevant claim term is a part of element (b) of claims 1 and 28, which the court construed as follows:

Disputed part of element (b) of claims 1 and 28:	District court's construction:
five [identifiable] ¹ inner layers, with each layer being selected from the group consisting of linear low density polyethylene [(LLDPE)], very low density polyethylene [(VLDPE)], ultra low density polyethylene [(ULDPE)], and metallocene-catalyzed linear low density polyethylene [(mLLDPE)] resins	each of five identifiable inner layers must contain only one class of the following resins, and no other resin(s): linear low density polyethylene [(LLDPE)] resins, very low density polyethylene [(VLDPE)] resins, ultra low density polyethylene [(ULDPE)] resins, or metallocene-catalyzed linear low density polyethylene [(mLLDPE)] resins

Multilayer v. Berry, 63 F. Supp. 3d at 790. Notably, the court's construction of element (b) required that each inner layer "must contain only one class of [the listed] resins, and no other resin(s)," thereby excluding blends of more than one type of resin and all unlisted resins. *Id.* at 793.

The second relevant claim term is "linear low density polyethylene" (LLDPE), which appears in claims 1 and 28. The court construed "linear low density polyethylene" to

¹ The term "identifiable" appears in element (b) of claim 1 but not in element (b) of claim 28. Neither party argued in the district court, or argues now, that the presence of the word "identifiable" in claim 1 affects the construction of element (b). *See Multilayer v. Berry*, 63 F. Supp. 3d at 790 n.5.

mean “a class of copolymers of ethylene and alpha-olefins, which are characterized by relatively straight polymer chains with short chain branching and little or no long chain branching.” *Id.* at 791 (emphasis omitted). The court found that this relatively broad construction of LLDPE encompasses the other types of resin recited in element (b), namely, very low density polyethylene (VLDPE), ultra low density polyethylene (ULDPE), and metallocene-catalyzed linear low density polyethylene (mLLDPE). *Id.* at 794. However, the court held that when a particular resin qualifies as an mLLDPE, mixture of that resin with non-metallocene-catalyzed LLDPE creates a blend. “The fact that a resin can be described as both an mLLDPE resin and also as a broader LLDPE resin does not mean that the combination, in an inner layer of a stretch film, of an mLLDPE resin and a LLDPE resin catalyzed using an agent other than metallocene does not constitute a prohibited blend.” *Id.*

The third relevant claim term is “low density polyethylene homopolymers” (“LDPE”), a resin not listed in element (b). The district court construed this term to mean “a class of polymer formed entirely of ethylene monomers, the polymer chains being characterized by a branched polymer backbone consisting of short-chain branches and long-chain branches.” *Multilayer v. Inteplast*, 2013 WL 5972195, at *40. The ’055 patent itself differentiates “low density polyethylene (LDPE)” from “linear low density polyethylene (LLDPE).” ’055 patent col. 1 ll. 60–61 (emphasis added). The court held that “a distinction between LLDPE and LDPE is necessary,” given that “[t]he patent itself uses the terms LLDPE and LDPE separately.” *Multilayer v. Inteplast*, 2013 WL 5972195, at *29.

In its claim construction order, the district court held that dependent claim 10 is invalid under 35 U.S.C. § 112(d). *Id.* at *39–40. Claim 10 depends from claim 1

and further requires that “at least one said inner layer comprises low density polyethylene homopolymers.” ’055 patent col. 10 ll. 14–15. The court found that, because LDPE is not listed in claim 1 and is chemically distinct from the four resins that are recited, “Claim 10 attempts to improperly broaden the scope of the closed Markush Group in element (b) of Claim 1.” *Multilayer v. Inteplast*, 2013 WL 5972195, at *39.

Thereafter, on March 14, 2014, Berry moved for summary judgment of non-infringement. Multilayer opposed the motion, arguing that summary judgment was premature because claim construction and discovery had not been completed. The district court granted Berry summary judgment of non-infringement on November 7, 2014. *Multilayer v. Berry*, 63 F. Supp. 3d at 793. The district court concluded that the case was ripe for summary judgment, as “[a]n analysis of the record does not evidence any insufficiency in discovery undertaken” and “all terms relevant to the instant motion have been construed.” *Id.* at 792.

The parties had agreed that “at least one of the inner layers of the Accused Films contains blends of resins from the classes of mLLDPE, ULDPE, and LLDPE—all classes of resins separately specified in claims 1 and 28.” *Id.* at 795. The district court consequently held that, as a matter of law, the accused Berry films could not infringe claims 1 and 28 because those claims had been construed as closed to blends of listed resins within the inner layers of the film. “[I]t is apparent that the permissibility of blends of resins within a film’s inner layer was directly considered and rejected during claim construction.” *Id.* at 794. “At this juncture, to permit blends would impermissibly require the Court to ignore the specific limitations of the ’055 Patent” *Id.* (internal quotation marks and citation omitted).

On December 5, 2014, Berry moved for sanctions against Multilayer under Fed. R. Civ. P. 11, arguing that Multilayer's infringement case relied on frivolous claim constructions and that Multilayer improperly maintained its infringement suit after the district court issued its claim construction order. The district court denied Berry's motion for sanctions on January 28, 2015, in a one-page order. *Multilayer v. Berry*, No. 2:12-cv-02108, ECF No. 162.

Multilayer appeals the judgment of non-infringement and the invalidation of claim 10, arguing that the district court erred in its claim constructions. Berry cross-appeals, requesting reversal of the district court's denial of sanctions under Fed. R. Civ. P. 11. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

DISCUSSION

We review the district court's grant of summary judgment de novo. *See Info-Hold, Inc. v. Muzak LLC*, 783 F.3d 1365, 1371 (Fed. Cir. 2015); *Moran v. Al Basit LLC*, 788 F.3d 201, 204 (6th Cir. 2015). Claim construction is a question of law, reviewed de novo, but any extrinsic fact-finding by the district court in the course of claim construction is reviewed for clear error. *Teva Pharm. USA, Inc. v. Sandoz, Inc.*, 135 S. Ct. 831, 836–37 (2015). “[W]hen the district court reviews only evidence intrinsic to the patent (the patent claims and specifications, along with the patent's prosecution history), the judge's determination will amount solely to a determination of law, and the Court of Appeals will review that construction *de novo*.” *Id.* at 841; *see also Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346 (Fed. Cir. 2015) (en banc). The district court's denial of sanctions under Fed. R. Civ. P. 11 is reviewed for abuse of discretion. *Jones v. Ill. Cent. R.R. Co.*, 617 F.3d 843, 850 (6th Cir. 2010); *see also Cooter & Gell v. Hartmarx Corp.*, 496 U.S. 384, 402 (1990).

I

We first address element (b) of claims 1 and 28 of the '055 patent. The disputed part of element (b) recites, “five [identifiable] inner layers, with each layer being selected from the group consisting of linear low density polyethylene [(LLDPE)], very low density polyethylene [(VLDPE)], ultra low density polyethylene [(ULDPE)], and metallocene-catalyzed linear low density polyethylene [(mLLDPE)] resins.” U.S. 6,265,055 C2 col. 1 ll. 37–41 (as corrected by the Certificate of Correction of July 14, 2009); *id.* col. 2 ll. 14–18. The parties agreed in the district court and agree on appeal that element (b) of claims 1 and 28 is written in “Markush” claim format.

A Markush claim is a particular kind of patent claim that lists alternative species or elements that can be selected as part of the claimed invention. *See Abbott Labs. v. Baxter Pharm. Prods., Inc.*, 334 F.3d 1274, 1280 (Fed. Cir. 2003). “Markush’ was the name of an applicant for patent (Eugene A. Markush) who happened to use in a claim a type of definition of a genus or subgenus by enumeration of species” *In re Harnisch*, 631 F.2d 716, 719–20 (CCPA 1980). “[T]he name ‘Markush’ became attached to a type of claim expression, and that is all it connotes.” *Id.* at 720. Markush claims create a customized “Markush group”—a listed group of species that are useful for the purposes of the claim. “Claim drafters often use the term ‘group of’ to signal a Markush group. A Markush group lists specified alternatives in a patent claim, typically in the form: a member selected from the group consisting of A, B, and C.” *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1372 (Fed. Cir. 2005); *see also Abbott*, 334 F.3d at 1280. “It is generally understood that . . . the members of the Markush group . . . are alternatively usable for the purposes of the invention” *In re Driscoll*, 562 F.2d 1245, 1249 (CCPA 1977); *see also* Manual of Patent Examining Procedure (“MPEP”)

§ 803.02 (“Markush-type generic claims . . . recite a plurality of alternatively usable substances or members.”).² Here, element (b) creates a Markush group that lists four species or types of resin—LLDPE, VLDPE, ULDPE, and mLLDPE—which are understood to be alternately useable for preparing the inner layers of the claimed film. There are two separate issues of claim construction here: first, whether the Markush group of element (b) is closed to resins other than the listed four, and, second, whether the Markush group is closed to blends of the four listed resins.

II

The district court construed element (b) as closed to unrecited resins—i.e., types of resin other than LLDPE, VLDPE, ULDPE, and mLLDPE. *Multilayer v. Berry*, 63

² No precise linguistic formula is required to create a Markush claim. For example, our predecessor court held that the claim language “‘selected from spirit soluble azo dyes and finely divided pigmenting material,’ sets forth a type of Markush group.” *Metcalfe v. Hampel*, 532 F.2d 1360, 1362 (CCPA 1976); see also *Merck & Co., Inc. v. Mylan Pharm., Inc.*, 190 F.3d 1335, 1339 (Fed. Cir. 1999) (characterizing a claim reciting a “polymer vehicle comprising 0–120 mg of a water-soluble polymer selected from [a list of six polymers]” as being in “Markush form”). Under the PTO’s guidelines for patent examination, “[a]lternative expressions are permitted” so long as the claim “recites a list of alternatively useable species” with no “uncertainty or ambiguity with respect to the question of scope or clarity of the claims.” MPEP § 2173.05(h). “[T]he phrase ‘Markush claim’ means any claim that recites a list of alternatively useable species regardless of format.” *Id.*

F. Supp. 3d at 790. Multilayer now argues that the district court erred and that “[t]he intrinsic evidence clearly establishes that the Markush groups in claims 1 and 28 should be construed as open” to other resins. Appellant’s Br. at 23.

We agree with the district court that the Markush group of element (b) must be construed as closed to resins other than LLDPE, VLDPE, ULDPE, and mLLDPE. To construe the inner layers of element (b) as open not only to the four recited resins but also to any other polyolefin resin conceivably suitable for use in a stretchable plastic cling film would be to construe the claims to cover any plastic film with five compositionally different inner layers, each of which contains any amount of one of the four recited resins. Construing element (b) in this manner would render the ’055 patent’s Markush language—“each layer being selected from the group consisting of”—equivalent to the phrase “each layer comprising one or more of.”

What is critical here is that the transitional phrase that appears in element (b), “consisting of,” is a term of art in patent law with a distinct and well-established meaning. Use of the transitional phrase “consisting of” to set off a patent claim element creates a very strong presumption that that claim element is “closed” and therefore “exclude[s] any elements, steps, or ingredients not specified in the claim.” *AFG Indus., Inc. v. Cardinal IG Co., Inc.*, 239 F.3d 1239, 1245 (Fed. Cir. 2001). “Consisting of” is a term of patent convention meaning that the claimed invention contains only what is expressly set forth in the claim.” *Norian Corp. v. Stryker Corp.*, 363 F.3d 1321, 1331 (Fed. Cir. 2004). Thus, if a patent claim recites “a member selected from the group consisting of A, B, and C,” the “member” is presumed to be closed to alternative ingredients D, E, and F. By contrast, the alternative transitional term “comprising” creates a

presumption that the recited elements are only a part of the device, that the claim does not exclude additional, unrecited elements.” *Crystal Semiconductor Corp. v. TriTech Microelectronics Int’l, Inc.*, 246 F.3d 1336, 1348 (Fed. Cir. 2001).

The presumption that a claim term set off by the transitional phrase “consisting of” is closed to unrecited elements is at least a century old and has been reaffirmed many times by our court and other courts.³ We are una-

³ See, e.g., *CIAS, Inc. v. All. Gaming Corp.*, 504 F.3d 1356, 1361 (Fed. Cir. 2007) (“It is . . . well understood in patent usage that ‘consisting of’ is closed-ended and conveys limitation and exclusion. . . . For patent claims the distinction between ‘comprising’ and ‘consisting’ is established”); *Conoco, Inc. v. Energy & Env’tl. Int’l*, 460 F.3d 1349, 1359 (Fed. Cir. 2006) (“‘[C]onsisting of’ is a term of art in patent law with its own construction”); *Norian*, 363 F.3d at 1331 (quoted *supra*); *AFG Indus.*, 239 F.3d at 1245 (quoted *supra*); *Vehicular Techs. Corp. v. Titan Wheel Int’l, Inc.*, 212 F.3d 1377, 1382–83 (Fed. Cir. 2000) (“The phrase ‘consisting of’ is a term of art in patent law signifying restriction and exclusion, while, in contrast, the term ‘comprising’ indicates an open-ended construction. . . . In simple terms, a drafter uses the phrase ‘consisting of’ to mean ‘I claim what follows and nothing else.’” (citations omitted)); *Georgia-Pacific Corp. v. U.S. Gypsum Co.*, 195 F.3d 1322, 1327–28 (Fed. Cir. 1999) (“The transitional phrase ‘consisting of’ excludes any element step, or ingredient not specified in the claim.” (quoting MPEP § 2111.03)); *Parmelee Pharm. Co. v. Zink*, 285 F.2d 465, 469 (8th Cir. 1961) (“[T]he word ‘consisting’ is one of restriction and exclusion.”); *In re Davis and Tuukkanen*, 80 USPQ 448, 450 (Board of Patent Interferences 1949) (“‘[C]onsisting of’ . . . clos[es] the claim to the

ware of any case that has construed a patent claim's use of "consisting of" to have the same open meaning as "comprising," and Multilayer points us to none. There may be a scenario where a patent's specification or prosecution history give "consisting of" the meaning of "comprising"; our decision in *Conoco, Inc. v. Energy & Environmental International* noted that "it is not inconceivable that a patentee could break with conventional claim construction and become his own lexicographer," so as to give "consisting of" an alternative, less restrictive meaning. 460 F.3d 1349, 1359 n.4 (Fed. Cir. 2006). But to overcome the exceptionally strong presumption that a claim term set off with "consisting of" is closed to unrecited elements, the specification and prosecution history must unmistakably manifest an alternative meaning. *See id.* They do not here.

Multilayer contends that the specification of the '055 patent does indeed evince an unmistakable intent to open the Markush group of element (b) to unrecited resins. Rather than argue that the claimed inner layers should

inclusion of materials other than those recited except for impurities ordinarily associated therewith We regard the meaning of the terms 'comprising' and 'consisting of' to be well settled by numerous decisions"); *In re Gray*, 53 F.2d 520, 521 (CCPA 1931) ("Claim 4 uses the term 'consists' and is therefore drawn to an alloy of silver and indium without other elements."); *Hoskins Mfg. Co. v. Gen. Elec. Co.*, 212 F. 422, 428 (N.D. Ill. 1913) ("'Consist' means to stand together, to be composed of or made up of. It is a more specific term than ['comprise']."), *aff'd*, 224 F. 464 (7th Cir. 1915).

be open to any and all resins,⁴ Multilayer focuses on one resin, low density polyethylene (LDPE), which is specifically mentioned in dependent claims 10, 18, and 19. We do not agree that the '055 patent manifests a clear intent to open the Markush group of element (b) to LDPE or to any other resin not expressly listed in the claim.

It is true that several passages of the specification of the '055 patent describe LDPE as a resin suitable for use in both inner and outer layers. “The resins used in the film composition include . . . low density polyethylene (LDPE) . . .” '055 patent Abstract; *see also id.* col. 1 ll. 58–65. A passage of the Detailed Description describing “Inner Layers” of the invention states that “low density polyethylene homopolymers (LDPE)” are “[a]lso suitable for use in the inner five layers.” '055 patent col. 4 ll. 53–55. Two of the three embodiments of multilayered film described in the Detailed Description include an inner layer of composition “C,” which can contain LDPE blended with LLDPE. *Id.* col. 7 ll. 36–45 & col. 8 ll. 7–12.

The specification of the '055 patent also describes several other types of resin as suitable for incorporation into the inner layers—polypropylene, medium density polyethylene, and high density polyethylene—which, like LDPE, are not recited in the Markush group of element (b). “The resins used in the film composition include polypropylene (PP), ethylene propylene copolymers, low density polyethylene (LDPE), linear low density polyethylene (LLDPE), medium density polyethylene (MDPE), high density polyethylene (HDPE), metallocene-catalyzed polyethylene (mPE), very low density polyethylene (VLDPE), and/or ultralow density polyethylene

⁴ Counsel for Multilayer conceded at argument, “I don’t believe the layers can be made out of anything.” Oral Argument at 1:15–1:18.

(ULDPE).” *Id.* Abstract. We do not think that the listing of these other resins in the specification is sufficient to overcome the presumption created by the “consisting of” claim language.

Multilayer also makes much of the fact that the ’055 patent includes dependent claims that describe inner layers containing LDPE. Multilayer contends that “[b]ecause claim 10 includes the additional limitation of low density polyethylene in one of said five inner layers, it necessarily follows that claim 1 already permits the use of low density polyethylene in the inner layers.” Appellant’s Reply Br. at 3. Claim 10 recites, in relevant part, “[t]he multi-layer, thermoplastic stretch wrap film of claim 1, wherein at least one said inner layer comprises low density polyethylene homopolymers.” ’055 patent col. 10 ll. 13–15. Two additional dependent claims, 18 and 19, also describe films with inner layers that contain LDPE. *Id.* col. 10 l. 57–col. 11 l. 60. Multilayer argues that recitation of LDPE in dependent claims of the ’055 patent should be determinative, citing *Ortho-McNeil* for the canon that a court should “strive[] to reach a claim construction that does not render claim language in dependent claims meaningless.” *Ortho-McNeil Pharm., Inc. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1362 (Fed. Cir. 2008).

It is true that “[o]ther claims of the patent in question . . . can . . . be valuable sources of enlightenment as to the meaning of a claim term.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc). But the language of a dependent claim cannot change the scope of an independent claim whose meaning is clear on its face. We have held that “[w]hile it is true that dependent claims can aid in interpreting the scope of claims from which they depend, they are only an aid to interpretation and are not conclusive. The dependent claim tail cannot wag the independent claim dog.” *N. Am. Vaccine, Inc. v. Am. Cyanamid Co.*, 7 F.3d 1571, 1577 (Fed. Cir. 1993); *see also*

Regents of Univ. of Cal. v. Dakocytomation Cal. Inc., 517 F.3d 1364, 1375 (Fed. Cir. 2008) (holding that the presumption that an independent claim should be construed in view of its dependent claim is rebuttable).⁵

We conclude that the specification of the '055 patent, including its dependent claims, is insufficient to overcome the very strong presumption, created by the patent's use of the transitional phrase "consisting of," that the Markush group of element (b) is closed to resins other than the four recited: LLDPE, VLDPE, ULDPE, and mLLDPE. Multilayer points to nothing in the prosecution history that supports its theory. Here, Multilayer's use of

⁵ Multilayer also cites dependent claim 32 as evidence that the Markush group of claim 1 should be construed as open to unrecited resins. Claim 32, which was added in reexamination, recites "[t]he film of claim 1, wherein the compositional property is the presence of a resin additive." U.S. 6,265,055 C2 col. 3 ll. 34–35. The district court construed "resin additive" to be "a substance that by its properties is not typically by itself formed into a stretch wrap film layer and that is compounded into a resin"—i.e., a non-resin substance. *Multilayer v. Intoplast*, 2013 WL 5972195, at *43. Multilayer does not contest this construction on appeal. Because claim 32 merely describes incorporation of a *non-resin*, it is not evidence that claim 1 should be open to incorporation of an unrecited *resin*. See *Conoco*, 460 F.3d at 1360 (noting that "[a]lthough 'consisting of' is a term of restriction, the restriction is not absolute" and may permit impurities or "additional components or steps that are unrelated to the invention"); see also *Norian*, 363 F.3d at 1331 (holding that "while 'consisting of' limits the claimed invention, it does not limit aspects unrelated to the invention").

the term of art “consisting of” restricts the scope of its claims to the listed resins.

Disagreeing with the majority’s claim construction as requiring a layer formed from the listed resins, the dissent argues that a “layer” is an open-ended physical structure “characterized at least by a spatial relationship to some other physical element” and that the “layer” does not “have to *be* one or more of the listed species” of resin. Dissent at 4. But, to the extent the language of element (b) is ambiguous, the district court resolved any ambiguity, construing “layer” to be “a *polymer composition* within the multilayer polymer structure lying over or under another.” *Multilayer v. Intoplast*, 2013 WL 5972195, at *19 (emphasis added). That is, the district construed “layer” to be a chemical composition, one consisting of resins (polymers) or, optionally, resins combined with non-resin additives. “[O]ne skilled in the art would understand the patent to teach that layers *made from* polymers or layers *made from* polymers combined with additives must be present in each of the seven layers.” *Id.* at *19 (emphasis added). The resin (or the resin combined with a non-resin additive) itself is the layer. Multilayer has not appealed this aspect of the district court’s claim construction and has repeatedly agreed that the claim is in Markush format, requiring a layer “made from” the listed resins. See Multilayer’s Responsive Claim Construction Brief, *Multilayer Stretch Cling Film Holdings, Inc. v. MSC Mktg. & Tech., Inc.*, No. 2:12-cv-02112 (W.D. Tenn. Jan. 14, 2013), ECF No. 57, at 27–30; Appellant’s Br. at 27; Appellant’s Reply Br. at 8–9; see also Oral Argument at 29:57–30:03 (Multilayer’s counsel stating that “the district court was led to believe this is a Markush group because that’s what we’ve argued all along”).

The dissent’s argument was not made by the patentee in the district court. Indeed, in the district court Multi-

layer proposed that the term “each layer being selected from the group consisting of linear low density polyethylene [(LLDPE)], very low density polyethylene [(VLDPE)], ultra low density polyethylene [(ULDPE)], and metallocene-catalyzed linear low density polyethylene [(mLLDPE)] resins” should be construed to mean “*made from* linear low density polyethylene [(LLDPE)], very low density polyethylene [(VLDPE)], ultra low density polyethylene [(ULDPE)], metallocene-catalyzed linear low density polyethylene resin [(mLLDPE)], or blends thereof.” *Multilayer v. Intoplast*, 2013 WL 5972195, at *26 (emphasis added). That is, Multilayer argued the very claim construction that we now adopt.⁶ Multilayer cannot now allege that the layers of element (b) of claims 1 and 28 do not have to be “made from” the listed resins. See *Key Pharm. v. Hercon Labs. Corp.*, 161 F.3d 709, 715 (Fed. Cir. 1998); *Transclean Corp. v. Jiffy Lube Int’l, Inc.*, 474 F.3d 1298, 1307 (Fed. Cir. 2007).

The consequence of our construction of element (b) is that claim 10 is invalid. Claim 10 recites, in relevant part, “[t]he multi-layer, thermoplastic stretch wrap film of claim 1, wherein at least one said inner layer comprises low density polyethylene homopolymers [(LDPE)].” ’055 patent col. 10 ll. 13–15. In its opening brief Multilayer conceded that LDPE is not encompassed by LLDPE or the

⁶ While Multilayer also argued in the district court that this construction permitted blends that include LDPE, see Multilayer’s Responsive Claim Construction Brief, *Multilayer Stretch Cling Film Holdings, Inc. v. MSC Mktg. & Tech., Inc.*, No. 2:12-cv-02112 (W.D. Tenn. Jan. 14, 2013), ECF No. 57, at 9 n.4, 27–30, the construction, urged by Multilayer itself, is limited to the listed resins and “blends *thereof*,” which by its terms necessarily excludes unlisted resins such as LDPE.

other types of resin recited in element (b). “[T]here can be no dispute that LDPE refers to a different category of resins than those listed in claim 1.” Appellant’s Br. at 29; *see also id.* at 31 (“The intrinsic evidence thus confirms that . . . LDPE may be blended with the resins claimed in the inner layer Markush group.”).⁷

Because we agree with the district court that the inner layers of claim 1 must be construed as closed to unre-cited resins, including LDPE, we see no error in the district court’s conclusion that dependent claim 10 is invalid.⁸ Independent claim 1 excludes LDPE from the inner layers, while dependent claim 10 includes it. As such, claim 10 is inconsistent with claim 1 and, indeed,

⁷ In Multilayer’s reply brief, however, there is a confusing suggestion that LLDPE, properly construed, should encompass LDPE. *See* Appellant’s Reply Br. at 13 (stating that LLDPE, ULDPE, mLLDPE, polypropylene, and LDPE all “fall within a single class of resins—LLDPE”). We understand this to be an argument that Berry’s description of certain resins in its accused films as “LDPE” misrepresents the films’ true composition. This is a factual question relevant to infringement, not an issue of claim construction.

⁸ The district court held claim 10 invalid under 35 U.S.C. § 112(d) of the America Invents Act (“AIA”). *See Multilayer v. Intoplast*, 2013 WL 5972195, at *40. 35 U.S.C. § 112(d) replaced the earlier (pre-AIA) 35 U.S.C. § 112 ¶ 4 when § 4(c) of the America Invents Act (“AIA”), Pub.L. No. 112–29, took effect on September 16, 2012. 125 Stat. 284, 296, 297 (2011). Because the ’055 patent was filed in 1999, long before this effective date, pre-AIA 35 U.S.C. § 112 ¶ 4 in fact controls. The district court’s error is harmless, as the AIA did not alter the substance of this provision.

contradicts claim 1. A dependent claim that contradicts, rather than narrows, the claim from which it depends is invalid. See 35 U.S.C. § 112(d) (requiring that “a claim in dependent form shall contain a reference to a claim previously set forth and then *specify a further limitation of the subject matter claimed*” (emphasis added)); *Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284, 1291–92 (Fed. Cir. 2006) (holding a claim invalid under pre-AIA 35 U.S.C. § 112 ¶ 4 for claiming subject matter that was “non-overlapping” with the claim from which it depended); *Curtiss-Wright Flow Control Corp. v. Velan, Inc.*, 438 F.3d 1374, 1380 (Fed. Cir. 2006) (noting that a dependent claim can be invalid for failing to comply with pre-AIA 35 U.S.C. § 112 ¶ 4); see also *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1366–67 (Fed. Cir. 2016) (holding that claims that were internally contradictory were invalid as indefinite); *Allen Eng’g Corp. v. Bartell Indus.*, 299 F.3d 1336, 1349 (Fed. Cir. 2002) (holding that claims that contradicted the specification were invalid as indefinite). “[W]here . . . claims are susceptible to only one reasonable interpretation and that interpretation results in a nonsensical construction of the claim as a whole, the claim must be invalidated . . .” *Process Control Corp. v. HydReclaim Corp.*, 190 F.3d 1350, 1357 (Fed. Cir. 1999).

We note that asserted claims 18 and 19 of the ’055 patent also depend from claim 1 and, like claim 10, recite inner layers that include LDPE. The possible invalidity of these claims is a question for the district court to consider on remand.

III

We next consider whether element (b) of claims 1 and 28 is closed to blends of LLDPE, VLDPE, ULDPE, and mLLDPE, as the district court held. In this respect, we agree with Multilayer that the district court erred. The

Markush group of element (b) must be construed to permit blends of the four recited resins.

By itself, the use of the transitional phrase “consisting of” does not necessarily suggest that a Markush group is closed to mixtures, combinations, or blends. Here, a layer could still “consist” of the listed resins even if the layer “consists” of a mixture of those resins. Nonetheless, we held in *Abbott* that there is a presumption that a Markush group is closed to mixtures of the listed elements. *Abbott*, 334 F.3d at 1281. *Abbott* held that if a Markush claim recites “a member selected from the group consisting of A, B, and C,” the claim is presumed to permit the member to be one and only one of A, B, or C, and to exclude mixtures or combinations of A, B, and C. *Id.* Typically,

[i]f a patentee desires mixtures or combinations of the members of the Markush group, the patentee would need to add qualifying language while drafting the claim. *See Meeting Held to Promote Uniform Practice In Chemical Divisions*, [28 J. Pat. & Trademark Off. Soc’y 849, 852 (1946)] (citing examples of qualifying language such as: “and mixtures thereof” and “at least one member of the group”). Thus, without expressly indicating the selection of multiple members of a Markush grouping, a patentee does not claim anything other than the plain reading of the closed claim language.

Id. Incorporation of additional language—e.g., “a member selected from the group consisting of A, B, and C, *and mixtures thereof*”—expressly opens the Markush group to mixtures of A, B, and C. *Id.*

The district court correctly observed that there is no express language in element (b) permitting “mixtures,” “combinations,” or “blends” of LLDPE, VLDPE, ULDPE,

and mLLDPE. *Multilayer v. Inteplast*, 2013 WL 5972195, at *22–23, 27. Under *Abbott*, the Markush group of element (b) is therefore presumed closed to blends. The question is whether that presumption can be overcome by a combination of other claim language and the specification itself.

All patent claims, including Markush claims, must be construed in view of “the words of the claims, the specification, the prosecution history, and any relevant extrinsic evidence.” *SSL Servs., LLC v. Citrix Sys., Inc.*, 769 F.3d 1073, 1083 (Fed. Cir. 2014) (citing *Phillips*, 415 F.3d at 1315–17). *Abbott* itself reminds us that “[t]his court interprets patent claims in light of the specification,” 334 F.3d at 1280, and *Abbott* looked beyond the language of the Markush claim at issue to the patent’s prosecution history to confirm that the patentee had not overcome the presumption that the Markush group was closed to mixtures, *id.* at 1281. Thus, *Abbott* suggests that the presumptions created by Markush claim language can be overcome by intrinsic evidence. “Court decisions construe Markush clauses as meaning ‘closed’ *unless other language or evidence alters that meaning.*” Donald S. Chisum, Chisum on Patents § 8.06[2][b] (emphasis added) (citing *Abbott*, 334 F.3d at 1280–81). And PTO practice is not to the contrary. According to the MPEP, “[t]he determination of what is or is not excluded by a transitional phrase must be made on a case-by-case basis in light of the facts of each case.” MPEP § 2111.03. The *Abbott* presumption that Markush claims are closed to blends is distinct from, and not as strong as, the presumption that unlisted resins are excluded, which flows from the transitional phrase “consisting of.”

Here, the intrinsic evidence of the ’055 patent is unequivocal that the inner layers described in element (b) of claims 1 and 28 are open, not closed, to blends of the recited resins, LLDPE, VLDPE, ULDPE, and mLLDPE.

For one, it is clear on its face that the term “linear low density polyethylene” (LLDPE) is one that encompasses at least metallocene-catalyzed linear low density polyethylene (mLLDPE), as mLLDPE is, by its very terms, a sub-type of LLDPE prepared with a particular kind of catalyst (metallocenes). See *Multilayer v. Inteplast*, 2013 WL 5972195, at *31 (“LLDPE, as the extrinsic evidence shows, is a broader term [than mLLDPE] and includes polyethylenes that can be produced using various catalysts.”); *id.* at *35 (finding that “m-LLDPE is a type of LLDPE, only produced with a different catalyst”). Thus, the resins listed in element (b) do not constitute four entirely different species but instead overlap to some extent.⁹ It follows that claims 1 and 28 contemplate the use of polyolefin resins that are classifiable both as an LLDPE and as an mLLDPE, which supports reading element (b) as open to “blending” LLDPE and mLLDPE within a single layer (and open to other blends of the listed resins). Dependent claim 24 also suggests reading element (b) as open to blends, as it recites “[t]he multilayer, thermoplastic stretch wrap film of claim 1, wherein at least one layer comprises a blend of at least two of said resins.”¹⁰ ’055 patent col. 12 ll. 27–29.

⁹ The district court also found that at least some VLDPE and ULDPE resins can also be broadly characterized as LLDPE resins. *Id.* at *32; see also *Multilayer v. Berry*, 63 F. Supp. 3d at 794 (holding that, under the district court’s construction of “LLDPE,” “resins within the classes of mLLDPE, VLDPE, and ULDPE can (also) broadly be characterized as LLDPE resins”).

¹⁰ Claim 24 does not specify whether the “blend of at least two of said resins” must be found in the inner layers of the film (described in element (b)), the outer layers (described in element (a)), or both.

The '055 patent's specification similarly supports construing element (b) as open to blends, as it repeatedly and consistently references blends in describing any and all resins, including the four resins of element (b). According to the patent's Abstract, "[t]he resins used in the film composition . . . may be blended to achieve a desired range of physical or mechanical properties of the final film product." *Id.* Abstract. The Summary of the Invention states that "at least two of the resins may be blended to achieve a desired range of physical or mechanical properties of the final film product." *Id.* col. 1 ll. 65–67. Three embodiments of the claimed multilayered stretch wrap film described in the Detailed Description include inner layers of composition "C," which can contain "blended" LLDPE within a single layer. *Id.* col. 7 ll. 36–45, col. 8 ll. 7–12 & ll. 35–39. There is nothing in the prosecution history of the '055 patent to suggest that blends are excluded and therefore nothing to contradict what is apparent from the specification.

In the light of this strong intrinsic evidence, the Markush group of element (b) must be read as open to blends of the four listed resins, LLDPE, VLDPE, ULDPE, and mLLDPE.¹¹ We reverse this aspect of the district court's claim construction.

¹¹ The district court also found, based on extrinsic evidence, that "one skilled in the art likely understands blends of polymers to be common in the art." *Multilayer v. Intoplast*, 2013 WL 5972195, at *23 (discussing prior art Miro, Simmons, and Eichbauer patents, which describe multilayered plastic stretch films that include layers composed of blends of more than one resin). We discern no error in this finding of fact, and our construction is consistent with it.

IV

The district court's grant of summary judgment of non-infringement was predicated on its incorrect construction of claims 1 and 28 as closed to blends of LLDPE, VLDPE, ULDPE, and mLLDPE. *Id.* at 795. We therefore vacate the grant of summary judgment and remand for reconsideration of infringement under the correct construction. Multilayer's briefs acknowledge that each of Berry's accused films has a different structure and composition, and Multilayer conceded at argument that some of Berry's products do not infringe under a construction of claims 1 and 28 that is open to blends of LLDPE, VLDPE, ULDPE, and mLLDPE in the inner layers but closed to other resins. Oral Argument at 8:30–9:40. We express no opinion on the question of whether certain resins in Berry's films should be classified as polypropylene (which is outside the Markush group of element (b)), LDPE (same), and/or LLDPE (which is within the Markush group); that is a factual question for the district court to consider on remand.

We do not agree that the district court's grant of summary judgment of non-infringement was premature. Summary judgment is proper when "there is no genuine dispute as to any material fact and the movant is entitled to judgment as a matter of law." Fed. R. Civ. P. 56(a). We address this issue because the district court may again on remand consider summary judgment of non-infringement.

Multilayer argues that there were unresolved issues of fact discovery and that "[t]he district court should have denied Berry's premature motion at least until Berry produced to Multilayer highly relevant information relating to the Accused Films." Appellant's Br. at 36. In particular, Multilayer contends that Berry refused to produce material documents, including the "Traveler's Reports" that Multilayer alleges would have provided

detailed compositional information on Berry's films. Berry points out that Multilayer had opportunity to inspect these documents but did not do so and never moved to compel production. Multilayer also suggests that it identified additional potentially infringing Berry films late in discovery, after Berry moved for summary judgment, necessitating further discovery, but Multilayer presents no concrete evidence that these products might infringe. We agree with Berry that the district court was within its discretion in addressing summary judgment when it did, and we see no reason why the district court should be precluded from entertaining further motions for summary judgment on remand. Whether additional discovery would be necessary for Multilayer to respond to such motions is an issue for the district court in the first instance.

V

Lastly, we consider Berry's cross-appeal. Berry alleges that "[t]he District Court abused its discretion by denying Berry's Motion for sanctions under Fed. R. Civ. P. 11, despite substantial evidence of violations." Cross-Appellant's Br. at 46. Berry contends that Multilayer failed to make reasonable pre-suit investigation of infringement and, in particular, that Multilayer's claim construction positions were frivolous. "Multilayer based its entire pre-suit investigation on a frivolous claim construction that flies in the face of well-settled patent law. Multilayer's claim construction position in its alleged pre-suit investigation—that a Markush group claim using the term 'consisting of' (with no broadening language) is open—has no basis in law and violates Rule 11(b)(2)." Cross-Appellant's Reply Br. at 1. Berry also alleges that Multilayer improperly maintained its infringement suit after the district court issued its claim construction order.

We find Berry's cross-appeal meritless. This case presents numerous close and difficult questions of claim construction, as shown by the fact that we disagree (in part) with the district court's interpretation of the inner layers of the claimed film. Berry has not demonstrated that Multilayer's proffered claim constructions were frivolous, and the district court did not abuse its discretion in declining to impose sanctions under Rule 11.

CONCLUSION

For the foregoing reasons, we reverse the district court's construction of claims 1 and 28 of the '055 patent as closed to blends of LLDPE, VLDPE, ULDPE, and mLLDPE in the inner layers of the claimed films but affirm its conclusion that the inner layers must be construed as closed to other resins. We affirm the district court's conclusion that claim 10 is invalid, and we affirm the court's decision not to impose sanctions against Multilayer under Fed. R. Civ. P. 11. We vacate the court's summary judgment of non-infringement and remand for further proceedings consistent with this opinion.

**AFFIRMED-IN-PART, REVERSED-IN-PART,
VACATED-IN-PART, AND REMANDED**

COSTS

No costs.

**United States Court of Appeals
for the Federal Circuit**

**MULTILAYER STRETCH CLING FILM HOLDINGS,
INC.,**
Plaintiff-Appellant

v.

BERRY PLASTICS CORPORATION,
Defendant-Cross-Appellant

2015-1420, 2015-1477

Appeals from the United States District Court for the Western District of Tennessee in No. 2:12-cv-02108-WGY-cgc, Judge William G. Young (by designation).

TARANTO, *Circuit Judge*, dissenting in part.

I join the court’s opinion except for Part II, which holds that element (b) of claims 1 and 28 must be construed so that the claimed layers must contain only the listed resins, *i.e.*, may not contain any unrecited resins (a construction that invalidates claim 10). The court’s opinion lays out the parts of the patent—the specification and dependent claims—that strongly indicate intended coverage of layers that include at least some unrecited resins. But the court holds that such coverage is excluded from element (b). The court reasons that the claim language has so plain a “closed” meaning—based on patent law’s settled approach to the “comprising”/“consisting of”

distinction and to the scope of Markush-group claiming language—that a contrary reading would require support in other intrinsic evidence so compelling that even the strong evidence here is insufficient. I think that this is a close call, but I would conclude that the claim language is not so plain.

The operative claim language is “layer being selected from the group consisting of” specified resins. That particular language does not make plain the precise relationship between “layer” and the listed resins—specifically, whether the layer may contain resins (or anything) other than the listed resins. If different language had been used, the relationship would have been plain based on settled patent-law (and ordinary English) meanings. But the language actually used is a step removed from the words that would have left no semantic uncertainty on the issue.

If the claim had said, “layer consisting of” one or more of the listed resins, the meaning would have been plain. That language would have plainly conveyed that the layer must be made out of only the listed resins, and not others. As the court’s opinion explains, in patent law (and probably in the dominant strand of formal English), “consisting of” means “including *only*” (“containing only,” “composed of only,” “made of only”). Such language would convey the well-established closed meaning that is the opposite of the equally well-established open meaning of “comprising,” which means simply “including.”

The language of element (b) in this case is different. In element (b), “consisting of” does not follow and directly modify “layer”; it follows and directly modifies “group.” Thus, the phrase characterizes the relationship between “group” and the listed resins: the latter are all the members of the former. It does not characterize the (closed or open) relationship between “layer” and what materials can be ingredients of the layer. The claim phrase naming

that relationship is “selected from,” not “consisting of.” The established meaning of “consisting of” therefore does not determine the meaning of the claim language here.

The claim language here is also different from traditional Markush-group language, which does include the phrase “selected from.” Although Markush claim language can vary, one aspect of the language seems to be essentially constant. Markush-group language characteristically recites “an X [being] selected from a group consisting of A, B, and C,” where A, B, and C are actually instances of X.¹ That is, the term (X) introducing the enumeration is a genus or generic descriptor—sometimes not even a word but a pure variable representing the group, e.g., *In re Driscoll*, 562 F.2d 1245, 1246 (CCPA 1977)—for species A, B, and C. See *Merck*, 190 F.3d at 1340. Here, for example, a generic term for the items listed in element (b) would be “resin,” so if the claim here used standard Markush-group language, it would refer to “resins [being] selected from the group consisting of” the listed resins. See, e.g., ’055 patent, col. 1, lines 58–65.

¹ See, e.g., *Fresenius USA, Inc. v. Baxter Int’l, Inc.*, 582 F.3d 1288, 1297 (Fed. Cir. 2009); *Abbott Labs. v. Baxter Pharm. Prods., Inc.*, 334 F.3d 1274, 1276 (Fed. Cir. 2003); *Biovail Corp. Int’l v. Andrx Pharm., Inc.*, 239 F.3d 1297, 1299 (Fed. Cir. 2001); *Merck & Co. v. Mylan Pharm., Inc.*, 190 F.3d 1335, 1339 (Fed. Cir. 1999); *In re Emert*, 124 F.3d 1458, 1460 (Fed. Cir. 1997); *N. Am. Vaccine, Inc. v. Am. Cyanamid Co.*, 7 F.3d 1571, 1573–74 (Fed. Cir. 1993); *In re Bulloch*, 604 F.2d 1362, 1363 (CCPA 1979); *In re Skoll*, 523 F.2d 1392, 1394 (CCPA 1975); *In re Haas*, 486 F.2d 1053, 1054 (CCPA 1973); *In re Rainer*, 305 F.2d 505, 506–07 (CCPA 1962); *In re Azorlosa*, 241 F.2d 939, 940 (CCPA 1957); *Ex parte Dahlen & Zwilgmeyer*, 42 U.S.P.Q. 208 (Pat. Off. Bd. App. 1938); *Ex parte Clark & Malm*, 11 U.S.P.Q. 52 (Comm’r Pat. 1930).

With such language, or language using a generic term like “materials,” it would be the combination of “selected from,” the “consisting of” group language, *and the genus-species relation* that would make plain the closed nature of the relationship: the things named before “selected from” would have to *be* one or more of the listed species. Although the label “Markush group” or “Markush form” may be used more loosely to label “selected from the group . . .” language, as it was in this case, the label does not determine the interpretation. What is critical is that the closed-nature interpretation has been judicially settled only when the genus-species relationship has been present, as far as I can tell.

Element (b), at issue here, is different. It requires that a “layer,” not “resins” or “materials,” be “selected from” the group of listed resins. A “layer” is a structure (a “composition” in the sense of something composed) characterized at least by a spatial relationship to some other physical element, perhaps also by its shape (here it must be part of a “film,” suggesting thinness). *See Multilayer Stretch Cling Film Holdings, Inc. v. Inteplast Grp. Ltd.*, No. 2:12-cv-2107, 2013 WL 5972195, at *19 (W.D. Tenn. Nov. 8, 2013) (“a polymer *composition* within the multi-layer polymer structure *lying over or under another*”) (emphases added). The structure may be made from various materials (*e.g.*, polymers plus other things), and the group here lists such materials.² The relationship

² The dispute over “layer” in the district court was not over the definitional spatial-relation requirement of “layer” (lying over or under another), or over any equating of the layer with what it was made from, but over whether “polymers” had to be among the materials from which it was made. The district court both recognized the distinction and identified the dispute when it summarized its conclusion: “one skilled in the art would understand

between “layer” and the members of the specified group of materials, therefore, is not one of genus and species, and so is not defined by the inherent logic of the genus-species relationship. In brief, the meaning of the language at issue here cannot simply be borrowed from the meaning of traditional Markush-group language.

Element (b) is distinctive, and slightly imprecise, in calling for a spatial-relation-defined (and perhaps shape-defined) structure to be “selected from” a list of materials from which it can be made. The language is naturally understood as a shorthand for what is actually a pair of separate logical links: a link from “layer” to a generic term for ingredients (such as “resins” or “materials”); and a second link from the generic term to the Markush-group list. The second link is clearly closed from the invocation of Markush-group terminology—“resins (materials) selected from the group consisting of” the listed ones. But the first link in the expansion of element (b)’s shorthand is not clear. The expanded, more precise phrase could be “layer consisting of resins being selected from” the group *or* “layer comprising resins being selected from” the group. I cannot rule out either one as a way of translating the unusual language of element (b) into more precise terms.³

the patent to teach that layers *made from* polymers or layers *made from* polymers combined with additives must be present in each of the seven layers.” *Multilayer v. Inteplast*, 2013 WL 5972195, at *19 (emphases added).

³ For an example of a two-link “Markush form” phrase with the first link using open “comprising” language (while leaving “group” implied), see *Merck*, 190 F.3d at 1339 (a “polymer *vehicle comprising* 0–120 mg of a water-soluble *polymer selected from* hydroxypropyl cellulose [HPC], hydroxypropyl methylcellulose [HPMC], polyvinyl pyrrolidone, polyethylene glycol, starch and methyl cellulose”) (emphases added). For an example

I am inclined to think that the former would be the better reading if we considered the claim words alone in light of background patent-law meanings. Indeed, I think that “selected from” is somewhat more suggestive of a closed concept than “made from”—which is the phrase that Multilayer proposed in the district court in expressly arguing for a construction open to unrecited resins. *Multilayer v. Intoplast*, 2013 WL 5972195, at *26.⁴ But I do not think the meaning plain, and the claim language does not stand alone.

Once it is seen that there really is a semantic uncertainty in the claim language—that is the judgment call—we must look to the specification and (here) dependent

with the first link using “consisting of,” see *Shire Dev., LLC v. Watson Pharm., Inc.*, 787 F.3d 1359, 1362 (Fed. Cir. 2015) (“an inner lipophilic matrix *consisting of substances selected from the group consisting of* unsaturated and/or hydrogenated fatty acid, salts, esters or amides thereof, fatty acid mono-, di- or triglycerid[e]s, waxes, ceramides, and cholesterol derivatives with melting points below 90° C”) (emphasis added).

⁴ “Made from,” which can refer to origins or components, can have an “open” meaning in ordinary usage: *e.g.*, one can say “Vicodin is made from hydrocodone” even though it also contains acetaminophen. Moreover, “made from” seems more open than “composed of,” which we have held is itself not always “closed,” but depends for its meaning in a particular patent on other intrinsic evidence. See *AFG Indus., Inc. v. Cardinal IG Co.*, 239 F.3d 1239, 1245 (Fed. Cir. 2001). Indeed, “made from” is at least as open as “made up of,” and the court in *AFG* rejected a closed construction for “composed of” in the particular patent partly in reliance on Cardinal’s use of “made up of” as a term clearly permitting some unrecited components. *Id.* at 1246.

claims to resolve the uncertainty in a way that stays true to the range of permissible meanings of the language actually used. See *Phillips v. AWH Corp.*, 415 F.3d 1303, 1316 (Fed. Cir. 2005) (en banc) (approving as a succinct summary: “Ultimately, the interpretation to be given a term can only be determined and confirmed with a full understanding of what the inventors actually invented and intended to envelop with the claim. The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.”). For the reasons stated, I conclude that there is relevant imprecision in the claim words used here, *i.e.*, that they are not plain in the respect that is disputed, and that the “open” construction is a permissible one for the language used.

As the court’s opinion sets forth, the specification and dependent claims provide strong support for the “open” reading. See Maj. Op. at 15–17. The specification describes three embodiments, two of which have an inner layer formed from a blend of LLDPE with LDPE, a resin not recited in the Markush group. ’055 patent, col. 7, line 15, through col. 8, line 40. Claims 10, 18, and 19, all depending on claim 1, claim those embodiments.

Of course, patentees sometimes write particular claims that exclude described embodiments (*e.g.*, when other claims capture those embodiments) and sometimes mistakenly write dependent claims that invalidly add elements inconsistent with their independent claims. But except for the argument about the plainness of element (b)’s language, we have been pointed to no good reason to think that the patentees in this case excluded the just-noted embodiments from the independent claims or, therefore, wrote dependent claims that are invalid because inconsistent with the independent claims. The only real argument advanced for drawing those conclusions here is that the claim language is plainly to the contrary.

As I have explained, I am not persuaded by that argument.

For those reasons, I respectfully dissent from the holding that the inner layers of claims 1 and 28 cannot include unrecited resins and that claim 10 is invalid.