

NOTE: This disposition is nonprecedential.

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

KRUSE TECHNOLOGY PARTNERSHIP,
Plaintiff-Appellant,

v.

**VOLKSWAGEN AG AND
VOLKSWAGEN GROUP OF AMERICA, INC.**
(doing business as Audi of America, Inc.),
Defendants-Appellees.

2012-1352

Appeal from the United States District Court for the
Central District of California in No. 10-CV-1066, Judge
James V. Selna.

Decided: October 8, 2013

DAVID G. JANKOWSKI, Knobbe, Martens, Olson & Bear,
LLP, of Irvine, California, argued for plaintiff-appellant.
With him on the brief were JOHN B. SGANGA, JR. and
MARKO R. ZORETIC.

JOHN F. SWEENEY, Locke Lord LLP, of New York, New
York, argued for defendants-appellees. With him on the
brief were STEVEN F. MEYER and JOSEPH A. FARCO.

Before NEWMAN, LINN, and WALLACH, *Circuit Judges*.

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

Dissenting opinion filed by *Circuit Judge* WALLACH.

LINN, *Circuit Judge*.

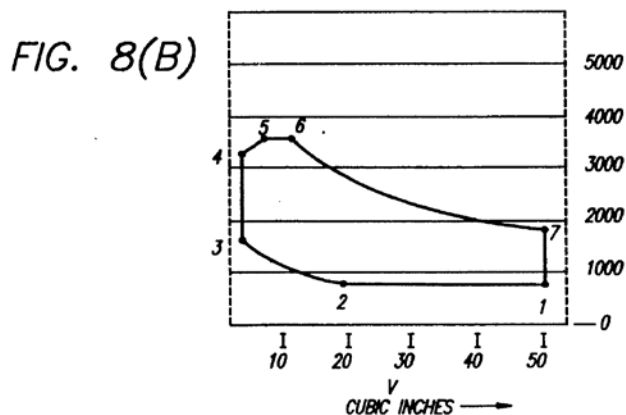
Kruse Technology Partnership (“Kruse”) appeals a summary judgment of non-infringement of the claims of Kruse’s U.S. Patents No. 5,265,562 (“562 Patent”) and No. 6,058,904 (“904 Patent”) in favor of Volkswagen AG and Volkswagen Group of America, Inc. (collectively, “Volkswagen”) and challenges several decisions of the district court that led up to the summary judgment of non-infringement. Order GRANTING Volkswagen Defendants’ Motion for Summary Judgment (Fld 1-20-12) & Daimler Defendants’ Motion for Summary Judgment as to Non-Infringement (Fld 1-23-12), *Kruse Tech. P’ship v. Daimler AG*, No. 10-CV-1066 (C.D. Cal. Mar. 21, 2012), ECF No. 497 (“Summary Judgment Order”); Order Granting in Part and Denying in Part Plaintiff’s Motion for Leave to Amend Infringement Contentions, *Kruse Tech. P’ship v. Daimler AG*, No. 10-CV-1066 (C.D. Cal. Dec. 7, 2011), ECF No. 424 (“Order Denying Leave to Amend”); Order on Claim Construction, *Kruse Tech. P’ship v. Daimler AG*, No. 10-CV-1066 (C.D. Cal. Sept. 29, 2011), ECF No. 359 (“Claim Construction Order”). This court concludes that the district court’s claim construction was correct, that the district court did not abuse its discretion in denying Kruse leave to amend its infringement contentions, and that the district court properly granted summary judgment. Thus, this court affirms the judgment of the district court.

I. BACKGROUND

A. The Patents in Suit

The '562 and '904 Patents share nearly identical written descriptions¹ and describe internal combustion engines controlled to “precisely regulate[] the fuel/air mixture for combustion and exhaust emission control.” '562 Patent col. 5 ll. 15-17. In the disclosed systems, fuel is injected in first and second fractions at different points in the operating cycle of the engine, resulting in a combustion process having “a constant volume (isochoric) phase and a constant temperature (isothermal) phase.” *Id.* col. 2 ll. 64-66. More specifically, in one aspect of the disclosed inventions, a first predetermined fraction of fuel is introduced and, when the piston is substantially at top dead center, ignited resulting in a substantially isochoric or constant volume process. At the beginning of the expansion stroke, a second fraction of the fuel is introduced. The combustion resulting from the second fraction is a substantially isothermal or constant temperature process. The isothermal process occurs at a significantly lower temperature than that of conventional internal combustion engines having the same or lower compression ratio, thereby limiting undesirable NO_x emissions. *Id.* col. 3 ll. 9-41. The operation of the engine system in accordance with the disclosed inventions is graphically shown in Fig. 4(B), reproduced below, in which the constant volume phase is depicted as line 2-3 and the constant temperature phase is depicted as line 3-4. *Id.* col. 6 l. 59 to col. 7 l. 8.

¹ Thus, in general, only the specification of '562 Patent is cited herein.



B. Claims at Issue

Claim 1 of the '562 Patent states:

1. A method of operating an internal combustion expanding chamber piston engine for providing limited temperature combustion, said engine having (1) at least one cylinder and an associated piston for forming a combustion chamber, said piston having a top dead center position, (2) an operating cycle including an intake stroke, a compression stroke and an expansion stroke, and (3) a fuel introduction system, said method comprising the steps of:

forming a predetermined fuel/air mixture by introducing a predetermined fraction of the total fuel required for complete combustion of the process air in the combustion chamber;

igniting said fuel/air mixture when the piston is substantially at top dead center; and

introducing substantially at the beginning of the expansion stroke, a second fraction of the total fuel required for complete combustion,

wherein the combustion of the fuel/air mixture resulting from the fuel first introduced is a substantially constant volume process; and

wherein the combustion as a result of the introduction of the second fraction is a substantially isothermal process.

Id. col. 12 ll. 34-57 (emphasis added). The focus of the present litigation is on the final, emphasized “substantially isothermal process” limitation. Claim 2 at issue depends from claim 1. *Id.* col. 12 ll. 58-59. Claim 9 of the ’904 Patent, also at issue, is similar to claim 1 of the ’562 Patent, and has the same “substantially isothermal process” limitation. ’904 Patent col. 14 ll. 30-53.

While not asserted in the present case, claim 4 of the ’562 Patent is relevant to the construction of the claims at issue. Claim 4 depends from claim 3, which depends from claim 1. ’562 Patent col. 12 ll. 60-65. Claim 4 states,

4. A method, as described in claim 3, wherein:

the combustion of said first mentioned predetermined fraction is limited to a preselected maximum pressure; and wherein,

the second fraction of the total fuel is supplied so as to provide, *first, constant pressure combustion* until a preselected maximum combustion temperature is reached, and

secondly, isothermal combustion at said preselected maximum temperature.

Id. col. 12 l. 65 to col. 13 l. 5 (emphasis added).

C. Previous Proceedings

This is not the first case in which the '562 Patent and '904 Patent have been litigated. In Kruse's prior cases, the district courts construed the language of the "substantially isothermal process" limitation at issue. Order on Claim Construction at 30, *Kruse Tech. P'ship v. Gen. Motors Co.*, No. 09-CV-4970 (C.D. Cal. July 14, 2010), ECF No. 86 (construing the limitation to mean "average cylinder temperature remains substantially constant after the second fraction of fuel is supplied" (internal quotation marks omitted)); Order Denying Defendant's Motion for Summary Judgment at 7-8, *Kruse Tech. P'ship v. Caterpillar, Inc.*, No. 04-CV-10435 (C.D. Cal. Oct. 5, 2008), ECF No. 196 (construing the limitation to mean "average cylinder temperature remains substantially constant after the second fraction of fuel is introduced" (internal quotation marks omitted)). The district court in the present case modified the construction: "the combustion resulting from the second fuel fraction results in average cylinder temperature that remains substantially constant *from the beginning until the end of that combustion.*" Claim Construction Order at 12, 23 (emphasis added) (internal quotation marks omitted). In making its ruling, the district court indicated that the claims would be indefinite if they did not specify the duration of the isothermal process.

Following the district court's claim construction, Kruse sought leave to amend its infringement contentions. Kruse sought to redefine which of the multiple fuel injections in the accused engines was the "second fraction." Kruse sought to have the "post" injection alone be

the “second fraction,” whereas previously Kruse argued that the “main” and “post” injections together were the “second fraction.” In ruling on Kruse’s motion to amend, the district court applied the Northern District of California Patent Local Rules effective March 1, 2008.

Under Patent Local Rule 3-6 [(“Rule 3-6”)], a party may amend or modify its preliminary infringement contentions only by order of the Court upon a timely showing of good cause. The “good cause” inquiry first considers whether plaintiff was diligent in amending its contentions and then considers prejudice to the non-moving party. The party seeking to amend its contentions bears the burden of establishing diligence.

Order Denying Leave to Amend at 2-3 (citations omitted) (internal quotation marks omitted). The district court found that Kruse was diligent. Nevertheless, the district court denied Kruse leave to amend its infringement contentions, concluding that the proposed changes “would cause undue prejudice to . . . [Volkswagen] because further claim construction and discovery would likely be required.” *Id.* at 9.

The district court then granted summary judgment in favor of Volkswagen. The district court first found no evidence supporting a claim of literal infringement when the “post” and “main” injections of the fuel in the accused engines together did not result in combustion at a substantially constant temperature “from the beginning until the end of that combustion.” Summary Judgment Order at 11 (internal quotation marks omitted). The district court also found that there was no infringement under the doctrine of equivalents as a matter of law. Specifically, the district court reasoned that while Kruse’s expert sought to show for the accused Volkswagen engines that “the isothermally combusted portions are between 23%

and 48% of the total fuel injected,” *id.* at 13-14, allowing these percentages to be equivalent to the claim limitation “would depart too far from being isothermal from the beginning to the end,” *id.* at 15. The district court concluded that allowing less than half of the combustion “to be isothermal would be contrary to the meaning of this limitation and would vitiate the limitation.” *Id.*

This court has jurisdiction under 28 U.S.C. § 1295(a)(1).

II. DISCUSSION

A. Standard of Review

This court reviews claim construction *de novo*. *Lockheed Martin Corp. v. Space Sys./Loral, Inc.*, 324 F.3d 1308, 1318 (Fed. Cir. 2003). “[A] determination of infringement, both literal and under the doctrine of equivalents, is a question of fact,” *id.*, but this court reviews the application of the all elements rule and the associated concept of vitiating *de novo*. *See id.* at 1320-21.

Questions on the validity or interpretation of Rule 3-6 are governed by the law of this court. *See O2 Micro Int’l Ltd. v. Monolithic Power Sys., Inc.*, 467 F.3d 1355, 1364-65 (Fed. Cir. 2006) (“*Monolithic*”). “Decisions enforcing local rules in patent cases” are reviewed for an abuse of discretion and “will be affirmed unless clearly unreasonable, arbitrary, or fanciful; based on erroneous conclusions of law; clearly erroneous; or unsupported by any evidence.” *Id.* at 1366-67.

We review summary judgment decisions under regional circuit law. The Ninth Circuit reviews the grant of summary judgment *de novo*. Summary judgment is appropriate if the movant shows that there is no genuine dispute as to any

material fact and the movant is entitled to judgment as a matter of law. At the summary judgment stage, we credit all of the nonmovant's evidence and draw all justifiable inferences in its favor.

Brilliant Instruments, Inc. v. GuideTech, LLC, 707 F.3d 1342, 1344 (Fed. Cir. 2013) (citations omitted) (internal quotation marks omitted).

B. Claim Construction

Kruse argues that the district court incorrectly construed the “substantially isothermal process” limitation and improperly expanded the earlier claim construction by supplementing it with the italicized phrase in the following construction: “the combustion resulting from the second fuel fraction results in average cylinder temperature that remains substantially constant *from the beginning until the end of that combustion.*” Claim Construction Order at 12, 23 (emphasis added) (internal quotation marks omitted). Kruse argues that this construction departs from the ordinary meaning of the claim language in the context of the specification and other claims, argues that the specification and prosecution history do not narrowly redefine or disavow the full scope of the “substantially isothermal process” limitation, and proposes that the “substantially isothermal process” limitation means simply that “the combustion as a result of supplying the second fraction results in an average cylinder temperature that remains substantially constant.” Pl.-Appellant’s Br. 42 (internal quotation marks omitted). Moreover, Kruse argues that the claim says “a result,” which indicates that there can be more than one result; that “substantially” in the claim indicates that the isothermal process can deviate slightly from ideal both in temperature and in duration and need not be restricted to temperature only; and that the construction should not

require that the entire duration of the second fraction combustion be isothermal because that would create a conflict with and raise validity concerns with respect to claim 4—directed to the embodiment of Fig. 8(B) of the '562 Patent—which calls for the second fraction combustion to be divided into two portions, of which only the second is isothermal. Kruse also argues that the construction should not require that the entire duration of the second fraction combustion be isothermal because the specification teaches that the ideal combustion processes described cannot be achieved in the real world and states that variation in temperature and in process duration is expected. Kruse finally argues that the district court cited no evidence of indefiniteness and that the district court should not have construed the claim to preserve its validity before determining that it was ambiguous.

Volkswagen responds that the district court correctly construed the “substantially isothermal process” limitation. Volkswagen argues that the claim language equates the second fraction combustion with the isothermal process by using “is.” Volkswagen also asserts that the use of the definite article “the” in “the combustion” confirms the district court’s construction. Volkswagen supports this argument further by citing *Intamin, Ltd. v. Magnetar Technologies, Corp.*, 483 F.3d 1328, 1335-36 (Fed. Cir. 2007), in which this court construed “the length” to mean “the full length” of a part and *Haemonetics Corp. v. Baxter Healthcare Corp.*, 607 F.3d 776, 782-83 (Fed. Cir. 2010), in which this court construed “the centrifugal unit” to be the entire unit. Volkswagen argues that “substantially” indicates that the temperature can vary, but that the question of whether the isothermal combustion can be less than the entire second fraction combustion is a question of infringement—rather than a question of claim construction. Volkswagen also argues that neither claim 4 nor the embodiment in Fig. 8 requires a construction of the “substantially isothermal process” term contrary to its

ordinary meaning. Moreover, Volkswagen argues that *Intamin* also supports the district court's construction in that a dependent claim in that case did not alter the ordinary meaning of the independent claim, although the district court did not rely on *Intamin*. Volkswagen notes that the district court's construction reads on the embodiment in Fig. 4, in which the combustion temperature is constant for the entire second fraction combustion. Finally, Volkswagen argues that the claims would be indefinite under Kruse's construction.

"[W]ords of a claim are generally given their ordinary and customary meaning," which is the "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005) (en banc) (internal quotation marks omitted). "[T]he claims themselves," "both asserted and unasserted," "provide substantial guidance as to the meaning of particular claim terms." *Id.* at 1314. "[T]he context in which a term is used in the asserted claim can be highly instructive." *Id.* Also, "[a] claim must be read in accordance with the precepts of English grammar." *In re Hyatt*, 708 F.2d 712, 714 (Fed. Cir. 1983).

Based on the ordinary and customary meaning of the claim terms, the district court's construction is correct. As was the case in *Intamin*, the terms of the relevant limitation when read together indicate the meaning of the limitation itself. *See* 483 F.3d at 1335-36 (concluding that "length" in the claim limitation a "conductive rail being adapted to extend the length of the fixed device part" "encompasses the full length of the fixed device part" based on the verb "extend," the fact that "the term 'length' imparts information about the 'fixed device part,'" and the specification). The only permissible reading of the limitation "*the combustion . . . is a substantially isothermal process,*" '562 Patent col. 12 ll. 55-57 (emphasis added), is

that it requires a substantially constant temperature for the entire second fraction combustion. “[I]s” ties the subject (“the combustion”) to the following description (“a substantially isothermal process”). The subject is introduced with the definite article (“the”), indicating a particular combustion, i.e., the combustion of the second fraction. “[*T*he combustion . . . is a substantially isothermal process,” does not indicate that only a portion of the combustion is isothermal; instead, it indicates that the entire combustion is isothermal. This interpretation is context-specific and is not negated by the fact that other uses of “is,” such as when it is an auxiliary verb, result in different constructions. See *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (stating that the claim language “the screw head is pressed against the hollow spherically-shaped portion” does not “indicate how much of the hollow spherically-shaped portion must be ‘pressed against’ the screw head”). The language “a result” in the claim at issue identifies the relevant combustion as that resulting from the introduction of the second fraction and does not suggest that the district court’s construction is incorrect. See ’562 Patent col. 3 ll. 34-36 (“The combustion *resulting from* the introduction of the second fraction is a substantially isothermal process.” (emphasis added)). The district court did not improperly add a durational limitation to the claims because the durational limitation derives from the language of the claim itself.

Kruse and the dissent argue that “substantially” could also refer to the duration of combustion, meaning that the isothermal portion of the second fraction combustion need not extend from beginning to end. But that ignores the language and context of the entire claim phrase “wherein *the* combustion as a result of the introduction of *the* second fraction *is* a substantially isothermal process.” *Id.* col. 12 ll. 55-57 (emphasis added). As the district court correctly recognized, the relevant portion of the combus-

tion to consider is the entire second fraction combustion. The word “substantially” in the “substantially isothermal process” limitation indicates that under real-world conditions the temperature can depart, to some limited extent, from an ideal isothermal process. But the claim simply cannot be read to cover methods in which the full duration of combustion of the second fraction is not substantially isothermal.

“Differences among claims can . . . be a useful guide in understanding the meaning of particular claim terms.” *Phillips*, 415 F.3d at 1314. But the present case differs slightly from the common example of this proposition in which “the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim.” *Id.* at 1315. In the present case, the question is whether a limitation added in a dependent claim indicates that the independent claim *cannot exclude* that limitation, rather than indicating that the independent claim *does not already require* that limitation. Volkswagen relies on *Intamin*, but that case is not directly on point because in that case the dependent claim’s validity did not depend on the construction of the “length” term at issue:

Dependent claim 10 addresses the embodiment where the conductive portion is connected to the movable device. With claim 1 specifying that the conductive rail extends the length of the fixed device, dependent claim 10 may well be improper. Thus, Intamin urges this court to construe claim 1 to retain the validity of claim 10. Under the proper construction of claim 1, dependent claim 10 erases entirely a limitation of the fixed device part and is thus an improper dependent claim. Of course, dependent claim 10 has that effect under any reading of “length” in claim 1. Because claim 1 requires the conductive portion to reach the

length of the fixed device part and claim 10 places the conductive portion on the passenger car, claim 10 is an improper dependent claim. Thus, construing claim 1 to mean end to end length does not in itself render claim 10 invalid.

483 F.3d at 1337. In the present case, the claim construction at issue is itself relevant to the validity of dependent claim 4.

While not cited by the parties, *Regents of the University of California v. Dakocytomation California, Inc.*, 517 F.3d 1364 (Fed. Cir. 2008), is more closely analogous to the present case. *Regents* considered the construction of the claim limitation “heterogeneous mixture of labeled unique sequence nucleic acid fragments,” which the district court construed to mean “heterogeneous mixture of labeled nucleic acid fragments that includes only unique sequence fragments.” *Id.* at 1371 (internal quotation marks omitted). The appellants argued, in part, that “the [district] court erred by interpreting that language to mean that the heterogeneous mixture excludes repetitive sequences” because “the dependent claims of the patent clearly require repetitive sequences.” *Id.* The appellants relied on “the proposition that dependent claims are presumed to be of narrower scope than the independent claims from which they depend under the doctrine of claim differentiation.” *Id.* at 1375 (internal quotation marks omitted). This court found this argument “unpersuasive.” *Id.*

Presumptions are rebuttable. We have held that while 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. Indeed, the presumption created by the doctrine of claim differentiation is not a hard and fast rule and will be overcome by a

contrary construction dictated by the written description or prosecution history.

Id. (citation omitted) (internal quotation marks and alteration marks omitted). In *Regents*, the prosecution history overcame the presumption and the court concluded that the correct construction excluded repetitive sequences, “notwithstanding the presence of certain dependent claims that do not exclude them.” *Id.* Likewise, as here, the presumption will be overcome where the ordinary meaning of the words in an independent claim do not admit to a construction that would embrace a claim dependent therefrom.

Kruse argues that interpreting claim 1 to require isothermal combustion from beginning to end means the claim will not read on the alternative embodiment of Fig. 8(B). This court’s precedent is clear that a claim need not cover every disclosed embodiment. “The mere fact that there is an alternative embodiment disclosed in the asserted patent that is not encompassed by our claim construction does not outweigh the language of the claim, especially when the court’s construction is supported by the intrinsic evidence.” *August Tech. Corp. v. Camtek, Ltd.*, 655 F.3d 1278, 1285 (Fed. Cir. 2011) (internal quotation marks and alteration marks omitted).

Kruse also argues that the district court’s claim construction would conflict with claim 4. This court will not redraft claim 1 contrary to its ordinary meaning to avoid a conflict with claim 4. In *Haemonetics*, consistent with the specification, this court concluded that the language of the claim at issue—“[a] centrifugal unit comprising a centrifugal component and a plurality of tubes”—“unambiguously define[d] ‘centrifugal unit’ as ‘comprising’ [the] two structural components,” and so the claim’s further recitation of “*the* centrifugal unit” could not be read as only the vessel in the context of dimensional

limitations because that would ignore its antecedent basis and would not give effect to all the claim's language. 607 F.3d at 781-82. The district court had concluded "that because the vessel with the tubing is larger than the vessel alone, construing 'centrifugal unit' in the context of the dimensional limitations to include the tubing would yield an absurdity." *Id.* at 782 (additional internal quotation marks omitted). Nevertheless, this court concluded that "we do not redraft claims to contradict their plain language in order to avoid a nonsensical result." *Id.* Likewise, in the present case, we will not redraft independent claim 1 contrary to its plain language to preserve the validity of dependent claim 4. Even if there is an "error" in drafting, the claims as drafted are "what the patentee claimed and what the public is entitled to rely on." *Id.* at 782-83.

This court has considered the parties' other arguments and finds them unpersuasive. This court concludes that the district court correctly construed the "substantially isothermal process" limitation.

C. Denial of Leave to Amend

Northern District of California Local Rule 3-6 effective March 1, 2008, like the current Rule 3-6, states in relevant part,

Amendment of the Infringement Contentions or the Invalidity Contentions may be made only by order of the Court upon a timely showing of good cause. Non-exhaustive examples of circumstances that may, absent undue prejudice to the non-moving party, support a finding of good cause include: (a) a claim construction by the Court different from that proposed by the party seeking amendment

In assessing “good cause,” the district court applied a two-part test considering: (a) the diligence of the movant, and (b) the prejudice to the non-moving party, relying on *CBS Interactive, Inc. v. Etilize, Inc.*, 257 F.R.D. 195, 201 (N.D. Cal. 2009) (citing *Monolithic*, 467 F.3d at 1366-68, and applying the pre-2008 patent local rules). The district court found that Kruse was diligent in seeking to amend, but concluded that the amendment would cause undue prejudice to Volkswagen in that the amended contentions would necessitate further discovery and require the construction of additional claim limitations. The district court thus refused to permit Kruse to amend its infringement contentions.

Kruse argues that it was an abuse of discretion for the district court to deny it leave to amend its infringement contentions in response to the district court’s claim construction. First, Kruse argues that it was unreasonable for the district court to find undue prejudice to Volkswagen based on the need for discovery. Kruse argues that Volkswagen had time to conduct discovery: Kruse served the proposed amended infringement contentions before the close of fact discovery, before Volkswagen took fact depositions, and before the exchange of expert reports. Kruse argues that its proposed amendments were not “a major change in its infringement theory,” Pl.-Appellant’s Br. 54, and that it was relying on the same data while changing its interpretation of the second fraction to be a subset of the injections on which it previously relied. Kruse argues that Rule 3-6(a) contemplates amendments after claim construction, that based on the district court’s ruling no amount of diligence would have allowed Kruse to amend, and that the district court’s schedule alone prevented Kruse from amending. Second, Kruse argues that it was unreasonable for the district court to find undue prejudice to Volkswagen based on the need for further claim construction because trial was months away and the district court could have and should

have construed the additional terms. Kruse cites, among other cases, *O2 Micro International Ltd. v. Beyond Innovation Technology Co.*, 521 F.3d 1351, 1362 (Fed. Cir. 2008) (“*Beyond Innovation*”), which states, “[w]hen the parties present a fundamental dispute regarding the scope of a claim term, it is the court’s duty to resolve it.”

Volkswagen argues that it was not an abuse of discretion for the district court to deny Kruse leave to amend. First, Volkswagen argues that Kruse sought to amend its infringement contentions near the close of fact discovery, that fact discovery had closed by the time the district court denied Kruse leave to amend, and that Volkswagen could not obtain fact discovery on Kruse’s new theory of infringement. Second, Volkswagen argues that Kruse’s amended infringement contentions represented a major change to its infringement theory that would have required further claim construction. Volkswagen argues that simply because the district court can conduct further claim construction does not mean that it abused its discretion in declining to permit a shift in Kruse’s infringement theory late in the proceeding. Volkswagen distinguishes the present case from the cases Kruse cites, such as *Beyond Innovation*, because such cases addressed whether the district court “needs to construe a term at all” and “did not involve a motion to amend infringement contentions, or a second Markman proceeding.” Defs.-Appellees’ Br. 64. Third, Volkswagen argues that the district court’s decision was consistent with Rule 3-6, which provides no automatic right to amend infringement contentions after claim construction but requires leave of the court.

The patent local rules “seek to balance the right to develop new information in discovery with the need for certainty as to the legal theories” and “require parties to crystallize their theories of the case early in the litigation so as to prevent the ‘shifting sands’ approach to claim

construction.” *Monolithic*, 467 F.3d at 1364, 1366 (additional internal quotation marks omitted). “[T]his court defers to the district court when interpreting and enforcing local rules so as not to frustrate local attempts to manage patent cases according to prescribed guidelines.” *Genentech, Inc. v. Amgen, Inc.*, 289 F.3d 761, 774 (Fed. Cir. 2002).

Kruse served the proposed amendments before the close of discovery, however, fact discovery was nearing its end and was closed by the time the district court decided Kruse’s motion to amend. While the parties disagree whether Kruse sought a major change, it was a change to the theory of infringement that would likely have meant re-opening of *Markman* proceedings and extending discovery. Although the question is close, this court cannot conclude that the district court abused its discretion in finding prejudice given the late stage of the proceedings at which Kruse presented the alternative infringement theories.

Kruse identifies no controlling case, including *Beyond Innovation*, that would require the district court to permit the amendments and construe the additional claim terms in the present circumstances. *Beyond Innovation* concluded that a district court cannot decline to resolve a dispute on the scope of the claims and allow the issue to be submitted to the jury. 521 F.3d at 1361-63. *Beyond Innovation* does not speak to whether a district court must allow an amendment to infringement contentions that would require it to conduct additional claim construction and extend discovery at a late stage of the proceedings.

Kruse is correct that when the non-moving party is prejudiced, there may be no amount of diligence by the moving party that would allow an amendment to the infringement contentions. But Rule 3-6 requires more

than diligence; it requires that there be no “undue prejudice to the non-moving party.” Rule 3-6 does not provide a right to amend regardless of prejudice to the non-moving party. Here, there is sufficient evidence of prejudice that the district court’s finding is not unreasonable, arbitrary, clearly erroneous, or unsupported by any evidence.

D. Doctrine of Equivalents

Kruse acknowledges that the grant of Volkswagen’s summary judgment motion of no literal infringement “was an inevitable consequence of its denying Kruse leave to amend its infringement contentions.” Pl.-Appellant’s Br. 59. Kruse argues that the district court erred in concluding that Kruse’s infringement theory vitiated the durational limitation of the “substantially isothermal process” limitation. Kruse distinguishes prior cases, such as *Moore U.S.A., Inc. v. Standard Register Co.*, 229 F.3d 1091 (Fed. Cir. 2000), contending that it does not seek to capture the antithesis of a second fraction that combusts entirely isothermally, because that would be a second fraction with no isothermal combustion. Instead, Kruse argues that the accused products’ operation differs from the construed claim limitation by degree. Specifically, Kruse argues that the isothermal combustion of 23% to 48% of the second fraction² in the accused products is an insubstantial difference from isothermal combustion from beginning to end. Kruse also argues that the district court disregarded its evidence on equivalency or impermissibly resolved genuine issues of material fact.

² While Kruse initially appeared to indicate that 23% to 48% of the fuel for the cycle combusts isothermally, the cited portions of the record and Plaintiff-Appellant’s Reply Brief indicate that 23% to 48% of the second fraction combusts isothermally.

Volkswagen argues that the district court correctly concluded that Kruse's theory of infringement, which would allow 23% to 48% of the second fraction combustion to be equivalent to "from the beginning until the end of that combustion," would vitiate that requirement. Volkswagen acknowledges that the claim says "substantially isothermal," that rounded corners are permissible, that the duration need not be 100% of the second fraction, and that perhaps even 80% would be sufficient; but Volkswagen argues that the low percentage of the second fraction that combusts isothermally in the accused products cannot be covered by the claims. *See* Oral Arg. at 20:27-21:22, *available at* <http://www.cafc.uscourts.gov/oral-argument-recordings/2012-1352/all>. Volkswagen argues that the present case is analogous to *Moore*. Volkswagen argues that the district court did not impermissibly consider a binary choice under the doctrine of equivalents, as indicated by the district court's statement that "to allow an 'appreciable' portion, as represented by the above percentages, to manifest an equivalency would depart too far from being isothermal from the beginning to the end." Summary Judgment Order at 15. Volkswagen also argues that Kruse failed to provide evidence supporting a finding of equivalency.

This court clarified the vitiation inquiry in *DePuy Spine*:

It is important to note that when we have held that the doctrine of equivalents cannot be applied to an accused device because it "vitiates" a claim limitation, it was not to hold that the doctrine is always foreclosed whenever a claim limitation does not literally read on an element of an accused device; such an interpretation of the "all elements" rule would swallow the doctrine of equivalents entirely. Any analysis of infringement under the

doctrine of equivalents *necessarily* deals with subject matter that is beyond, ignored by, and not included in the literal scope of a claim. A holding that the doctrine of equivalents cannot be applied to an accused device because it “vitiates” a claim limitation is nothing more than a conclusion that the evidence is such that no reasonable jury could conclude that an element of an accused device is equivalent to an element called for in the claim, or that the theory of equivalence to support the conclusion of infringement otherwise lacks legal sufficiency.

469 F.3d at 1018-19 (citations omitted) (internal quotation marks and alteration marks omitted).

This court has cited *Moore* as an example of the proposition that an antithesis of a claim limitation, or an alternative that is too different, cannot be an equivalent. See *Brilliant*, 707 F.3d at 1348; *Planet Bingo, LLC v. GameTech Int’l, Inc.*, 472 F.3d 1338, 1345 (Fed. Cir. 2006). *Moore* states,

In this case, we hold that the applicant’s use of the term “majority” is not entitled to a scope of equivalents covering a minority for at least two reasons. First, to allow what is undisputedly a minority (*i.e.*, 47.8%) to be equivalent to a majority would vitiate the requirement that the “first and second longitudinal strips of adhesive . . . extend the majority of the lengths of said longitudinal marginal portions.” If a minority could be equivalent to a majority, this limitation would hardly be necessary, since the immediately preceding requirement of a “first and second longitudinal strips of adhesive disposed in said first and second longitudinal marginal portions, respectively, of said first face” would suffice. Second, it

would defy logic to conclude that a minority—the very antithesis of a majority—could be insubstantially different from a claim limitation requiring a majority, and no reasonable juror could find otherwise.

229 F.3d at 1106 (alteration in original) (citation omitted).

In the present case, the district court ruled, as a matter of law, that Kruse’s theory of infringement under the doctrine of equivalents lacks legal sufficiency in that the proposed equivalent is contrary to or would vitiate the claim limitation of combustion from the beginning until the end.

Here the district court correctly construed the claim language to mean that the combustion from the second fuel fraction “results in average cylinder temperature that remains substantially constant from the beginning until the end.” Claim Construction Order at 12, 23 (internal quotation marks omitted). While the claim limitation, as construed, by no means precludes *some* departure from the entirety of the second fraction combustion, we find no error in the district court’s conclusion that the claim term is not flexible enough to allow the 23% to 48% duration of the second fraction combustion to be equivalent to the entirety of the second fraction combustion. Allowing such a percentage to be equivalent to combustion over the full duration is contrary to the meaning of the claim limitation and would render it meaningless. Isothermal combustion for less than half of the second fraction combustion cannot logically be considered insubstantially different from combustion from beginning to end; and, as in *Moore*, no reasonable juror could find otherwise. *See* 229 F.3d at 1106. Thus, this court need not reach the issue of the sufficiency of Kruse’s evidence. For the foregoing reasons, this court affirms the district court’s

grant of summary judgment to Volkswagen on Kruse's theory of infringement under the doctrine of equivalents.

III. CONCLUSION

Based on the foregoing analysis, this court concludes that the district court correctly construed the claim language in question and did not abuse its discretion in denying Kruse's motion for leave to amend, and affirms the district court's grant of summary judgment of no infringement.

AFFIRMED

NOTE: This disposition is nonprecedential.

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

KRUSE TECHNOLOGY PARTNERSHIP,
Plaintiff-Appellant,

v.

**VOLKSWAGEN AG AND
VOLKSWAGEN GROUP OF AMERICA, INC.**
(doing business as Audi of America, Inc.),
Defendants-Appellees.

2012-1352

Appeal from the United States District Court for the
Central District of California in No. 10-CV-1066, Judge
James V. Selna.

WALLACH, *Circuit Judge*, dissenting.

I do not agree with the majority's interpretation of "the combustion . . . is a substantially isothermal process" limitation as recited in claim 1. In particular, I find the disputed claim language ambiguous, and the specification reveals that claim 1 does not require combustion as a result of the second fuel fraction to be substantially isothermal from the beginning until the end of that combustion. I therefore respectfully dissent.

The district court initially construed “the combustion . . . is a substantially isothermal process” to mean that “average cylinder temperature remains substantially constant after the second fraction of fuel is supplied.” J.A. 5335–37. Subsequently the district court set aside that construction and narrowed its interpretation of the term, construing the limitation to mean “the combustion resulting from the second fuel fraction results in average cylinder temperature that remains substantially constant from the beginning until the end of that combustion.” J.A. 9–12. Accordingly, the district court narrowed the limitation with a durational requirement—from the beginning until the end of that combustion—which the majority now affirms.

I agree with the majority that claims should be construed based on precepts of English grammar, that the doctrine of claim differentiation is not a hard and fast rule, and that claims need not encompass every disclosed alternative embodiment. *See* Majority Op. 12, 15–16. I also agree that this court is not required to rewrite claims to preserve their validity. *See id.* at 17.

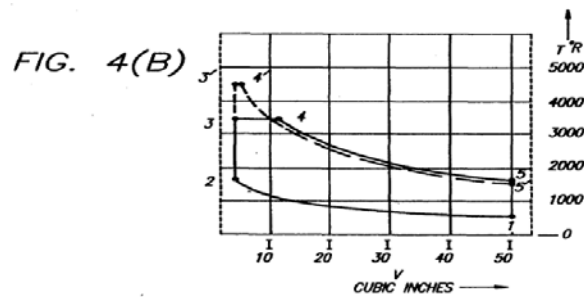
Independently, these judicial doctrines aiding in claim construction are not dispositive, and are frequently rebutted. However, when a particular interpretation of a claim simultaneously violates *all* of these doctrines, such a construction may not be tenable. In fact, a construction that excludes disclosed embodiments, violates the doctrine of claim differentiation, and invalidates a dependent claim cannot stay true to the claim language and the written description of the invention. *Power Integrations, Inc. v. Fairchild Semiconductor Int’l, Inc.*, 711 F.3d 1348, 1361 (Fed. Cir. 2013) (“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.”).

The majority holds that the only permissible reading of the limitation “the combustion . . . is a substantially isothermal process,” requires a substantially constant temperature for the *entire* second fraction combustion. According to the majority, “is” ties the subject (“combustion”) to the description following (“a substantially isothermal process”). Because the subject is introduced with the definite article “the” (“the combustion of the second fraction”) the majority concludes that the ordinary and customary meaning requires “the” entire combustion—from the beginning to the end—to be isothermal. The majority holds the word “substantially” in the “substantially isothermal process” limitation modifies only the “isothermal process.” Although that interpretation is reasonable, the claim language also supports an at least equally plausible alternative interpretation.

“Substantially” can also refer to the duration of the combustion. For example, combustion initiated by a fuel fraction may begin at a certain temperature which may subsequently increase over time eventually arriving at an isothermal state. In that instance, the average cylinder temperature may remain substantially constant even if the cylinder was not in an isothermal state from the beginning of the combustion. Indeed, the district court’s earlier construction encompassed this interpretation of “substantially isothermal process.” By including the durational requirement, however, the majority effectively negates the patentee’s use of the approximate term “substantially.” Without this term, the claim would read: “the combustion . . . is a[n] . . . isothermal process,” which is more parallel to the majority’s construction requiring the isothermal process to occur from the beginning until the end of the combustion. The introduction of “substantially” modifies this strict requirement by allowing the combustion as a result of the introduction of the second fuel fraction to fluctuate prior to the combustion settling into an isothermal state. This claim language is ambiguous.

Recourse to the specification resolves this ambiguity. Claims do not stand alone, and the remaining intrinsic evidence aids in construing the disputed term. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc). The specification is highly relevant and usually dispositive in any claim construction analysis making it the single best guide to the meaning of a disputed term. *Id.* (internal quotation marks and citation omitted).

Unlike the claim language, the specification provides ample guidance and context, which necessarily conflict with the majority’s claim construction. For instance, the “ideal” combustion processes, ’562 col. 11 ll. 18–19, depicted in Figures 4(A)–4(C) are instructive. Figure 4(B) is shown below:

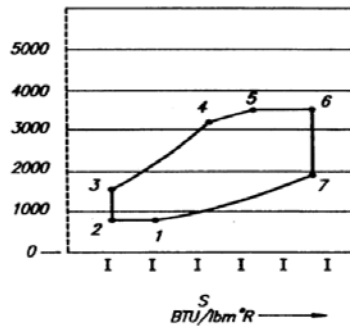


In this figure, Path 3 to 4 represents an ideal isothermal combustion process as a result of a second fuel fraction that uses the remaining fuel not expended during Path 1 to 2 and Path 2 to 3. *Id.* col. 7 ll. 4–6. The specification explains how “[r]eal engine paths will depart to some extent from the ideal cycles shown [in Figure 4] due to timing, heat and friction losses. These factors will manifest themselves in the cycle diagram as, for example, rounded corners and displacements of the process.” *Id.* col. 11 ll. 19–24. The “rounded corners” and “displacements” as applied to Path 3 to 4 will introduce, *inter alia*, shifting and/or concavity to the depicted straight line altering the depiction of a perfectly isothermal state to one that is “substantially isothermal.” Figure 8, an embodiment of

the invention at issue, illustrates such a deviation from the “ideal” cycle.

In reference to Figure 8, the specification discloses combustion as a result of the second fuel fraction that can be divided into two sequential states: (1) combustion occurring at constant pressure, and (2) combustion occurring at constant temperature. *Id.* col. 11 l. 64–col. 12 l. 2. Figure 8 is depicted below:

FIG. 8(C)



As illustrated, the combustion at Path 4 to 5 occurs at constant pressure and is provided by the introduction of a second fuel fraction. *Id.* col. 11 ll. 64–66. The combustion during Path 5 to 6 occurs at constant temperature— isothermally. *Id.* col. 11 l. 66–col. 12 l. 2. This figure and its corresponding disclosure in the specification clearly indicate that the combustion need not be isothermal from the beginning of the combustion, as the majority’s construction requires. Rather, Figure 8 shows that the isothermal process may begin at some later time after the second fuel fraction is introduced. This combustion process reasonably may be characterized as “substantially isothermal.” Accordingly, a departure from a perfectly isothermal process encompasses combustion that may be “substantially” isothermal—one that may not necessarily begin with and end in such a state—much like the embod-

iment depicted in Figure 8 and those described as deviations from the “ideal” cycles illustrated in Figure 4.

The majority nevertheless reasons that a claim construction need not encompass every embodiment, and determines that the “ordinary meaning” of “substantially isothermal process” excludes the embodiment illustrated by Figure 8. Majority Op. 16. Even if the claim language were as clear as the majority believes, the majority’s construction excludes, not only the embodiment depicted in Figure 8, but also those embodiments described in the ’562 patent that encompass “real” engines. As discussed above, the patent is directed to embodiments that depart from “ideal” combustion processes, which may not be perfectly isothermal from the beginning until the end of the combustion. Thus, the majority’s requirement that the isothermal process occur from the beginning until the end of the combustion excludes these disclosed embodiments as well. That result cannot be correct. *Nellcor Puritan Bennett, Inc. v. Masimo Corp.*, 402 F.3d 1364, 1368 (Fed. Cir. 2005) (“The fact that the construction adopted by the district court and advocated by [appellee] would have the effect of placing all the embodiments of the invention outside the scope of the claims is powerful evidence that the court’s construction is incorrect.”).

In addition to improperly excluding these disclosed embodiments, the majority’s construction does not give sufficient weight to the doctrine of claim differentiation. Figure 8 is particularly claimed in dependent claim 4, which reads in part:

[T]he second fraction of the total fuel is supplied so as to provide, first, constant pressure combustion until a preselected maximum combustion temperature is reached, and secondly, isothermal combustion at said preselected maximum temperature.

'562 patent col. 13–ll. 1–5. Claim 4 depends from claim 3, which depends from claim 1 including the disputed “substantially isothermal process” limitation. “It is axiomatic that a dependent claim cannot be broader than the claim from which it depends.” *Alcon Research, Ltd. v. Apotex Inc.*, 687 F.3d 1362, 1367 (Fed. Cir. 2012); *AK Steel Corp. v. Sollac & Ugine*, 344 F.3d 1234, 1242 (Fed. Cir. 2003) (“Under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend.”). By construing “substantially isothermal process” in claim 1 to exclude the processes expressly recited in dependent claim 4, the majority broadens the scope of a dependent claim over the independent claim from which it depends, violating the doctrine of claim differentiation.

Nonetheless, the majority reasons that the presumption the doctrine of claim differentiation provides is rebutted “where the ordinary meaning of the words in an independent claim do not admit to a construction that would embrace a claim dependent therefrom.” Majority Op. 16. At the same time, however, the majority renders claim 4 superfluous. That cannot be. *See, e.g., Rhine v. Casio, Inc.*, 183 F.3d 1342, 1345 (Fed. Cir. 1999) (“Claims should be so construed, if possible, as to sustain their validity.”) (internal quotation marks, citation, and altered capitalization omitted).

Specifically, because a dependent claim narrows the claim from which it depends, it must “incorporate . . . all the limitations of the claim to which it refers.” *Alcon Research*, 687 F.3d at 1367 (quoting 35 U.S.C. 112 ¶ 4 (2006)). Indeed, context of the claims as whole informs the proper construction of terms. *Abbott Labs. v. Syntron Bioresearch, Inc.*, 334 F.3d 1343, 1351 (Fed. Cir. 2003). Claim 1 recites broadly that combustion as a result of the introduction of the second fraction is a substantially isothermal process. Consequently, the combustion resulting from the second fuel fraction recited in dependent

claim 4 while describing two sequential states—*isobaric* and *isothermal*—as a whole must still be “substantially *isothermal*.” Requiring the combustion to be *isothermal* from beginning to end negates claim 4 and threatens its validity. A construction which simultaneously violates the doctrine of claim differentiation and writes out claim 4 must be erroneous.

For these reasons, I would construe “the combustion . . . is a substantially *isothermal* process” to mean that “average cylinder temperature remains substantially constant after the second fraction of fuel is supplied.” Accordingly, I would reverse the district court’s claim construction ruling and remand for further proceedings.