PUBLISHED

UNITED STATES COURT OF APPEALS
FOR THE FOURTH CIRCUIT

No. 16-1808

SAS INSTITUTE, INC.,

Plaintiff - Appellant,

v.

WORLD PROGRAMMING LIMITED,

Defendant - Appellee,

THE MATHWORKS, INC.; BSA THE SOFTWARE ALLIANCE,

Amici Supporting Appellant,

ELECTRONIC FRONTIER FOUNDATION; COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION; INTERNET ASSOCIATION; ENGINE ADVOCACY,

Amici Supporting Appellee,

No: 16-1857

SAS INSTITUTE, INC.,

Plaintiff - Appellee,

v.

WORLD PROGRAMMING LIMITED,

Defendant - Appellant,

THE MATHWORKS, INC.; BSA THE SOFTWARE ALLIANCE,

Amici Supporting Appellee,

ELECTRONIC FRONTIER FOUNDATION; COMPUTER & COMMUNICATIONS INDUSTRY ASSOCIATION; INTERNET ASSOCIATION; ENGINE ADVOCACY,

Amici Supporting Appellant.

Appeals from the United States District Court for the Eastern District of North Carolina, at Raleigh. Louise W. Flanagan, District Judge. (5:10-cv-00025-FL)

Argued: September 15, 2017 Decided: October 24, 2017

Before WILKINSON, DUNCAN, and THACKER, Circuit Judges.

Affirmed in part, and vacated and remanded in part by published opinion. Judge Wilkinson wrote the opinion, in which Judge Duncan and Judge Thacker joined.

ARGUED: Pressly McAuley Millen, WOMBLE CARLYLE SANDRIDGE & RICE, LLP, Raleigh, North Carolina, for Appellant/Cross-Appellee. Wayne F. Dennison, BROWN RUDNICK LLP, Boston, Massachusetts, for Appellee/Cross-Appellant. **ON BRIEF:** Raymond M. Bennett, WOMBLE CARLYLE SANDRIDGE & RICE, LLP, Raleigh, North Carolina, for Appellant/Cross-Appellee. Rebecca M. Lecaroz, BROWN RUDNICK LLP, Boston, Massachusetts; Mark R. Sigmon, SIGMON LAW, PLLC, Raleigh, North Carolina, for Appellee/Cross-Appellant. Mitchell L. Stoltz, Kit Walsh, Michael Barclay, ELECTRONIC FRONTIER FOUNDATION, San Francisco, California, for Amicus Electronic Frontier Foundation. Jonathan Band, JONATHAN BAND PLLC, Washington, D.C., for Amici Computer & Communications Industry Association, Internet Association and Engine Advocacy. David C. Frederick, Michael E. Joffre, Julian J. Ginos, KELLOGG, HUBER, HANSEN, TODD, EVANS & FIGEL, P.L.L.C., Washington, D.C., for Amicus The MathWorks, Inc. Andrew J. Pincus, Paul

W. Hughes, Jonathan Weinberg, MAYER BROWN LLP, Washington, D.C., for Amicus BSA The Software Alliance.

WILKINSON, Circuit Judge:

SAS Institute (SAS) and World Programming Limited (WPL) are competitors in the market for statistical analysis software. SAS alleges that WPL breached a license agreement for SAS software and violated copyrights on that software. We agree with the district court that the contractual terms at issue are unambiguous and that SAS has shown that WPL violated those terms. We thus affirm the district court's judgment finding WPL liable for breach of the license agreement. With respect to the district court's ruling on the copyright claim, we vacate that portion of the district court's judgment and remand with instructions to dismiss it as moot.

I.

This case arises out of competition in the market for software used to manage and analyze large and complex datasets. SAS, a North Carolina company, sells an integrated system of business software collectively known as the "SAS System." Users operate the SAS System by writing instructions, or SAS programs, in a computer programming language known as the SAS language. While anyone can write a SAS program, software such as the SAS System is required to make a SAS program function. SAS licenses its full suite of software to both individuals and corporations, and has also offered the SAS Learning Edition, which is a lower-cost version of the SAS System marketed as an educational tool to enable students to learn the SAS language. The Learning Edition provides the same general functionality as the full SAS System, but is programmed to process only a limited amount of data. To complete installation of the Learning Edition, a user must click "Yes" to indicate agreement with the terms of the license. As discussed in

more detail below, these terms include a prohibition on "reverse engineering," as well as a restriction requiring use only for "non-production purposes."

WPL is a United Kingdom company formed to develop statistical reporting software. Shortly after its formation, WPL identified what it saw as a market opportunity to compete with SAS by selling software capable of running SAS language programs. While developing this competing software, now marketed as the World Programming System (WPS), WPL acquired several copies of the SAS Learning Edition, including two copies in 2003, one in 2005, two in 2007, and seven in 2009. Developers at WPL ran SAS programs through both the Learning Edition and WPS, and then modified WPS's code to make the two achieve more similar outputs. Several former SAS customers have replaced their SAS System software with WPS. Learning Edition licenses expire after four years, so none of the copies that WPL purchased are still functional.

In September 2009 and January 2010, respectively, SAS filed lawsuits against WPL in the U.K. and in the Eastern District of North Carolina. In the U.K. litigation, SAS asserted claims for copyright infringement and breach of the Learning Edition license agreement. The U.S. suit also contained claims for copyright infringement and breach of the license agreement, but additionally asserted claims for fraudulent inducement, tortious interference with contract, tortious interference with prospective business advantage, and violation of the North Carolina Unfair and Deceptive Trade Practices Act (UDTPA). The U.S. litigation was initially dismissed for *forum non conveniens* in March 2011, but that dismissal was reversed by this court in February 2012

and the case was remanded to the district court. *See SAS Institute, Inc. v. World Programming Ltd.*, 468 F. App'x 264, 264–65 (4th Cir. 2012) (per curiam).

In July 2010, the U.K. High Court rendered an interim judgment on SAS's claims. However, the U.K. High Court concluded that the case turned on interpretation of several provisions of E.U. law, including Council Directive 91/250/EEC and Directive 2001/29/EC (collectively "E.U. Software Directive"), both relating to the legal protection of computer programs. The U.K. High Court referred its interpretive questions to the Court of Justice of the European Union (CJEU). The CJEU ruled that under the E.U. Software Directive "neither the functionality of a computer program nor the programming language and the format of data files used in a computer program in order to exploit certain of its functions" are copyright protected, and that "a licensee is entitled…to determine the ideas and principles which underlie any element of the program" if he does so while he "carries out acts covered by that license and acts of loading and running necessary for use of the computer program." J.A. 8887–88. However, the CJEU also ruled that "reproduction, in a computer program or a user manual for that program, of certain elements described in the user manual for another computer program protected by copyright is capable of constituting an infringement of the copyright in the latter manual." J.A. 8888.

Based on the CJEU ruling, the U.K. High Court entered a final ruling for WPL on all claims except for copyright infringement of the SAS manuals. The U.K. High Court determined that, to the extent WPS reproduced the SAS System, it reproduced only aspects of the program that are not protected by U.K. copyright law. The U.K. High

Court's ruling on SAS's breach of contract claims relied on the mandatory nature of the E.U. Software Directive, as parties to a contract may not contravene the Directive by agreement. Thus, because WPL's behavior was explicitly protected by the Directive, SAS could not enforce any contractual provisions that prohibited it. The Court of Appeal of England and Wales affirmed the U.K. High Court's ruling, and it became final when the Supreme Court of the U.K. refused SAS's request to appeal the judgment further on July 9, 2014.

In the U.S. litigation, SAS filed a motion on April 14, 2014, for partial summary judgment on its claims for breach of contract and tortious interference with contract. That same day, WPS filed a motion for summary judgment on all of SAS's claims. Each motion was granted in part and denied in part. The district court granted summary judgment to SAS on the question of liability for breach of the license agreement, but granted summary judgment to WPL on SAS's claims for copyright infringement of the SAS System, tortious interference with contract, and tortious interference with prospective economic advantage. The district court did not grant summary judgment on SAS's claims for copyright infringement of the SAS manuals,[1] breach of contract, fraudulent inducement, or UDPTA violations. *See SAS Institute Inc. v. World Programming Ltd.*, 64 F. Supp. 3d 755, 783 (E.D.N.C. 2014).

WPL moved for reconsideration of the district court's ruling on the breach of contract issue, but its motion was denied. However, on its own motion, the district court

[1] The parties later stipulated to the dismissal of SAS's claim for copyright infringement of the SAS manuals.

later set aside and corrected portions of its earlier summary judgment rulings. Specifically, the district court set aside portions of its earlier ruling granting certain of the U.K. High Court's findings preclusive effect. Nonetheless, the district court ruled that SAS was still entitled to summary judgment on its breach of contract claim.

The case proceeded to trial on SAS's claims for fraudulent inducement and UDTPA violations, as well as for the calculation of damages from WPL's breach of contract. The jury found damages in the amount of $26,376,635 for the breach of contract, and also found WPL liable for fraudulent inducement and UDPTA violations, resulting in the same damages. The jury also awarded SAS $3,000,000 in punitive damages based on the fraudulent inducement finding. Under UDTPA, the compensatory damages award of $26,376,635 was trebled. SAS had the option to elect either the trebling of damages or the $3,000,000 punitive damages award, and could not recover both. Thus, the total damages awarded to SAS after trebling was $79,129,905. SAS also sought an injunction, which the district court denied. WPL sought attorney's fees under 17 U.S.C. § 505 as a prevailing party on the copyright issue, but this motion was denied.

Both parties appealed. WPL appeals the district court's holding that the U.K. litigation did not preclude the U.S. suit, the grant of summary judgment on the breach of contract issue, certain evidentiary rulings made below, the amount of the damages, and the district court's denial of attorney's fees on the copyright claim. SAS appeals the district court's denial of injunctive relief and the district court's copyright ruling. For the reasons that follow, all of WPL's appeals fail, and we affirm those portions of the district court's judgment. SAS also fails to demonstrate that it is entitled to injunctive relief, and

we affirm the district court's ruling on this issue. Finally, the district court's ruling on the copyright claim is vacated as moot. We address each of these issues in turn.

II.

Preliminarily, WPL contends that the proceedings below never should have moved forward, as this action was barred by res judicata due to the U.K. litigation. The district court concluded that this argument was waived by WPL. And indeed, "res judicata [is] an affirmative defense ordinarily lost if not timely raised." *Arizona v. California*, 530 U.S. 392, 410 (2000). The parties offer competing characterizations of WPL's arguments below related to claim preclusion and issue preclusion in the course of disputing whether the res judicata issue is properly before us. However, it is unnecessary for us to determine whether WPL sufficiently preserved this issue, as res judicata did not bar this case in any event.

The doctrine of res judicata, or claim preclusion, applies when three elements are satisfied. "[T]here must be: (1) a final judgment on the merits in a prior suit; (2) an identity of the cause of action in both the earlier and the later suit; and (3) an identity of parties or their privies in the two suits." *Pueschel v. United States*, 369 F.3d 345, 354–55 (4th Cir. 2004). As this court has emphasized, however, claim preclusion and issue preclusion are "practical" doctrines. *See, e.g.*, *Providence Hall Associates Ltd. Partnership v. Wells Fargo Bank, N.A.*, 816 F.3d 273, 276 (4th Cir. 2016). Res judicata is ultimately governed by whether the present case has already been decided, and whether the party has previously had a fair shot with respect to the claims raised in the present action. Where it applies, res judicata serves crucial functions in our legal system. The

doctrine prevents litigants from being forced through the system twice, which would prolong the disruption in their lives and drive up unnecessary expense. It also conserves judicial resources and minimizes the risk of undermining the authority of judicial decisions by preventing inconsistent judgments. *Montana v. United States*, 440 U.S. 147, 153–54 (1979). We therefore must closely examine any allegedly preclusive litigation to determine whether those interests would be served.

It is undisputed that the U.K. litigation produced a final judgment on the merits, and that the parties in that suit are identical to those in the present action. The applicability of res judicata thus turns, and ultimately falters, on the second element, the identity of the cause of action. "No simple test exists to determine whether causes of action are identical" in the res judicata analysis, "and each case must be determined separately within the conceptual framework of the doctrine." *Pittston Co. v. United States*, 199 F.3d 694, 704 (4th Cir. 1999) (citing *Aliff v. Joy Mfg. Co.*, 914 F.2d 39, 43 (4th Cir. 1990)). The conceptual framework we operate under is a transactional one, as we ask "whether the claim presented in the new litigation 'arises out of the same transaction or series of transactions as the claim resolved by the prior judgment'" and whether "the claims could have been brought in the earlier action." *Laurel Sand & Gravel, Inc. v. Wilson*, 519 F.3d 156, 162 (4th Cir. 2008) (quoting *Pittston Co.*, 199 F.3d at 704; *Tahoe–Sierra Pres. Council, Inc. v. Tahoe Regional Planning Agency*, 322 F.3d 1064, 1078 (9th Cir. 2003)).

This standard has not been met here. The many legal and factual differences between the U.K. litigation and the present suit mean that applying res judicata would

have the practical effect of preventing SAS from having its claims heard in any adequate forum. Applying res judicata in such a mechanical manner based on facial similarities between the two suits would also undermine United States and North Carolina policies in favor of the policies of the U.K. and European Union, a result res judicata has not been held to require. *See Jaffe v. Accredited Surety and Casualty Co., Inc.*, 294 F.3d 584, 591 (4th Cir. 2002).

SAS's claims in both lawsuits revolve around WPL's acquisition of the Learning Edition, creation of a competitor product, and sales of that competing product. It is here that the similarities between the actions end, however, and WPL has not shown that SAS could have chosen to pursue the claims ultimately adjudicated in the U.S. in the U.K. instead.

The U.S. suit alleged violations of U.S. copyright, which WPL has not established could have been litigated in U.K. courts. Similarly, the U.S. suit focused only on sales of WPS within the United States, and WPL has not established that SAS could have recovered for these sales in the U.K. Ultimately, "[t]he fact that two suits involve challenges to very similar courses of conduct does not matter." *Ohio Valley Environmental Coalition v. Aracoma Coal Co.*, 556 F.3d 177, 211 (4th Cir. 2009). The copyright claims, then, which were based on the copyright laws of different countries and on different sets of sales transactions, were not barred by res judicata.

For those aspects of the suits that were most similar, the breach of contract actions, it is clear that the U.K. was not, in fact, an adequate forum. The parties agreed to be governed by North Carolina law. Nonetheless, the U.K. courts were bound to, and

ultimately did, declare portions of the contract unenforceable based on E.U. law. SAS's claims for fraudulent inducement and UDTPA violations, which were brought only in the U.S. action, could not have been adequately addressed in the U.K. due to the same aspects of E.U. law, based on WPL's own understanding of that law. Even if these claims would present close res judicata questions had the first litigation been in another U.S. jurisdiction, the question is less close when the allegedly preclusive judgment is from a foreign jurisdiction. As this court has recognized, while "neither a state nor a federal court can refuse to give full faith and credit to the judgment of a state court because of disagreement with the public policy basis for that decision," courts may "refuse…to recognize a *foreign* judgment on the ground that it conflicts with the public policy of [the] state." *Jaffe*, 294 F.3d at 591–92.

North Carolina public policy and E.U. public policy are in clear conflict in this case. The E.U. Directive that was dispositive of the contract claims in the U.K. litigation has no equivalent in North Carolina. Instead, the United States has taken an approach that is more protective of intellectual property, and North Carolina courts have taken an approach that is more protective of the sanctity of contract, including broad deference to the parties to elect the governing law. *See, e.g.*, *Bueltel v. Lumber Mut. Ins. Co.*, 518 S.E.2d 205, 209 (N.C. Ct. App. 1999). Granting the U.K. judgment preclusive effect would frustrate these policy goals by barring a North Carolina company from vindicating its rights under North Carolina law on the basis of the E.U.'s contrary policies. No principle of international comity requires this outcome.

For similar reasons, WPL's arguments based on issue preclusion are unavailing. Issue preclusion applies only when "the issues in each action [are] identical, and issues are not identical when the legal standards governing their resolution are significantly different." *Computer Associates Int'l, Inc. v. Altai, Inc.*, 126 F.3d 365, 371 (2d Cir. 1997). The issues involved in this case are by no means identical to those litigated in the U.K., because the U.K. breach of contract ruling was based entirely on the E.U. Software Directive, a governing law inapplicable in this action and significantly different from U.S. and North Carolina law.[2] These legal differences prevent issue preclusion here.

In sum, both claim preclusion and issue preclusion are inapplicable in this case, and we turn to the merits.

III.

WPL asks us to reverse the district court's grant of summary judgment on SAS's breach of contract claims. We review this question de novo, *Seabulk Offshore, Ltd. v. American Home Assur. Co.*, 377 F.3d 408, 418 (4th Cir. 2004), and affirm the district court's judgment.

At summary judgment, the parties did not dispute that the license agreement is a valid contract between WPL and SAS. Nor was WPL's actual conduct in dispute at this stage. Instead, WPL argues that summary judgment was inappropriate because the contractual terms "reverse engineering" and "non-production," both critical to the breach

[2] WPL argues that we should apply U.K. law to certain contract questions, WPL's Opening/Response Br. 67–68, but we are unpersuaded. North Carolina courts generally give effect to the parties' choice of law, with only narrow exceptions not applicable here, as explained by the district court. J.A. 1332–33.

of contract holding, are ambiguous. Summary judgment is appropriate in breach of contract cases "when the contract in question is unambiguous or when an ambiguity can be definitively resolved by reference to extrinsic evidence." *Washington Metropolitan Area Transit Authority v. Potomac Investment Properties, Inc.*, 476 F.3d 231, 235 (4th Cir. 2007). For the reasons explained below, there is no ambiguity here.

The district court found WPL liable for breach of contract on the basis of two distinct violations of the license agreement, specifically violations of the term prohibiting "reverse engineering" and the term restricting use to "non-production purposes." The purported ambiguities WPL identifies in these terms do not survive an examination of the record in this case.

The parties agreed their contract would be governed by North Carolina law, and North Carolina courts do not find ambiguity in contractual language simply because the parties dispute its meaning. *Wachovia Bank & Trust Co. v. Westchester Fire Ins. Co.*, 172 S.E.2d 518, 522 (N.C. 1970). Instead, North Carolina courts first apply ordinary principles of contract interpretation to resolve disputes if possible. *See id.* Among these principles is that "nontechnical words are to be given a meaning consistent with the sense in which they are used in ordinary speech, unless the context clearly requires otherwise." *Id.* Courts may resort to dictionaries to identify "the common and ordinary meaning of words and phrases." *Marcuson v. Clifton*, 571 S.E.2d 599, 601 (N.C. Ct. App. 2002) (quoting *State v. Martin*, 173 S.E.2d 47, 48 (N.C. Ct. App. 1970)). Importantly, meaning "is derived not from a particular contractual term but from the contract as a whole." *State*

v. Philip Morris USA Inc., 618 S.E.2d 219, 225 (N.C. 2005). With these principles in mind, the unambiguous meanings of the terms at issue quickly become apparent.

A.

We begin with the reverse engineering prohibition, which provides that "Customer may not reverse assemble, reverse engineer, or decompile the Software or otherwise attempt to recreate the Source Code, except to the extent applicable laws specifically prohibit such restriction." J.A. 9081. WPL argues that the phrase has a narrow meaning, restricting only "decompiling or otherwise accessing and recreating the source code of a program." WPL Opening/Response Br. 63. By contrast, SAS favors a broader interpretation that would encompass any attempt "to analyze a product to learn the details of its design, construction, or production in order to produce a copy or improved version." SAS Response/Reply Br. 25.

The district court was correct to note that the phrase's meaning is "not self-evident" in isolation. J.A. 1481. Consistent with North Carolina law, the district court then turned to dictionary definitions and to the contract as a whole to determine the ordinary meaning of the phrase. According to the Oxford English Dictionary, to reverse engineer is to "examine (a product) in order to determine its construction, composition, or operation, typically with a view to manufacturing a similar product." J.A. 1481–82 (quoting an Oxford English Dictionary definition of "reverse engineer"). A Merriam-Webster definition similarly provides that to reverse engineer is "to study the parts of (something) to see how it was made and how it works so that you can make something that is like it." J.A. 1482 (quoting a Merriam-Webster definition of "reverse engineer").

Each of these definitions is more consistent with the broad understanding offered by SAS than the narrower interpretation preferred by WPL. WPL has not pointed to, and we have not discovered, any technical dictionaries that reveal a narrower meaning specific to the software context. In fact, WPL's narrower interpretation of "reverse engineering" does not find support in a paper written explicitly to define the practice in the software context. Elliot J. Chikofsky and James H. Cross II, *Reverse Engineering and Design Recovery: A Taxonomy*, IEEE Software 13, 15 (Jan. 1990) ("Reverse engineering is the process of analyzing a subject system to identify the system's components and their interrelationships and create representations of the system in another form or at a higher level of abstraction.").

The broader interpretation offered by SAS also better complies with the requirement of North Carolina contract interpretation to give effect to every word of a contract, if possible. *See Marcuson*, 571 S.E.2d at 601 (noting the goal of "giving effect to each [clause and word] whenever possible") (quoting *Marcoin, Inc. v. McDaniel*, 320 S.E.2d 892, 897 (N.C. Ct. App. 1984)). The reverse engineering prohibition is paired with prohibitions on "reverse assembl[ing]" and "decompil[ing]." J.A. 9081. Yet WPL's narrow construction of the reverse engineering prohibition would affect only those who reverse engineered the software by decompiling and reverse assembling it. It would thus make the phrase "reverse engineer" entirely redundant. With the plain meaning of the phrase avoiding this redundancy, we decline to adopt a narrower interpretation that renders the phrase inert.

WPL skips over these traditional tools of contract interpretation, instead relying on extrinsic evidence that it claims shows ambiguity. This approach is incorrect. North Carolina contract law turns to extrinsic evidence only after the contract is found to be ambiguous. *See, e.g.*, *Cleveland Const., Inc. v. Ellis-Don Const., Inc.*, 709 S.E.2d 512, 522 (N.C. Ct. App. 2011) (noting that where a contract is unambiguous, "the court is limited to an interpretation in keeping with the express language of the document and without considering parol evidence" (quotation marks omitted)). Where, as here, the contractual terms are unambiguous, the analysis comes to an end, and summary judgment is appropriate. *Inland American Winston Hotels, Inc. v. Crockett*, 712 S.E.2d 366, 369 (N.C. Ct. App. 2011) (noting that "[e]xtrinsic evidence may be consulted when the plain language of the contract is ambiguous," but declining to consider extrinsic evidence after using dictionary definitions to find the terms unambiguous).

Even were we to reach the extrinsic evidence, however, WPL has not raised a triable issue of fact on the meaning of this phrase. The extrinsic evidence WPL provided demonstrated only that software *can be* reverse engineered through the means WPL describes. For example, WPL pointed to the testimony of SAS's CEO, who agreed that it is "very common" for the term reverse engineering to be used to refer to the conduct WPL describes. WPL Opening/Response Br. 65 n. 19 (quoting J.A. 2082). Similarly, WPL noted that another SAS witness stated that reverse engineering "can be a lot of different things," including "looking at the source code" of a piece of software. *Id.* (quoting J.A. 2599–2600) (emphasis omitted). But none of this evidence undermines the district court's interpretation of the contract. That the type of reverse engineering

described by WPL is possible, or even common, does nothing to suggest that no other type of reverse engineering is possible.

It is clear that WPL violated the unambiguous reverse engineering prohibition. By all accounts, WPL analyzed the Learning Edition to learn how it worked in order to better recreate its functionality in its own products. That WPL did not access the Learning Edition's source code is simply insufficient to overcome the ample evidence that WPL analyzed the broader "design" of the Learning Edition. WPL thus used the Learning Edition in precisely the way the reverse engineering clause prohibited.

Because this restriction is unambiguous, and WPL's undisputed conduct violated it, the district court correctly granted summary judgment to SAS on this basis.

B.

The "non-production purposes" limitation provides a similarly unambiguous ground on which to find WPL liable for breach of contract. Under this provision, WPL, like all licensees of the SAS Learning Edition, agreed to use the Learning Edition for "non-production purposes only." J.A. 9081. As with the reverse engineering prohibition, ordinary principles of contract interpretation reveal just one, unambiguous meaning of this phrase, which WPL's admitted conduct violated. Specifically, we agree with the district court's interpretation of this clause to forbid "the creation or manufacture of commercial goods." J.A. 1505.

WPL again attempts to create ambiguity by offering a purportedly technical definition of "production" as used in the software industry. Of course, contracts may contain technical terms, and courts in North Carolina are bound to construe terms

according to their technical meanings if "it is clear that the parties intended the words to have a specific technical meaning." *Allstate Ins. Co. v. Runyon Chatterton*, 518 S.E.2d 814, 816–17 (N.C. Ct. App. 1999). Merely asserting that a term has a technical meaning is insufficient to defeat summary judgment, however, particularly in light of the fact that "the ordinary meaning of a term is the preferred construction." *Id.* at 817. This would be especially true where the agreement is a consumer contract for a product marketed as an educational tool.

WPL asserts that, "[i]n software parlance, 'production' refers to a type of environment." J.A. 9241. Within that parlance, WPL claims, "[a] 'development environment' is one where a programmer can securely develop software and test it, whereas a 'production environment' is generally one where the software is accessible by the public or is being used to run a business." J.A. 9241. However, if "production" was meant to reference some type of "environment," the phrasing of the restriction was bizarre. Nowhere does the agreement even use the word "environment." As the district court pointed out, the more direct phrase "use in a development environment" would have been utilized if WPL's favored meaning had been intended. J.A. 1506. The evidence provided by WPL, then, does little to support its preferred interpretation, and in fact undermines it.

Turning to the ordinary meaning of the phrase "non-production purposes," then, the narrow interpretation preferred by WPL is untenable. Relying again on dictionary definitions, the district court noted that the Oxford English Dictionary offers definitions for "production" including "[t]he action or an act of producing, making, or causing

anything; generation or creation *of* something; the fact or condition of being produced" and "the manufacture of goods for sale and consumption." J.A. 1504 (quoting an Oxford English Dictionary definition of "production"). Merriam-Webster's definition of production is similar: "the act or process of producing" or "the creation of utility; *esp:* the making of goods available for use." *Merriam-Webster's Collegiate Dictionary*, "production" (11th ed. 2011).

SAS's explanation of the non-production purposes limitation is closely related to these dictionary definitions and indeed is nearly identical to one of the Oxford English Dictionary definitions that the district court identified. By contrast, WPL's preferred interpretation is entirely divorced from the ordinary meaning of the words used.

Under ordinary principles of North Carolina contract interpretation, then, the agreement must be understood to unambiguously prohibit WPL's conduct. WPL's use of the Learning Edition cannot be reasonably described as use for "non-production purposes." To the contrary, WPL used the Learning Edition specifically to produce a competing product. The type of "environment" in which WPL performed this production is beside the point; the purpose of WPL's activity was the creation of a commercial product. The non-production purposes limitation therefore provides an independent basis to find WPL liable for breach of the license agreement.[3]

[3] In addition to challenging the merits of the breach of contract holding, WPL also challenged the jury's damages award. We need not decide whether UCC's Article 2 restrictions on consequential damages apply here, because WPL has not persuaded us that any damages awarded were consequential damages from the sale of goods as opposed to direct damages. Direct damages, also known as general damages, "are such as might (Continued)

IV.

WPL also contends that the district court erred in two of its evidentiary decisions. Evidentiary rulings "will not be disturbed absent a clear abuse of discretion." *United States v. Russell*, 971 F.2d 1098, 1104 (4th Cir. 1992). "A district court abuses its discretion if it relies on an error of law or a clearly erroneous factual finding." *Equal Employment Opportunity Commission v. Freeman*, 778 F.3d 463, 466 (4th Cir. 2015). No such abuse of discretion occurred here.

WPL first complains about the district court's decision to exclude relevant evidence regarding the U.K. litigation and the E.U. Software Directive. WPL contends that the U.K. litigation and the E.U. Software Directive were relevant to its defense because they "tend to diminish the willful or wanton nature of its conduct." J.A. 13054. The district court disagreed, because the litigation matters WPL sought to introduce occurred long after the relevant conduct, and thus did not address WPL's state of mind at that time. This decision was well within the "wide discretion" afforded to such rulings. *Russell*, 971 F.2d at 1105.

WPL next argues that the district court erred by permitting Dr. James Storer to testify as an expert for SAS and by permitting him to testify more broadly than his

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accrue to any person similarly injured," while consequential (or special) damages "are such as did in fact accrue to the particular individual by reason of the particular circumstances of the case." *Penner v. Elliott*, 33 S.E.2d 124, 126 (N.C. 1945) (quoting Black's Law Dictionary). Any person injured by breach of a reverse engineering or non-production purposes prohibition would likely suffer lost profits like those awarded to SAS here.

technical expertise warranted. Rule 702 of the Federal Rules of Evidence provides that expert testimony "is admissible if it 'rests on a reliable foundation and is relevant.'" *Freeman*, 778 F.3d at 466 (quoting *Westberry v. Gislaved Gummi AB*, 178 F.3d 257, 260 (4th Cir. 1999)). In applying this standard, the district court "possesses broad latitude to take into account any factors bearing on validity that the court finds to be useful." *Id.* (quotation marks omitted).

Storer, a professor of computer science at Brandeis University, was invited to testify by SAS on the question of whether and when the World Programming System could have been developed without use of the Learning Edition. Storer relied on his experience to inform his testimony, rather than any particular scientific method. The district court concluded that Storer's education and experience in software development qualified him as an expert in this matter. Further, the district court concluded that Storer's testimony would be helpful, because his explanations of the contents of technical documents and his opinion as to the practicality of developing WPS would help the jury understand the evidence. All of these conclusions were well within the district court's discretion based on the evidence before it. Accordingly, we will not disturb them.

V.

Turning to SAS's claims on appeal, SAS seeks an injunction on the basis of the breach of contract and fraud claims it prevailed on below. Failing that, SAS asks us to overturn the district court's decision that there was ultimately no copyright infringement on the part of WPL, so that SAS can return to the district court to seek the same injunction based on that claim. If, however, we grant SAS the injunction it seeks on its

breach of contract claim, SAS asks us to vacate the district court's copyright holding as moot.

We review the district court's denial of a permanent injunction for abuse of discretion. *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 391 (2006). A district court abuses its discretion when it "relies on incorrect legal conclusions or clearly erroneous findings of fact," *Huskey v. Ethicon, Inc.*, 848 F.3d 151, 158 (4th Cir. 2017), or otherwise acts "arbitrarily or irrationally" in its ruling, *Smith v. Baltimore City Police Dep't*, 840 F.3d 193, 200 (4th Cir. 2016).

A.

An injunction is an equitable remedy that "does not follow from success on the merits as a matter of course." *Winter v. Natural Resources Defense Council, Inc.*, 555 U.S. 7, 32 (2008). A traditional equitable analysis requires a plaintiff to demonstrate:

> (1) that it has suffered an irreparable injury; (2) that remedies available at law, such as monetary damages, are inadequate to compensate for that injury; (3) that, considering the balance of hardships between the plaintiff and defendant, a remedy in equity is warranted; and (4) that the public interest would not be disserved by a permanent injunction.

eBay, 547 U.S. at 391. Whether under SAS's state-law claims or its copyright claims, the decision of whether to grant an injunction will ultimately be based on the same equitable factors.

Satisfying these four factors is a high bar, as it should be. As the Supreme Court has emphasized and the district court acknowledged, "[a]n injunction is a drastic and extraordinary remedy," *Monsanto Co. v. Geertson Seed Farms*, 561 U.S. 139, 165 (2010), and it should be granted only where "essential in order effectually to protect

property rights against injuries otherwise irremediable," *Weinberger v. Romero-Barcelo*, 456 U.S. 305, 312 (1982) (quoting *Cavanaugh v. Looney*, 248 U.S. 453, 456 (1919)).

Injunctive relief is not casually granted because of its prospective character. *See Winter*, 555 U.S. at 24. Injunctions by their nature attempt to anticipate the future, but the future sometimes declines stubbornly to be prophesied. Injunctive relief may be particularly treacherous in the area of copyrights and other laws touching on expression, as enjoining future expressive conduct can edge toward imposing a prior restraint. *See Nebraska Press Ass'n v. Stuart*, 427 U.S. 539, 556–70 (1976); *Alexander v. United States*, 509 U.S. 544, 550 (1993). While enjoining copyright violations may not itself violate the First Amendment, the risk of overbroad injunctions and the Constitution's clear concern for expressive freedom recommend prudence in this area.

Beyond these prudential concerns, practical concerns also require that plaintiffs meet a heavy burden before being granted injunctive relief. In many cases, as in this one, an injunction risks awarding more relief than is merited. This risk may be particularly acute when injunctive relief is combined with monetary relief, as SAS asks here. *See Minnesota Mining & Mfg. Co. v. Pribyl*, 259 F.3d 587, 607–10 (7th Cir. 2001); *Forster v. Boss*, 97 F.3d 1127, 1129–30 (8th Cir. 1996). While injunctions and monetary damages do serve different purposes, the lines between these purposes can be blurry. For instance, large monetary damages can often serve not only as compensation for past harms, but also as a deterrent against future unlawful behavior. *See Friends of the Earth, Inc. v. Laidlaw Environmental Services (TOC), Inc.*, 528 U.S. 167, 192–93 (2000). In this case, SAS's award of over $79 million is already going to catch WPL's attention in any future

calculation of risk irrespective of an injunction. Meanwhile, the absence of injunctive relief will still allow the parties to modify their behavior or make new contracts to address future changes in circumstances.

The district court provided a thorough discussion of its application of these traditional principles. *See* J.A. 5137–53. SAS asserts that the district court applied a "categorical" approach by discussing the distinction between infringement and non-infringement injuries. SAS is, of course, correct that any categorical approach to injunctive relief is flawed, as the determination of whether to grant equitable relief does not turn on the type of wrongdoing at issue. We cannot agree with SAS that the district court applied such a categorical approach, however. Instead, it is clear from that court's discussion that injunctive relief was generally not warranted.

1.

An initial bar to relief stems from SAS's failure to demonstrate an irreparable injury from WPL's actions. While irreparable harm is only one of the four factors courts must consider in determining whether to grant injunctions, the Supreme Court has made clear that, regardless of the other factors, "[t]he equitable remedy [of an injunction] is unavailable absent a showing of irreparable injury." *City of Los Angeles v. Lyons*, 461 U.S. 95, 111 (1983).

As the district court stated, SAS has failed to demonstrate irreparable injury in this case. The jury awarded $26,376,635 to SAS, and these damages were trebled under North Carolina law to $79,129,905. The jury's damages award was based in part on testimony provided by SAS's expert that SAS had suffered a total of only $13,500,245 in lost

profits by the time of trial. The balance of the $26 million dollar award, over $12 million at least, was therefore based on SAS's expected damages after trial. The fact that SAS already asked for and received these future damages undermines its claim of irreparable injury moving forward.

The district court also noted that SAS's claims of difficult-to-calculate damages in the form of lost business relationships, market share, and goodwill were largely unsupported by evidence. *See* J.A. 5142–43. Before this court, SAS has pointed to no evidence that the district court may have overlooked. Instead, SAS focuses on the losses it suffered before trial and the future damages it has already received, suggesting that these losses make future irreparable harm more than speculative. Both the Supreme Court and this court have emphasized, however, that the existence of past harm is far from dispositive on the question of irreparable future harm. *See, e.g.*, *Lyons*, 461 U.S. at 111; *Beck v. McDonald*, 848 F.3d 262, 277–78 (4th Cir. 2017); *Simmons v. Poe*, 47 F.3d 1370, 1382 (4th Cir. 1995). Rather than supporting a finding of irreparable harm, the future damages SAS has already received point to an injury that has already been redressed.

2.

SAS further argues that monetary damages are inadequate because of potential difficulties in collecting them. Collectability concerns may support the issuing of an injunction under certain circumstances. For example, preliminary injunctions are sometimes used to ensure that assets currently held by the defendant, but likely to become unavailable before damages can be collected, will remain available following trial. *See Hughes Network Systems, Inc. v. InterDigital Communications Corp.*, 17 F.3d

691, 694 (4th Cir. 1994) (discussing the "narrow" circumstances in which preliminary injunctions may be offered "to preserve the plaintiff's opportunity to receive an award of money damages at judgment"). In that situation, equity may require that defendants not be allowed to disburse their assets before a final judgment can be rendered. This is, however, precisely the opposite of the situation at hand: as the district court noted, the injunction SAS seeks would have "a significant negative financial impact on WPL's sales." J.A. 5149. The injunction therefore would frustrate, rather than facilitate, WPL's ability to pay damages.

Injunctions have also sometimes been deemed appropriate based on barriers to collectability after judgment, *see, e.g.*, *Brenntag Int'l Chemicals, Inc. v. Bank of India*, 175 F.3d 245, 249–50 (2d Cir. 1999), but SAS has offered only vague concerns on this front. It has tendered little but speculation regarding both WPL's financial status and the U.K.'s unwillingness to enforce portions of its damages award. To the extent SAS alleges that WPL's financial situation will prevent the payment of damages, it has offered, as the trial court noted, no "detailed and meaningful information about [WPL's] financial condition." J.A. 5144–45. Further, SAS also "failed to satisfy its burden" to demonstrate the impossibility of enforcing its judgment in the U.K., instead offering evidence that lacked "the sort of specificity" that could sway the court. J.A. 5145. There would have to be a stronger evidentiary foundation in this action to justify the strong medicine of injunctive relief.

SAS's contentions regarding the potential difficulty of collecting trebled damages in the U.K. also misses the mark for another reason. SAS argued below that monetary

damages may be insufficient not only when "wholly ineffectual" but also when "seriously deficient as a remedy for the harm suffered." J.A. 13080 (quoting *Roland Machinery Co. v. Dresser Industries, Inc.*, 749 F.2d 380, 386 (7th Cir. 1984)). Receiving the full value of the compensatory damages award, but not the punitive damages award, is not at all "deficient" as a remedy for SAS's injuries. To the contrary, the compensatory damages award reflects the jury's attempt to place SAS "in the same position [it] would have occupied if there had been no breach of the contract," including "fair compensation…for any economic injury to SAS Institute that was directly and proximately caused by the breach of contract." J.A. 4733–34. Any additional punitive damages received by SAS serve not a remedial purpose as to SAS but, as the name implies, a punitive purpose as to WPL.

Finally, it bears emphasis that SAS has not left the court system penniless. It has received an award of $79,129,905, an award that on appeal it has fought hard to defend. To hold that the possessor of a $79 million judgment has received an inadequate remedy would be astonishing in the absence of firm evidence of that judgment's illusory character, which was not presented here.

3.

The balance of hardships in this case also militates against an injunction. SAS is the world's largest privately-held software company. By contrast, SAS itself contends that WPL will already face significant hardship based on the monetary damages it owes. Given that WPL has only a single product—WPS—the district court's statement that

"granting the requested injunction would likely be ruinous for WPL" seems almost self-evident. J.A. 5149.

Apparently acquiescing in these facts, SAS leans heavily on its argument that the hardship to WPL simply "should not be considered." SAS Opening Br. 43. Adopting SAS's preferred approach, however, would run directly contrary to the Supreme Court's articulation of this factor in *eBay*. In that case, the Court explicitly directed that, even in cases involving clear wrongdoing, such as ongoing patent infringement, courts must "consider[] the balance of hardships between the plaintiff and defendant." *eBay*, 547 U.S. at 391–92. It is impossible to square this directive with the idea that hardship to the losing party should simply be ignored.

4.

The final factor, the public interest, does not save SAS's request for an injunction. Weighing against the injunction are concrete harms to WPL's existing customers in the United States. These customers would have to expend significant time and money to replace their existing WPS systems, either now or in the near future. Direct effects on innocent third parties have frequently grounded courts' denials of injunctions. *See, e.g.*, *Hispanic Affairs Project v. Perez*, 141 F. Supp. 3d 60, 74 (D.D.C. 2015); *Fractus, S.A. v. Samsung Elecs. Co., Ltd.*, 876 F. Supp. 2d 802, 854 (E.D. Tex. 2012); *Machlett Laboratories, Inc. v. Techny Industries, Inc.*, 665 F.2d 795, 798 (7th Cir. 1981). This is especially so where the public interests weighing in favor of an injunction rely on broad, abstract rule of law concerns. While these interests are certainly legitimate, the award of compensatory and punitive damages in this case already serves them well. Were we to

hold that these broad principles were sufficient to defeat more concrete harms to innocent third parties, the public interest factor would weigh in favor of an injunction in nearly every case. We are unwilling to render this factor meaningless, and we find that it weighs against an injunction.

5.

SAS contends that even if it is not entitled to an injunction on the basis of its breach of contract claims, it should receive an injunction on the basis of its copyright claim.

We disagree. To begin, it is far from certain that the district court made an error of law by granting summary judgment to WPL on SAS's copyright claim. The area of software copyrights is a murky one, and federal courts have struggled with it for decades. *See, e.g., Lexmark Int'l, Inc. v. Static Control Components, Inc.*, 387 F.3d 522, 535 (6th Cir. 2004) ("[T]he task of separating expression from idea in [the software] setting is a vexing one."); *Computer Associates Int'l, Inc. v. Altai, Inc.*, 982 F.2d 693, 704 (2d Cir. 1992) ("The essentially utilitarian nature of a computer program further complicates the task of distilling its idea from its expression."); *Sega Enterprises Ltd. v. Accolade, Inc.*, 977 F.2d 1510, 1524 (9th Cir. 1992) ("Computer programs pose unique problems for the application of the 'idea/expression distinction' that determines the extent of copyright protection.").

In the case before us, the parties offer competing visions of what the SAS System is and, at a more basic level, where the line between functionality and creativity should be drawn in software copyrights. SAS cites the long tradition of extending copyright

protection to even the bare minimum of creative expression, and points to what it describes as the "careful, creative selection among many alternatives" made by its developers. SAS Opening Br. 52. On the other hand, WPL points to the longstanding doctrine that copyright does not cover the functional aspects even of creative works, and insists that WPS recreates only the functionality of the SAS System. WPL Opening/Response Br. 33–39, 44–47. Their dispute thus goes to the very heart of the difficulty in drawing the line between protected and unprotected expression in the software context.

Additionally, even if there was infringement here, it would not follow as a matter of course that SAS should receive an injunction. The Supreme Court has "consistently rejected invitations to replace traditional equitable considerations with a rule that an injunction automatically follows a determination that a copyright has been infringed." *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388, 392–93 (2006) (citing *New York Times Co. v. Tasini*, 533 U.S. 483, 505 (2001); *Campbell v. Acuff-Rose Music, Inc.*, 510 U.S. 569, 578, n. 10 (1994); *Dun v. Lumbermen's Credit Ass'n.*, 209 U.S. 20, 23–24 (1908)). Instead, the "familiar principles" of equity "apply with equal force to disputes arising" from intellectual property violations. *Id.* at 391–92. And as Justice Kennedy noted, the "vagueness and suspect validity" of an intellectual property right "may affect the calculus under the four-factor test." *eBay*, 547 U.S. at 397 (Kennedy, J., concurring). Given how strongly the traditional equitable factors weigh against the issuance of injunctive relief in this case, it is hard to conceive how the outcome of what is a close copyright claim would lead to SAS receiving such relief.

B.

We must address finally the continued justiciability of the copyright claim. While the issue of mootness was not raised by the parties in this context, we must always satisfy ourselves of the existence of a live dispute at the outset of our analysis. *See Suarez Corp. Industries v. McGraw*, 125 F.3d 222, 228 (4th Cir. 1997). To justify federal jurisdiction, a live dispute must exist at every stage of the litigation, including on appeal. *Catawba Riverkeeper Foundation v. North Carolina Dep't of Transportation*, 843 F.3d 583, 588 (4th Cir. 2016).

A claim is moot when "the parties lack a legally cognizable interest in the outcome." *City of Erie v. Pap's A.M.*, 529 U.S. 277, 287 (2000) (quoting *County of Los Angeles v. Davis*, 440 U.S. 625, 631 (1979)). One such circumstance is when "there is no effective relief available in federal court that [the plaintiff] has not already received." *Friedman's, Inc. v. Dunlap*, 290 F.3d 191, 197 (4th Cir. 2002). When a claim is moot, any judicial resolution would be effectively advisory, and therefore impermissible. The justifications for this doctrine are particularly apparent where, as here, the parties ask us to resolve a difficult question of law in a rapidly evolving context, such as software copyrights.

SAS has made clear, both in its briefs and at oral argument, that the only relief it seeks from the copyright claim that it has not already received from its other claims is an injunction. As detailed above, however, SAS would not receive the injunction it seeks even were it to prevail on its copyright claim. Thus, the legal resolution of the copyright question would have no effect on the relief afforded the parties. "[A]lthough the parties

may desire that we 'render an opinion to satisfy their demand for vindication or curiosity about who's in the right and who's in the wrong,'" that is insufficient to justify federal judicial resolution. *Norfolk Southern Ry. Co. v. City of Alexandria*, 608 F.3d 150, 161 (4th Cir. 2010) (quoting *Wyoming v. U.S. Dep't of Interior*, 587 F.3d 1245, 1250 (10th Cir. 2009)). Absent a practical effect on the outcome of this case, the copyright claim is moot.

"The customary practice when a case is rendered moot on appeal is to vacate the moot aspects of the lower court's judgment." *Id*. We thus vacate the district court's ruling on the now-moot copyright issue, with the result that the claim should be dismissed on remand.[4]

VI.

In sum, our decision today leaves this case where the district court left it, as a breach of contract case. The district court was not wrong to place the license agreement front and center here. That contract was formed between the parties, grounding the dispute in a concrete interaction. A contract does not always accompany a copyright infringement claim. And symmetrically, a breach of contract is not by itself a tort or copyright violation, and breach of the agreement does not invariably bring these other areas of law and their accompanying remedies into play. Accordingly, and for the reasons herein expressed, the judgment of the district court is

[4] Because we vacate the district court's copyright ruling, there is no longer a basis for WPL to seek to recover attorney's fees under 17 U.S.C. § 505, as WPL is no longer a prevailing party on the copyright issue.

AFFIRMED IN PART, AND VACATED AND REMANDED IN PART.