DATA EXTRACTION: BEYOND THE SWEAT OF THE BROW

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1. Statement of the problem: Creating comprehensive and sustainable archives of data and making them accessible to the research community for further analysis leads to several legal questions. Researchers and publishers regularly have questions about the use of existing data in the form of tables and other tabulations in their subsequent work, such as an illustration in a textbook. Any discipline handling small or large amounts of data is confronted with a complex set of rules about the handling of intellectual property, and some legal systems have special rules for the use of data for scientific purposes. Because of the complexity of the law in this area, some data may be used or copied improperly, while there may also be an unnecessary reluctance to freely use research data where it is otherwise legal. This article attempts to alleviate both the improper use of existing works, and the fear and cost of extracting data without permission from existing works.

2. Preliminary comments:

    a) It does not matter if the data is compiled in a journal, blog, or book, by an individual author or a publishing company. If the portion of the work used or particular selection and arrangement of data is protected by copyright law, then permission is needed to make a copy of the protectable portion. If the portion of the work is not protectable by copyright law, then permission should not be needed to copy the portion, at least in the United States.

    b) The existence or lack thereof of a copyright notice on the work is not determinative. A copyright notice means that the author is attempting to claim copyright protection to the extent that she can, but the notice does not create or extend protectability. A copyright notice may also appear on a work that has come into the public domain, although it is freely available for all to use. An independent determination must be made by the one using the material from the pre-existing work.

    d) Similarly, the lack of a copyright notice does not mean the work is not protected by copyright law. The familiar notice - *(c) 2012 L. Ruiter* - was formerly required in the U.S., but after 1989 such notice was no longer required. U.S. Copyright Office, Circular 3; Berne Convention Implementation Act, 1988. Further, many countries do not require a formal notice on a work for the author to claim the protection of that country's copyright laws.

    e) The question of a fee is likewise not significant—if permission is needed then a fee can be charged by the copyright owner. If the work or portion thereof or data therein is not protectable, then no fee should be charged.

3. Conclusion: Data in any form consists of bare naked facts. Under U.S. copyright law, it is permissible to incorporate all or some of the facts pulled from a table into a subsequent work without getting permission from the copyright holder or paying a fee to the copyright holder. This freedom does not include scanning the exact and entire table into a publication or copying an entire database as selected, arranged and published. Nor does it include permission to use the table descriptors such as headings or titles.

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[1] A short version of this paper was published in Significance Magazine, A Publication of the Royal Statistical Society, April 2014, p. 31.

INTRODUCTION AND TERMINOLOGY

Copyright is a form of protection given only "original works of authorship." Copyright Act 1976, 17 U.S.C. § 101-122. Any owner of copyright may claim exclusive rights and stop others from distributing, copying, or publishing their work. 17 U.S.C. § 106. The statute describes a "work" as including literary, dramatic, musical, artistic, and certain other works. These categories should be viewed broadly; for example, computer programs and compilations are registered as "literary works." There is no bright line test for every word or number in tangible form; whether a particular use fits in the box called "protectable—use only with permission" or the box called "freely available for use" often depends on the context, the level of abstraction, and the sense of fundamental fairness. Before focusing on copyright protection of data in particular, we offer a brief survey of what is protected and not protected by the U.S. Copyright Act.

Long before the Copyright Act, the U.S. Supreme Court recognized in 1879 the fact-expression dichotomy in the case of *Baker v Selden*, 101 U.S. 99, 103, 25 L. Ed. 841 (1879), and explained the rationale for limiting copyright protection in certain areas:

> The copyright of a work on mathematical science cannot give to the author an exclusive right to the methods of operation which he propounds, or to the diagrams which he employs to explain them, so as to prevent an engineer from using them whenever occasion requires. The very object of publishing a book on science or the useful arts is to communicate to the world the useful knowledge which it contains. But this object would be frustrated if the knowledge could not be used without incurring the guilt of piracy of the book. And where the art it teaches cannot be used without employing the methods and diagrams used to illustrate the book, or such as are similar to them, such methods and diagrams are to be considered as necessary incidents to the art, and given therewith to the public; not given for the purpose of publication in other works explanatory of the art, but for the purpose of practical application.

WHAT IS NOT PROTECTED BY U.S. COPYRIGHT LAW

U.S. Copyright law does not protect everything reduced to writing. An explicit goal of copyright law is the advancement of scientific knowledge. "The Constitution itself describes the basic [Copyright] Clause objective as one of 'promot [ing] the Progress of Science,' i.e., knowledge and learning." *Eldred v. Ashcroft,* 537 U.S. 186, 245, 123 S. Ct. 769, 154 L. Ed. 2d 683 (2003) (Breyer, J. dissenting), quoting U.S. Const. Art. I § 8, cl. 8.[2] The Copyright Act **denies** copyright protection to ideas, methods, systems, mathematical principles, formulas, equations, and devices based on these. Printed material on a device—for example, lines, numbers, symbols, and calibrations, as well as their arrangement—is likewise not copyrightable, because such material is necessarily dictated by an uncopyrightable idea, principle, formula, or standard of measurement. Circular 33, p. 1, U.S. Copyright Office. Copyright protection is not available for procedures for doing, making, or building things; scientific or technical methods or discoveries; business operations or procedures, mathematical principles; formulas or algorithms; or any other concept, process, or method of operation. 17 U.S.C. § 102; Circular 31, U.S. Copyright Office. This is true "regardless of the form in which it is described, explained, illustrated, or embodied in such work." 17 U.S.C. § 102.

There are other categories of material generally not eligible for copyright protection. For example, works not fixed in a tangible medium such as improvisational speeches; titles, names, short phrases, and slogans; familiar symbols or designs, mere variations of typographic ornamentation,

[2] U.S. Const. Art. I § 8, cl. 8 ("To promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries").

lettering, or coloring; mere listings of ingredients or contents. Circular 1, p. 3. Blank forms and similar works designed to record rather than convey information are not protected by copyright law. Protection does not extend to names, titles, or short phrases or clauses "such as those in column headings and simple checklists." Circular 32, U.S. Copyright Office. "Furthermore, the format, layout and typography of a work is not protected, nor are works consisting entirely of information that is common property containing no original authorship." *Id*.

Another variation on the unprotectability of facts comes from the legislative reports accompanying the 1976 Copyright Act, which indicate that "information" is unprotectable under Section 102(b). H.R. Rep. No. 1476, 94th Cong., 2d Sess. 56 (1976); S. Rep. No. 473, 94th Cong., 1st Sess. 54 (1975). "Works consisting entirely of information that is common property containing no original authorship, such as, for example: Standard calendars, height and weight charts, tape measures and rulers, schedules of sporting events, and lists or tables taken from public documents or other common sources" are not protectable. 37 C.F.R. §202.1(d); See also, U.S. Copyright Office Circular 1, p. 3; Circular 32, p. 1. Similarly, devices designed for computing and measuring, such as slide rules, wheel dials, and monograms, or other material consisting of lines, numbers, symbols, or calibrations dictated by the uncopyrightable data, principles, formulas, or standards of measurement are not protected. *Compendium II of Copyright Office Practices* § 305.04 (currently undergoing major revisions.); *Kohus v. Mariol*, 328 F.3d 848, 856 (6th Cir. 2003); *Dun & Bradstreet Software Servs., Inc. v. Grace Consulting, Inc.*, 307 F.3d 197, 214-15 (3d Cir. 2002); *Calcar Adver., Inc. v. Am. Isuzu Motors, Inc.*, 238 F.3d 427, 2000 WL 1465916 (9th Cir. Sept. 29, 2000)(unpublished); *Mitel, Inc. v. Iqtel, Inc.*, 124 F.3d 1366, 1375 (10th Cir. 1997); *Garcia-Goyco v. Puerto Rico Highway Auth.*, 275 F. Supp. 2d 142, 154 (D.P.R. 2003)

Perhaps most important for scientists, copyrights do not subsist in facts *per se.* In the scientific community, publishers, authors, scientists, schools, and other owners of scholarly works (altogether referred to simply as "owners" here) may claim federal protection only in the particular expression of facts or in the selection and arrangement of those facts. 1 M. Nimmer & D. Nimmer, *Nimmer on Copyright*, §§ 2.11, 3.04[B][2] (2012). The Congressional intent to ensure a free communication of facts and information is explicitly addressed in the House Report for the 1976 Act, which states: "Copyright does not preclude others from using the ideas or information revealed by the author's work." H.R. Rep. No. 1476, 94th Cong., 2d Sess. 56, reprinted in 1976 U.S. Code Cong. & Ad. News 5656, 5670.

The case-law illustrates the types of "facts" that are unprotectable and the boundaries therefore. For example, courts have denied protection to **news**, *Int'l News Serv. v. Associated Press*, 248 U.S. 215, 234, 39 S. Ct. 68, 63 L. Ed. 211 (1918) ("[The] news element—the information respecting current events contained in the literary production—is not the creation of the writer, but is a report of matters that ordinarily are *publici juris*: it is the history of the day"); **data**, *Triangle Publ'ns, Inc. v. Sports Eye*, *Inc.*, 415 F. Supp. 682, 685 n.9 (E.D. Pa. 1976) ("For the purposes of copyright infringement, data and ideas are treated as equivalents"); **part numbers,** *Southco, Inc. v. Kanebridge Corp*., 390 F.3d 276, 285-86 (3rd Cir. 2004) (part numbers excluded because analogous to short phrases or the titles of works); discoveries, *Gates Rubber Co. v. Bando Chem. Indus., Ltd.*, 9 F.3d 823, 842–43 (10th Cir. 1993) ("constants"—invariable integers forming part of formulas used to perform calculations in a computer program—held to be unprotectible discoveries); *Harper & Row Publishers, Inc. v. Nation Enterprises*, 723 F.2d 195, 202 n.7 (2d Cir. 1983) (historian who learns in research that a certain event occurred has discovered a fact), *rev'd on other (fair use) grounds*, 471 U.S. 539 (1985); *Rubin v. Boston Magazine Co.*, 645 F.2d 80, 83 (1st Cir. 1981) (defining "discoveries" as "the disclosure of a hitherto unknown fact, principle, or theory"); **theories**, *Arica Inst., Inc. v. Palmer*, 970 F.2d 1067, 1075 (2d Cir. 1992); **research**, *Childress v. Taylor*, 1990 WL 196013 (S.D.N.Y. Nov. 28, 1990), *aff'd*, 945 F.2d 500 (2d Cir. 1991), **concepts**; *Mattel, Inc. v. MCA Entm't, Inc.,* 616 F.3d 904, 915 (9th Cir. 2010) (dolls with a bratty look or trendy clothing were unprotectable ideas); and **scientific principles**, *Sparaco v. Lawler, Matusky, Skelly, Eng'rs LLP*, 303 F.3d 460, 466 (2d Cir. 2002); *Ricker v. General Elec. Co.*, 162 F.2d 141, 144–46 (2d Cir. 1947);

Torah Soft Ltd. v. Drosnin, 136 F. Supp. 2d 276, 291 (S.D.N.Y. 2001) (Hebrew Bible and common matrix format of Bible code software not protectable).

Finally, we will discuss in more detail facts resulting from what has been termed the "sweat of the brow" or industrious compilation. *Feist Publ'ns, Inc. v. Rural Tel. Serv. Co., Inc*., 499 U.S. 340, 111 S. Ct. 1282, 113 L. Ed. 2d 358 (1991). For now, we note that such facts, although taking resources to uncover and compile, are also not protected by U.S. Copyright law.

At first blush this may appear to be a significant body of material not protected by U.S. copyright law, but to conclude such would be in error. Since lawsuits and the resulting case law are put forward by those claiming ownership and wanting to expand their rights, protections, and profits, the pressure on the boundary line is constant and severe. Also, since the copyright owners are typically well-funded and the users of non-protectable material typically less so, the boundary is often pushed in favor of more material being proprietary and less material being public domain or unprotectable.

WHAT IS PROTECTED BY U.S. COPYRIGHT LAW:

While the compiler has no exclusive rights in the idea, method, or system involved, copyright protection does include descriptions, explanations, or illustrations of an idea or system; it protects the particular literary or pictorial expression chosen by the author. Circular 1, p. 3.[3]

It is helpful to first understand the nature of a derivative work and a collective work. If an author takes material from elsewhere and includes those elements in her own work, she has created a derivative work; the copyright in such a work only covers those elements added that are original to the new author. 17 U.S.C. § 103(b)[4] A collective work has similar characteristics; it is a subset in the category of derivative work, that is, a gathering of several works by various authors which are each independently protectable or in the public domain. If the underlying work or works are protected by copyright, then the copyright in the derivative or collective work neither nullifies nor extends the protection in the underlying work(s). *Id*., see also, *Compendium II of Copyright Office Practices* § 305.04. (work that contains unprotectable material may still contain sufficient copyrightable material, such as instructional text, to warrant a registration, but such a registration would not extend protection to the uncopyrightable material. See 37 C.F.R. 202.1(d).)[5] For example, if I create computer software version 1, and you alter that software and create version 2, assuming we both contributed only original code, then I am the owner of the copyright in the code for version 1 and you are the owner of the code you added in version 2. In other

[3] Circular 31 gives this illustration of the principle: "[A]n author writes a book explaining a new system for food processing. The copyright in the book, which comes into effect at the moment the work is fixed in a tangible form, prevents others from copying or distributing the text and illustrations describing the author's system. But it will not give the author any right to prevent others from adapting the system itself for commercial or other purposes or from using any procedures, processes, or methods described in the book."

[4] 17 U.S.C. § 103(b) says: "The copyright in a compilation or derivative work extends only to the material contributed by the author of such work, as distinguished from the preexisting material employed in the work, and does not imply any exclusive right in the preexisting material. The copyright in such work is independent of, and does not affect or enlarge the scope, duration, ownership, or subsistence of, any copyright protection in the preexisting material."

[5] 37 C.F.R. 202.1(d) (d) describes just some examples of unprotectable material that could be included in a derivative work or a collective work: "Works consisting entirely of information that is common property containing no original authorship, such as, for example: Standard calendars, height and weight charts, tape measures and rulers, schedules of sporting events, and lists or tables taken from public documents or other common sources."

words, you are the owner of the copyright only in the added material and I, as the owner of the underlying work, do not become the owner of your added material.

The situation becomes more interesting if a public domain book such as *The Adventures of Huckleberry Finn* (1884) is version 1, and you are a publisher of that book in 2012; in that case you are the owner of the incremental additional original material, while other publishers are still free to use version 1. The copyright in the derivative or collective work does not make the underlying work protectable. 17 U.S.C. § 103(b).

The situation becomes still more interesting where the derivative or collective work gathers into it any number of works in the categories of things not protected by copyright law. If you gather what you consider to be the 10 best works by Shakespeare into a collective work and arrange them in a particular order that you deem best for teaching Shakespeare to seventh graders, it is probably clear what material has been added by you and is thus protected by copyright and what material was created by Shakespeare and thus in the public domain. You may have added footnotes, an introduction, and cover art, creating both a derivative and a collective work. However, this raises the question of whether a second author may gather the same "10 best works" used in the same order. If the second author also copies your added material, he has no doubt infringed your copyright in the added material for the derivative work. If he copies your precise selection and arrangement of the public domain works, the second author has copied another expression that is original to you, also a derivative work. But if he chooses 9 of the 10 works and adds one different Shakespeare work and publishes them in a different order, arguably he has not infringed your added material or your selection and arrangement of public domain material. *See, e.g., Lipton v. Nature Co.*, 781 F. Supp. 1032, 1034 (S.D.N.Y. 1992) (plaintiff's compilation from Middle English of terms of venery, considering factors of fluidity of language and poetic potential of the arrangement, held protectable) *aff'd on this point, rev'd on other grounds*, 71 F.3d 464 (2d Cir. 1995).

BACKGROUND ON DATA AND FACTS.

But what about the now common situation where a first author gathers facts, also known as data? Data is typically the result of measurements and can be visualized using graphics or images. Some describe data as the lowest level of abstraction from which information is then derived.[6] when courts refer to "data" they sometimes mean "raw data" such as a collection of numbers or characters. Courts may also use the terms "data" "information" and "knowledge" for overlapping concepts, and the parties' focus on the particular level of abstraction being considered may affect the outcome. Since facts are not protected by copyright law, the data gathered in the derivative work or the collective work is not protectable, but the particular expression of those facts are protected under the u.s. copyright act, as is the original selection and arrangement of the facts. This is the fundamental principle: only that which is original to the author of a derivative or collective work may be protected by copyright. *See, e.g. Triangle Publ'ns, Inc. V. Sports Eye, Inc.*, 415 F. Supp. 682, 685-86 (E.D. PA. 1976) (selected factual data copied from plaintiff's

[6] Courts should strive to be precise in their understanding of data and its subcategories. "Data" can be defined as values of qualitative or quantitative variables, belonging to a set of items. Data in computing (or data processing) are represented in a structure, often tabular (represented by rows and columns), a tree (a set of nodes with parent-children relationship) or a graph structure (a set of interconnected nodes). Data as an abstract concept can be viewed as the lowest level of abstraction from which information and then knowledge are derived. "Raw data", i.e. unprocessed data, refers to a collection of numbers, characters and is a relative term; data processing commonly occurs by stages and the "processed data" from one stage may be considered the "raw data" of the next. "Field data" refers to raw data collected in an uncontrolled *in situ* environment. "Experimental data" refers to data generated within the context of a scientific investigation by observation and recording. It should be noted that "raw data" is not necessarily inexpensive or simple: consider the "raw data" from the Hubble telescope or the effort to arrive at the measurement of the height of Mt. Everest.

"daily racing form" and incorporated in original arrangement in defendant's racing publication was held to be non-infringing.)

VALUE TO SOCIETY: COMPILERS OF DATA

Courts have struggled with applying protection where it is due for creative selection and arrangement, and denying protection for the underlying facts. In C*CC Info. Servs., Inc. v. Maclean Hunter Market Reports, Inc.*, 44 F.3d 61, 66 (2d Cir. 1994), the Second Circuit held that a publisher's valuation information about used vehicles - estimated price data for hypothetical average used car - was sufficiently original to merit copyright protection. The CCC Court outlined the rationale for the protection of original compilations:

> Compilations that devise new and useful selections and arrangements of information unquestionably contribute to public knowledge by providing cheaper, easier, and better organized access to information. Without financial incentives, creators of such useful compilations might direct their energies elsewhere, depriving the public of their creations and impeding the advance of learning. The grant of such monopoly protection to the original elements of a compilation, furthermore, imposes little cost or disadvantage to society. The facts set forth in the compilation are not protected and may be freely copied; the protection extends only to those aspects of the compilation that embody the original creation of the compiler. For these reasons, the copyright law undertakes to guarantee the exclusive rights of compilers, like other authors, to whatever is original and creative in their works, even where those original contributions are quite minimal.

These remarks simultaneously recognize the usefulness of compilations and the limited nature of copyright protection for such works. The *CCC Information* Court limits copyright protection to the original aspects of the compiler's conduct, the compiler's creative selection, and coordination or arrangement of the data compiled, leaving the data itself free for copying. William F. Patry, *Patry on Copyright,* Chapter, 3. Copyrightable Material, VI. Compilations and Electronic Databases.

Since *CCC Information*, courts have struggled with whether compiled numbers are facts or opinions. See, e.g., *New York Mercantile Exch., Inc. v. Intercontinental Exch., Inc.,* 497 F.3d 109, 114-15 (2d Cir. 2007) (strong argument that settlement prices for futures contracts, which are raw data that have been converted into a final value through the use of a formula, are unprotectable facts). More recently, *BanxCorp v. Costco Wholesale Corp.*, --- F.Supp.2d ----, 2013 WL 5677225 *16-17 (S.D.N.Y. Oct. 17, 2013) discussed "the spectrum from fact to estimate suffused with judgment and opinion" and held that the national average rate of interest offered by major U.S. banks on a given financial product at a given point in time based on publicly available data was an unprotectable fact. The *BanxCorp*. Court also noted that courts should put significant weight on the degree of consensus and objectivity that attaches to the formula to determine whether the final value is fundamentally a "fact." In *BanxCorp*, the "settlement prices can be seen as 'pre-existing facts' about the outside world which are discovered from actual market activity." *Id*. at *14, quoting *New York Mercantile*, 497 F.3d at 115, n.5.

Pre-Feist—Sweat of the Brow. The U.S. Supreme Court's opinion in *Feist Publications, Inc. v. Rural Telephone Service Co*. 499 U.S. 340, 111 S. Ct. 1282, 113 L. Ed. 2d 358 (1991), is still the starting point for analyzing copyright protection for facts, data and databases. A line of cases prior to *Feist* had granted protection to "sweat of the brow" or "industrious compilation," that is, protection simply because it took much effort to gather the database of facts. "[T]he underlying notion was that copyright was a reward for the hard work that went into compiling facts." *Feist*, 499 U.S. at 352. Some cases prior to *Feist* had held, for example, that public domain material could be copied if one went to the original source, but not if one copied directly from the derivative work. 1 *Nimmer* § 3.04[B][1]; *see e.g.*

Monogram Models, Inc. v, Industro Motive Corp., 492 F.2d 1281, 1283 (6th Cir. 1974) (implied from fact that defendant admitted access to plaintiff's original plastic scale model airplane kits and infringement upheld); *Axelbank v. Rony*, 277 F.2d 314, 317-18 (9th Cir. 1960) (competing documentary created using public domain films not infringing - no evidence that defendant had access to plaintiff's film.) Another example was *Leon v. Pacific Telephone & Telegraph Co*., 91 F.2d 484 (9th Cir. 1937), where the defendant copied plaintiff's alphabetical telephone directory listing by arranging the phone numbers in numerical order. The individual names and numbers were obviously not copyrightable *per se*, and the defendant did not copy the arrangement, but the court still found these actions constituted infringement. This line of cases was in conflict with the principle that a copyright in a derivative or collective work protects only the added original material.

In 1991, the U.S. Supreme Court set the record straight in the *Feist* case. In *Feist,* the defendant copied a substantial amount of factual information from plaintiff's telephone book white pages. The Supreme Court held that telephone book white page facts are in the public domain and constitutionally beyond Congress' power to include within copyright protection. The *Feist* Court rejected plaintiff's argument that Feist's employees were required to re-collect the same data door-to-door to construct its own directory, noting that raw facts may be copied at will. *Feist,* 499 U.S. at 344, 350. The *Feist* Court soundly rejected the "sweat of the brow" doctrine. Noting the tension between two established principles of copyright law—facts are never copyrightable but compilations of facts are generally copyrightable—the Court reached its compromise position: originality in selection, coordination or arrangement of facts is protectable and the scope of protection is limited to those original contributions. *Feist*, 499 U.S. at 344.

It is a commendable instinct to protect the industriousness of the researcher or compiler, but it is not correct under U.S. copyright law. There can be no argument that one who "explores obscure archives" or conducts statistical studies has performed a valuable service to the public and the art, but the labor itself does not make the finder of these facts an "author." *Nimmer* §3.04[B][1] at 3-22.12. As the Supreme Court said in *Feist*, 499 U.S. at 347, "facts do not owe their origin to an act of authorship. The distinction is one between creation and discovery: The first person to find and report a particular fact has not created the fact; he or she has merely discovered its existence."

Feist does not bar copyright protection for original or creative selection, coordination or arrangement of facts. "The *sine qua non* of copyright is originality." *Feist*, 499 U.S. at 345. But one would not expect a scientist compiling facts or statistics to take the position that her selection or arrangement of data had a subjective or creative component. Indeed, the word *data*, the plural of *datum* from Latin *dare*, means "something given." The bedrock of statistical inquiry is that the facts existed before, but have now been "found." Facts, by definition, are not created.

The *Feist* case is often referenced in arguments over the required "modicum of originality": whether a particular change in the selection and arrangement of the material is enough to be protected. A change in font is not original enough; what about a change in the column placements and headers? But for our purposes, the opinion also contains language helpful to writers of scientific works. For example, the *Feist* Court noted that refusal to use copyright law to protect fact-compilers is "neither unfair nor unfortunate. It is the means by which copyright advances the progress of science and art." *Feist,* 499 U.S. at 350. The *Feist* Court clearly intended to offer to all U.S. scholars free use of the fruits of previous researchers, writing, "copyright is not a tool by which a compilation author may keep others from using the facts or data he or she has collected." 499 U.S. at 359. And finally, "[t]he 1909 [Copyright] Act did not require, as 'sweat of the brow' courts mistakenly assumed, that each subsequent compiler must start from scratch and is precluded from relying on research undertaken by another. Rather, the facts contained in existing works may be freely copied because copyright protects only the elements that owe their origin to the compiler—the selection, coordination, and arrangement of facts." *Feist,* 499 U.S. at 359 (citation omitted).

AFTER *FEIST*: EXAMPLES OF DATA NOT COPYRIGHT PROTECTED

After *Feist,* courts struggled to find the line between facts and their selection and arrangement. For example, courts have **denied** protection: for a chart of horse **racing statistics** arranged according to "purely functional grids that offer no opportunity for variation." *Victor Lalli Enters., Inc. v. Big Red Apple, Inc.*, 936 F.2d 671, 673 (2d Cir 1991); for arrangement of **emissions requirements** in chart format. *Sinai v. Cal. Bureau of Auto. Repair*, 25 U.S.P.Q.2d 1809 (N.D. Cal. 1992); for compilation of facts "guided by strong external forces" and "rigorous professional standards" for real property **title insurance reports**, *Mid. Am. Title Co. v . Kirk*, 867 F. Supp. 673 (N.D. Ill. 1994), *aff'd* 59 F.3d 719, 722 (7th Cir. 1995); for arranged vertical **columns of the rentable space** on each floor of a building, *Shalom Baranes Assocs., P.C. v. 900 F. Street Corp.*, 940 F. Supp. 1, 4-5 (D.D.S. 1996); for a method of archaeological abatement, *Garcia-Goyco v. Puerto Rico Highway Auth*., 275 F. Supp. 2d 142 (D.P.R. 2003), *aff'd*, 428 F.3d 14 (1st Cir. 2005); for **parts numbers** used to designate a line of hardware; *Southco., Inc. v. Kanebridge Corp*., 390 F.3d 276, 281-82 (3d Cir. 2004) (*en banc*) (numbers deemed unoriginal and resulting from the **mechanical application of the numbering system** despite time, effort and thought); for numbers attached to categories and descriptions, *ATC Distrib. Group, Inc. v. Whatever It Takes Transmissions & Parts, Inc.*, 402 F.3d 700, 708-709 (6th Cir. 2005) (holding, "The mere fact that numbers are attached to, or are a by-product of categories and descriptions that are copyrightable does not render the numbers themselves copyrightable."); for **settlement prices** reached at the end of the trading day for future contracts in gas and oil, *New York Mercantile Exch., Inc. v. IntercontinentalExchange, Inc*., 497 F.3d 109, 113 (2d Cir. 2007) (Copyright Office refused to grant registration in the settlement prices themselves); for **data within a spreadsheet** freight control system, *Berry v. Dillon*, 291 F. App'x 792, 794 (9th Cir. June 27, 2008) (data in the licensed version of the system "are not protectable, and therefore their importation into the Excel spreadsheets is not copyright infringement"); for **facts explained in a scientific model** which mimicked certain behaviors of millions or particles in a photonic device, *Seng-Tiong Ho v. Taflove*, 648 F.3d 489, 497-98 (7th Cir. 2011) (model was an attempt to "represent and describe reality for scientific purposes" and the "scientific reality was not created by the plaintiffs.")

One principle that emerged was that traditional methods of coordination or arrangement of data (e.g., alphabetical or chronological) would not possess sufficient originality.[7] "[T]he selection and arrangement of facts cannot be so mechanical or routine as to require no creativity whatsoever," *Feist*, 499 U.S. at 362; *see also*, *Coates-Freeman Assocs., Inc. v. Polaroid Corp.*, 792 F. Supp. 879 (D. Mass. 1992) (arrangement of data in chart correlating various management leadership styles with decision-making steps was not protectable); *Black's Guide, Inc. v. Mediamerica, Inc.*, 1990 WL 169141 (N.D. Cal. Aug. 15, 1990) (arrangement of real estate data in stacked columns not sufficiently original). However, the fact that categories are alphabetically listed is not itself a bar to protection. *See, e.g.*, *Le Book Publ'g, Inc. v. Black Book Photography, Inc.*, 418 F. Supp. 2d 305, 309 (S.D.N.Y. 2005) (citations omitted) (defendant's similar directory did not infringe merely because of some overlapping categories for arrangement, holding that "when examining a factual compilation, a court must examine the substantial similarly between those elements, and only those elements, that provide copyrightability.")

[7] What do courts mean by "coordination and arrangement" in a compilation? "[A]rrangement refers to the ordering or grouping of data into lists or categories stretching beyond mere mechanical groupings of data such as the alphabetical, chronological, or sequential listings of data . . . " *Am. Massage Therapy Ass'n v. Maxwell Petersen Assocs., Inc*., 209 F. Supp. 2d 941, 948 (N.D. Ill. 2002) (Plaintiff geographically arranged membership listing, first by United States of America, then military location, followed by international countries. Held: not sufficiently original under *Feist* and mere fact of other arrangement options does not elevate the listing to the level of creative.) See also, U.S. Copyright Office, *Guidelines for Registration of Fact Based Compilations* 1 (rev. Oct. 11, 1989). Coordination and arrangement refer to the ordering or grouping of preexisting material or data. A work does not need both original coordination and arrangement to be protectable; it is unclear what difference there is between the two terms. See. William F. Patry, *Patry on Copyright*, § 3:67 (2013).

AFTER *FEIST*: EXAMPLES OF DATA PROTECTED BY COPYRIGHT LAW.

On the other side of the equation, some compilations of facts were still protectable after *Feist*. For example, courts **granted** protection for: a quick reference **pocket guide for nurses**, *F.A. Davis Co. v. Wolters Kluwer Health, Inc.*, 413 F. Supp. 2d 507, 512 (E.D. Pa. 2005) (limiting universe of all potentially relevant facts equals "creative choices" entitled to protection); the format of a **baseball form** containing pitching statistics copyrightable, *Kregos v. Associated Press*, 937 F. 2d 700 (2d Cir. 1991) (though on later appeal, defendant's slight modifications of the form protected it against an infringement claim, 3 F. 3d 656, 663-64 (2d Cir. 1993)); a listing of **used car values** compiled according to projections based on professional judgment and expertise, *CCC Info Servs. Inc. v. Maclean Hunter Market Reports, Inc.*, 44 F.3d 61, 63, 67 (2d Cir. 1994). Thus, for those facts and data that are originally combined, some copyright protection is available; but liability follows only where the accused infringer substantially reproduces the copyright owner's particular selection and arrangement. *See, e.g. National Conference of Bar Examiners v. Multistate Legal Studies, Inc*., 458 F. Supp. 2d 252, 259 (E.D. Pa. 2006) (defendant crossed the line to copy same fact patterns, prompts and answer-choice combinations in a test); *Caffey v. Cook*, 409 F. Supp. 2d 484, 501 (S.D.N.Y. 2006) (liability for copying selection and order of opera arias and songs). It is important to note that slim protection means that small changes may avoid a finding of infringement.

The Seventh Circuit spoke further on the creative nature of "organization" in scientific compilations: "Facts do not supply their own principles of organization. Classification is a creative endeavor. Butterflies may be grouped by their color, or the shape of their wings, or their feeding or breeding habits, or their habitats, or the attributes of their caterpillars, or the sequence of their DNA; each scheme of classification could be expressed in multiple ways." *Am. Dental Ass'n v. Delta Dental Plans Ass'n*, 126 F.3d 977, 979 (7th Cir. 1997). (J. Easterbrook, holding **taxonomy of dental procedures** was original work of authorship entitled to protection, rather than uncopyrightable "system"). *See also Marobie-Fl., Inc. v. Nat'l Ass'n of Fire Equip. Distribs.*, 2000 WL 1053957 (N.D. Ill. July 31, 2000) (**arrangement of clip art by use** sufficient to show valid and protectable copyright).

Since *Feist*, the law has settled into somewhat predictable outcomes, but courts can still get it wrong at times. Some writers believe the Eleventh Circuit misapplied *Feist* in its *en banc* opinion in *Warren Publishing, Inc. v. Microdos Data Corp.* 115 F.3d 1509 (11th Cir. 1997), *cert. denied*, 522 U.S. 963, 118 S. Ct. 397 (1997).[8] The majority found Warren's directory of cable television systems to be an uncopyrightable compilation, ignoring the fact that plaintiff had created its own definition of "cable system," had exercised judgment selecting "principal communities" as the main identifier of each cable provider, and had included more varieties of communities in its listing than the other leading cable television system directory put out by the Federal Communications Commission (FCC). The majority concluded that Warren included "the entire relevant universe known to it" when it included 1,000 (Illinois) communities in its guide, even though the FCC included only 724 such communities (115 F.3d at 1518-19) but the dissent argued that the majority "confuses the universe of data with the data drawn from the universe." 115 F.3d at 1525 (Godbold, Senior Circuit Judge, dissenting).

In summary, prior to *Feist*, courts had shifted away from the Copyright Act language and towards extending protection to "sweat of the brow" or "industrious collection," sometimes rewarding a compiler's labor of assembling facts rather than limiting protection to the creative work of selection, coordination and arrangement of the data. The *Feist* Court forcefully rejected the "sweat of the brow" approach, stating that the doctrine "had numerous flaws, the most glaring being that it extended copyright protection in a compilation beyond selection and arrangement—the compiler's original contributions—to

[8] *See, e.g* W. Patry at § 3.64. But for full disclosure the author, Leslie Ruiter, participated in briefing the petition for certiorari to the Supreme Court in the *Warren Publishing* case on behalf of the Defendant/Appellant.

the facts themselves" *Feist*, 499 U.S. at 353. Clearly, "'[s]weat of the brow courts' . . . eschewed the most fundamental axiom of copyright law—that no one may copyright facts or ideas." *Id.*

The leading treatise on U.S. copyright law posits that although courts struggle to decide when taxonomies of numbers are protectable, we can be confident that strict determination precludes originality required for copyright protection. *Nimmer*, § 3.04[B][2] [c] at 3-34.7. The authors here opine that statistics reported as the results of various tests or surveys are predestined, that is, not selected at the discretion of the scientist but determined by the process and method chosen by the scientist, and therefore unprotectable under U.S. law.

The national legal situation is the primary regulator on the use of data, but state laws and international obligations may also have considerable impact. We next turn to these two aspects of copyright protection for data.

STATE LAW CONSIDERATIONS

The laws of the several states interact with the federal copyright protection of data. A thorough treatment of applicable state laws and the minefield of preemption is beyond the scope of this paper. We raise just a few of the issues here.

Can state laws against misappropriation or unfair competition provide a viable claim, where the subject matter of misappropriation are facts *per se,* which are ineligible for federal, statutory copyright protection? In other words, since the U.S. Congress cannot legislate copyright protection for facts, can it pre-empt the states from granting such protection by contract law or other legislation? Most commentators believe that the U.S. Congress could pass a law protecting industrious compilations of facts (e.g. database or so called "hot news"), and therefor states cannot legislate in this area and state law claims involving copying of facts *per se* should be bared by preemption. In addition, First Amendment law, which applies to the states via the Fourteenth Amendment, would surely limit the extent that states may confer a property status upon facts or otherwise preclude their free dissemination. *Nimmer*, §101.[B][2][b] at 1-71.[9]

Still, various industrious compilers have attempted to get around federal law since the 1991 *Feist* decision by trying to win protection of data through state contract law.[10] Contracts that limit copyright exploitation, such as those found in "click-to-accept" licenses and website "terms of use," are important to the economics and function of a copyright marketplace and most should be enforced.[11] But some contracts go too far and attempt to bar activities that federal copyright law specifically allows. *Nimmer* § 3.04[B][3][a] at 3-34.12. There is some indication in the House Report to the 1976 Copyright Act that a state law cause of action for misappropriation might, in some circumstances, survive preemption on the basis that the appropriation of a set of facts is not within the general scope of copyright as specified by

[9]There are some types of factual compilations of data that can still be protected under state laws regardless. For example, a secret list of customers may be protectable under trade secret laws, because the added element of secrecy is present in the cause of action.

[10] Two cases in particular are notable for such a failed attempt. *ProCD, Inc. v. Zeidenberg*, 86 F.3d 1447 (7th Cir. 1996) (Defendant purchased software license and extracted CD with data); and *Assessment Techs. of WI v. WIREdata*, 350 F.3d 640 (7th Cir. 2003) (Defendant sought records from plaintiff originally produced but no longer held by municipalities.)

[11] An example is the case of *Lipscher v. LRP Publ'ns, Inc*., 266 F.3d 1305 (11th Cir. 2001), where the defendant surreptitiously subscribed to plaintiff's reports of uncopyrightable statistics about jury verdicts, then resold the statistics. The 11th Circuit rejected causes of action for deceptive trade practices and unfair competition— these were preempted by the Copyright Act despite defendant's false pretenses—but the court allowed a breach of the license contract claim.

Section 106; the report gives the example of electronically or cryptographically breaching security arrangements to access a proprietor's data, and intentional interceptions of data transmissions. H.R. Rep. No. 94-1476, at 132, 1976 U.S.C.C.A.N. 5659 (1976) *Feist* itself holds that protection for the fruits of such research [the sweat of the author's brow] . . . may in certain circumstances be available under a theory of unfair competition." 499 U.S. at 354, quoting Nimmer, § 3.04 at p. 3-23.. But most commentators hold this type of conduct involves reproduction, distribution, and adaptation of the type that federal copyright law proscribes.[12]

INTERNATIONAL PERSPECTIVE

There is no such thing as an "international copyright" that will automatically protect an author's writings throughout the entire world. Protection against unauthorized use in a particular country depends, for the most part, on the national laws of that country. However, most countries offer protection to foreign works under certain conditions, and these conditions have been simplified by international copyright treaties and conventions. Circular 1, p. 6-7. *See, e.g.*, Circular 38A for lists of countries that maintain copyright relations with the U.S.[13]

International treaties provide minimum standards for copyright which member countries then include in their domestic laws. The most relevant treaties are those administered by the World Intellectual Property Organization (WIPO) Copyright Treaty (1996), the World Trade Organization (WTO) and by the NAFTA. The Berne Convention for the Protection of Literary and Artistic Works ("Berne"); the Universal Copyright Convention; and the Agreement on Trade-Related Aspects of Intellectual Property Rights also affect U.S. Copyright law as it relates to scientific and literary works.

1. The basics of copyright protection are provided for in the **Berne Convention** for the Protection of Literary and Artistic Works 1886–1986 (1987) ("Berne"), a WIPO administered treaty that has evolved since the 1950's and a treaty that all NAFTA countries have ratified.[14] The expression of an idea, such as the expression of data (including scientific data) expressed in a tangible form, constitutes a literary work under Berne. Article 2(1) Berne Convention, World Intellectual Property Organization, http://www.wipo.int/treaties/en/ip/berne/index.html. The Berne Convention allows each member country to decide how to implement the protection of literary works. Berne specifically addresses compilations of public domain works, indicating that a compilation of every work of a particular author organized in a thematic or chronological fashion would not be protectable under art. 2(5) of the Berne Convention. Berne at 301, citing Sam Ricketson, *The Berne Convention for the Protection of Literary and Artistic Works 1886–1986*, at 301 (1987), *and see*, Patry at §3:67 . *But see, Scientist, Inc. v. Lindsey*, 1996 WL 437054 (E.D. Pa. Aug. 2, 1996) (reformatting, along with re-editing of catalog was sufficient for copyright protection).

The **WIPO Copyright Treaty** (1996) addresses the issue of database protection in the copyright context. But it does not necessarily address the protection of data, only its selection and arrangement. Article 5 states, "Compilations of data or other material, in any form, which by reason of the selection or arrangement of their contents constitute intellectual creations, are protected as such. This protection does not extend to the data or the material itself and is without prejudice to any copyright subsisting in the data

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[12] For further discussion on state contract claims and preemption, *see*, *Nimmer* §§ 3.04[B][1] at 3-22.12, 2.11[E], & 3.04[B][3].

[13] The comments here assume the data under discussion contains no personal data—linked to a specific person— and no personally identifiable data. The use of such data involves another layer of international laws, treatises and regulations—making the data aliased or anonymized. This paper also assumes that computer programs used to process and distribute the data are protectable; ownership of such programs is beyond the scope of this paper.

[14] The Berne Convention Implementation Act of 1988 came into force in the United States on March 1, 1989.

or material contained in the compilation." *http://www.wipo.int/treaties/en/ip/wct/trtdocs_wo033.html.* This provision codifies how most countries protect the collection of data; the selection is protected, but the data itself does not obtain new copyright protection. Of course, if the data were protected by copyright prior to its inclusion in the database (for example by the EU Directive, discussed below) then it remains individually protected as a work separate from the copyright itself.

2. **TRIPS (Trade Related Aspects of Intellectual Property)**. The text of TRIPS addresses broad-range IP concerns, including the protection of databases. TRIPS provides for the IP protection of databases and technology under copyright law. Databases and compilations of data are protected by copyright "where there is a sufficient level of selection or arrangement." This is a departure from Berne, because the domestic laws of the individual member countries of Berne determine the standards required to obtain copyright protection. To date, Canada, the U.S. and Mexico are members of the WTO and have amended their laws to implement the database protection requirements provided for in TRIPS. [15]

3. Article 1705(1)(b) of the **NAFTA (North American Free Trade Agreement)** (http://www.wipo.int/wipolex/en/details.jsp?id=4112) provides that each country shall protect compilations of data or other material, which by reason of the selection or arrangement of their content constitutes intellectual creations. According to Article 1705, such protections do not extend to the underlying data or prejudice any copyright subsisting in the underlying data or material. International treatises typically provide minimum standards of protection but member countries can apply more stringent protections in domestic legislation. "In effect, the NAFTA text only establishes the minimum level of protection that must be afforded databases in each country. Databases may be afforded more protection than that set forth in the NAFTA, but not less." See NAFTA Article 1702; *see also*, W. Joseph Melnik, *Legal Protection of Commercial Databases: NAFTA v. The European Communities*" 26 Case W. Res. J. Int'l. L. 57, 87 (1994).

COMPARISON OF AMERICAN AND CANADIAN APPROACH TO COMPILATION OF DATA

Canada and the U.S. have a "fortunate similarity in matters of compilation of data." *Tele-Direct (Publications) Inc. v. American Business Information, Inc.*, 2 F.C. 22 at ¶ 38 (C.A. 1997). This is true in part because both countries are signatories to the Berne Convention and the NAFTA.[16] The court in *Tele-Direct* considered whether in-column listings in a yellow pages directory warranted copyright protection under the Canadian Copyright Act. The case applies the definition of "compilation" in the 1993 Amendments to the Copyright Law (Canada) following Canada's implementation of the NAFTA, Article 1705. The test appears to be similar to U.S. law, that is, only those works which are original are protected. *See Tele-Direct*; see also, *CCH Canadian Ltd. v. Law Society of Upper Canada*, 1 R.C.S. 339, at ¶ 14. (2004).

But what is "original"? The Canadian court in *Tele-Direc*t, finding that a phone directory was not creative and thus not original, emphasized that "author" implied creativity and ingenuity, not simply labor. Even as to Canadian cases prior to the 1993 Amendments which adopted the

[15] See, http://www.wto.org/english/thewto_e/whatis_e/tif_e/org6_e.htm for a list of member countries of the WTO and a list of countries that have not yet implemented appropriate legislation.

[16] Article 1705(1)(b) of NAFTA requires members to protect works covered by Article 2 of the Berne Convention, under which protected works include "compilations of data or other material . . . which by reason of the selection and arrangement of their contents constitute intellectual creations" but which protection "shall not extend to the data or material itself, or prejudice any copyright subsisting in that data or material."

'sweat of the brow' approach in matters of compilations of data, the court claims these do not assert "that the amount of labour would in itself be a determinative source of originality." *Tele-Direct,* ¶ 29. The *Tele-Direct* case describes the historical balance inherent in Canadian copyright law involving data: ". . . we must take care to guard against two extremes equally prejudicial: the one, that men of ability, who have employed their time for the service of the community, may not be deprived of their just merits, and the reward of their ingenuity and labour; the other, that the world may not be deprived of improvements, nor the progress of the arts be retarded." *Id*. at ¶ 32, quoting L. Mansfield in *Sayre and Others v. Moore* (1785). Thus, copyright law in Canada also seeks a balance between protecting the new products of inventive labor and "allowing these to be freely available so as to form the basis for future progress." *Tele-Direct,* at ¶ 32, citing N. Siebrasse, "*Copyright in Facts and Information: Feist Publications is Not, and Should Not Be, the Law in Canada*" 11 Can. Intell. Prop. Rev. 191 (1994).[17]

Despite the *Tele-Direct* Court's intent to settle the question on the side of requiring creativity over mere "production", later cases re-injected the concept of industrious collection to arrive at a middle ground focused on "authorship." For example, *CCH Canadian Ltd. v. Law Society of Upper Canada*, 1 R.C.S. 339 (2004) held that as to the meaning of "original" in Copyright law:

> . . . the correct position falls between these extremes [referring to "sweat of the brow" standard verses the "creative" requirement of *Feist* and *Tele-Direct*]. For a work to be "original" within the meaning of the *Copyright* Act . . . it need not be creative, in the sense of being novel or unique. What is required to attract copyright protection in the expression of an idea is an exercise of skill and judgment. By skill, I mean the use of one's knowledge, developed aptitude or practiced ability in producing the work. By judgment, I mean the use of one's capacity for discernment or ability to form an opinion or evaluation by comparing different possible options in producing the work. This exercise of skill and judgment will necessarily involve intellectual effort. The exercise of skill and judgment required to produce the work must not be so trivial that it could be characterized as a purely mechanical exercise.
>
> *Id.* at ¶ 16.

Still, the Supreme Court of Canada is well aware of the need for considering the public interest in the originality standard and the re-use of compiled data: "The fair dealing exception under s. 29 is open to those who can show that their dealings with a copyrighted work were for the purpose of research or private study. 'Research' must be given a large and liberal interpretation in order to ensure that users' rights are not unduly constrained. I agree with the Court of Appeal that research is not limited to non-commercial or private contexts." *Id.* at ¶ 51.

Thus, both the U.S. and Canada require that a work be "original" within the definitions of their respective Acts. However, the Canadian legal concept of originality allows for protection where discernment, skill, and judgment, are involved in compiling data, while American law

[17] The *Tele-Direct* Court favorably cites the U.S. cases of *Fiest*, *supra*, and *BellSouth Advertising & Pub. Corp. v. Donnelley Information Publ., Inc*. 999 F.2d 1436, 1441, 1445, (11th Cir 1993) for the "creativity" approach, noting that "acts of selection were not acts of authorship, but techniques for the discovery of facts." *Tele-Direct,* at ¶ 35.

emphasizes protection for the creative, novel, and unique. This distinction may result in subtle differences on the legality of the extraction of data, in that data can never be "creative" by definition, but we can imagine a court convinced in some circumstances that data extraction required discernment, skill and judgment to obtain the data.

DATA COMPILATION IN THE EUROPEAN UNION

Although we cannot here address copyright laws worldwide, one set of laws provide an example of the need for awareness of national differences in copyright protection, and are more likely to be relevant to researchers. In 2007, 27 member states of the EU agreed to adhere to various directives and regulations about the use of data. Article 1.2 of the Directive 96/9/EC on the Legal Protection of Databases *http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:31996L0009:EN:HTML*, defines a database as a "collection of independent works, data or other materials arranged in a systematic or methodical way and individually accessible by electronic or other means."[18] Firstly, this Directive offers copyright protection to databases which, by reason of the selection or arrangement of their contents, constitute the author's own original intellectual creation. With this protection, the author has the exclusive right to reproduce, alter and distribute the work. Secondly, and in stark contrast to U.S. law, the Directive 96/9/EC provides an exclusive right to protection *sui generis* for databases, regardless of the degree of originality. With this protection of investment, the makers of databases can prevent unauthorized extraction and re-utilization.

There may be some flexibility and variation between the member states with respect to copyright protection of scientific works. The EC, under Copyright Directive 2001/29/EC, Article 5.3(a) (*http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32001L0029:EN:HTML*), gives freedom to member states to support non-commercial science by making copyright less restrictive for academic use of copyrighted work. However, note that Directive 96 doesn't rely on copyright law to prevent extraction and re-utilization, so it is questionable whether such flexibility for scientists would have any benefit. And, as noted above, if the data was protected by copyright by the EU directive prior to its inclusion in the database, then it remains individually protected as a work separate from the copyright itself under *Berne*.

[18] "Pursuant to the doctrine of direct applicability enshrined in Article 10 of the Treaty establishing the European Communities, these norms have priority in relation to potentially conflicting national norms . . . .the individual member states have some leeway in the implementation of the instruments," which may lead to small differences in the level of protection as between the member states. Zimmermann, F., & Lehmberg, T., Language Corpora—Copyright—Data protection: The legal point of view (2007)," found at *www.sfb441.uni-tuebingen.de/c2/paper1/paper1.html.*