

# DEBATE

## THE OBVIOUSNESS REQUIREMENT IN THE PATENT LAW

In this debate, Professor R. Polk Wagner, of Penn, and Professor Katherine J. Strandburg, of DePaul University College of Law, consider the merits (and demerits) of one doctrinal approach to the so-called “obviousness” requirement in patent law—the “teaching, suggestion, or motivation” (TSM) test. In Wagner’s view, “even with its imperfections, the law and policy of the TSM analysis, done right, offers the best opportunity to bring predictability, transparency, and rigor to what is, at the end of the day, the enormously difficult task of quantifying what the patent law rewards as invention.” For reasons she explains, Strandburg maintains that “the current version of the TSM test” is not the “‘best available’ means of assessing obviousness” and argues for the abolition of the TSM requirement in favor of other alternatives.

### OPENING STATEMENT

*“A Teaching, Suggestion, or Motivation to Combine”: Bringing Structure and Clarity to the Obviousness Analysis*

R. Polk Wagner<sup>†</sup>

In October Term 2006, the U.S. Supreme Court will take up the following question in *KSR International Co. v. Teleflex, Inc.*:

*Whether the Federal Circuit has erred in holding that a claimed invention cannot be held “obvious,” and thus unpatentable under 35 U.S.C. § 103(a), in absence of some proven “teaching, suggestion, or motivation” that would have led a person of ordinary skill in the art to combine the relevant prior art teaching in the manner claimed.*

The question of whether an invention is “obvious” is the touchstone of patentability, and is therefore at the very core of the delicate balance struck by the patent system: that limited protection will be

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granted to those who disclose and explain significant new inventions. Here, what we mean by “significant” is outlined in Section 103, which specifies that patentable inventions cannot be “obvious at the time the invention was made to a person having ordinary skill in the art to which subject matter pertains.” The obviousness analysis thus speaks to the intellectual significance of an invention, the degree to which it represents a “leap forward” in the field. Inventions falling below this threshold are unpatentable.

As will be immediately apparent even to those unfamiliar with patent law, drawing crisp lines along the obviousness threshold is an illusory affair. And since the requirement’s introduction into the law in the 1850s, courts have experimented with a variety of legal tests to guide the analysis: the “simple mechanic” test, the “inventive genius” test, the “flash of creative genius” test, the “synergism” test, and (most recently) the “teaching, suggestion, or motivation” test. These formulations have a common goal, which is, essentially, to describe what intellectual content an inventor must add to the prior art in order to be granted a patent.

The current debate roiling the patent community concerns a doctrinal test used in many recent obviousness cases: that in order to combine the teachings of multiple prior art references, a “teaching, suggestion, or motivation” (TSM) must be demonstrated. The premise of the TSM test is straightforward and has its roots in the historical understanding of obviousness: patentability is not precluded simply because it is possible to reconstruct an invention from elements of the prior art; instead, the operative question is whether the patentee meaningfully advanced the then-extant understandings of those of ordinary skill in the art. Because today’s innovations are merely combinations of yesterday’s knowledge (Isaac Newton’s adage that we all “stand on the shoulders of giants” is ever more true today), one true measure of invention is in the uniqueness and cleverness of such combinations. The Federal Circuit in particular has embraced this approach, and the well-settled law of that court is that in order to combine the teachings of prior art references to demonstrate the obviousness of an invention, a combination must be supported by some teaching, suggestion, or motivation to make such.

On one level, that the Supreme Court would agree to review this doctrine is not surprising; as noted above, obviousness is at the core of the patent law, and the Supreme Court has not weighed in on the question for some thirty years. On the other hand, to many observers, the premise of the Court’s intervention is deeply troubling because it is based on a profound misunderstanding of the patent law doctrine,

as well as ideologically driven assumptions about the role of the TSM doctrine in broader innovation policy questions.

First, the legal misunderstandings. Opponents of the Federal Circuit's TSM jurisprudence—apparently including the Solicitor General, several prominent legal academics, and major corporations—consistently mischaracterize the current law surrounding this issue. For example, they argue variously that:

1. *The TSM test is the sole or exclusive test for obviousness.*

In fact, the TSM test considers whether relevant prior art references can be combined as part of an obviousness showing, and thus is antecedent to the actual obviousness analysis (though a negative finding on the TSM inquiry will often end the overall obviousness determination). In many cases, such as where combinations of references are not needed, the question of a TSM is simply not at issue. Indeed, a comprehensive study of Federal Circuit obviousness cases since 1990 shows that just forty-five percent contain any TSM analysis whatsoever (though the trend has been rising somewhat). Thus, TSM can hardly be said to be the exclusive test for obviousness.

2. *The TSM test requires an explicit teaching, suggestion, or motivation to be found in the references themselves.*

This is simply a misstatement of the law. In fact, the doctrine is quite clear that a TSM may be found in any relevant source, including the understanding of one of skill in the art, the nature of the problem itself, or implicitly in the prior art references. As long as the TSM can be shown with reasonable specificity, the legal doctrine accepts it.

3. *The TSM test leads to a low level of patentability.*

As an empirical matter, this claim is unsupported: Federal Circuit decisions since 1990 have about the same rate of invalidity whether or not the TSM test is applied. (Thus, while it might well be that the Federal Circuit has set the patentability bar too low, it does not seem that the TSM doctrine itself can be blamed.) And as a theoretical matter, this claim is unsupported: the array of sources from which a TSM may be found belies the argument that insignificant inventions are being patented *as a result of the doctrine*. It is certainly true that many patents are granted improvidently—and often because the most relevant prior art material is not in front of the decision maker—but these problems are inherent in any backward-looking technological inquiry, not limited to the TSM analysis. Put another way, eliminating the TSM doctrine is unlikely to have a significant effect on the level of patentability.

Even setting aside the misconceptions about the law, it is also deeply unclear what would be gained if the TSM doctrine were eliminated or curtailed. Many opponents of the TSM analysis suggest that

the standard for patentability would be increased, as it would become easier for the Patent and Trademark Office (PTO) and others to invalidate patents. At some level, this is surely true: it is a tautology to note that the elimination of legal standards does indeed make a legal analysis “easier.” And yet, as noted above, there is no theoretical or empirical support for the proposition that the elimination of the TSM analysis will systematically raise the obviousness threshold, although it certainly will allow for findings of obviousness in some cases where the evidence of such is lacking. And it goes without saying that there is no evidence whatsoever that the demise of the TSM doctrine will bring with it a standard of patentability that aligns more closely with the language of Title 35 or (more importantly) the needs of sound public policy. (For example, note that without a TSM analysis or its equivalent, the obviousness inquiry will de facto reduce to the question of how extensively the prior art can be mined for combinations that cover the patented subject matter—hardly a measure of intellectual skill.) The various proposed solutions—including a so-called “return” to the factors from *Graham v. John Deere Co.*, 383 U.S. 1 (1966)—are either wholly content-free or suffer from wildly unpredictable effects.

Indeed, all that we can be certain of is that the elimination or curtailment of the TSM analysis will lead to an inquiry under Section 103 that is far less predictable, far more costly and unsettled, and increasingly subject to the subjective hindsight of non-technical judges—case-by-case decisions on patentability will become the province of the Federal Circuit rather than a focus of technological inquiry. This adventure in judicial patent reform is precisely the wrong approach to take in an age where the uncertainty and expense surrounding patents causes real harm to society.

The TSM approach is not perfect. Requiring the showing of a teaching, suggestion, or motivation to combine prior art references is plainly not the only way one could describe the substantiality of an invention—though it has a number of advantages, including a clear-eyed focus on the intellectual content of the state of the art, as well as a bulwark against hindsight. It is also clear that the Federal Circuit’s TSM analysis is flawed in many respects: to the extent that some cases can be read to limit the sources of an otherwise-specific TSM, they are wrong. But even with its imperfections, the law and policy of the TSM analysis, done right, offers the best opportunity to bring predictability, transparency, and rigor to what is, at the end of the day, the enormously difficult task of quantifying what the patent law rewards as invention.

## REBUTTAL

*Protecting the Competitive Baseline of Innovation with a Robust  
Nonobviousness Standard*Katherine J. Strandburg<sup>†</sup>

Competition and the patent system are the primary engines of technological innovation. Competition rewards innovators through means such as first mover advantages. Competition drives valuable innovation—no one seriously contends that innovation would cease without patents. Patenting is intended to solve problems inherent in a purely competitive system. Some innovative products are expensive to devise but cheap to copy. In these cases, competitive rewards are not enough to compensate for the costs of innovating. Other innovations are easily kept secret, yet divulging them would provide stepping-stones for future progress. Patenting promotes invention and disclosure in such cases. However, these benefits are not without cost. Patent exclusivity raises consumer prices, increases the cost of building upon past inventions, and makes possible inefficient practices such as holding up the proprietor of a multi-patent product for excessive royalties.

The task of confining patenting to inventions above the competitive baseline falls primarily to the nonobviousness standard. It is impossible to define precisely which inventions would be made and disclosed without patents. Because this question is too hard to answer, we employ a technical proxy. Patents are denied when their “subject matter as a whole would have been obvious . . . to a person having ordinary skill in the art . . .” The statute reasonably assumes that technological ease (“obviousness”) is a good stand-in for the inventiveness which competition would elicit on its own. As the Supreme Court explained in its seminal obviousness case, *Graham v. John Deere Co.*, the statute requires certain factual determinations: “the scope and content of the prior art,” “differences between the prior art and the claims at issue,” and “the level of ordinary skill in the pertinent art.”

The statutory language begs a further question—what does “obvious” mean in a technical context? Obvious at first glance? After working for a year? The answer is important—interpret “obvious” too strictly and a large swath of the competitive baseline is unnecessarily encumbered with the disadvantages of exclusivity; interpret “obvious”

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too broadly and there may be a large gap between the competitive baseline and patentable invention.

The Federal Circuit has provided one answer: a combination cannot be “obvious” unless a “teaching, suggestion, or motivation to combine” the prior technology is *already present* in the relevant art (the TSM test). The suggestion can be explicit in specific references or, as the court recently has emphasized, implicit from the prior art as a whole. The problem with this answer is that it ignores the problem-solving ability of the “Person Having Ordinary Skill in the Art” (PHOSITA) by focusing entirely on what is already known. “Obvious . . . to a person having ordinary skill” is replaced by “obvious to a person having knowledge and no skill.” Beyond reciting a PHOSITA “resume,” such as “an advanced degree in pharmacy, biology, chemistry or chemical engineering and at least two years of experience with controlled-release technology,” discussion about what problems a PHOSITA solves, what tools she ordinarily applies, or what kinds of experiments she routinely performs is virtually absent from Federal Circuit opinions.

The TSM standard of patentability is too low. It leads to unnecessary patenting of inventions that would be produced at the competitive baseline, where ordinary creativity and problem-solving flourish. Professor Wagner contends that opposition to the TSM test is based on incorrect legal premises: (1) that the TSM test is the sole or exclusive test for obviousness; (2) that the test requires an explicit teaching, suggestion, or motivation to be found in the references themselves; and (3) that the TSM test leads to a low level of patentability. Taking each of these supposed premises in turn:

1. *While the TSM test is not the only hurdle to establishing obviousness in cases involving combining references, surmounting it is required.*

Passing the TSM test is required by the Federal Circuit in cases involving combinations of prior technology, though it is not the “exclusive” test. Even if one surmounts the TSM hurdle, “objective indicia of nonobviousness” must still be considered. Professors Petherbridge and Wagner find a TSM discussion in about sixty to sixty-five percent of obviousness analyses near June 2005 and the percentage is rising. While other questions, such as whether a particular reference qualifies as prior art, may sometimes be dispositive on appeal, Federal Circuit doctrine *requires* that the TSM hurdle be surmounted in every obviousness determination involving a combination of references.

2. *Professor Wagner is correct that current Federal Circuit doctrine does not require an explicit suggestion in specific prior art references.*

As discussed in the amicus briefs I co-authored in the *KSR Int’l Co.*

*v. Teleflex* case and in the Solicitor General's brief, implicit suggestions may come "from the knowledge of those of ordinary skill in the art" or "from the nature of the problem to be solved." In the past, the Federal Circuit stated that the suggestion to combine "more often comes from the teachings of the pertinent references," and many opinions focused exclusively on explicit suggestions. Others, such as the Federal Circuit's opinion in *Teleflex, Inc. v. KSR Int'l Co.*, 118 Fed. Appx. 282 (2005), limited the *function* of implicit sources of suggestions to combine. Recent evolution of the case law on this point leaves no doubt, however. As the Federal Circuit recently said, "[a] suggestion, teaching, or motivation to combine the relevant prior art teachings *does not have to be found explicitly in the prior art . . .*"

3. *The statistical evidence Professor Wagner cites in contending that the TSM test does not impose a low patentability standard is not persuasive.*

Petherbridge and Wagner report that the Federal Circuit holds claims invalid at about the same rate, and affirms the district court or PTO Board about as often, when it addresses a TSM issue as when it does not. These results support the authors' conclusion that the test is reasonably clear. They do not tell us about the quality of the patents that issue—only that the Federal Circuit, the district courts, and the PTO are in reasonable agreement when applying the test.

An empirical study by Professor Glynn Lunney suggests that non-obviousness plays a decreasing role in invalidating patents in the Federal Circuit's jurisprudence. Another, by Sean McEldowney, finds that rates of obviousness invalidation by district courts have declined. My own study of patent citations suggests that increasingly trivial patents have been issuing since around 1990, when the TSM test was becoming prevalent. Anecdotal evidence—and even survey evidence—of decreasing patentability standards abounds. None of this evidence is definitive, but it adds weight to the logical conclusion that the test imposes a low standard.

Nearly everyone now recognizes that the version of the TSM test requiring explicit suggestions in specific references makes it inordinately difficult to demonstrate obviousness. Supporters argue that the availability of implicit TSM sources sufficiently raises the standard and that the alternative is an ill-defined standard with no hedge against hindsight. Should we be content with the current version of the TSM test as a "best available" means of assessing obviousness? There are at least three reasons that we should not.

1. *The TSM test, in its broadest form, limits the force of PTO technical expertise.*

By far the most important application of the Federal Circuit's

TSM test occurs at the PTO. Yet the TSM test, even in its broader guise, undermines the application of PTO technical expertise. It curtails the ability of PTO examiners to make judgments of obviousness by effectively subsuming the issue in a factual question about “suggestions to combine” located in existing knowledge. The Federal Circuit’s demand for evidence of these suggestions and its restrictive view of PTO “official notice” belie the apparent breadth of the TSM test. Patent examiners’ limited ability to seek nondocumentary evidence will force them to rely primarily on documentary evidence, even though a broader range of evidence is available in principle. These practical evidentiary factors, combined with a burden of proof on examiners to meet the TSM test, skew examination in favor of patentability despite the broader TSM test.

2. *The patentability standard of the broader suggestion test either is still too low or is too vague to be useful.*

Critics of the TSM test do not advocate the wholesale elimination of TSM *analysis*. Criticism is aimed at the TSM *requirement*. An appropriate test for nonobviousness would consider the problem-solving capability characteristic of ordinary skill. It would find obvious *both* inventions for which a suggestion to combine is present in the prior art *and* inventions that would arise from routine problemsolving beyond what the prior art specifically suggests. Such a return to the framework set out by the Supreme Court in *Graham* would necessarily raise the patentability standard.

Conceivably, the motivation provided by the “nature of the problem to be solved” could be stretched to account for the ordinary creativity of the competitive baseline. In *KSR*, the court stated that the nature of the problem could provide a motivation to combine when “two prior art references address the precise problem that the patentee was trying to solve.” The Federal Circuit appears to be moving away from this narrow view in an effort to provide more scope for “implicit” suggestions. It recently stated that the TSM test “asks not merely what the references disclose, but whether a person of ordinary skill in the art, possessed with the understandings and knowledge reflected in the prior art, and motivated by the general problem facing the inventor, would have been led to make the combination recited in the claims.”

If stretched so far, however, it is not clear what the TSM test adds to the analysis. How would a supposedly factual determination as to whether a PHOSITA “would have been led” to make a particular combination differ from a determination of whether a particular combination “would have been obvious”? Such a reading of the TSM test raises the same interpretive questions as obviousness itself (“led”



after how much effort?), is less clearly defined than the basic *Graham* inquiry, and would be no more likely than the *Graham* inquiry to avoid impermissible hindsight.

3. *There are better alternatives to the TSM test, which focus attention on the capabilities of the PHOSITA.*

A TSM inquiry could provide a “first cut” to weed out the most obvious claims. Since the TSM inquiry would no longer bear the brunt of the obviousness determination, it would not have to be stretched beyond its reasonable meaning, but could focus on what the prior art itself suggests about combining references. Beyond such a “first cut,” *Graham* provides a workable structure for the obviousness analysis. The analysis should encompass a robust inquiry into the PHOSITA’s skills, the tools used in the field, and the kinds of experiments performed and problems solved as a matter of course. The Federal Circuit should continue the task it abandoned after TSM took center stage and develop a structure for determining the level of skill in the art. Unlike the search for a suggestion to combine particular prior art references, defining the level of skill in a particular art is a recurring question about which the PTO could develop reusable expertise. A focus on the baseline innovative activity in a particular field provides for consistency while at the same time being sensitive to differences between practices in different fields. Expertise as to the level of routine problem solving could then inform the legal determination of what degree of effort in coming up with a particular combination renders that combination obvious.

The TSM test myopically focuses on avoiding failures to issue patents because of 20-20 hindsight. The double-edged nature of patent exclusivity means that we cannot afford to concern ourselves only with errors of nonissuance to the neglect of errors of issuance. Competition, along with human curiosity and creativity, is a significant engine of progress. We should protect that competitive baseline with a more robust obviousness hurdle.

#### CLOSING ARGUMENT

R. Polk Wagner

In light of her powerful and interesting response, it seems clear

that Professor Strandburg and I agree on several things. First, that the doctrine of obviousness is critically important to the operation of the patent system. Second, that the goal of any obviousness scheme is to distinguish—as clearly as possible—between those inventions that deserve the powerful (and socially costly) reward of market exclusivity, and those inventions that do not. Third, that the question of whether an invention is “obvious” requires *something more* than simply showing that the intellectual components of the invention can be assembled by a backward-looking analysis of the prior art. The key question—where our views diverge sharply—is what the legal framework surrounding this “something more” is to be.

In my view, the Federal Circuit’s TSM analysis provides at least part of the answer, and in a way that is overwhelmingly better than any of the alternatives proposed by Professor Strandburg.

1. *The TSM approach is flexible.*

As I suggested in my opening argument, a major hurdle for the anti-TSM camp is that the relevant caselaw, understood correctly, thoroughly answers their core jurisprudential argument—to wit, that the TSM analysis is too limiting, too severe, or too myopic. As Professor Strandburg’s response demonstrates nicely, the critics’ approach to the flexibility of the Federal Circuit’s caselaw is to at once downplay its significance—arguing that in “many opinions” the Federal Circuit has focused on explicit suggestions from the prior art—and yet suggest that the law is too flexible—arguing later that the Federal Circuit’s test is “too vague to be useful.” The fact remains that the modern TSM analysis, as a doctrinal matter, is flexible (embracing any relevant information concerning a TSM) and yet straightforward (specifying that such linking information must be shown). And the results bear this out: a recent statistical study of the actual obviousness caselaw at the Federal Circuit conducted by Professor Petherbridge and myself shows that the TSM doctrine has been relatively stable and consistent since 1990, especially in comparison to other Federal Circuit patent doctrines such as claim construction.

2. *The TSM test doesn’t cause bad patents.*

An alternative line of attack deployed by Professor Strandburg is that, even if doctrinally sound, the TSM analysis results in a legal framework for obviousness that sets the bar “too low.” In making this argument, Professor Strandburg cites what she concedes is not definitive evidence: empirical studies suggesting that the PTO issues too many bad patents and that the role of obviousness in litigation has been diminishing.

First, on the sense that the bar is set too low: There can be little

doubt that the PTO does not do as good a job as it should in evaluating patent applications, and that too many patents issue that do not meet the legal standards for patentability. But while this is disappointing—and should fuel calls for meaningful reform—it provides no evidence whatsoever that the TSM analysis has failed. In fact, what actual evidence we do have suggests that the TSM analysis is not to blame. For example, it is well understood (and empirically verified by Professors Allison and Lemley) that prior art *not before the patent examiner* is significantly more likely to invalidate a patent than cited prior art—meaning that the TSM analysis cannot account for much, if any, of the PTO's failure to screen effectively for obviousness. Further, as Professor Petherbridge and I found in our study, in cases at the Federal Circuit the rate of obviousness is virtually the same regardless of whether the TSM analysis plays a role.

Second, even if the diminishing role of obviousness in litigation were a fact (note that Allison and Lemley find that obviousness remains, as an empirical matter, the most significant validity attack), it doesn't tell us anything about the role of the TSM analysis. For example, it may well be that the law of obviousness has stabilized relative to other aspects of the patent law (perhaps in part due to the TSM analysis), resulting in fewer litigated disputes on the question. Alternatively, it may be that improvements in search and archival technologies have made prior art far more accessible, which means that Section 102 invalidity challenges are more potent. The point here is that we don't know what these statistics mean in this context; they simply don't provide any meaningful insights into how to think about the TSM analysis.

Professor Strandburg also asserts (as do others on the anti-TSM side) that the TSM analysis is especially problematic for the PTO, in part because it diminishes the agency's ability to utilize its technical expertise. This, I think, has it exactly backwards. There is no reason that the PTO cannot be very successful under a TSM-driven analysis; indeed, if patent examiners are in fact skilled in their arts (as they should be), then their expertise should be made clear as a matter of record, and thus used to prevent unpatentable inventions from being patented. When a TSM exists, a patent examiner can easily demonstrate it under the Federal Circuit's rules. Again, while patent examiners clearly could benefit from better training, more resources, and additional time to devote to their analyses, I suggest it would be deeply unwise to alter settled legal doctrines because of a sense that the PTO in its current state is incompetent to apply them.

3. *Alternatives to the TSM would be far worse.*

Finally, and perhaps most importantly, there is the question of al-

ternatives. For even if one agrees with Professor Strandburg's view of the TSM doctrine, the key question is whether her identified alternatives provide any meaningful hope of improvement. I argue that they do not. With respect to the suggestion that the courts take account of the "skill" of the PHOSITA, this factor is already well represented in the existing TSM law: the understandings of the PHOSITA are clearly an important source for information, as is the inherent nature of the problems involved in the invention. So the argument that something is missing in the current law is incorrect.

Another proposed alternative involves a "return" to the *Graham* factors: what Professor Strandburg calls "a robust analysis" of the skill in the art, the content of the prior art, and any differences between the invention and the prior art. However, this is what the Federal Circuit has been doing with the TSM analysis—following the *Graham* inquiry while also providing content and context to the otherwise open-ended and subjective analysis. Professor Strandburg further suggests that additional analysis into the skill level of the PHOSITA would bear dividends—though again, the current law is crystal clear that information concerning the skill set, problem solving, and other intellectual attributes of the PHOSITA is directly relevant to the obviousness question, so there seems to be little hope of improvement. That is to say, Professor Strandburg's proposals are better understood as suggestions for refining litigation strategies, not as calls for real changes in the law.

Thus, on the one hand we have the imperfect-but-workable TSM analysis, which (as I suggested in my opening statement) has the advantage of providing a measure of clarity and stability in what is otherwise a deeply complex legal analysis. The TSM test also provides at least some measure of protection against hindsight-based analysis, which is always a key problem given the backward-looking inquiry into patentability. On the other hand, the suggested alternatives boil down to measures that would eliminate the small bit of predictability, clarity, and structure that the TSM analysis provides, without any meaningful assurance that the resulting analysis would more effectively track our notions about how obviousness should work.

I end, then, where I began. There is much that Professor Strandburg and I agree upon. The problem of bad patents is real, and Professor Strandburg and her like-minded colleagues are to be commended for their focus on the issue. Attacking the TSM doctrine is not the right approach, however: there is simply no evidence to support the premise that the TSM analysis is at the root of our concerns about patentability, and there is no substantial reason to expect that

the proposed changes would be positive in any respect. Patent reform is necessary and important. But there are many reforms available that provide far better assurance of success than the unsettling of the legal framework for obviousness.

#### CLOSING ARGUMENT

Katherine Strandburg

As Professor Wagner correctly and generously points out, he and I have many points of agreement—the importance of non-obviousness in determining patentability, the problem posed by bad and trivial patents, and the availability of a variety of promising approaches to reform. I take it from his closing argument that Professor Wagner also agrees that it is important to take into account the skills, problem-solving abilities, and intellectual attributes of the PHOSITA—what I called the competitive baseline of inventiveness—in determining obviousness. The crux of our disagreement, as I see it, is this: are we better off trying to stretch the TSM test to encompass this inquiry or confronting it directly through the *Graham* factors? Despite the many good points made in Professor Wagner’s closing, I continue to advocate doing away with the TSM *requirement* for the following reasons:

1. *The TSM requirement would have to be stretched to accommodate the competitive baseline.*

Professor Wagner argues that the TSM test already incorporates the obviousness inquiry set forth by the Supreme Court in *Graham*. Despite the evolution of the TSM test toward greater emphasis on implicit suggestions to combine references, however, the TSM requirement remains fundamentally focused on what is *already in* the prior art (explicitly or implicitly). Because of this focus, the test is not well suited to determining what is obvious to a person of ordinary skill *in light of* existing technology. In attempting to adapt the TSM test to better fit the obviousness question, the Federal Circuit has begun to stretch the meaning of “teaching, suggestion, or motivation to combine in the prior art.” This stretching is evident from the increasing reliance on “implicit” motivations documented in the empirical work of Professors Wagner and Petherbridge and also from changing interpretations of the “implicit” sources of suggestions to combine. These changes in interpretation are most evident in the broadening application of the “nature of the problem” source of suggestions to combine, which, as I discussed in my opening submission, is increasingly unmoored from its roots in the question of whether particular prior art

references address the problem the patentee is trying to solve.

Professor Wagner argues that the skills of the PHOSITA are well-represented in the current TSM standard, notwithstanding its apparent focus on previously available knowledge. The proof is in the pudding, however. Despite the ways in which the TSM requirement has been stretched thus far, detailed discussion of PHOSITA methods, skills, normal problem-solving abilities and other factors that define the competitive baseline is still not to be found in the case law. Professor Wagner is correct that current law—the Supreme Court’s *Graham* standard—is crystal clear that the level of skill in the art is relevant to the obviousness inquiry, but in practice the TSM requirement directs attention elsewhere. Moreover, stretching the interpretation of the “implicit” sources of suggestions to combine does not alleviate the problems faced by PTO examiners in trying to locate “evidence” of these increasingly amorphous sources. The problem that opponents of the TSM requirement identify is not, as Professor Wagner suggests, PTO competence, but the TSM test’s emphasis on “factual evidence” of suggestions to combine (combined with a reluctance to permit official notice) rather than on expert analysis of obviousness in light of the PHOSITA’s relevant knowledge. I certainly agree that it would be a good idea to increase the level of expertise and training of patent examiners, but doing so will not solve the inherent problems with the TSM requirement.

2. *Stretching the TSM requirement undermines its purported virtues.*

Professor Wagner emphasizes that the TSM requirement is “flexible” and “straightforward.” Other proponents of the TSM test argue that its structured inquiry is an antidote to “hindsight bias.” (It is perhaps notable that proponents rarely seem to argue that the test accurately identifies obvious claimed inventions.) The problem with these arguments is that the attempt to stretch the TSM test to deal with the generally acknowledged failings of its “explicit” version introduces flexibility at the cost of straightforwardness. Professor Wagner suggests that opponents of the TSM requirement make an inconsistent argument that the TSM test is both inflexible and too flexible. In fact, the TSM test is a moving target which has been applied with varying degrees of flexibility. The point of the critique is this: the TSM requirement is justified almost entirely by its ability to structure a straightforward obviousness inquiry, particularly so as to avoid hindsight bias. The “explicit” version of the test clearly does this—though at a high cost in issuing patents on obvious advances. The more that “flexibility” is introduced by means of relying on “implicit” suggestions, however, the less persuasive the straightforwardness argument

becomes. Interpretation of the expanded “nature of the problem” prong, for example, is anything but straightforward. Moreover, it is not at all clear how asking whether a person “motivated by the general problem facing the inventor” would have been “led to make [a] combination” provides a bulwark against hindsight bias.

3. *Empirical data supports the contention that the current obviousness standard is too low.*

While it is true that there is no empirical “silver bullet” to demonstrate the connection between the problem of bad patents and the TSM test, the connection between the TSM test and the issuance of patents on obvious inventions is not nearly as weak as Professor Wagner suggests. My patent citation network study, for example, evidences the issuance of increasingly trivial patents at around the same time as the TSM test became “standard” in evaluating obviousness (reversing a previous trend in the opposite direction).

More importantly, though, the obviousness standard is involved in *every* issuance of a trivial patent. And, since most new inventions combine aspects of prior technology, the TSM requirement is at issue in most patent issuances. If patents are being granted for trivial advances, then either the standard is too low or the PTO is not applying the standard properly. It might be that the PTO simply does a bad job of applying an appropriate Federal Circuit standard. But Professors Wagner and Petherbridge argue that the Federal Circuit’s affirmance rate suggests that the nonobviousness standard is relatively clear and stable. It seems that the PTO is doing a reasonably good job of following the Federal Circuit’s standard. If that is the case, the issuance of bad patents directly implicates the legal standard of obviousness and hence the TSM test.

Neither an increase in invalidations based on novelty, rather than obviousness, nor a dominance of invalidations based on prior art which has not previously been considered by an examiner can get the TSM test off the hook. These outcomes should be expected if the TSM test is failing to identify obvious combinations. If the TSM test “misses” obvious combinations, a larger fraction of invalidations will be based on novelty, both because there will be fewer findings of obviousness and because some patents that might quickly have been deemed obvious under a stricter standard will eventually be shown to be non-novel after an extensive prior art search. If the obviousness standard is too low, and relies too much on documentary proof, extensive searches for just the right prior art references take on increased significance. The TSM requirement privileges extensive searching over examiner expertise. The relative importance in litigation of prior art not previously considered by an examiner is precisely

what one would expect if the TSM requirement makes it too difficult for the PTO to reject obvious combinations.

4. *Direct application of the Graham factors has substantial advantages over a “stretched” TSM test.*

Rather than being “far worse” than a stretched version of the TSM test, direct application of the approach laid out by the Supreme Court in *Graham* has a number of important advantages. The most important, as I discussed in my opening submission, is that, rather than being a sideshow to the search for suggestions to combine, the PHOSITA is front and center in the *Graham* framework, as is patent examiner expert evaluation of the significance of the prior art in its technological context. The *Graham* focus accounts for the competitive baseline more straightforwardly than would an attempt to bring it in through the back door via an ill-defined analysis of the “nature of the problem to be solved.” Professor Wagner acknowledges that the TSM test provides only a “small bit” of predictability, clarity, and structure. Unfortunately, this small bit—which is the primary justification for the TSM test—becomes smaller and smaller the more one emphasizes “implicit” suggestions to combine. This shrinking bit of clarity is not worth the cost in misplaced focus of the inquiry.

The TSM framework has been improved by its increased consideration of “implicit” sources of suggestion to combine, but it is improved primarily because it is being stretched to look more like the *Graham* inquiry. Looking for “implicit” suggestions to combine in the “nature of the problem to be solved” is an unnecessarily convoluted approach. A narrower TSM analysis is a useful “first cut,” but insisting on sticking to the TSM framework in cases where it does not fit is a distraction from the central issue of obviousness. The *Graham* approach provides an alternative “flexible” structure which is better aligned with the underlying policy goals of the nonobviousness requirement.