

Constellation Designs v. LG Electronics:

Result-Oriented Claims Die via § 101 While Detailed Claims Survive

by

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In yesterday’s *Constellation Designs* decision, the Federal Circuit analyzed two sets of claims on the same technology and found that the result-oriented claims failed the 35 U.S.C. § 101 patentable-subject-matter test, whereas the detailed claims passed. The district court (EDTX) had found (at summary judgment) all claims patent eligible for being directed to a technical solution to a technical problem.

The technology involves a television broadcast communication system (i.e., digital data is converted on the sending side to an analog signal that is transmitted through the air and then received and converted back into digital data again on the receiver side). Importantly, the difference between the amount of data sent versus successfully received is known as “capacity,” which can be affected by attenuation and noise. One type of capacity is parallel decode (PD) capacity. Obviously, the goal is to have a high capacity, even when the signal-to-noise ratio is low. The invention relates to increasing capacity through an improved method for generating the set of possible symbols that can be transmitted by such a communication system (known as a “constellation”). When receiving the analog signals, the receiver probabilistically maps those signals onto the symbols in the known symbol set (i.e., the constellation) as part of converting the analog data to digital data. It is easiest to think of each symbol as represented as a point on a cartesian plane where the symbols can be evenly spaced (uniform) or unevenly spaced (non-uniform). Prior systems designed *uniform* constellations and *maximized the distance* between the symbols in the constellation. By doing so, it was thought that capacity could be increased. The invention is constructing *non-uniform* constellations using an interactive process to *maximize capacity*.

The most interesting part of the case involves the step-one analysis of the result-oriented claims (“the optimization claims”). After analyzing the

representative claim, the court said that the representative claim recites a constellation that is optimized for “PD capacity to achieve a particular result: capacity at a reduced signal-to-noise ratio compared to conventional [systems].” Slip op., at 17. That is a fair characterization of the claim. The court noted the claim does not recite how to achieve the optimized constellation, but rather “this important and distinguishing element” is recited “in a result-oriented fashion.” *Id.* The claim does so by reciting a constellation optimized for PD capacity “such that it achieves a better capacity when compared to” the conventional method. *Id.* The court cited to the Supreme Court’s *O’Reilly v. Morse* (1853) decision, noting that the detailed electromagnetic telegraph claims were patentable, whereas a claim directed to use of electromagnetism “however developed for marking or printing intelligible characters ... at any distances” was not. The court also cited to its *ChargePoint* case where the court struck down functionally drafted claims covering any mechanism for networking electric vehicle charging stations, “thus preempting the entire industry’s ability to use networked charging stations.” Slip op., at 18. The court was concerned with preemption.

Continuing with its step-one analysis, the court noted that the claim is directed to the “abstract idea of ‘optimizing’ a constellation for PD capacity” and covers “every way to optimize a constellation for PD capacity.” *Id.* As part of this analysis, the court delved into the novelty of the process. Although the court’s decision is dense, it appears that some aspects of the claimed invention were known, such as using non-uniform constellations and optimizing non-uniform constellations for a particular constellation characteristic. *Id.*, at 19. But, it appears that it was not known to optimize non-uniform constellations for the specific characteristic of *PD capacity*. The court stated:

Indeed, Constellation admits that non-uniform constellations were known, that measuring PD capacity was known, and that even optimizing non-uniform constellations based on PD capacity was *contemplated*, thus supporting our view that the claims are not as specific in technique as Constellation contends.

Id., at 19. (emphasis added). The court says “contemplated” but does not say that anyone could or had implemented it. Nevertheless, this convinced the court that the claim was “indeed ‘directed to’ the abstract idea of ‘optimizing’ a constellation for PD capacity.” My read of this analysis is that the court saw that optimizing a constellation based on a constellation characteristic was known (although perhaps

not specifically the characteristic of PD capacity). But, that was enough for the court to call it an abstract idea. Although the court acknowledged that this “issue is close,” the result-oriented nature of the claim is really in my mind what led the court to conclude that it was directed to an abstract idea.

At step two, the court started by saying that the patent owner’s “alleged inventive concept is the abstract idea itself.” *Id.*, at 21. The next part of the court’s step-two analysis, however, left me a little confused. The patent owner put forth evidence that its claimed process was novel, citing an article that credited the inventors as the first “to develop non-uniform constellations optimized for PD capacity” as well as LG’s failed attempts to invalidate the patents at trial as well as at the PTAB. *Id.*, at 22. The court responded:

However, Constellation conflates the separate novelty and obviousness inquiries under 35 U.S.C. §§ 102 and 103, respectively, with the search for an inventive concept and fails to identify what in the *claim* provides the inventive concept other than the abstract idea itself.

Id. (emphasis in original). Well, novelty and nonobviousness are indeed rolled into the step-two analysis, as the court itself admits on page 21 when stating that the “inventive concept” must include additional features which are not “well-understood, routine, conventional activit[ies] previously known...” The court is apparently saying that nonconventional functionality/technology can be subsumed in the abstract idea and not go toward the inventive concept. Certainly, there are plenty of Federal Circuit cases holding that a new idea can still be an abstract one. *See e.g., Simio v. Flexsim Software Products* (Fed. Cir. 2020). I think that’s what the court is getting at here.

The court’s analysis of the detailed claims (“the constellation claims”) was not so exciting. The court noted that those claims were not result-oriented, but were instead directed to specific constellations, thus solving a particular technological problem using a particular technological solution. The court stated, “[w]e conclude that this distinction between the result-oriented optimization claims and constellation claims makes all the difference.” The constellation claims were found not to recite an abstract idea, thus rendering them patent eligible.

So, what are the key takeaways? Well, this case involves complex technology that I would categorize as data analysis/manipulation. As my prior posts show, the Federal Circuit has been routinely finding data analysis/manipulation claims patent ineligible (*see e.g., the Electric Power Group*

line of cases). This can cause problems for AI inventions, such as improved machine-learning-model-generation inventions. So, it was nice to see some of these claims pass muster. Additionally, the court simply had a problem with the optimization claims being result-oriented, even though they represented a significant advance with increased performance. Thus, the court seemed to shoehorn the optimization claims into an abstract idea. Here's the warning: claims directed to new functionality—even when providing improved system performance—will have a difficult time surviving § 101 at the Federal Circuit if drafted in a result-oriented fashion, without reciting significant details.