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Making Progress with Difficult Patent Applications

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Some patent applications are difficult to get agreement on. The examiner won't allow and the applicant won't abandon. The net result is that office actions and responses go back and forth with no apparent resolution in sight. We propose that progress with these difficult patent applications can be tracked by looking at two separate but interrelated metrics, "applicant effectiveness" and "examiner effectiveness". These two metrics can then be used to diagnose and correct problems in patent prosecution and examination.

"Applicant effectiveness" is the fraction of office actions that have a new piece of prior art cited against the first independent claim. "Examiner effectiveness" is the fraction of responses that have a new amendment to the first

independent claim. These metrics are described as “effectiveness” since they are measures of how skilled applicants and examiners are in convincing the other party that they are right. If an examiner cites a new piece of prior art against an independent claim, then it was the applicant who was effective in his or her last response. If an applicant amends an independent claim, then it was the examiner was effective in his or her last office action. We limit out attention to the first independent claim since this is the bottleneck in getting all claims allowed. It also saves time in collecting the data.

200 random patent applications

Figures 1A and 1B illustrate how applicant effectiveness and examiner effectiveness vary with each successive office action for a set of 200 randomly selected patent applications. The applications were filed between 2005 and 2007 and most have been recently allowed or abandoned. Hence these graphs represent the current state of affairs in patent examination. Data was gathered by reviewing office actions and responses in the USPTO’s Patent Application Information Retrieval system (PAIR).[1]

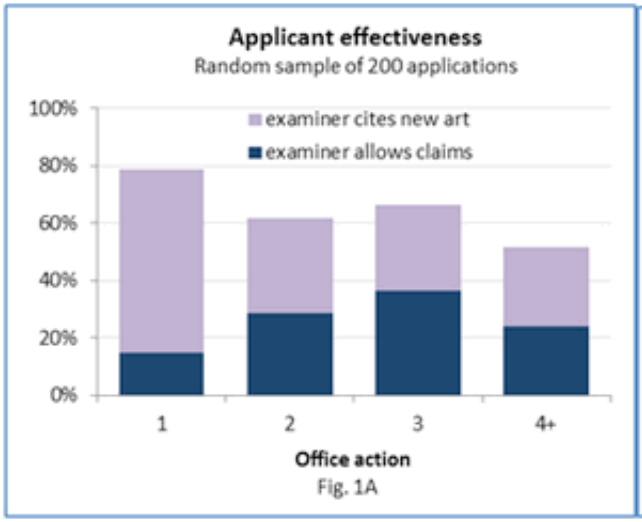

Fig. 1A

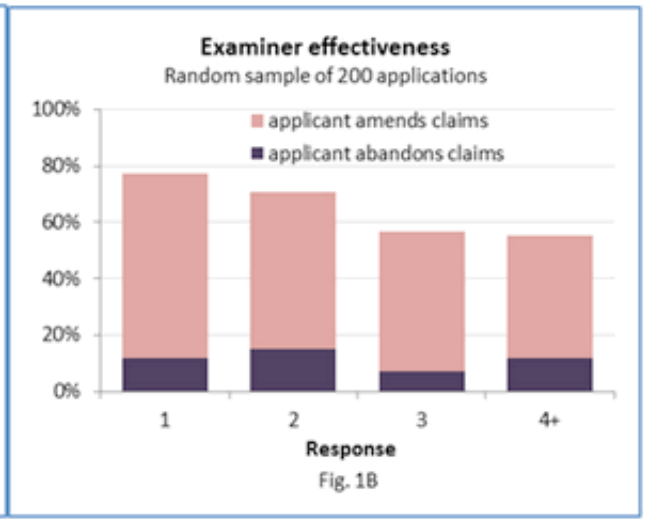

Fig. 1B

Each bar in Figure 1A shows the percent of office actions that cite new art on top of the percent of office actions that have all claims allowed. This gives a total effectiveness of the applicants’ prior submissions. In the case of the first office action, we considered the references the applicant cited in an initial information disclosure statement (IDS) as “prior cited” art.[2]

Total effectiveness starts out at about 80% and then gradually decreases to about 50% by the fourth office action.[3] Allowance rates, on the other hand, start out relatively low at 15% but then increase to 25% to 35%. These low numbers indicate that there is substantial room for improvement. Determining why these ratios are low and evaluating alternative strategies for increasing them would bring substantially lower patent prosecution costs and lower pendency rates to applicants, particularly those with large portfolios.

Figure 1B shows the total examiner effectiveness for the same set of 200 randomly selected patent applications.

Each bar shows the percent of responses with amended claims on top of the percent of abandonments. Each applicant response to an examiner office action was inspected to determine if the first independent claim was amended or not. A judgment call was made as to whether or not the amendment narrowed the claim to overcome a prior art rejection or if it was simply to correct a clerical defect or statutory defect, such as a 101 or 112 rejection. Amendments that were made to correct clerical or statutory defects were not counted towards measuring how effective an examiner was in convincing an applicant that a claim was not allowable over the cited prior art.

The effectiveness of examiners is about the same as the effectiveness of applicants. Initial office actions are about 80% effective in getting an applicant to amend or abandon. Later office actions are only about 60% effective. Here again, there is substantial room for improvement.

37 difficult patent applications

Figures 2A and 2B illustrate a block of 37 difficult patent applications. These applications were all filed by a single applicant in a single art unit with filing dates in the range of 2005 to 2006. The applicant is a major bank. The art unit is computer implemented business methods. These 37 applications have had a total of 180 office actions since active examination began. 26 are still pending. 10 have been allowed and 1 has been abandoned.

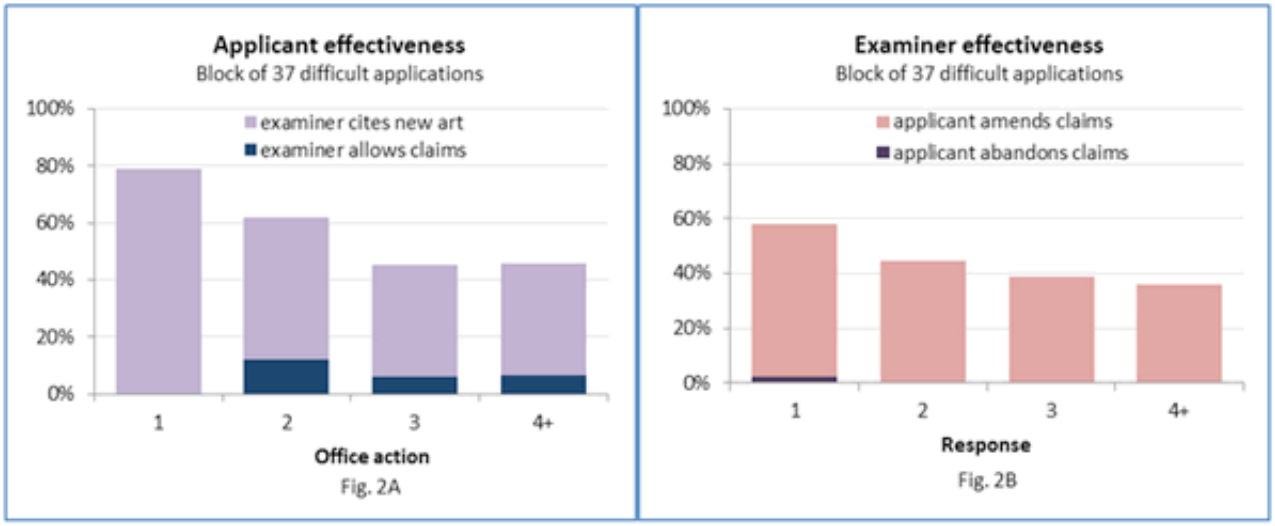

Figure 2A shows that the overall applicant effectiveness is significantly below average. It's not due to the inability of the applicant to overcome a given rejection, however. It's due to the failure of the applicant to convince the examiner that the claims are allowable. Additional analysis of the file wrappers of these applications revealed two areas where improvements could be made that might address this problem. The first is more consistent and thorough prior art searching before filing. The second is more consistent assignment of attorneys to individual cases.

This applicant has a much lower rate of initial IDS filings than average. Applicants in our random sample of 200 applications filed initial IDSs 80% of the time.[4] This applicant filed initial IDSs only 50% of the time. This means that the applicant is largely blind as to what prior art is out there that the examiner could rely on. Hence examiners find it relatively easy to find new art to cite against the applicant's amendments or arguments.

This applicant also has a much higher rate of turnover of attorneys than average. We found a 50% turnover in attorneys from one office action to the next. The average turnover for our random sample of 200 applications, however, was only 10%. This means that the applicant's attorneys are focusing only on the office actions in front of them and not on any sort of long term strategy to get claims allowed.

The applicant can test the validity of this analysis by randomly selecting a subset of its pending applications, applying corrective action, and monitoring its "applicant effectiveness" to see if there is an improvement. Significant results should be apparent in a few months.

Turning to the examiners, Figure 2B shows that examiner effectiveness for these difficult applications is also lower than average. The problems appear to be related to prior art and turnover, but in a very different manner than for the applicant.

The office actions in these cases had very few non-patent literature citations. This may be fine for most art units, but we propose that it is inadequate for business method inventions. Stronger art, such as peer-reviewed literature from financial journals, may be much more effective at convincing this applicant to significantly amend its claims or even abandon. Finding and reviewing scholarly literature will require more effort from examiners, but the benefits would be immediately apparent from higher examiner effectiveness, higher abandonment rates and reduced backlog.

Regarding turnover, it appears as if the examiners in this art unit are surprisingly well experienced. Examiner turnover from one office action to the next was less than 1%. The average for our random sample of 200 applications was 10%. This means that these examiners are much more experienced than the applicant's attorneys and may be taking a lot for granted in their office actions. A potential solution to this problem might be a more thorough explanation of the rationale for a given rejection, particularly where considerations specifically related to business methods are involved.[5]

Conclusions

Some patent applications are difficult to examine. The effectiveness of both applicants and examiners in advancing prosecution can be independently measured by looking at how each party responds to the submissions of the other. If an examiner cites new art against a claim, then the applicant was effective in

overcoming the examiner's prior rejection. If the applicant amends a claim, then the examiner was effective in showing that the applicant's prior claim was anticipated or obvious. Effectiveness data can then be used to diagnose where the difficulties are in patent examination and then to evaluate corrective action. This can lead to lower legal costs, faster agreement on allowable claims and a more efficient patent examination process.

END NOTES:

[1] Special thanks to attorneys **Andrea Pons** and **Elizabeth Clark** for their careful and thorough review of the patent application file wrappers and academic literature cited in this post.

[2] Other researchers, such as **Cotropia, Lemely, and Sampat**, interpret examiners citing new art over applicants' IDSs as indicative of examiners' "preference" for their own art. We, on the other hand, interpret it as an indicator of how well the applicant has presented his or her initial case for patentability.

[3] The final bar on the graph labeled 4+ shows the combined effectiveness of the fourth, fifth, sixth and higher actions.

[4] This is based on our analysis of the file wrappers and is also consistent with other researchers.

[5] See "KSR Training Examples: TC3600 Business Methods", USPTO examiner training supplement found at **http://www.uspto.gov/web/offices/pac/dapp/opla/ksr/ksr_3600_bm_supplement.pdf**

About the Author

Mark Nowotarski is the President of Markets, Patents & Alliances L.L.C. and is a registered U.S. patent agent specializing in business method patents. He currently serves clients in the financial services, medical devices, consumer products and manufacturing industries.

Mark is also co-editor of the Insurance IP Bulletin. The Insurance IP Bulletin is dedicated to providing useful information to innovators in the insurance industry regarding the protection of their inventions with patents and ways to effectively promote their innovations.

Mark is a former Associate Director of R&D for Praxair. There he was responsible for the development and successful worldwide introduction of new products into the health care, electronics, and manufacturing industries. He was a leader in the reengineering of Praxair's patent system, and was responsible for technology planning for their home health care division.

Mark is an inventor on 17 US patents. He was appointed Corporate Research Fellow for the commercial impact of his inventions (+$300 million in sales).

Mark has a Master's degree in Mechanical Engineering from Stanford and a Bachelor's degree with honors in Aerospace, Mechanical Sciences and Engineering Physics from Princeton. His academic awards include the Sigma Xi award for most outstanding Mechanical Engineering research at Princeton and the Union Carbide Award for Academic Excellence and Leadership in Mechanical Engineering, also at Princeton.

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1. Paul F. Morgan **December 20th, 2010 9:44 am**

   The absence of pre-filing prior art searching certainly does reduce examination efficiency on both sides. However, query if being taken into account in long-pending, multiple-OA, applications are those applicants intentionally wanting to keep their applications pending longer with claim additions or amendments and RCE's? [For example, to ensure coverage of later products of others even by narrow claims?] Or, just examiners failing to make rejections final when they should in order to avoid appeal briefings?

2. Prof. Lulz **December 20th, 2010 9:47 am**

   "Or, just examiners failing to make rejections final when they should in order to avoid appeal briefings?"

   An examiner can't avoid an appeal by not making a rejection final. If applicant's claims have been twice rejected, then applicant can appeal.

3. **Mark Nowotarski** **December 20th, 2010 10:18 am**

   "are those applicants intentionally wanting to keep their applications pending longer with claim additions or amendments and RCE's?"

   That's a great question that gets at the heart of who's filing, why they are filing, and perhaps most importantly, when do they need their patents issued. Any thoughts on what to measure to get a deeper insight into this?

4. Paul F. Morgan **December 20th, 2010 10:26 am**

   True, Prof. Lulz, if the SAME claims [not amended claims, as in this study] have been rejected twice, and if the client really wants to pay for an appeal from a non-final office action on such claims without making any amendment or response even where the Examiner has now come up with and cited much better new prior art against the claims.

5. **Mark Nowotarski** **December 20th, 2010 10:37 am**

"Or, just examiners failing to make rejections final when they should in order to avoid appeal briefings?"

Just to clarify, we did not reset the office action count to zero with the filing of an RCE the way the USPTO does. So if a PAIR file wrapper had a non-final rejection, final rejection, RCE, non-final rejection, then we counted that as one first action, one second action and one third action. The USPTO would count it as two first actions and one second action.

In terms of appeals, we counted an appeal brief as an applicant response (albeit an expensive one) with no claim amendment. An examiners answer was counted as a rejection over the same art. An applicant's reply to an examiner's answer was counted as another reply with no claim amendment.

6. Prof. Lulz **December 20th, 2010 10:39 am**

"True, Prof. Lulz, if the SAME claims [not amended claims, as in this study] have been rejected twice…"

Wrong. If I file an app with claims 1-20 and they get rejected as obvious A in view of B, I amend by cancelling 1-20 and adding 21-40 and they get rejected (final or otherwise) as obvious C in view of D, applicant is entitled to appeal. I agree it would be ill advised to do so, but there is no requirement that the SAME claims be twice rejected.

"…even where the Examiner has now come up with and cited much better new prior art against the claims."

This does happen. Of course, the examiners also come up with even more ridiculous art and more ridiculous rejections just as often.

7. Paul F. Morgan **December 20th, 2010 10:41 am**

Thanks Mark, but especially now that we clearly have a litigation defense and even possible PTO rejections for "prosecution laches," what attorney or client will ever admit to wanting to delay issuance of its patent to be able to do "late claiming" of later consumer products of others, much less ever confess to doing so deliberately by prosecution delaying tactics? They will all logically say [as in that very Lemelson case] that they are just fighting to get adequate claim protection for their client, and that it was the PTO's fault that that took 25 years or more of total "submarine" pendancy. [There is certainly considerable truth in the latter.]

8. **Courtenay Brinckerhoff** **December 20th, 2010 6:24 pm**

Mark, this is an interesting analysis, although I am not quite sure I understand the figures. Looking at Figures 1A and 1B together, does that mean that after the first Office Action 80% of Applicants amended claims and after the first response 80% of Examiners cited new art? So is the new art being applied to address the newly amended claims? Then after the second Office Action you have 60% of Applicants amending claims, but sitll 70% of Examiners citing new art?

I understand why you assumed that substantive amendments support "examiner effectiveness," but I have to add that sometimes Applicants really do make amendments to "advance prosecution" without agreeing with the rejection on the merits, especially if the

amendment at issue is not beleived to be commerically significant.

Your point on the “attorney consistency” is interesting as well. One factor that may or may not be at play in the cases that you reviewed is the possibility that the same attorney was supervising the cases throughout prosecution, but was being assisted by different attorneys/patent agents who signed the responses.

9. **Mark Nowotarski December 21st, 2010 2:21 pm**

Courtenay,

Great questions. Below are my answers.

does that mean that after the first Office Action 80% of Applicants amended claims and after the first response 80% of Examiners cited new art?

Yes, but you have it backwards. 80% of the first office actions cited new art or allowed the claims. The other 20% cited the same art that the Applicant submitted in an IDS.

80% of the responses to those first office actions either amended the first independent claim to make it more narrow or abandoned the claims entirely. 20% did not substantially amend claims but relied primarily on arguments to overcome the examiner’s rejection.

So is the new art being applied to address the newly amended claims?

It is the second office action that applies new art to the newly amended claims. 60% of the second office actions either allowed claims or cited at least one new piece of prior art against the first independent claim. This ratio was the same for claims that were amended and those that were not.

40% of the second office actions cited exactly the same art against the first independent claim, irrespective of whether the first independent claim was amended or not. This is where the waste comes in. If 40% of the second office actions cite exactly the same art, then the responses that led to those actions were wasted. No progress was made.

But the good news is that there is a 40% productivity improvement available. Any general counsel, CEO, or business owner that has to find a way to reduce prosecution costs without sacrificing patent quality can employ metrics like what we’ve discussed to evaluate improved policies and procedures to get increased applicant effectiveness. Significant improvements will be apparent in a few months.

Then after the second Office Action you have 60% of Applicants amending claims, but still 70% of Examiners citing new art?

When applicants responded to the second office actions, 70% of them (Fig. 1B, second bar) either abandoned or amended the first independent claim. 30% of them presented the same independent claim and relied primarily on arguments to demonstrate allowability. If 30% of the responses presented exactly the same independent claim, then the office actions that led to those responses were wasted. No progress was made.

Here is where the USPTO has a chance to boost its productivity. These metrics independently measure the effectiveness of each party and give rapid feedback on process

improvements that each party can make.

The USPTO, for example, has been encouraging examiners to interview cases. Our data shows that examiner effectiveness jumps from 70% to 80% after such interviews because applicants are much more likely to amend claims than to represent the same claim. So the opportunity is there.

Does this help clarify things?

10. **Mark Nowotarski December 21st, 2010 2:27 pm**

Courtenay,
Turning to your commentary:

I understand why you assumed that substantive amendments support "examiner effectiveness," but I have to add that sometimes Applicants really do make amendments to "advance prosecution" without agreeing with the rejection on the merits, especially if the amendment at issue is not believed to be commercially significant.

Absolutely. As the old saying goes, you have to pick your battles. This is why the negotiating ability of both the examiner and the applicant are so important. They each have to understand what issues are critical to the other so that agreement can either be reached quickly or, if no agreement can be reached, the disputed issues can be appealed quickly.

Your point on the "attorney consistency" is interesting as well. One factor that may or may not be at play in the cases that you reviewed is the possibility that the same attorney was supervising the cases throughout prosecution, but was being assisted by different attorneys/patent agents who signed the responses.

Also a very key point. A supervising attorney who can convey to associates how to produce effective responses despite their short tenure will bring excellent value to his or her clients.

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