

Sanity Check
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More Numbers

Back in November I wrote about the qualifying rates in Novice A. My theory at the time was that Novice A scores would be less influenced by skilled handlers and would be more likely to show breed differences, if any existed. Those differences were there, but they were not that large, leading me to believe that obedience is “doable” by most breeds. At the end of that article I offered my data to anyone interested, and promised to revisit the topic if there was interest. To take the last of those first, there definitely was interest – I got quite a few responses and comments. As to the first one, I did have a couple of readers ask to see my data. One of those people was so interested that by the time we were done she had gotten just about all the qualifying score data I have and she had crunched, sliced and diced those numbers in ways I had never thought of.

My number crunching wizard is Marilyn Cherry. Having put a UD on her Novice A dog in Canada before moving to Oregon, Marilyn is currently training Java, an Aussie. (Hmmm... I wonder if we can find statistics to prove that Aussie owners are smarter? Nah... better not go there.) Professionally, Marilyn describes herself as “a forest geneticist at Oregon State University, who plays with numbers from time to time.” I get the feeling this is like saying that a research chemist “occasionally works in a lab,” but I promised not to go on about it, so enough said. She also called in the expertise of Manuela Huso, a consulting statistician with the Dept. of Forest Science at OSU. In doing so, Marilyn discovered the same thing I had – explaining obedience scoring to someone unfamiliar with it is way harder than it looks.

After several emails, Marilyn and I had figured out what we wanted to do. I did the database programming to extract the average qualifying score in every class for every dog that qualified from 2000 through 2003 and poured that freshly scrubbed data into files. After I had done that (which I referred to as “the easy part”) I emailed the files to Marilyn for some serious number crunching (“the hard part”).

The main set of data we used consisted of each dog's average qualifying score for each class for breeds where there were at least 20 dogs in each class, with a very few outliers discarded. There were 21 breeds with at least 20 dogs qualifying in all 6 classes for the years 2000-2003. We used the average score for each dog as our starting point to minimize the effect showing more frequently might have on the averages. For full details of the analysis, see the explanation at the end of this article.

We were interested in seeing if we could get any more insight into the breed aptitude vs. handler skill issues that I raised in my first article. We decided to look at qualifying scores in all classes – if breed is the main factor in determining obedience performance the spread between breeds should stay fairly consistent. On the other

hand, if other factors are at work, like handler skill and the ring experience of the dog, for example, we should see some variations in the spread, depending on the nature of each class.

After the numbers were crunched we were awash in tables, charts and graphs. Since I doubt that Bob Jr. is interested in publishing a second volume of *Front and Finish* just to hold all of our graphs and tables I'm going to focus on just a couple of things, but if you're interested a much more complete set of tables and graphs is available online – see the second note at the end of the article.

First, for those of you who enjoy columns of numbers, let's look at the average qualifying scores for each breed and each class:

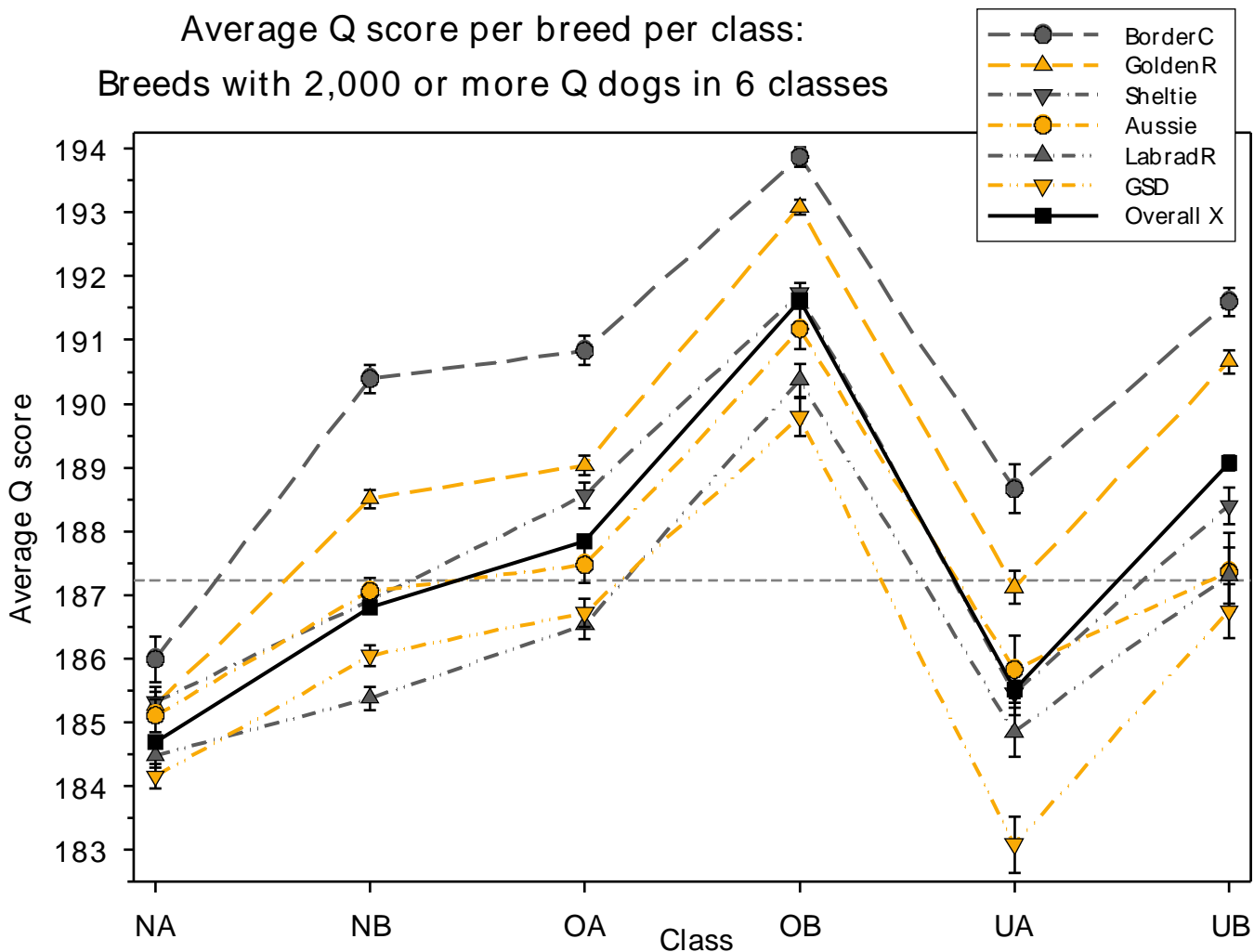
Average scores per breed with at least 20 dogs in each class in 2000-2003

<u>Breed</u>	<u>NA</u>	<u>NB</u>	<u>OA</u>	<u>OB</u>	<u>UA</u>	<u>UB</u>	<u>Overall</u>
Border Collie	185.99	190.39	190.83	193.87	188.66	191.60	190.62
Miniature Poodle	187.55	189.25	189.17	192.93	186.70	190.92	190.31
Golden Retriever	185.28	188.51	189.03	193.08	187.12	190.66	188.88
Belgian Tervuren	185.16	187.76	188.10	191.76	185.90	189.66	188.10
Papillon	185.51	186.76	189.00	191.66	185.67	189.56	187.77
Shetland Sheepdog	185.32	186.92	188.57	191.73	185.46	188.40	187.66
Miniature Schnauzer	184.95	186.91	188.14	190.57	186.53	188.72	187.45
Australian Shepherd	185.11	187.06	187.47	191.17	185.83	187.36	186.95
Doberman Pinscher	184.86	186.73	186.92	190.78	184.26	188.62	186.66
Standard Poodle	184.39	185.91	186.83	190.72	185.59	186.72	186.59
Cocker Spaniel	185.15	185.91	187.46	189.99	183.83	188.37	186.43
English Springer Spaniel	183.69	186.25	187.72	189.80	184.82	188.19	186.35
Flatcoat	184.72	186.30	186.21	191.14	183.13	187.75	186.25
Labrador Retriever	184.48	185.38	186.53	190.37	184.85	187.31	185.89
Pembroke Welsh Corgi	184.25	185.41	186.76	188.98	184.67	187.51	185.88
German Shepherd Dog	184.16	186.05	186.72	189.79	183.09	186.75	185.80
Dalmatian	183.59	185.30	187.19	188.08	183.97	187.36	185.75
Vizsla	183.96	185.33	186.71	191.24	183.38	187.67	185.65
Rottweiler	184.11	184.77	187.13	190.16	184.35	187.45	185.54
Collie	183.50	185.18	186.59	187.99	182.65	182.70	185.09
Boxer	182.39	184.27	185.52	188.78	183.32	183.37	184.22
OVERALL	184.70	186.80	187.84	191.62	185.52	189.07	187.22

That's quite a list of numbers and as you stare at them a few patterns start to emerge: first, the spread between the high and low average scores is not large, usually 6

points or less; second, the spread between high and low is the smallest in Novice A (about 5 points), stays around 6 points for the next 4 classes and then bounces up to over 8 points in UB; finally, in the three highest classes there is a definite skew of the scores toward the top – that is, the averages are closer to the top scores than the bottom.

To make things clearer, it helps to look at the distributions for the 6 most popular breeds in obedience, each with more than 2000 dogs qualifying in the 4 year period from 2000-2003, and with just over 20,000 dogs total for the same period. These six breeds, Border Collies, Golden Retrievers, Shelties, Aussies, Labs and GSD's, all have their claims to being intelligent, hardworking and trainable breeds, yet the distribution of their scores, as shown in the graph below, is revealing.



Novice A shows a very tight pattern, with all 6 breeds averaging inside a 2 point spread. That clearly supports my previous argument that handlers and dogs start out in Novice A on a pretty even footing. After my last article on the subject I did hear the reasoning that Novice was too easy a class to prove that handler skill played a real part in scores. (Funny, it sure seemed hard enough at the time...) People argued that Novice is so easy that virtually any dog can do it and it's not that hard to train a dog for that level. If that were the case, then you would expect Novice B to show the same tight pattern as Novice A, but with the scores much higher. In fact, Novice B shows

quite a spread, almost 3 times the range of NA. The breeds are the same, the exercises are the same, so that leaves us with one difference – the handlers. And as it happens Novice B is the one class where someone who may have put only one CD on a dog competes with OTCH handlers, many of whom are showing Golden Retrievers and Border Collies.

In Open A the spread tightens only a bit, reflecting the fact that OA has some very expert competitors who haven't had a dog achieve an OTCH, as well as exhibitors fresh from Novice A. Open B shows a much narrower spread, and I would argue that this is also a function of quality of handler – all OB teams have a fair amount of experience and the competitive nature of the class discourages casual dabbling.

Utility A again shows a wide spread, and that doesn't surprise me, given the wide range of skill levels one sees there. Heck, having survived it, **nothing much could** surprise me about UA. Utility B tightens up a bit again, but with the two top breeds keeping their lead on the rest of the pack.

There is one further detail you should know. While less than one third (27%) of the Novice A dogs in this six breed group are Border Collies and Golden Retrievers, they account for more than 40% of the dogs in Open A and Utility A and more than **half** of the dogs in Open B and Utility B. Yep. The higher you go, the more likely you are to be showing one of those two breeds.

Yet it's hard to assert that any of these six breeds have any disadvantage when it comes to obedience in terms of size, intelligence, stamina, whatever. Lower scores or not, Labrador retrievers are arguably the dominant service dog in this country today, and it's not just because they're easy going. Likewise, German shepherds may no longer be considered an “obedience breed”, but it's easy to find K9 trainers and officers across the country who can't stop singing their praises for intelligence and trainability.

So how would I explain these results? Breed may account for some of the differences overall. There are definitely breeds with traits, such as size, temperament, drive, etc. that make training and competing more challenging. However, for the majority of breeds I doubt that's the main reason. My explanation comes down to the following:

- For whatever reason many top trainers currently show Border Collies or Golden Retrievers. I think Helen Phillips in the February issue gave a very convincing reason – it's more satisfying to train a breed that seems to enjoy what you enjoy. I would also argue that success attracts imitation. If you see a bunch of people consistently winning with Golden Retrievers, a Golden is going to look mighty appealing when looking for an obedience prospect.
- The best trainers are the best partly because they're good at adapting their training to the particular characteristics of their dogs. So the methods that the top handlers teach (and the rest of us emulate) will tend to be the ones that work best with their breeds. Copying the methods that work brilliantly with a Border Collie may or may not maximize the performance of a Boxer, for example.

- Finally, since our data only counts qualifying scores (we did not have access to failure rate data, which might have told the story differently), we miss the fact that top handlers in the “B” classes will often choose to NQ rather than take a low score, preferring to give an extra command or otherwise work on a problem in the ring. This approach increases the chance for a better score in the future and since no score is recorded it makes the dog's average qualifying score higher. On the other hand, less skilled teams (Molly and I come to mind as prime examples), who are just looking for Q's or double Q's, will hang on for dear life, no matter what the score, and the dog's average score will show it.

It seems to me that these factors, and probably some others I haven't mentioned, reinforce each other in a positive feedback loop or “virtuous circle” that's probably as powerful as any breed characteristic. In other words, take some great dogs, give them to some great trainers with excellent methods and the confidence to NQ and work in the ring if they hit a problem, and you're likely to get results so good that people will imitate them, which feeds the process some more, and so on. Just as it is almost everywhere else, the attitude and skill of the people involved is one of the biggest factors in determining success.

Again, if you have any thoughts or questions on the subject email them in. I want to thank Marilyn again for the gusto with which she attacked my mountain of data and her reasonableness as we batted around ideas. I need to warn you all – we have another number crunching escapade in the works as soon as we can pull the data together. We'll be back....

Note 1: Analysis details: Any score more than 3 standard deviations from a breed's mean qualifying (Q) score was removed. Fortunately, there was not one case where high scores were removed and there were only a few low scores around 170 - 172 that needed to be removed from a very few breeds. Scores from the NA, NB, and OA classes were all pretty well normally distributed (that is, you get a nice bell-shaped curve with the breed mean Q score approximately at the middle) in the possible Q range of 170 and 200, while for the OB, UA, and UB classes, the Q score distribution was skewed toward the upper score range. For all analyses, Q scores were significantly different between breeds. Analysis used a mixed-model analysis with a Tukey-Kramer comparison of least-square means (whew! that's a mouthful!) both of which adjust for the unequal sample size of different breeds. Please email me at the address above if you have any questions and Marilyn or I will try to answer.

Note 2: Scores and Graphs: Fuller listings of breed average scores and plots of analysis can be found online on the *Front and Finish* web site at <http://www.frontandfinish.com> (search the library for 'statistics') or at <http://stats.dogsinmotion.com>.