Igor Pak
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Wednesday, February 17, 2021 at 6:06 AM

To: John Stembridge <jrs@umich.edu>

Dear John,

In a paper I am currently writing I am citing the following result as your theorem. Is that the case? What's the story here? This is a snippet from "Coincidences among skew Schur functions" by V Reiner, KM Shaw, and S Van Willigenburg. Thanks! Best, -- Igor

We close this section with an interesting special case of Corollary 7.31, which was first pointed out to us by John Stembridge and for which we offer two proofs.

**Corollary 7.32.** For any Ferrers diagram \( \mu \) contained in the staircase partition \( \delta_n := (n-1, n-2, \ldots, 1) + \binom{n}{2} \), one has

\[
\delta_n / \mu \sim (\delta_n / \mu)^\chi.
\]
Dear Igor,

Yes, that result is due to me, but I never published it. (Perhaps others discovered it independently?) I had to look in some very old emails to recall the context, but apparently it happened at a 2004 CMS conference where Stephanie van Willigenburg gave a talk about her paper with Lou Billera (et.al.?) on equalities between ribbon Schur functions.

Here is a clip from a 2006 email of mine to Vic Reiner when they were revising their equality-of-Schurs paper:

> My memory, which could of course be faulty, is that at the end of
> her talk on the ribbons paper, I asked her if she had thought about the
> equal Schur problem, and her answer was negative. I had my laptop there,
> and there was free time after her talk.... After about 15 minutes,
> I was generating examples, and noticed immediately that the smallest
> example was not a ribbon. Several people took an interest in what I was
> doing, including as I remember Hugh Thomas, Peter McN, and Steph.
> I think Francois was there, but I don't recall him taking an interest.
> By the next day, I had proved "Cor 7.31", and I remember distinctly
> sitting at the conference banquet with Richard and Steph,
> mentioning Cor 7.31, and talking over how the equal Schur question
> looked quite promising. After the conference, I dabbled around with
> the problem (e.g., I had a conjectured solution for all 4-rowed
> equalities, and some general ideas for attacking the problem),
> but eventually dropped it. I had been planning to hand it to a grad
> student, but she (temporarily) dropped out of our program, so I put
> it on a metaphorical shelf.

BTW: the grad student who dropped out re-entered our program a few years later. I gave her a related thesis topic in which she investigated equalities between (normalized) Schur Q-functions and also equalities between Schur Q's and Schur s's. I mention this because the (staircase)\(\mu\) skew shapes play a prominent role in her 2012 thesis. It can be downloaded here:

https://deepblue.lib.umich.edu/handle/2027.42/93841

Best,
John

--------- you wrote ---------

Date:   Wed, 17 Feb 2021 17:06:31 +0300
To:     John Stembridge <jrs@umich.edu>
From:   Igor Pak <igor.pak.la@gmail.com>
Subject: your thm?
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