M Gmail

Igor Pak <igor.pak.la@gmail.com>

your thm?

Igor Pak <pak@math.ucla.edu>   Wed, Feb 17, 2021 at 6:06 AM
Reply-To: pak@math.ucla.edu
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 μ contained in the staircase partition*
$\delta_n := (n-1, n-2, \ldots, 1) \vdash \binom{n}{2}$, *one has*

$$\delta_n/\mu \sim (\delta_n/\mu)^t .$$

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your thm?

John Stembridge <jrs@umich.edu>   Wed, Feb 17, 2021 at 7:32 AM
To: pak@math.ucla.edu
Cc: John Stembridge <jrs@umich.edu>

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 <pak@math.ucla.edu>

  Subject: your thm?
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