Have Student Knowledge Levels Changed? A Decade of Pretest and Posttest Comparisons Across Agricultural Economics Courses in a Small State University Program of Agriculture

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Fundamental Question

Are student knowledge levels changing?

HYPOTHESIS:

Student knowledge levels are increasing over time.

Background Literature Review

- Basic concept: "College students fail to complete due to poor academic & college skills preparation."

    [U.S. Dept of Education Report 2011]

Other Recent Studies:

- 6 year transfer/non transfer study (Branson & Green, 2007)

- Impact of Orientation Course (Ewing-Cooper & Parker, 2013)

- Skills competency (Turner, et al. 2013)

Background Literature Review

- Basic concept: "College students fail to complete due to poor academic & college skills preparation."

  [U.S. Dept of Education Report 2011]

  – "Early Leavers" – 5 year study (Cole & Fanno, 1999)

  – Learning styles and performance (Moss, et al. 2002)

  – Computer experiences (Johnson, et al. 2002)

  – Spatial population density (Colbath & Morrish, 2010)

  – Sustainable agriculture (Sitienei & Morrish, 2014)

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Testing Methods

- **Pre-Test & Post-Test Construction**

  – *1/3 Multiple Choice*

  – *1/3 Short Answer/Fill In The Blank*

  – *1/3 Application Questions*

  (i.e. problems, graph & chart interpretations)

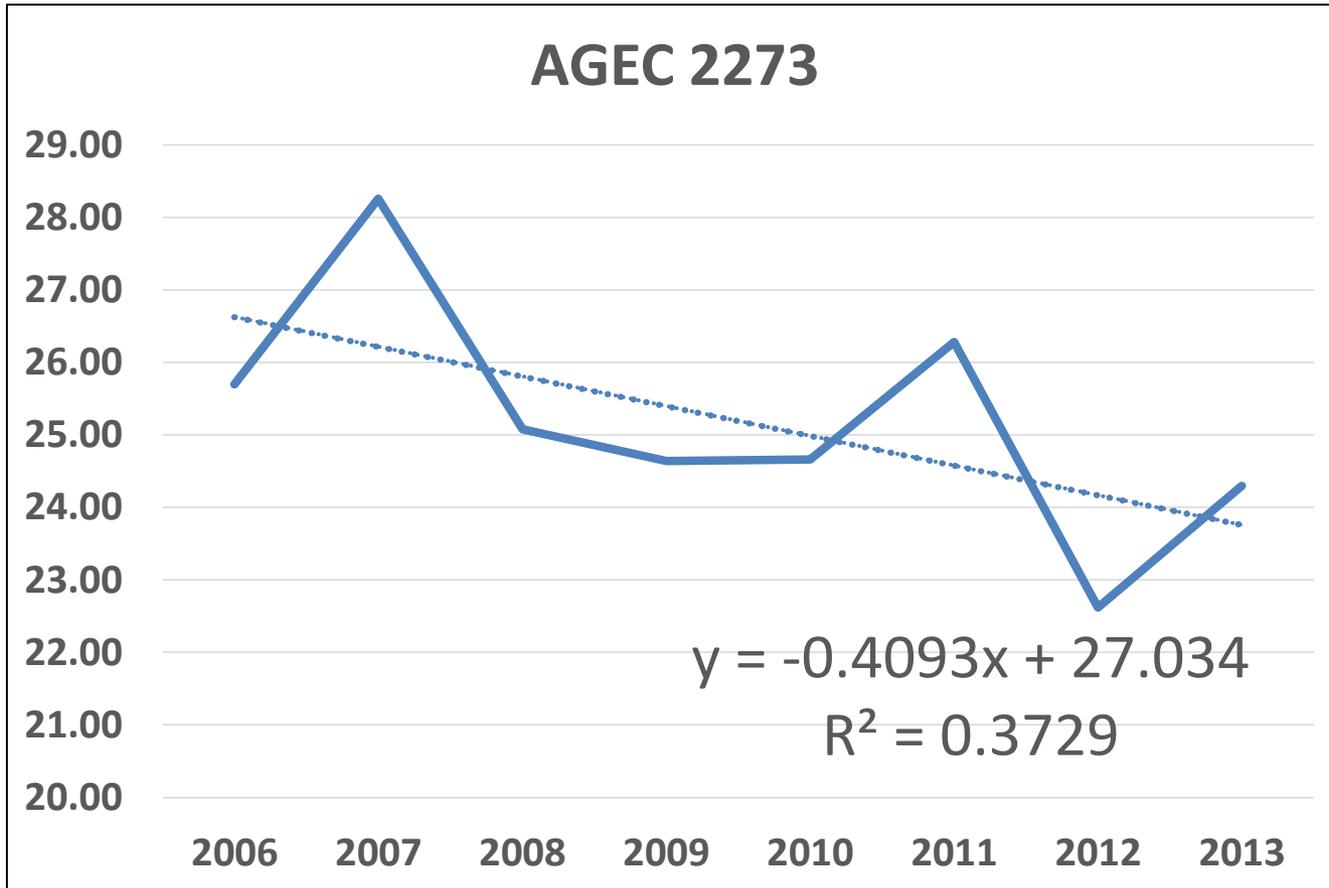 [Lavis, Williams, & Thien 2008 NACTA Journal 52:4]

Data

- **Annual Academic Unit Assessment Report**

- **Approximately 1200 student tests**

- **2006-2013 time period**

- **Level**

    - *Introductory Agricultural Economics*

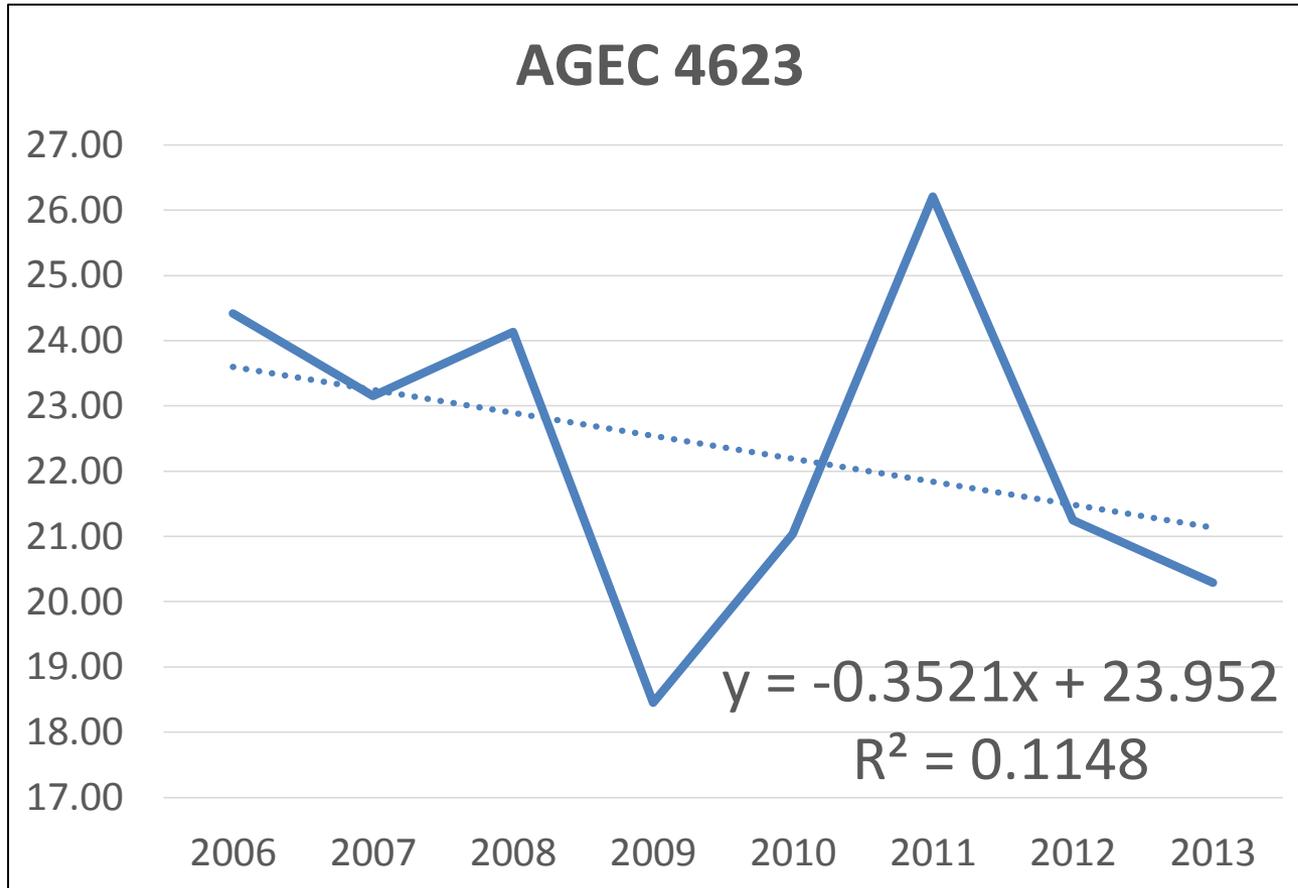   - *Upper Level – Primarily Junior or Senior*

Expected Hypothetical Results

Pretest Results

AGEC 2273

$y = -0.4093x + 27.034$

$R^2 = 0.3729$
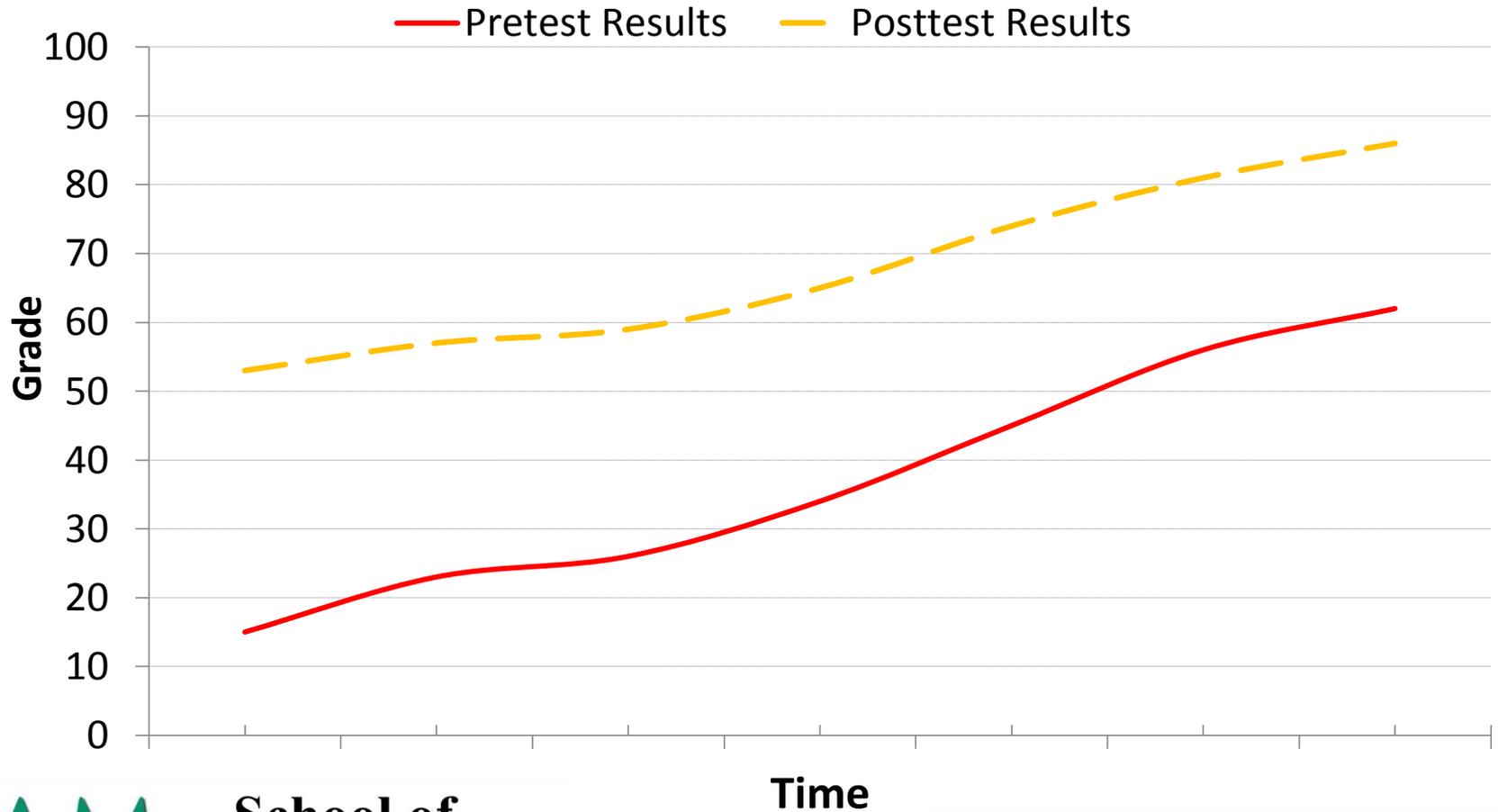
Pretest Results

Pretest Results

✓ **3 Courses – Pretest Scores increased.**

AGEC 4823   **AGEC 4703**

AGEC 4803

✓ **5 Courses – Pretest Scores decreased.**

AGEC 2273   **AGEC 4623**

AGEC 4683   **AGEC 4713**

AGEC 4613

No R^2 > .1148 for any upper level course!
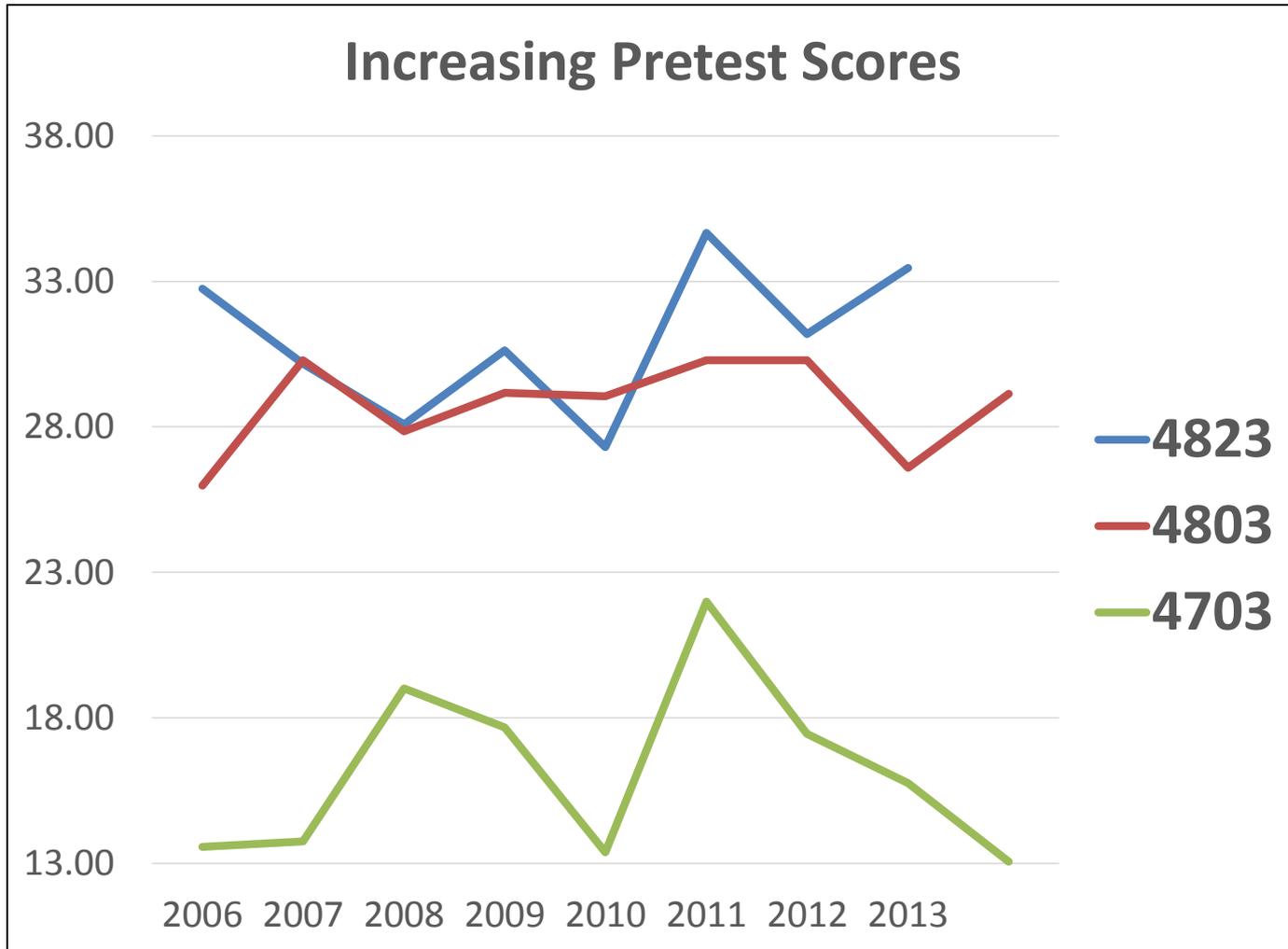
Posttest Results

✓ **5 Courses – Postest Scores increased .**   **[R^2]**

         AGEC 2273   **.1964**

         AGEC 4703   **.0041**

         AGEC 4683   **.3937**

         AGEC 4713   **.2432**

         AGEC 4803   **.5423**

✓ **3 Courses – Postest Scores decreased.**

         AGEC 4823   **.1958**

         AGEC 4623   **.1135**

         AGEC 4613   **.0006**

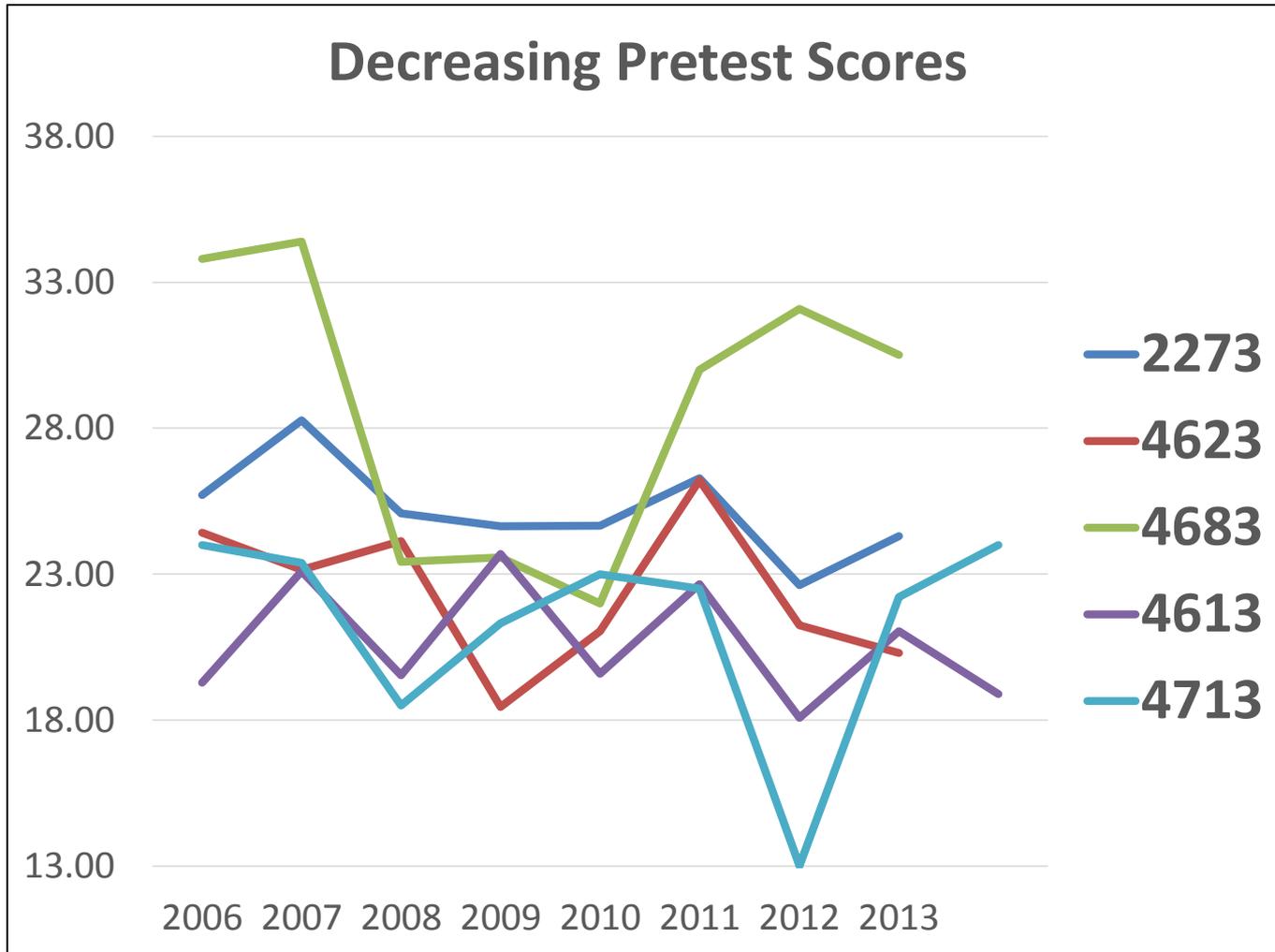# Increase Results

✓ **6 Courses – Positive Trendline.**   **[R^2]**
        AGEC 2273   **.3138**
        AGEC 4703   **.0008**
        AGEC 4683   **.1658**
        AGEC 4713   **.4709**
        AGEC 4803   **.5657**
        AGEC 4613   **.0225**

✓ **2 Courses – Negative Trendline.**
        AGEC 4823   **.2030**
        AGEC 4623   **.0038**

Combined Pretest Results

Combined Pretest Results

Decreasing Pretest Scores

Conclusions

1. **Pretests:** More courses with declining scores than increasing.

2. **Posttests:** More courses with increasing scores than decreasing.

3. **Increases:** More courses with increasing scores than decreasing.

4. **Combined Pretests:** Mixed results.

Further Questions/Implications

1. **AGEC 2273 offers greatest possibilities for improvement – Add study sessions?**

2. **Results skewed by small sample sizes?**

3. **Will pretests and posttests in other disciplines generate similar results?**

4. **Insights if combined with other measures?**

Questions??

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