UTAustinX UT.5.05x
Linear Algebra - Foundations to Frontiers

Help

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10.3.3 Fundamental Spaces

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10.3.3 Fundamental Spaces

10.3.3 Part 1

Start of transcript. Skip to the end.

Dr. Robert van de Geijn: So now we have arrived

at one of the most important insights in linear algebra.

And it's the insight that when you have a matrix

A that maps vectors from Rn to vectors of Rm, then

there are four fundamental spaces that are very important

▶ 0:00 / 0:00   ▸ 2.0x   ◀   ✕   CC   ❝

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Reading Assignment

0 points possible (ungraded)
Read Unit 10.3.3 of the notes. [LINK]

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Discussion

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| ? | "Point" of row/column/left null space | 2 |
| | I'm not sure the best place to ask this, but I don't really understand what the "point" or row/column/left null space is? What information is obtain... | |

| ☑ | Question on the proof of theorem 10.6 | 5 |
| | I was wondering, could you give us a detailed explanation (as suggested by you, use proof by contradiction) of why the set of vectors {v_0, ..., | |

Calculator

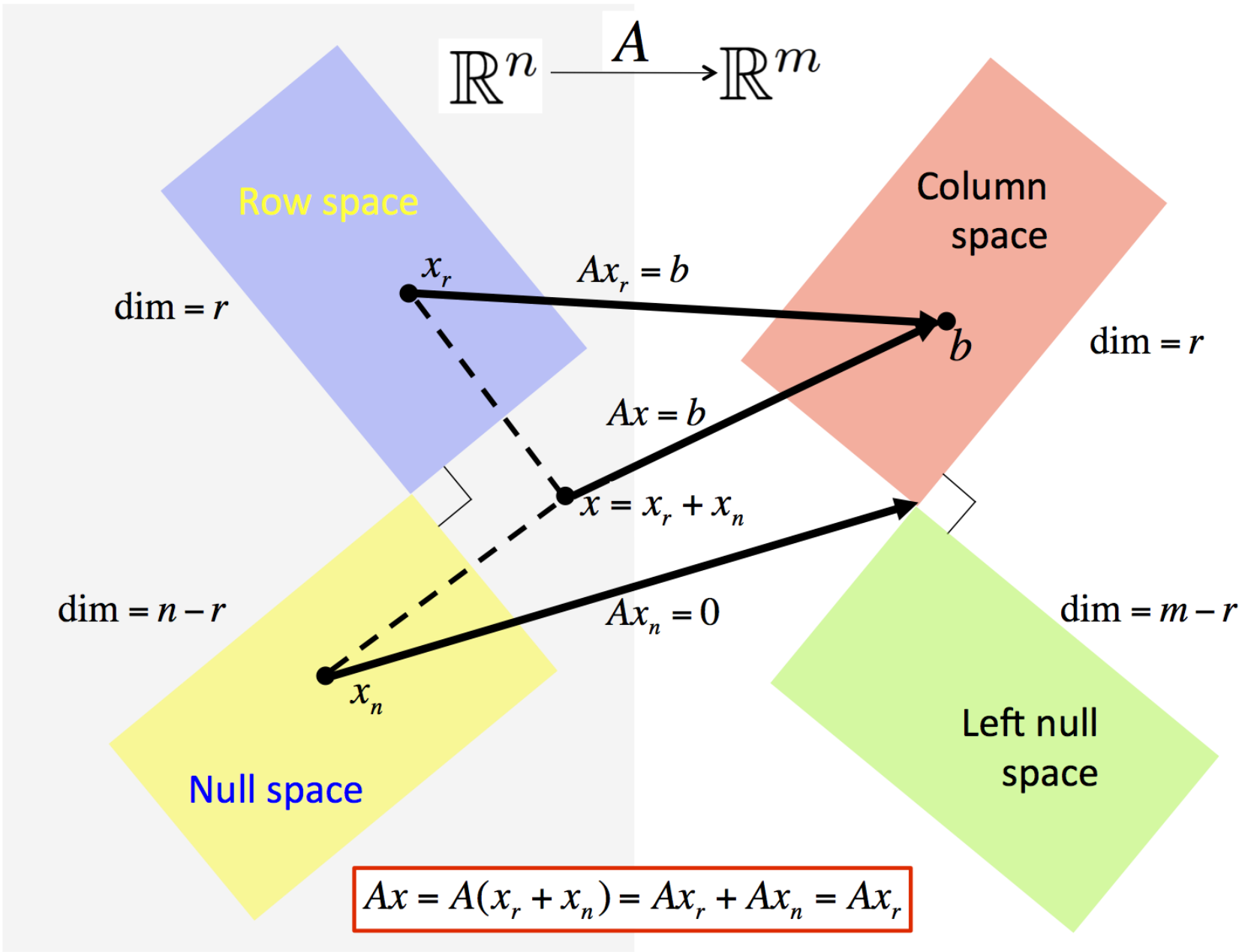☑ Row space and left null space   4
   Have those topics been covered previously in this course? I learnt that transposes themselves have some theoretical properties (when we talk a...

Download the PowerPoint presentation for the Fundamental Spaces picture: Spaces.pptx

10.3.3 Part 2

Dr. Robert van de Geijn: Now this may not be that easy for you to see,

but right down the middle is a line.

And on the left you see the subspace Rn which is shaded slightly gray.

And on the right is Rm which is white.

Now, matrix A takes vectors from Rn to Rm.

And how could we illustrate that?

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