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1. Let  $\vec{e}_1, \vec{e}_2$  be Monique's vectors and let  $\vec{d}_1, \vec{d}_2$  be Lily's vectors. The cup and the plate can be represented in terms of Monique's and Lily's vectors because  $\text{span}\{\vec{e}_1, \vec{e}_2\} = \text{span}\{\vec{d}_1, \vec{d}_2\}$ . Neither representation is more correct—it's just a different perspective.

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2. Monique and Lily are viewing the same objects but using different bases. Neither is more correct than the other.

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3. Basis  $\rightarrow$  linearly independent spanning set.

Different bases  $\rightarrow$  different representation of items as coordinates.

Monique and Lily sitting at different positions on the table  $\rightarrow$  different “standard” bases  $\rightarrow$  confusion about coordinates.

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