Using translation to separate Bounded Arithmetic Theories

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In this talk, we consider the use of translations to separate bounded arithmetic theories. Many of the known non-relativised separations of bounded arithmetic theories were achieved using an upward RSUV-like translation or an abstraction thereof. We will survey some of these results, and then consider the use of downward translations to separate theories. In particular, we will sketch a proof that $IOpen(exp)$ and $I\Delta_0(exp)$ are different.