Every love story is a GHOsT story: Goerss–Hopkins obstruction theory for ∞-categories

The Blanc–Dwyer–Goerss diagram

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$\mathcal{C}$

category $\mathcal{C}$

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$$\mathcal{C} \xrightarrow{\pi_*} \mathcal{A}$$

functor $\pi_* : \mathcal{C} \to \mathcal{A}$

$$\mathcal{C} \xrightarrow[\pi_*]{} \mathcal{A}$$

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$s\mathcal{A}$

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model category $s\mathcal{A}$

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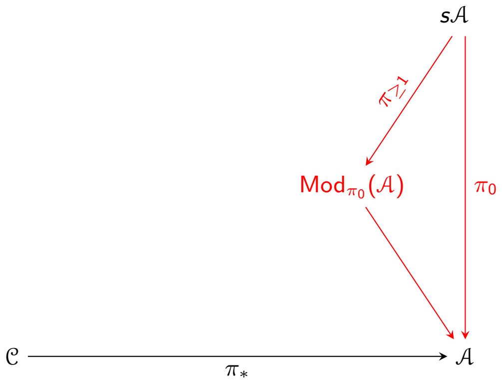
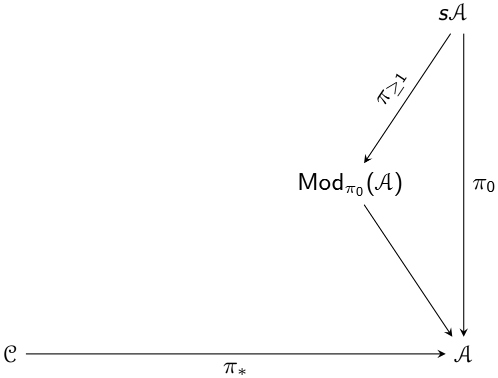


functors $\pi_n : s\mathcal{A} \to \mathcal{A}$, with $\pi_n \in \mathsf{Mod}_{\pi_0}(\mathcal{A})$ for $n \geq 1$



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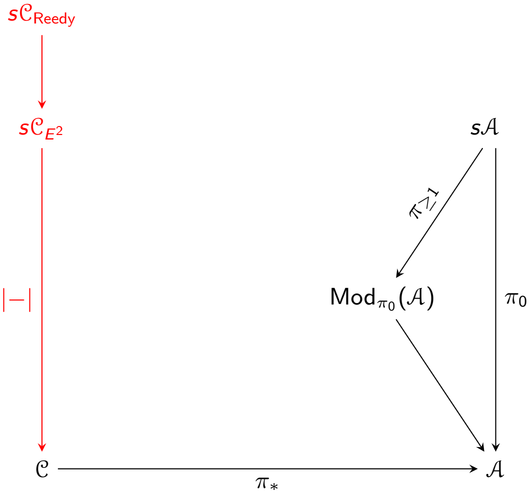
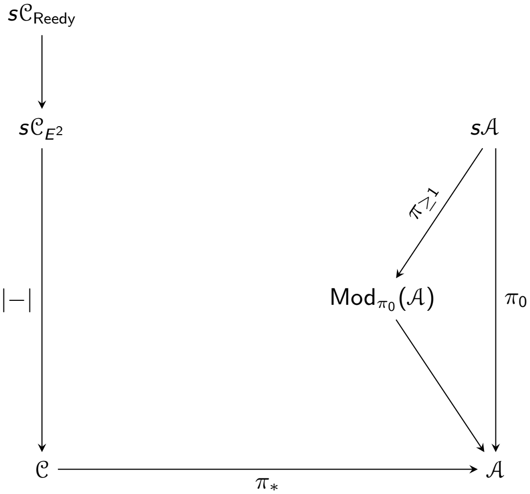


model categories $s\mathcal{C}_{\text{Reedy}}$ and $s\mathcal{C}_{E^2}$



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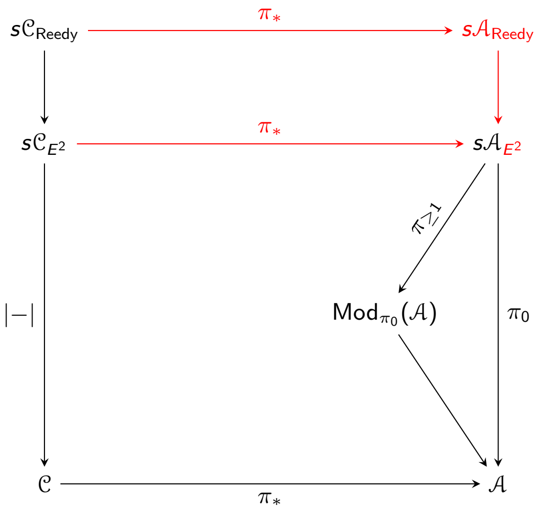
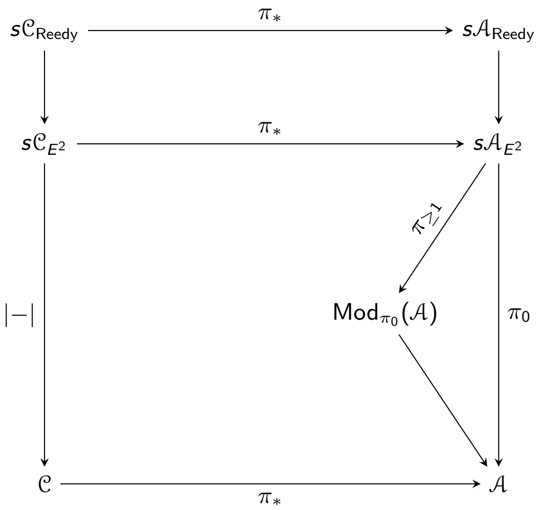


$s\mathcal{A}$ is really $s\mathcal{A}_{E^2}$ (and there is $s\mathcal{A}_{\mathrm{Reedy}}$, too)



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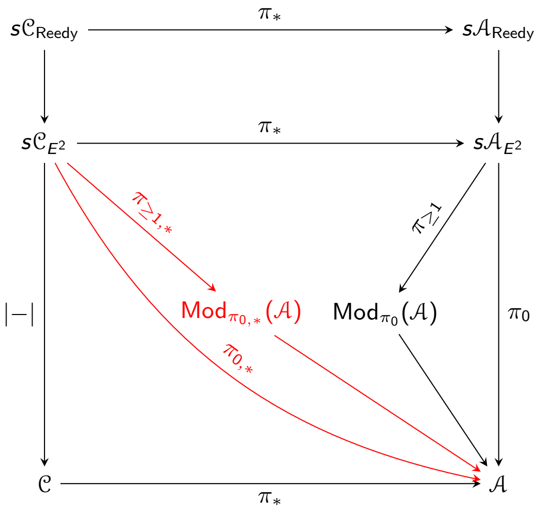

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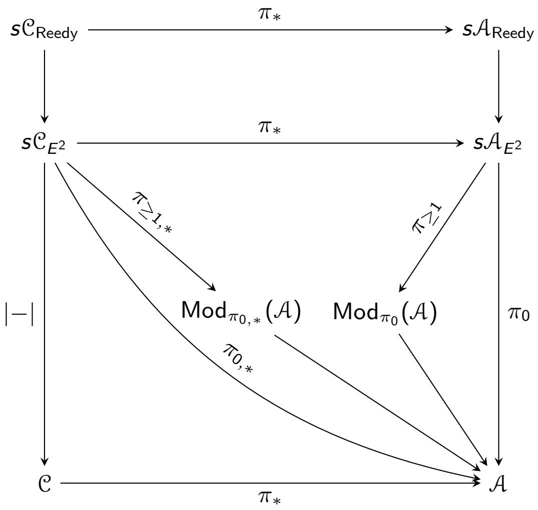

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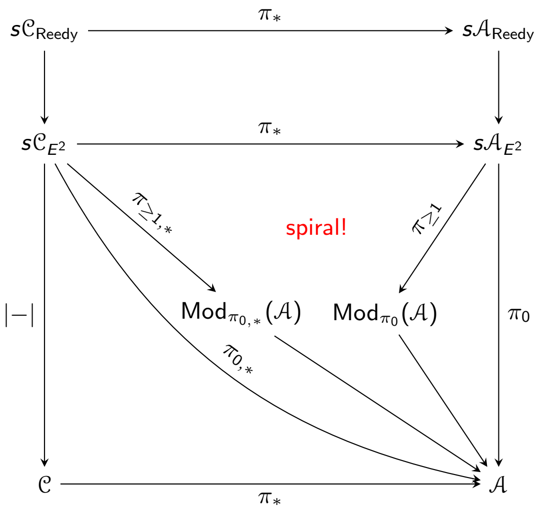
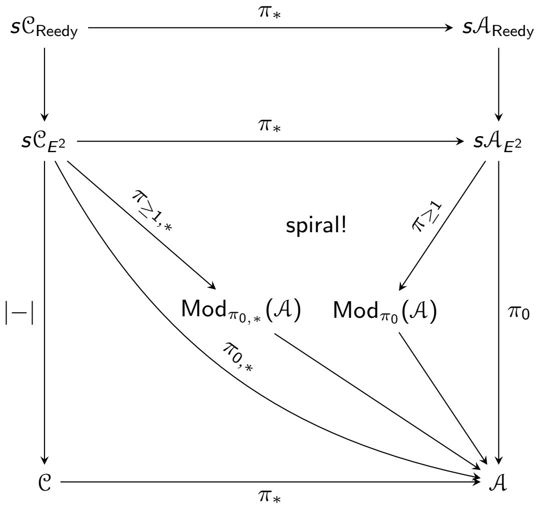


for $Y \in s\mathcal{C}_{E^2}$, spiral relates $\pi_n \pi_* Y$ and $\pi_{n,*} Y$



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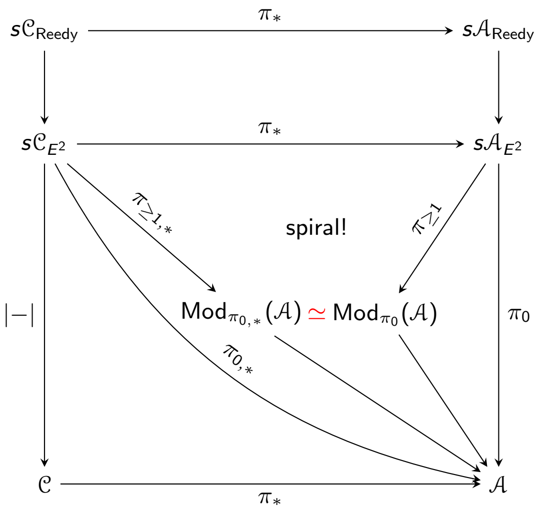
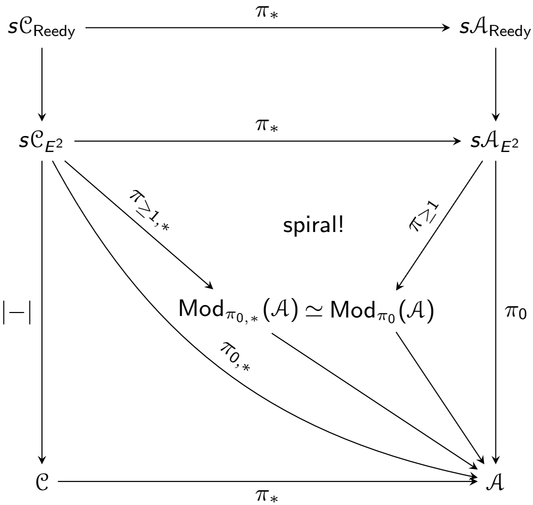


$\pi_{0,*}Y \cong \pi_0\pi_*Y$, and the spiral is in modules for this object of $\mathcal{A}$



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