Proof.

$$\boldsymbol{u}_i^{n,+} \qquad \boldsymbol{u}_i^{*,*} \qquad \boldsymbol{u}_i^{*,*} \qquad \boldsymbol{u}_i^{n,-}$$

$$x_{i-1/2} \quad x_{i-1/4} \qquad x_i \qquad\qquad x_{i+1/4} \qquad x_{i+1/2}$$