

$$(P^{V|W}, A)$$

$$\alpha \in$$

$$A$$

$$P$$

$$extended_{2017} extended\ conditional\ independence, which is a notion they define new with respect to a Markov kernel. These concepts$$

$$A^*_\circ =$$

$$V$$

$$B^*=$$

$$B_\circ$$

$$V$$

$$C^*=$$

$$C_\circ$$

$$V$$

$$(A,B,C)$$

$$V$$

$$D^*=$$

$$D_\circ$$

$$W$$

$$E^*=$$

$$E_\circ$$

$$W$$

$$W$$

$$(D^*,E^*)$$

$$P^W$$

$$W^\alpha$$

$$w \in$$

$$W(\Omega)$$

$$P_\alpha^W$$

$$(w)>$$

$$0$$

$$P_{P,ext}$$

$$P^{VW}:=$$

$$P^{\alpha W}_\odot$$

$$P^{\alpha}_{V|W}$$

$$P_{P,ext}(B,D)|(C,E)\iff$$

$$A^*_{P_\alpha}(B^*,D^*)|(C^*,E^*)$$

$$P_{P_\alpha}$$

$$A^*_\circ =$$

$$A_\circ$$

$$V$$

$$B^*=$$

$$B_\circ$$

$$V$$

$$C^*=$$

$$C_\circ$$

$$V$$

$$(A,B,C)$$

$$V$$

$$D^*=$$

$$D_\circ$$

$$W$$

$$E^*=$$

$$E_\circ$$

$$W$$

$$V,W$$

$$W$$

$$(D^*,E^*)$$

$$P^{VW}:=$$

$$P^{\alpha W}_\odot$$

$$P^{\alpha}_{V|W}$$

$$\vdash$$

$$P_{P,ext}(B,D)|(C,E)\iff$$

$$A^*_{P_\alpha}(B^*,D^*)|(C^*,E^*)$$

$$A^*_{P_\alpha}(B^*,D^*)|(C^*,E^*)$$

$$P^{D^*_\alpha}_{D^*E^*}$$

$$P^{D^*}_{D^*E^*}$$

$$(d,e)\in$$

$$(D^*,E^*)(\Omega)P^{D^*E^*}_\alpha(d,e)>$$

$$0$$

$$??$$

$$A_{P,ext}(B,D)|(C,E)$$

$$\beta$$

$$P^{ABC|DE}_\beta=$$

$$P^{DE}_\beta\odot$$

$$P^{ABC|DE}_\beta$$

$$??$$

$$P^{A|BCDE}_\beta$$

$$A^*B^*C^*D^*E^*=$$

$$P^{D^*}_{D^*E^*}\odot$$

$$P^{B^*C^*|D^*E^*}_{\beta}\odot$$

$$\underline{P}^{A^*|B^*C^*D^*E^*}_{\beta}$$

$$P^{B^*C^*D^*E^*}_{\beta}\odot$$

$$\underline{P}^{A^*|B^*C^*D^*E^*}_{\beta}$$

$$P^{C^*E^*}_{\beta}\odot$$

$$P^{B^*D^*|C^*E^*}_{\beta}\odot$$

$$P^{A^*|B^*C^*D^*E^*}_{\beta}$$

$$??$$

$$\hat{\alpha}$$

$$P^{D^*}_{D^*E^*}$$

$$(\hat{D}^*~E^*)$$