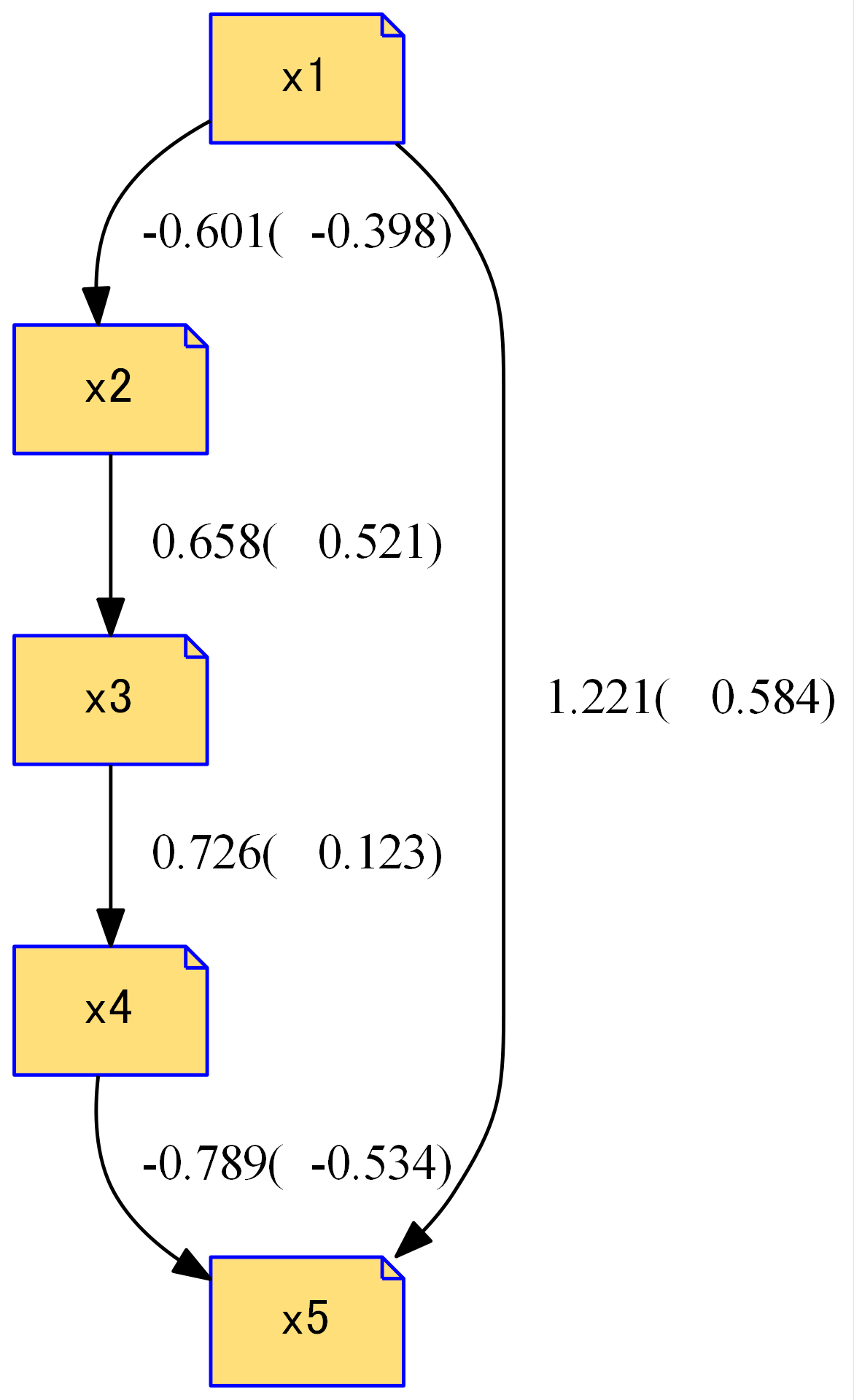
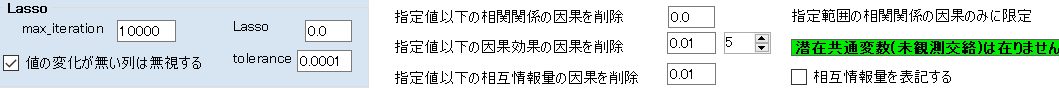
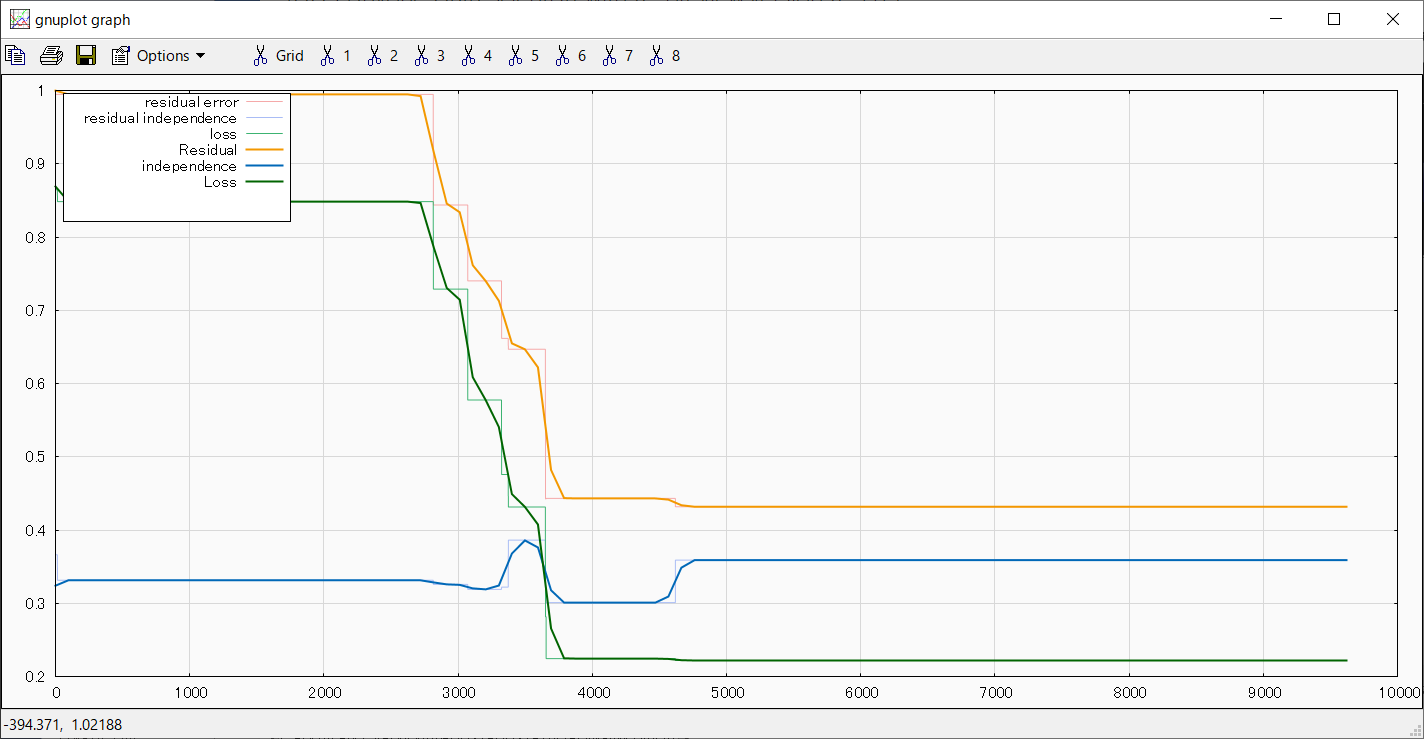
**検証データ：LiNGAM\_latest3.csv**





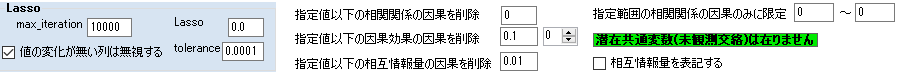
Iter=50000, early\_stopping=5000

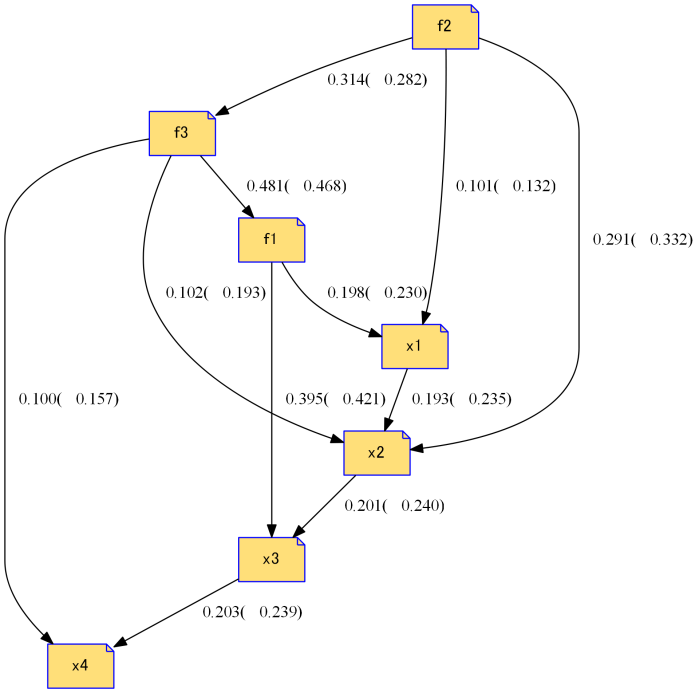
loss:[0.2220]

residual\_independence:[0.0000,0.3591]

residual\_error:[-2.5091, 1.8196]

**検証データ：LiNGAM\_latest8.csv**







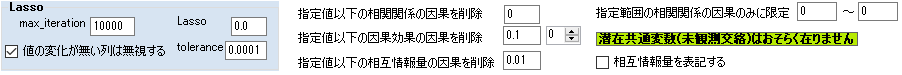
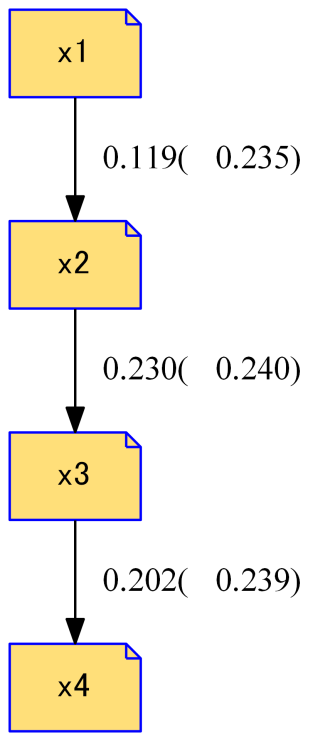
Iter:10000 forced termination:980

loss:[0.5477]

residual\_independence:[0.0000,0.4601]

residual\_error:[-2.0401, 2.4023]

**検証データ：LiNGAM\_latest8.csv**





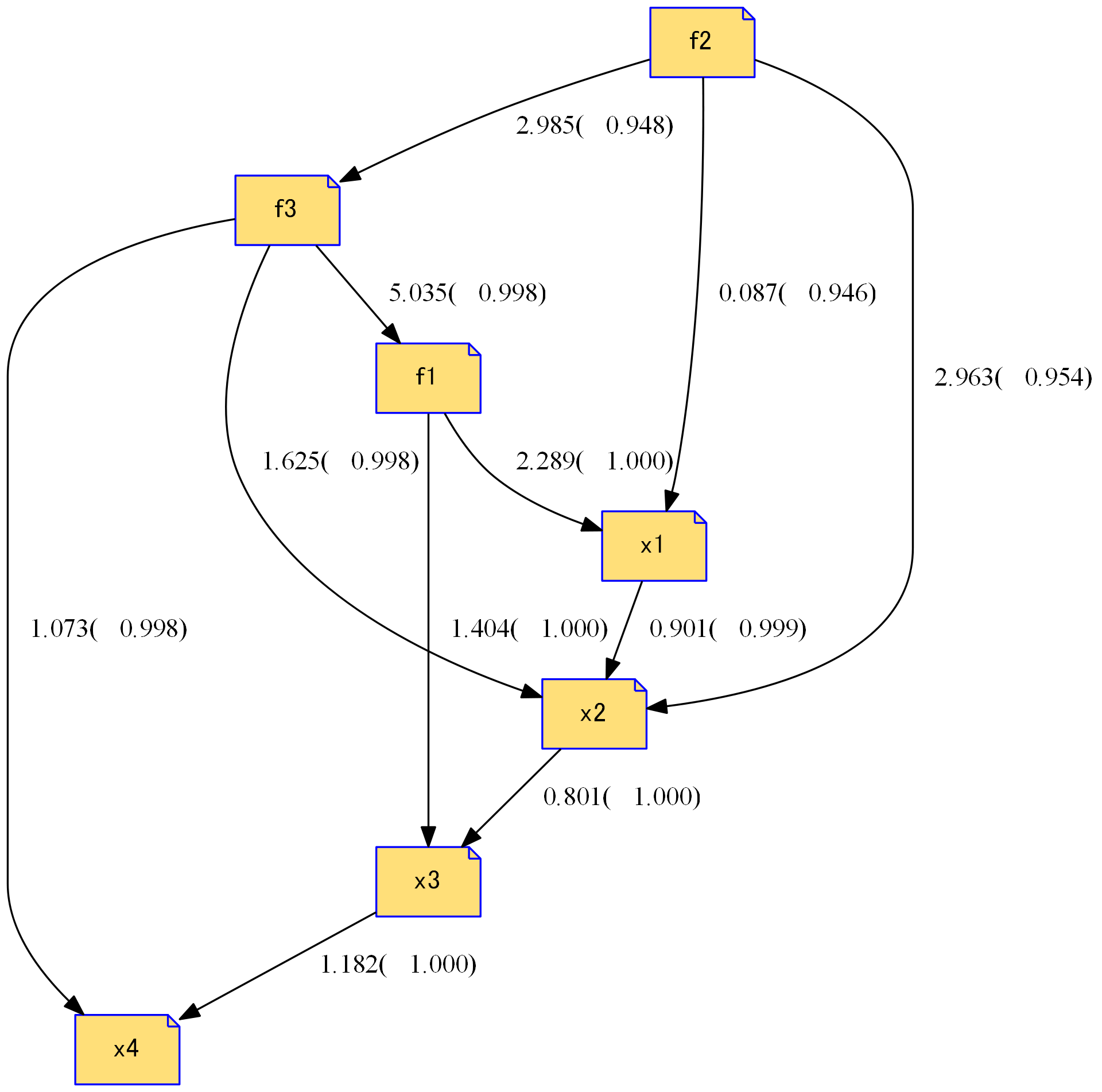
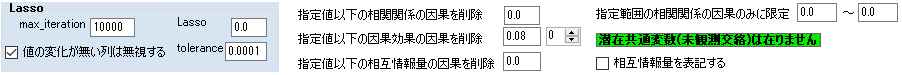
iter:10000 early\_stopping:0

loss:[0.2881]

residual\_independence:[0.0000,0.1973]

residual\_error:[-1.7344, 1.2591]

**検証データ：LiNGAM\_latest9.csv**

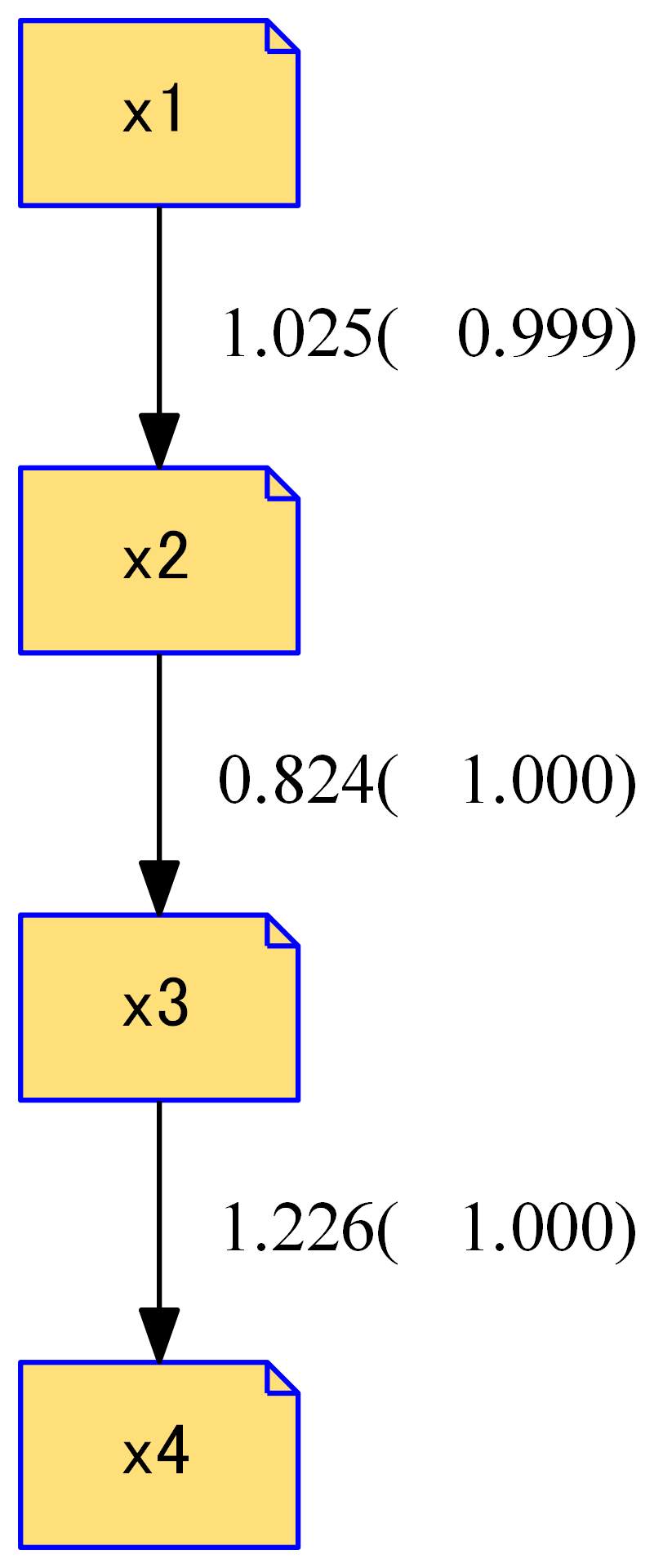
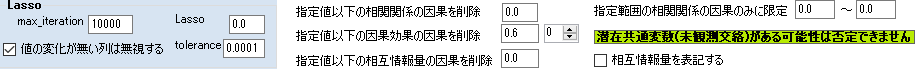
****

Iter:10000 forced termination:

loss:[0.0342]

residual\_independence:[0.0000,0.1234]

residual\_error:[-4.4058, 5.3580]





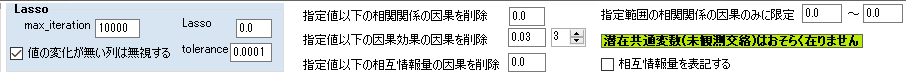
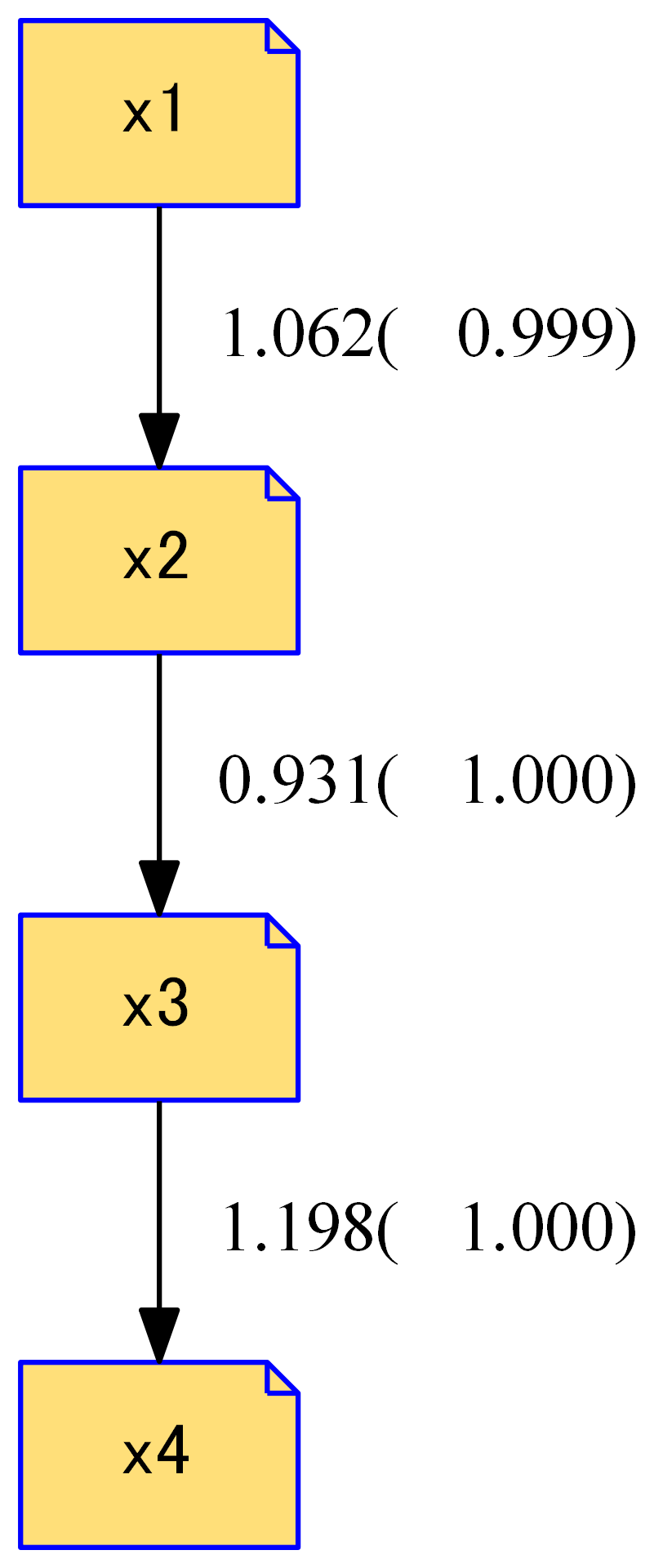
Iter:10000 early\_stopping:0

loss:[0.4100]

residual\_independence:[0.0000,0.4660]

residual\_error:[-2.2168, 46.0150]

**検証データ：LiNGAM\_latest9y.csv**



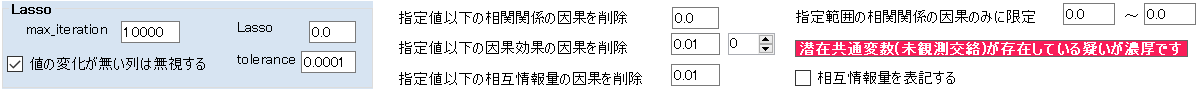
Iter:10000 early\_stopping:4000

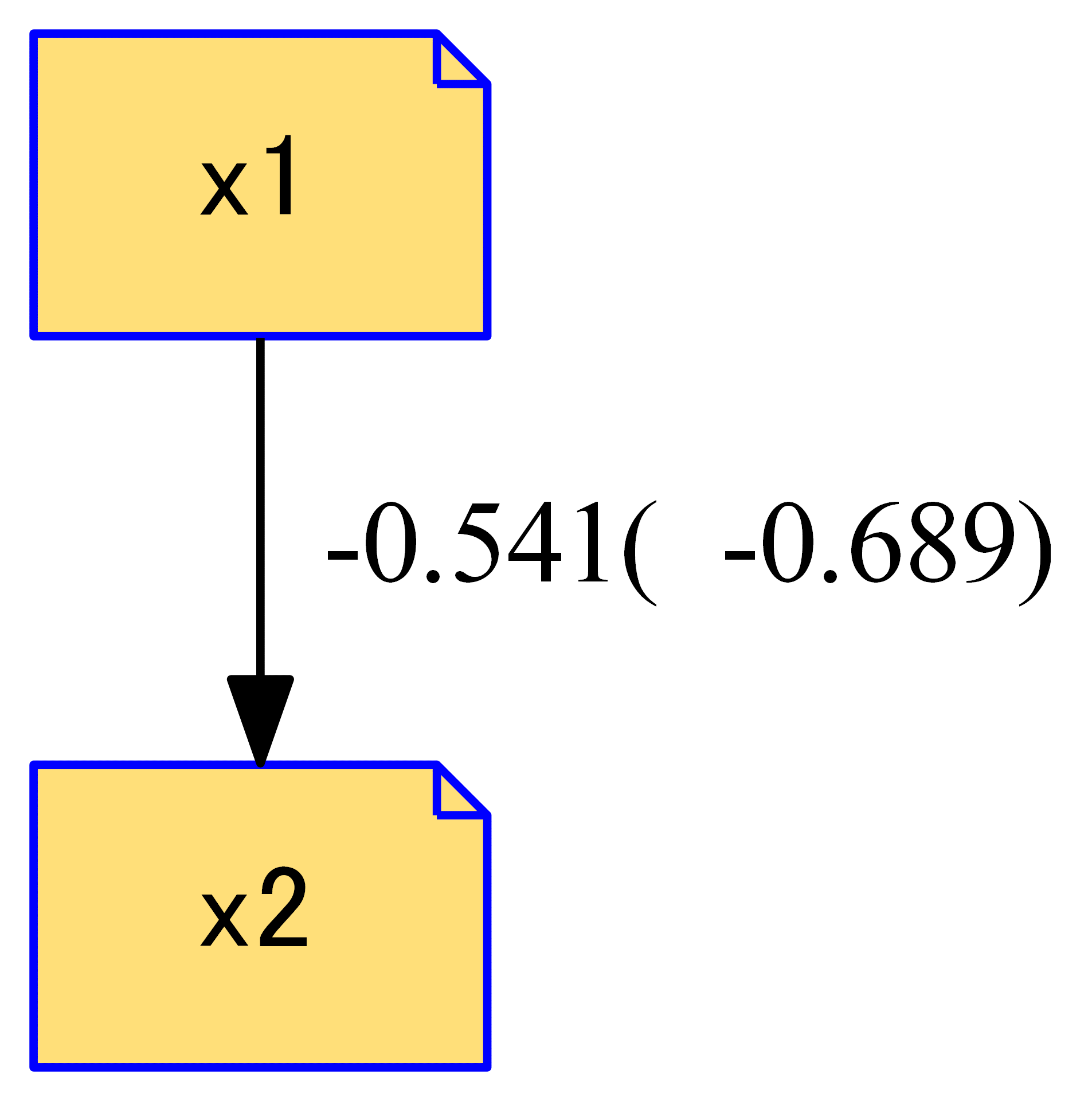
loss:[0.4249]

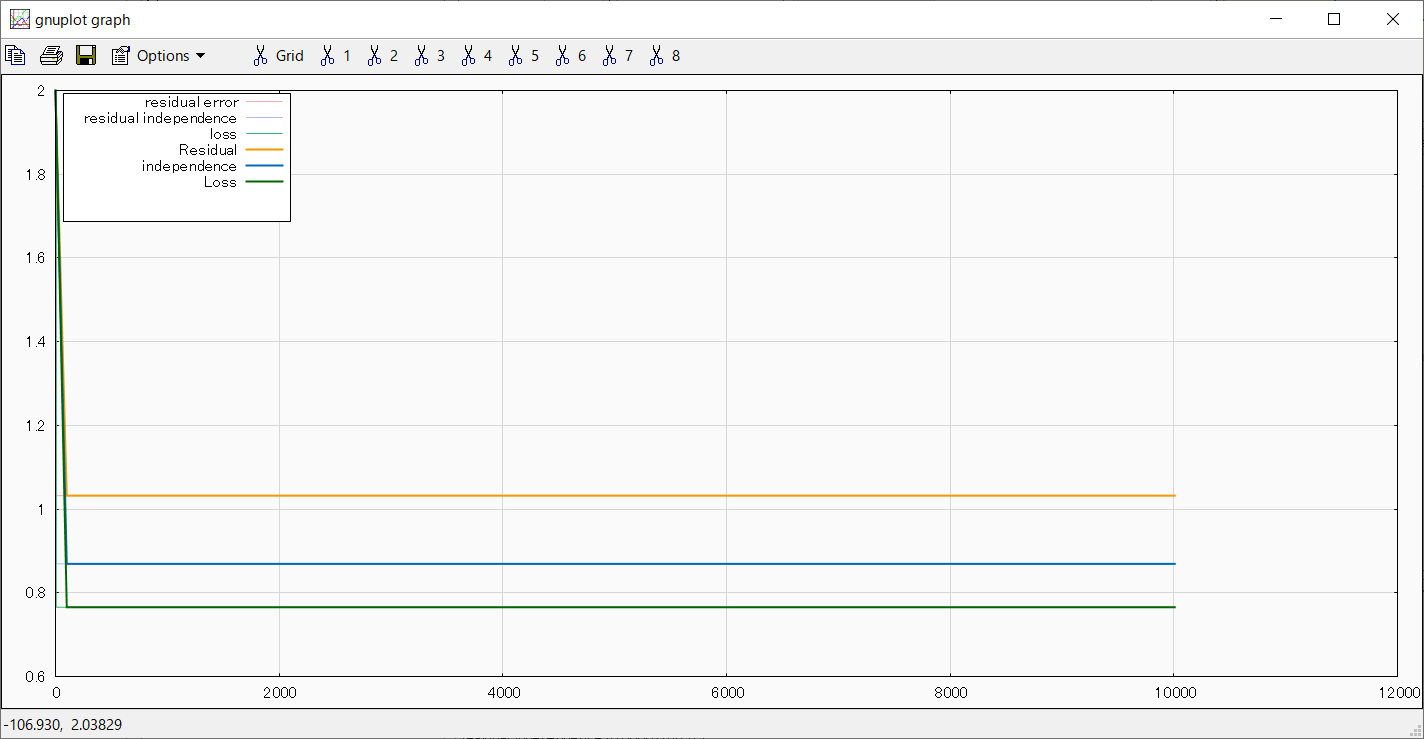
residual\_independence:[0.0000,0.1248]

residual\_error:[-3.8847, 45.6063]

**検証データ：LiNGAM\_test.csv**







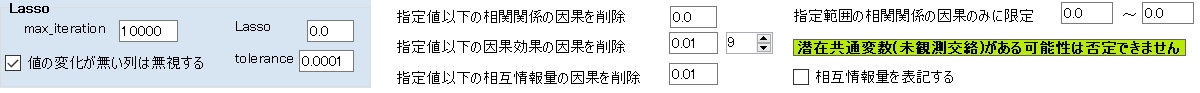
Iter=60000, early\_stopping=10000

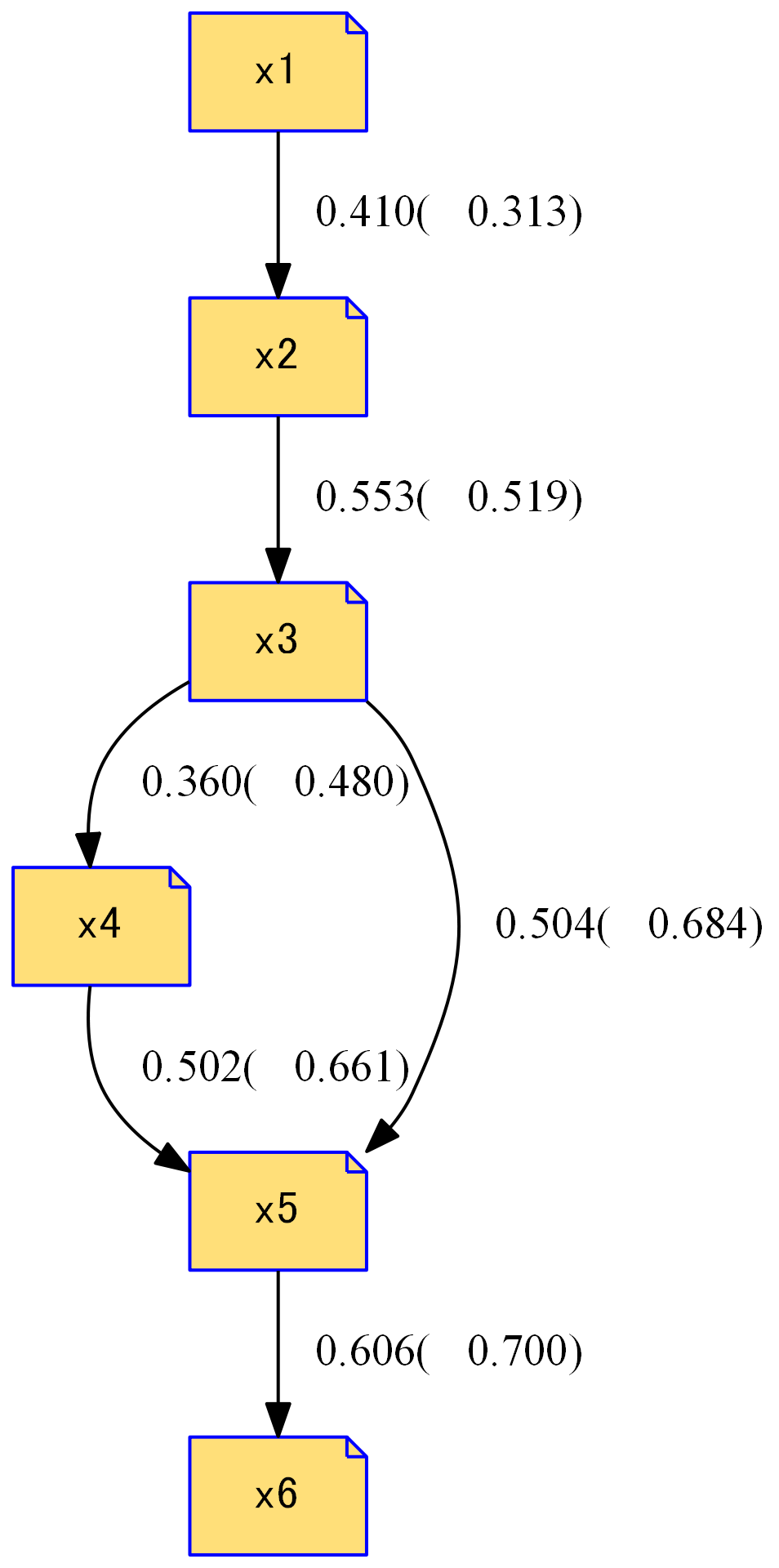
loss:[0.7656]

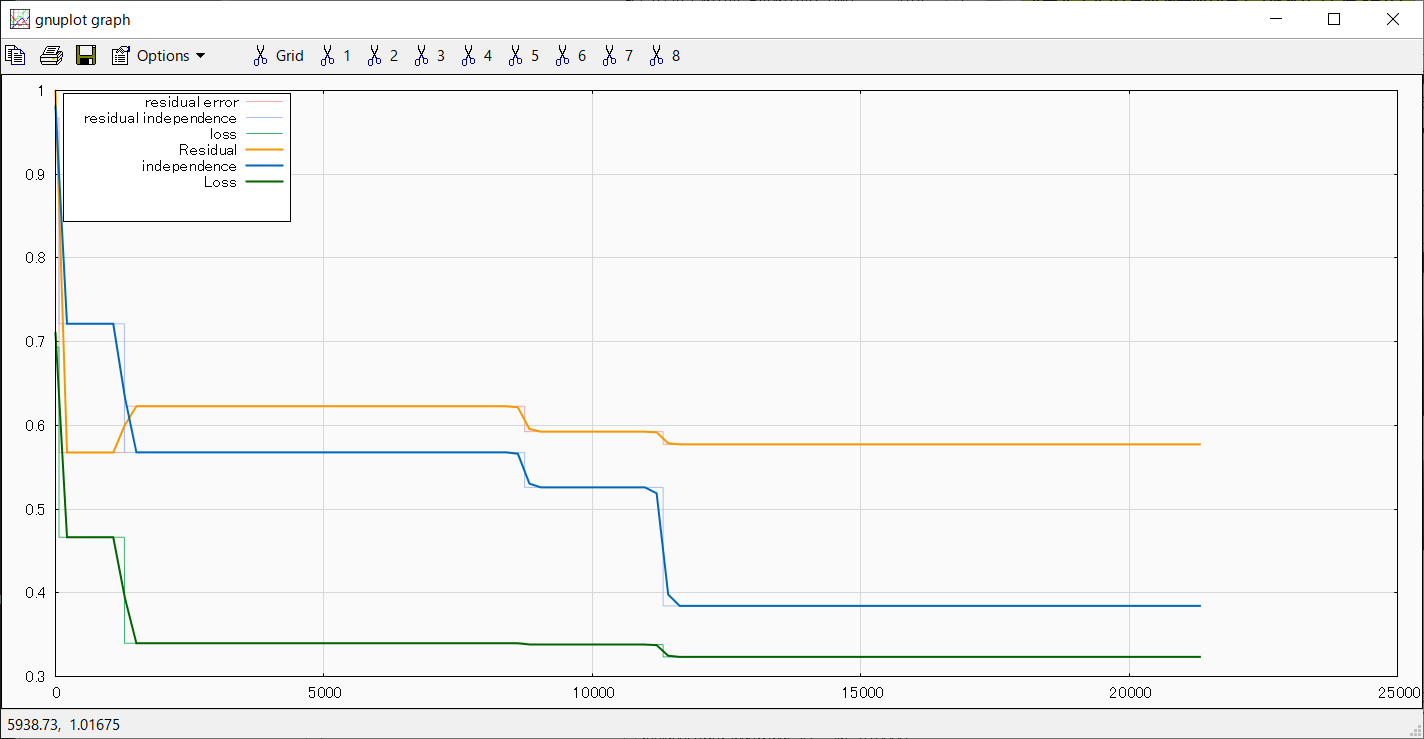
residual\_independence:[0.0000,0.8692]

residual\_error:[-4.7726, -2.0168]

**検証データ：LiNGAM\_latest.csv**







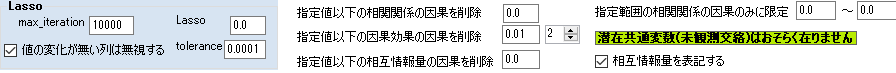
Iter=60000, early\_stopping=10000

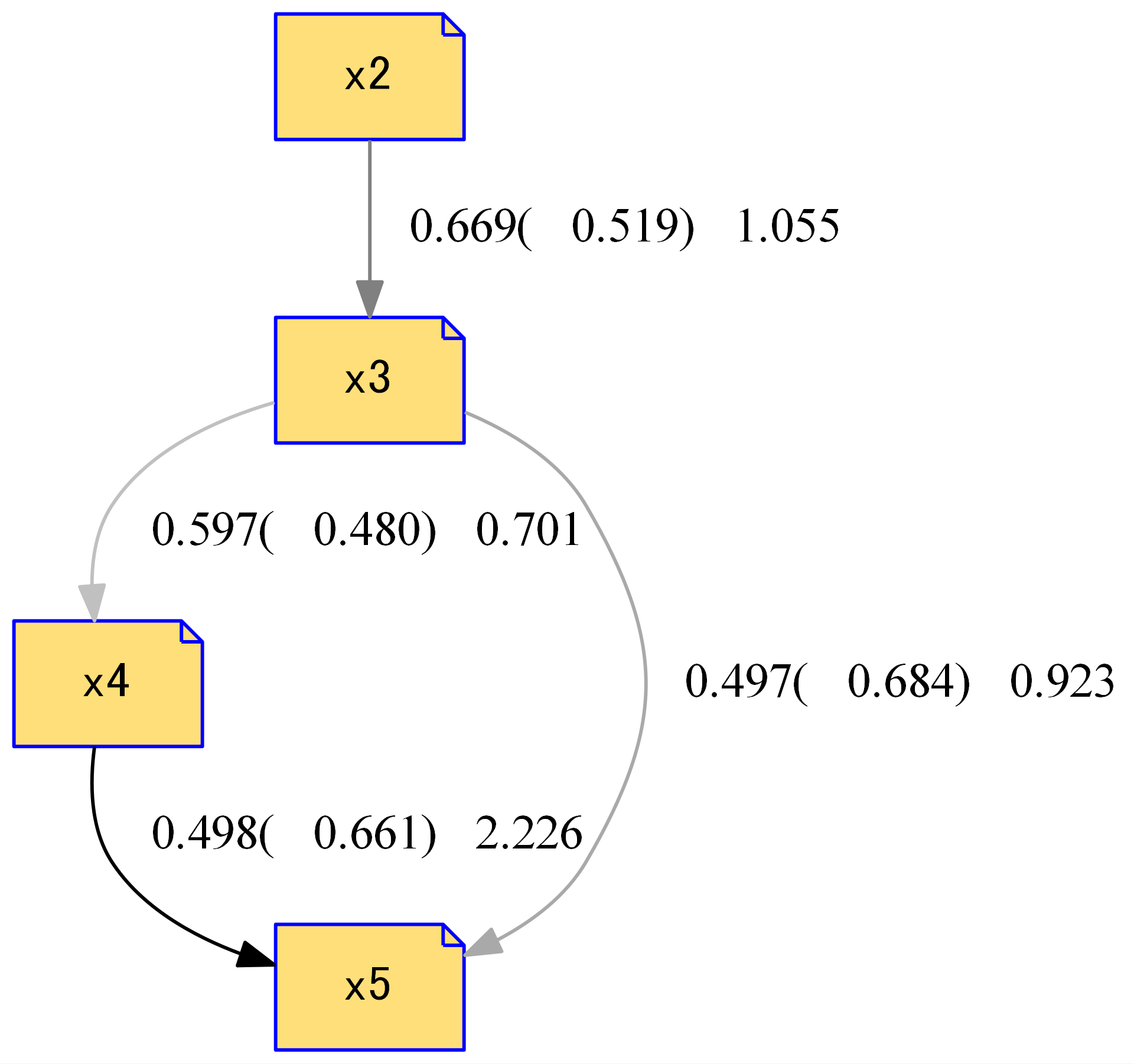
loss:[0.3235]

residual\_independence:[-0.0000,0.3844]

residual\_error:[-1.8683, 1.6738]

**検証データ：LiNGAM\_latest.csv**







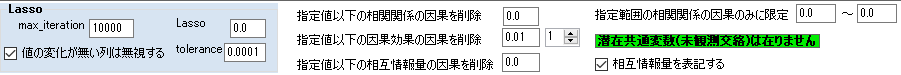
Iter=30000, early\_stopping=none

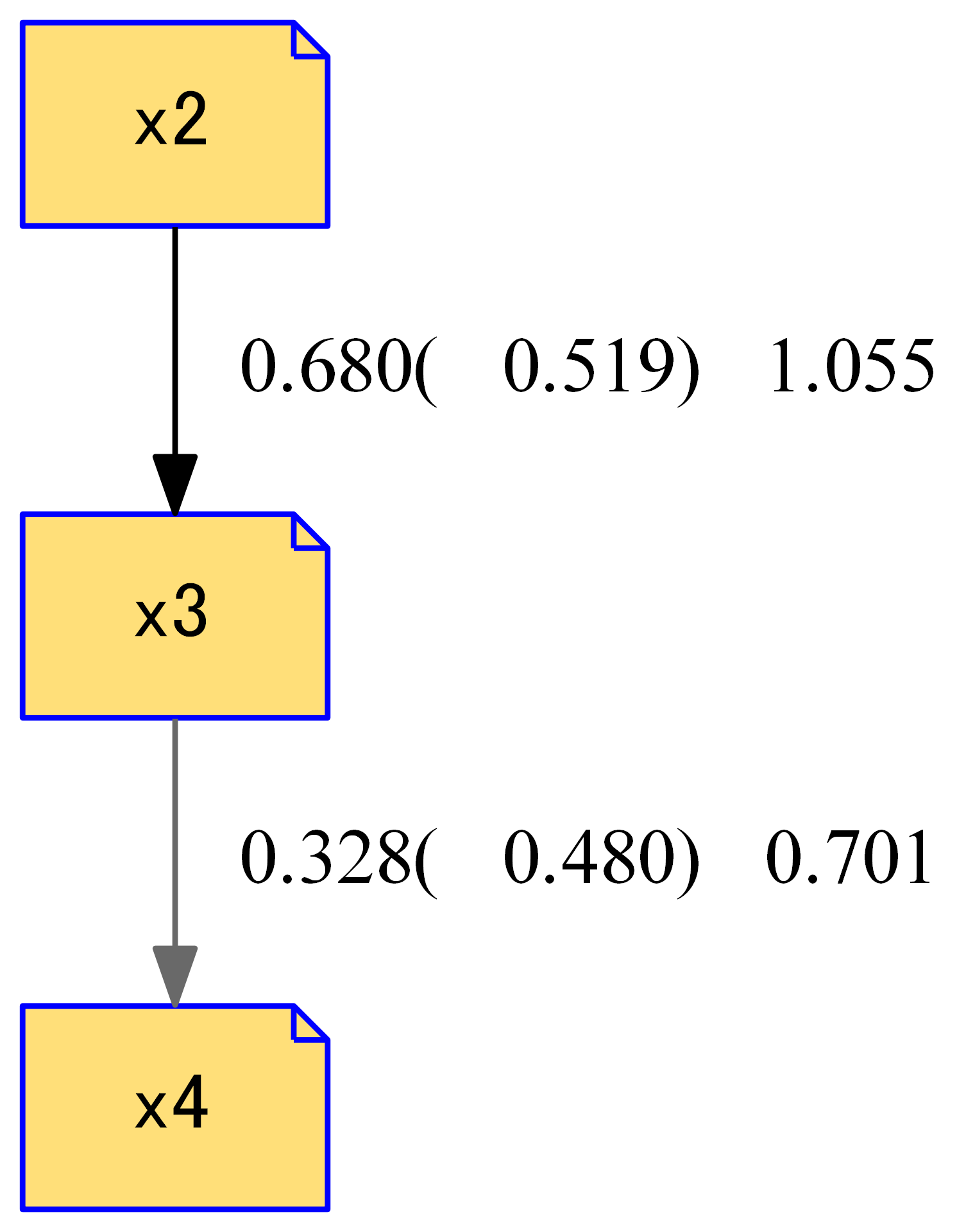
loss:[0.2497]

residual\_independence:[0.0000,0.1167]

residual\_error:[-1.6355, 1.6538]

**検証データ：LiNGAM\_latest.csv**







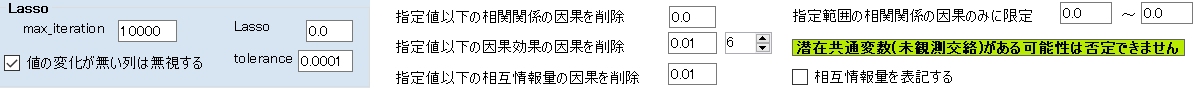
Iter=30000, early\_stopping=none

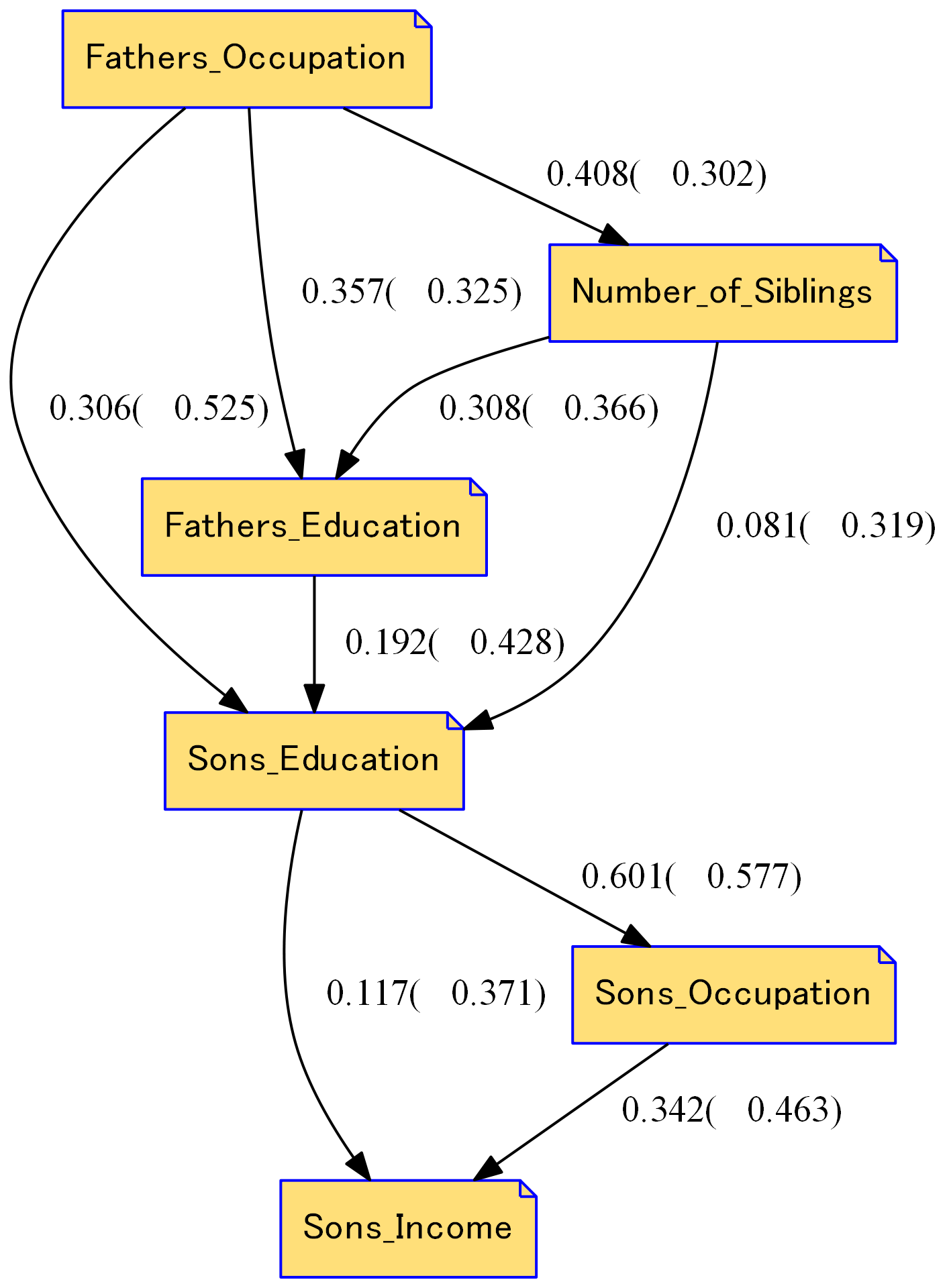
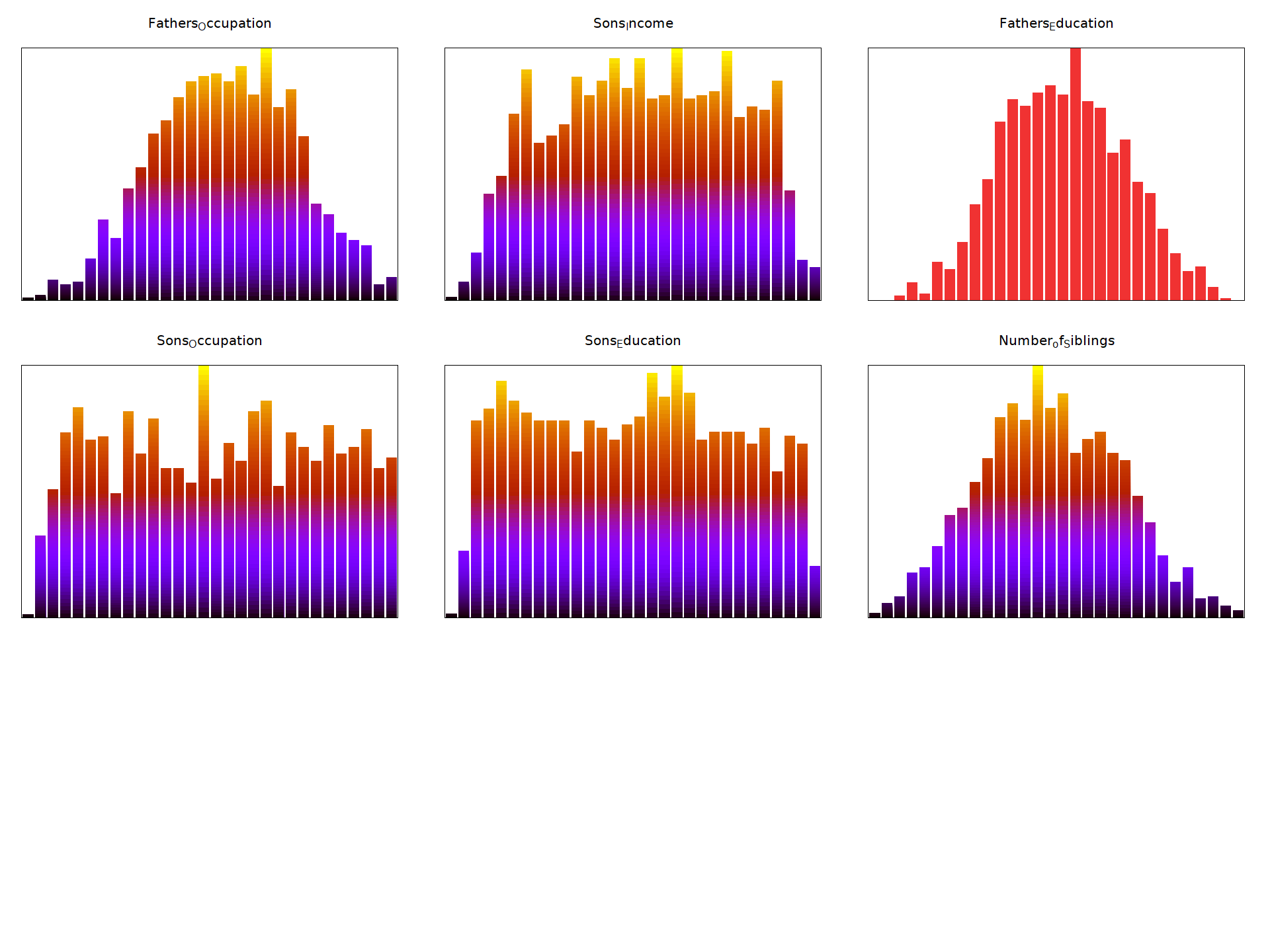
loss:[0.2759]

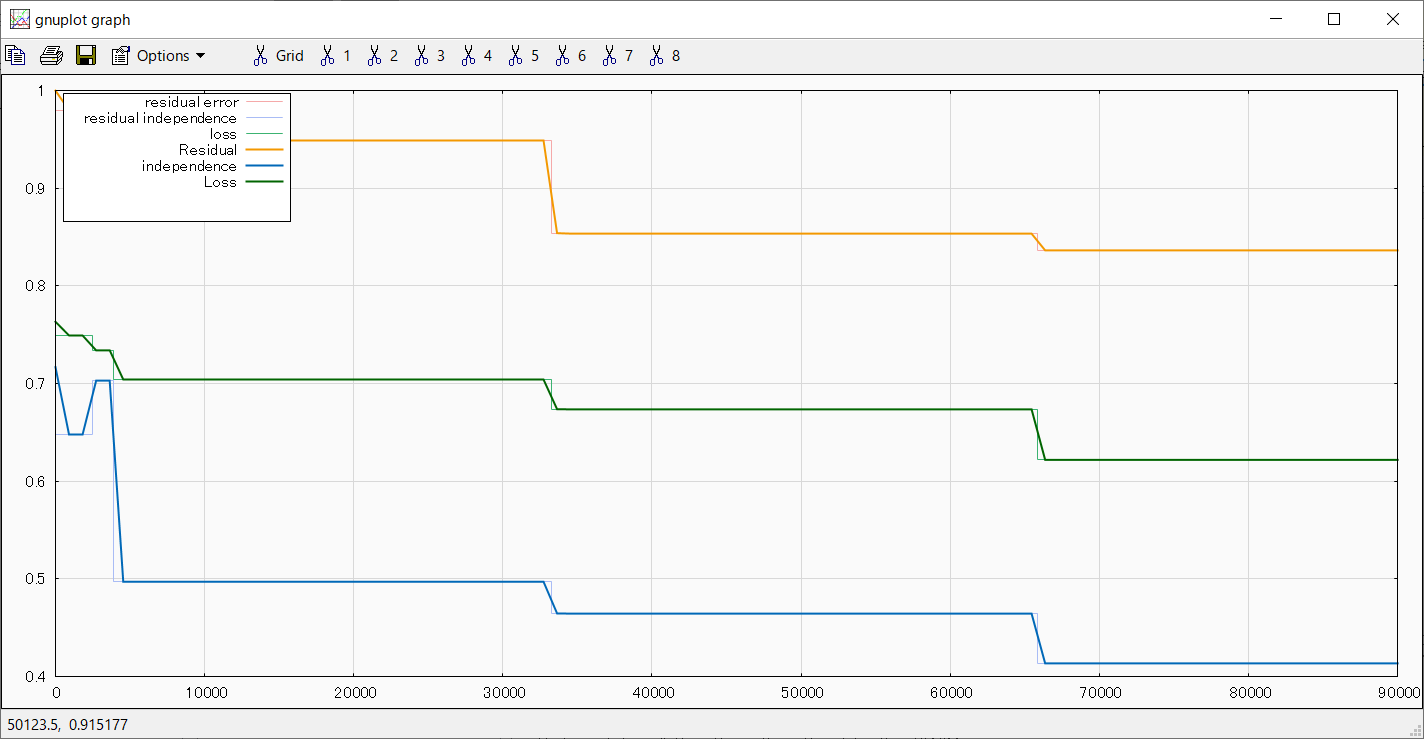
residual\_independence:[0.0000,0.0917]

residual\_error:[-1.2933, 1.0619]

**検証データ：GSS\_sim.csv**





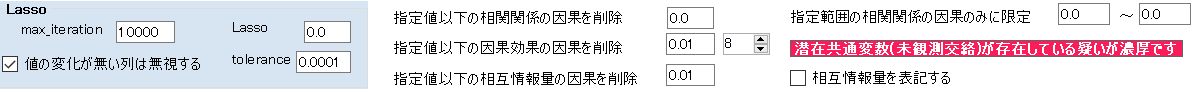
Iter=90000, early\_stopping=none

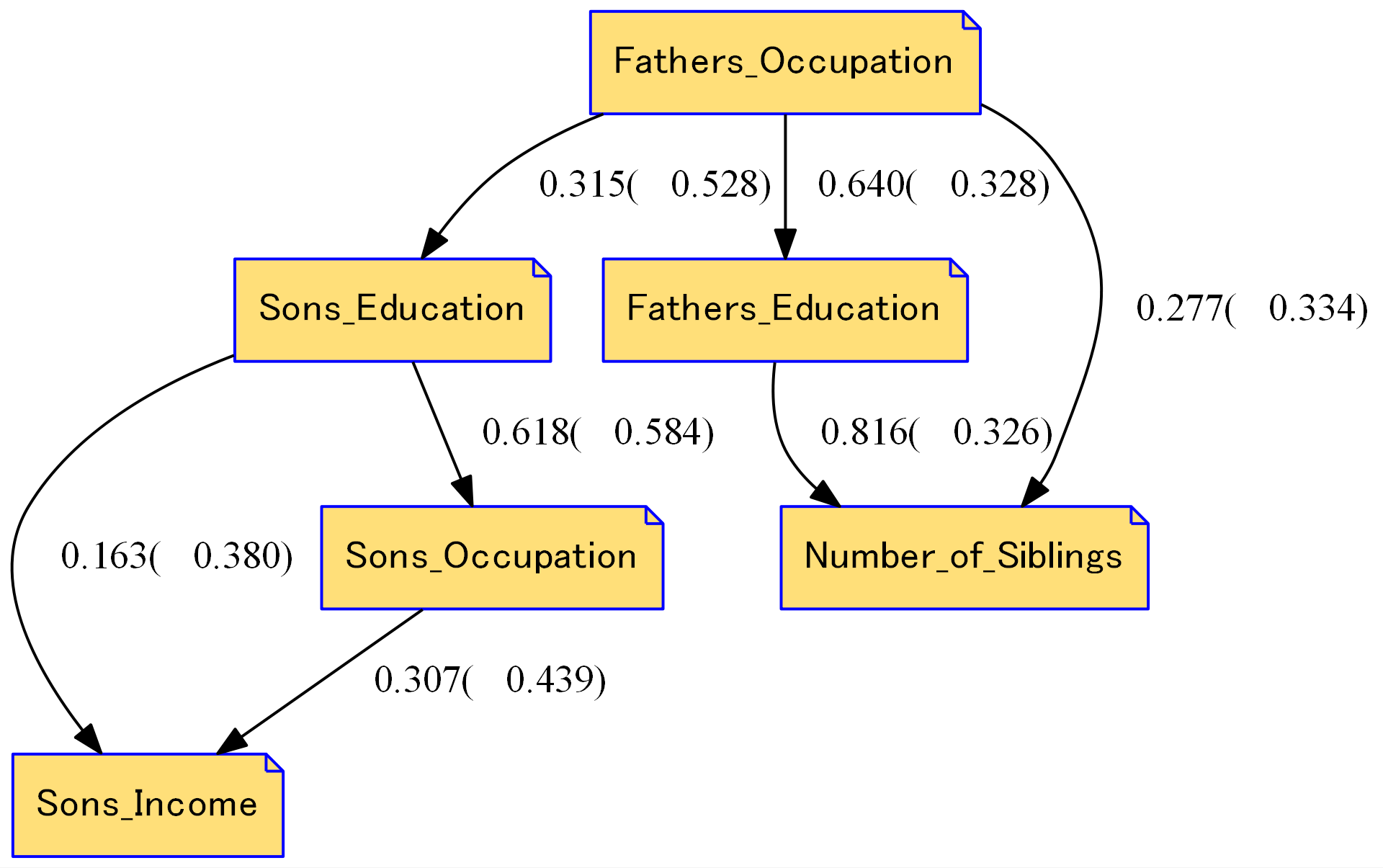
loss:[0.6219]

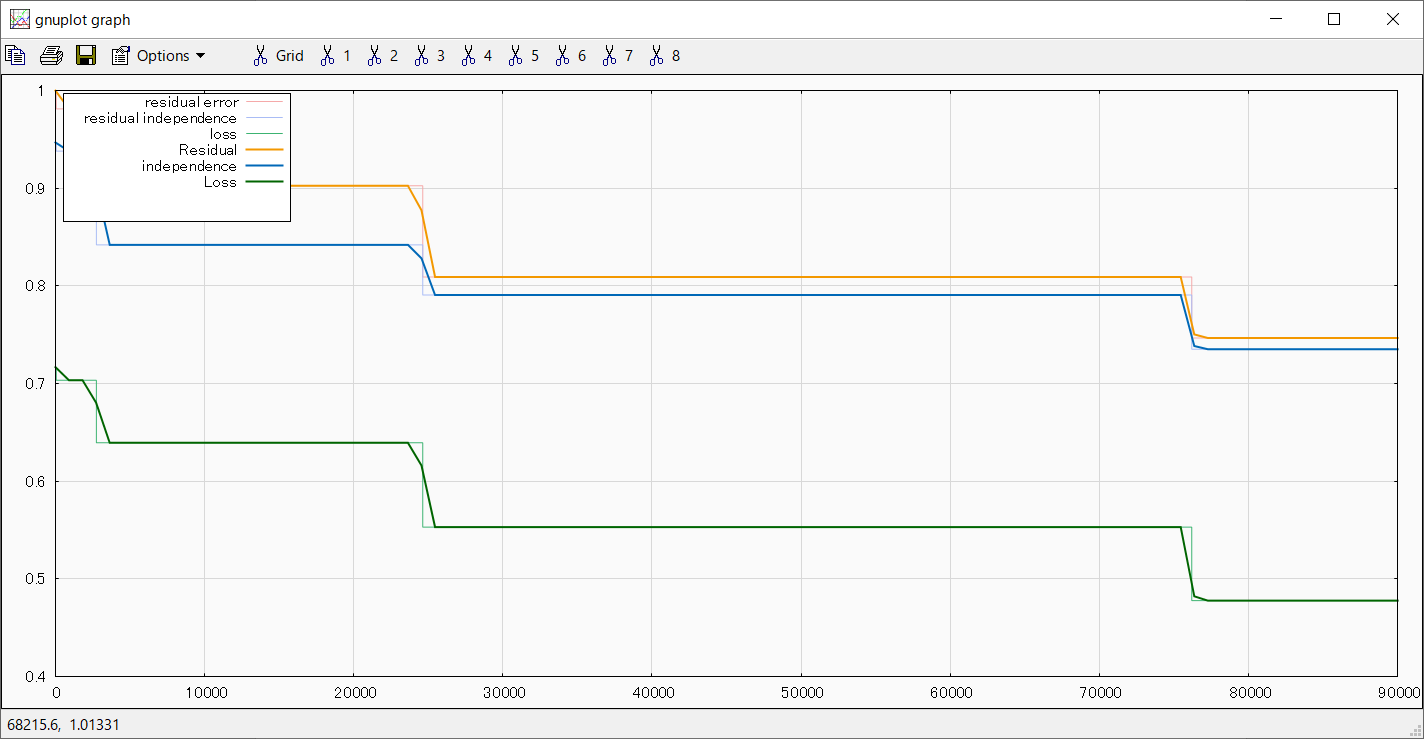
residual\_independence:[0.0000,0.4136]

residual\_error:[-2.4652, 1.0854]

**検証データ：GSS\_sim(n=13800).csv**







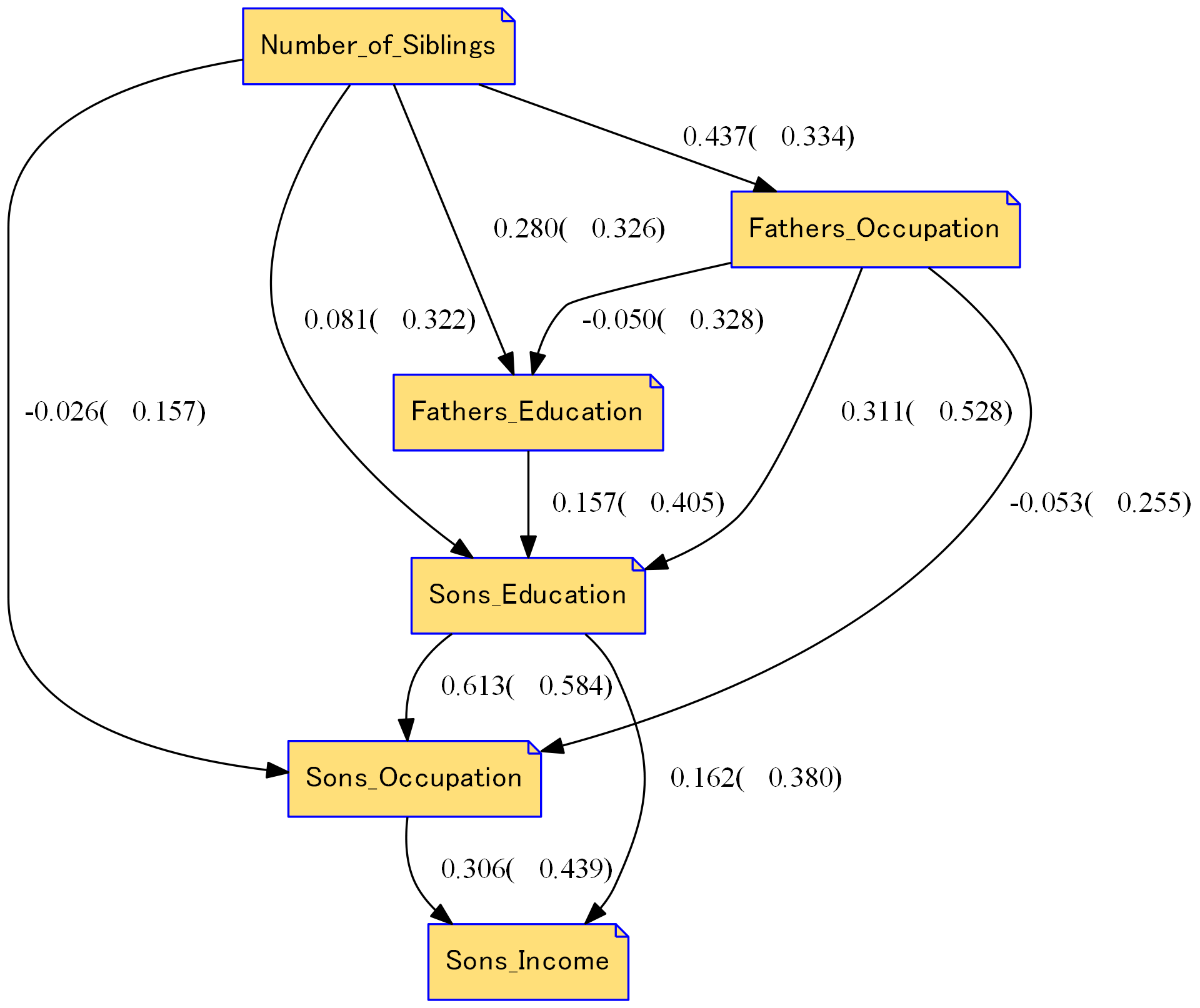
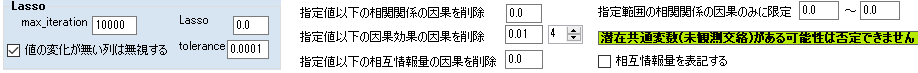
Iter=90000, early\_stopping=none

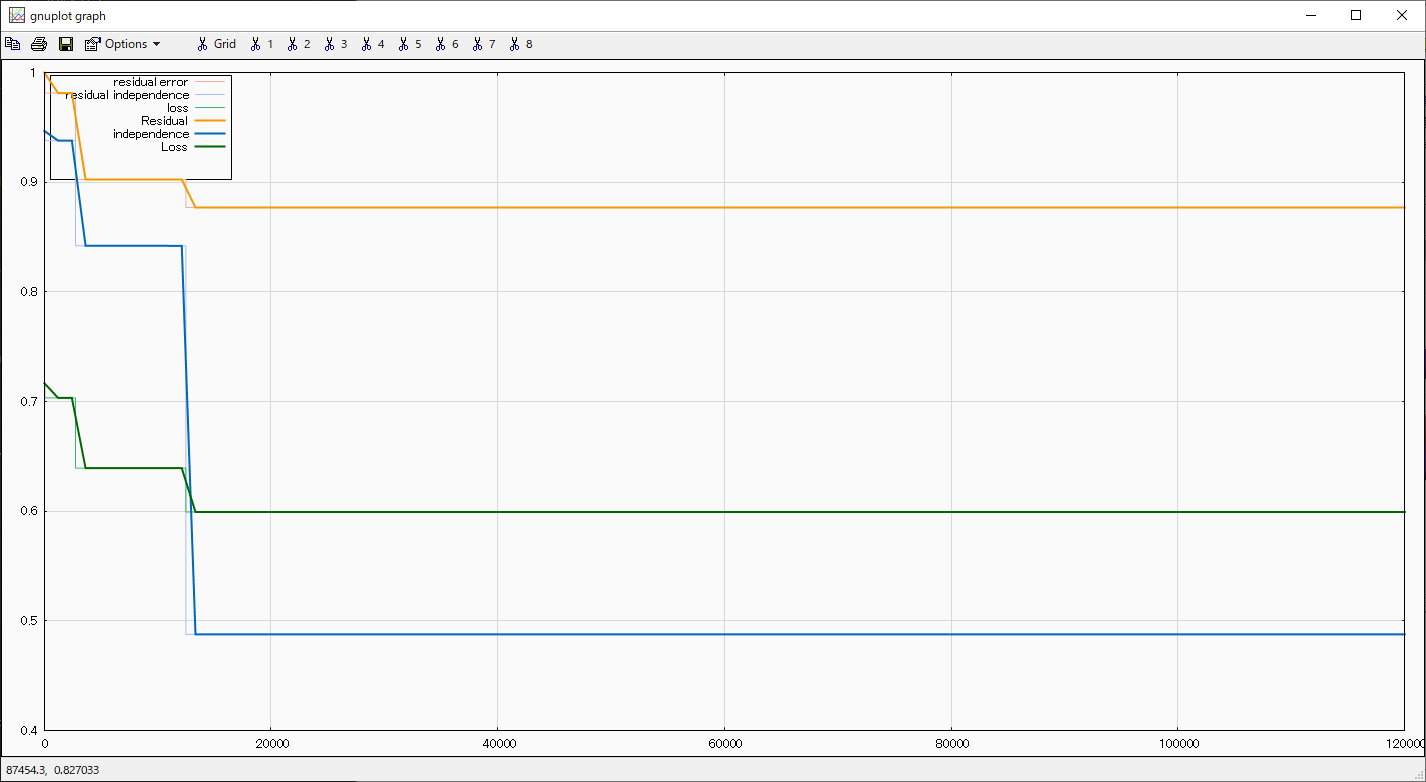
loss:[0.4778]

residual\_independence:[0.0000,0.7352]

residual\_error:[-1.8252, 2.1949]

**検証データ：GSS\_sim(n=13800).csv**





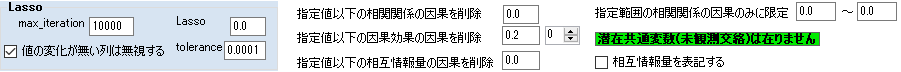
Iter=120000, early\_stopping=none

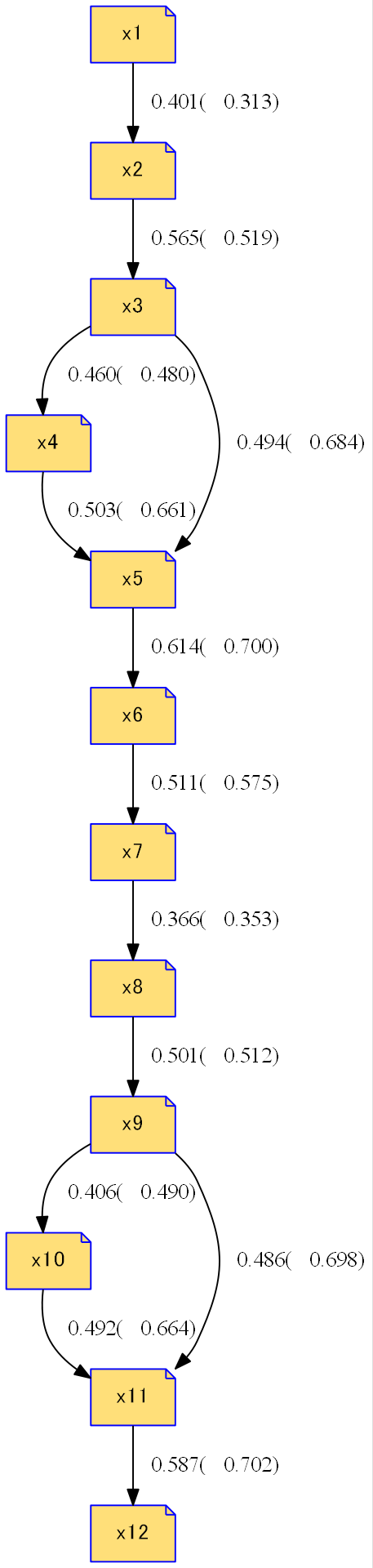
loss:[0.5993]

residual\_independence:[0.0000,0.4877]

residual\_error:[-2.5057, 2.5779]

**検証データ：LiNGAM\_latest2.csv**







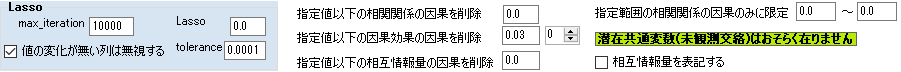
Iter=120000, break=20790[Forcibly terminated because the elapsed time exceeded 8 hours]

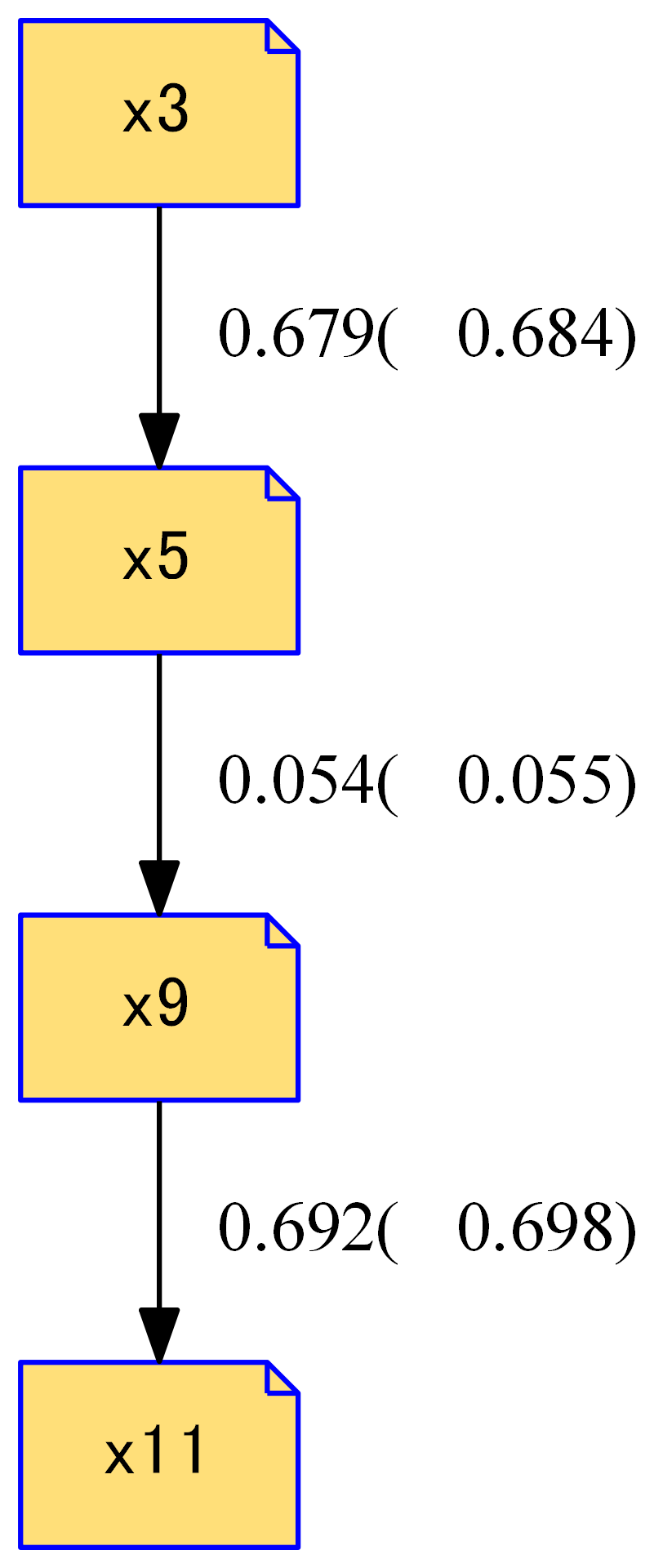
loss:[0.6609]

residual\_independence:[0.0000,0.5937]

residual\_error:[-1.9296, 3.0443]

**検証データ：LiNGAM\_latest2.csv**







Iter=20000, early\_stopping=6000

loss:[0.5196]

residual\_independence:[0.0000,0.1672]

residual\_error:[-2.3814, 2.6806]