



Dating PGM

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A PERSON IS A PATTERN OF BEHAVIOUR, OF A LARGER AWARENESS
-DEEPAK CHOPRA

- Testing existing theories about people's social behavior's on a large scale.

DATA SOURCE:

- Dating Experiment compiled by Columbia business school professors Raymond Fisman and Sheena Iyengar.

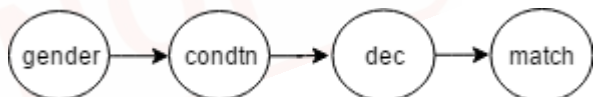
VARIABLES:

- DEMOGRAPHICS
- LIFESTYLE
- BELEIFS
- DATING HABITS
- SELF PERCEPTION
- KEY ATTRIBUTES

why?

what?

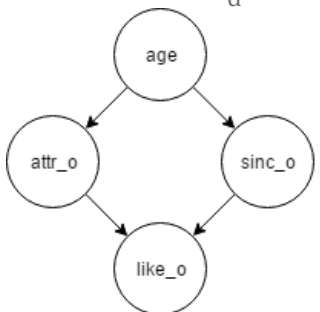
VARIABLE ELIMINATION



$$P(m) = \sum_d P(m|d) \sum_c P(d|c) \sum_g P(c|g) P(g)$$

$$P(m) = \sum_d P(m|d) \sum_c P(d|c) f_1(c)$$

$$P(m) = \sum_d P(m|d) f_2(d)$$



SAMPLING:

- Approximate Estimation
- Saving exponential calculations.
- More the samples higher accuracy

CREATING BAYESIAN NETWORK

- Finding correlation
- Causality on intuition

GENERATING CPD's

- Frequentist approach
- Tabular CPD's
- Neural Network

Multi-Processing

INFERENCE

- Exact Inference - Variable Elimination Algorithm
- Approximate Inference - Sampling

how?

inference

- PROBABILITY QUERIES

PREFERENCES

RATING

BN

PROBABILITY
DISTRIBUTION
FOR DECISION

- MOST PROBABLE EXPLANATION

MY PREFERENCES

MY RATING

PATNER's RATING

PATNER's PREFERENCES

BN

MOST LIKELY
VALUES OF
REMAINING
VARIABLES

- MARGINAL MAP QUERIES

AGE

GENDER

PREFERENCES

BN

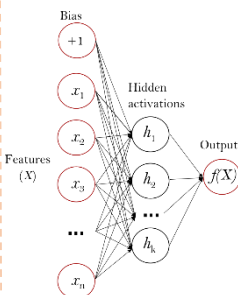
MOST LIKELY
COMBINATION
AGE, GENDER &
PREFERENCES

- PYTHON EXPERIMENTAION

GIVEN: PREFERENCES, RATING, AGE, GENDER, CHARACTERISTICS

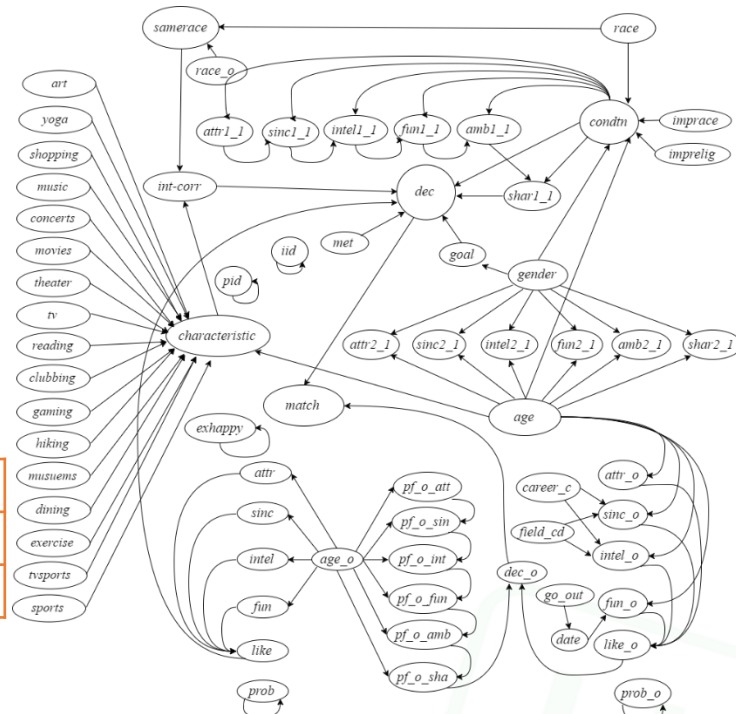
dec	phi(dec)	dec_o	phi(dec_o)
dec_0	0.6124	dec_o_0	0.9722
dec_1	0.3876	dec_o_1	0.0278

match	phi(match)
match_0	0.8916
match_1	0.1084



Neural Network

#Inputs	17
#Label	1



#Variables	70
#Links	123
#cpd's	48
#max. cpd	300000
#samples	6000
#cont. Var	23
#Disc. Var	47
#max Par.	10