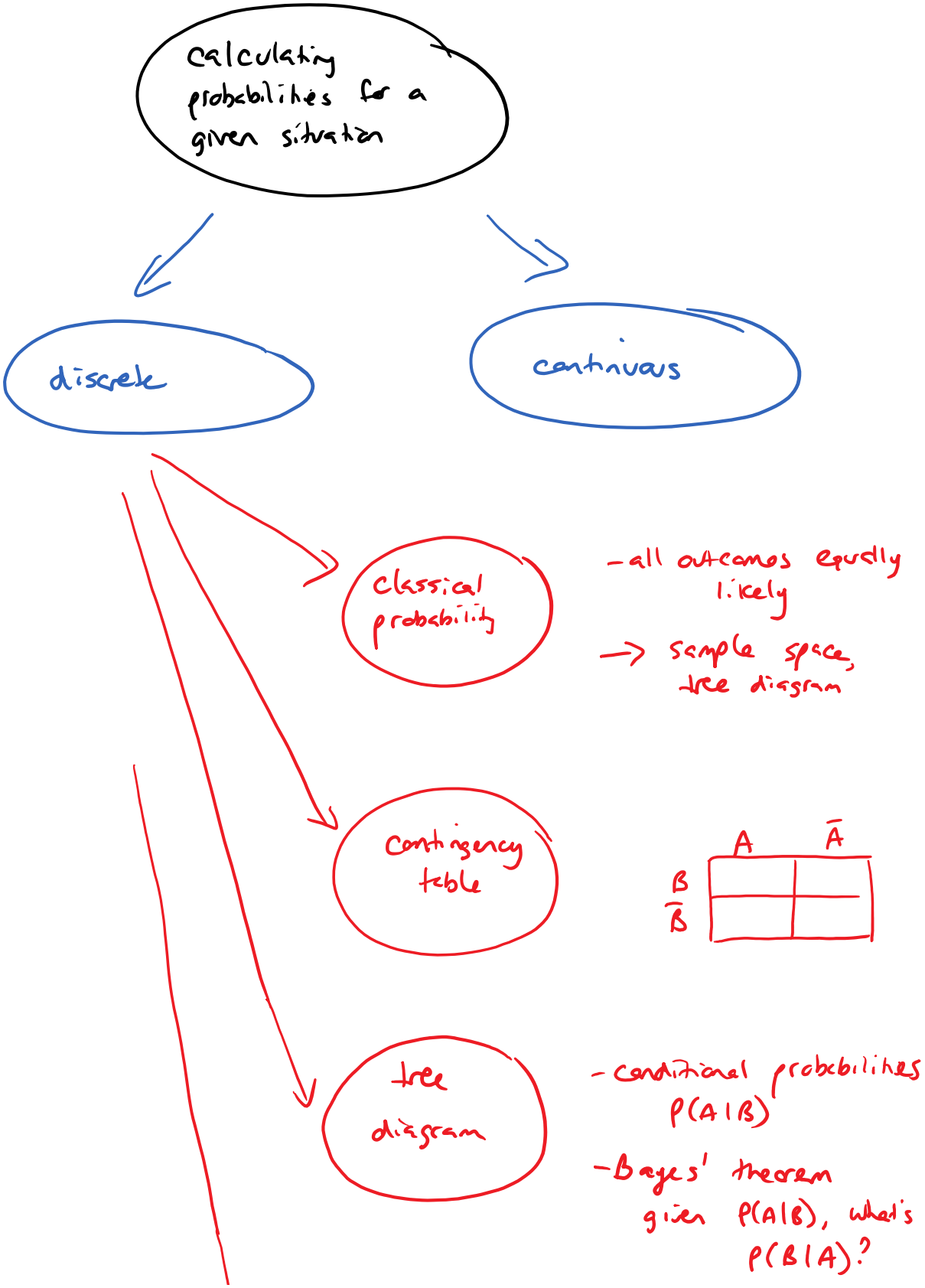
Review:

Tuesday, April 10, 2018 3:35 PM

Decision Trees



P(B|A)?

Combinations permutations

- unordered / ordered arrangements of r objects chosen without repetition from n possibilities

named distributions

binomial

yes/no

fixed number of identical trials

Poisson

events in given space/time

no max number of events

hypergeometric

yes/no

fixed number of trials but without replacement

- you can approx with binomial $n < \frac{N}{20}$

continuous

some function

uniform

exponential

$P(a < x < b) = \int_a^b f(x)\,dx$

$\mu = \int_{-\infty}^{\infty} x f(x)\,dx$

σ^2 ... ...

normal → calculate z

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inferential statistics

sample → population

- confidence intervals
- hypothesis testing

$\mu = \bar{x} \pm z_{\alpha/2} \frac{s}{\sqrt{n}}$ ← large samples $n \geq 30$

$\mu = \bar{x} \pm t_{\alpha/2} \frac{s}{\sqrt{n}}$ ← small samples

$p = \hat{p} \pm z_{\alpha/2} \sqrt{\frac{\hat{p}\hat{q}}{n}}$ – be sure to check $np, nq > 5$

note: if asked for UCB or LCB, use z_α / t_α instead

$< \sigma^2 <$ – χ^2

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hypothesis tests

MUST INCLUDE

H_0, H_a
test statistic
rejection region / p-value
CONCLUSION

given $\bar{x}$ and s, draw conclusion about μ

→ use normal for $n \geq 30$

→ use t for $n < 30$

given s, draw conclusion about σ

→ χ^2

given $\hat{p}$, draw conclusion about p

→ normal, provided that $np, nq > 5$

paired-difference

→ same rules as μ

goodness-of-fit

→ χ^2

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linear regression

- interpret r and r^2
- state whether the association is positive / negative / no association

- is a linear fit reasonable?