Extra Credit

Strategies For Preparing To ask a Girl Out on a Date

Every guy thinks about asking out girls on dates, and how to optimize the chances of her saying "yes."

In this application, the chain rule will be used to evaluate three actions, taking into account three girls, as it affects one's chances in this situation. It should be noted that the three equations modeling the girls are not intended to model girls in general, but rather three hypothetical individuals.

Disclaimers: I don't know how girls think. These models are not based on anyone in real life.

Total likelihood of any girl saying "yes":

\[ U = U(x_1, x_2, x_3) = x_1 + x_2 + x_3 \]

Factors Involved (How one spends time Before asking girl out):

- \( t_1 \): How much one visits girl's facebook page (to learn about her)
- \( t_2 \): How long one waits after meeting before asking
- \( t_3 \): How much one talks to the girl in conversation before asking out

\( I_1, I_2, I_3 \): Respective initial likelihood of girl saying "yes."
Girls (cont'd)

Girl 1:
\[ x_1 = I_1 + \ln(t_1) + (t_2 - 5)^2 + \frac{1}{2} t_3^2 \]

Girl 2:
\[ x_2 = I_2 + t_1 - t_2^{1/2} + \sin(t_3) \]

Girl 3:
\[ x_3 = I_3 + (t_2^{1/2}) (10 - t_3) \]

Girl 1 rationale: (what \( x_1 \) equation is supposed to represent):
- Facebook helps initially, but soon helps only marginally more
- Waiting a short time is okay, even beneficial, but soon becomes a negative term increasing in magnitude
- Talking is helpful and increases attraction

Girl 2 rationale:
- This girl has a large Facebook life, looking at her page is helpful
- Slowly lose interest over time
- Some days talking makes one sound good, sometimes the opposite occurs

Girl 3 rationale:
- No Facebook account
- Attraction grows over time, dependant on how much one talks to her. Spend a long time talking to her without asking out, and one will be placed in the "friend zone" in her mind.
Girls (cont'd)

\[
\begin{align*}
\frac{\partial x_1}{\partial t_1} &= \frac{1}{t_1 + 1} & \frac{\partial x_1}{\partial t_2} &= -2t_2 + 10 & \frac{\partial x_1}{\partial t_3} &= t_3 \\
\frac{\partial x_2}{\partial t_1} &= 1 & \frac{\partial x_2}{\partial t_2} &= \frac{-1}{2\sqrt{t_2}} & \frac{\partial x_2}{\partial t_3} &= \cos(t_3) \\
\frac{\partial x_3}{\partial t_1} &= 0 & \frac{\partial x_3}{\partial t_2} &= \frac{10 - t_3}{2\sqrt{t_2}} & \frac{\partial x_3}{\partial t_3} &= -t_3^{1/2} \\
\frac{\partial u}{\partial x_1} &= 1 & \frac{\partial u}{\partial x_2} &= 1 & \frac{\partial u}{\partial x_3} &= 1 \\
\frac{\partial u}{\partial t_1} &= \frac{\partial u}{\partial x_1} \cdot \frac{\partial x_1}{\partial t_1} + \frac{\partial u}{\partial x_2} \cdot \frac{\partial x_2}{\partial t_1} + \frac{\partial u}{\partial x_3} \cdot \frac{\partial x_3}{\partial t_1} = \frac{1}{t_1 + 1} + 1 \\
\frac{\partial u}{\partial t_2} &= 10 - 2t_2 + \frac{10 - t_3 - 1}{2\sqrt{t_2}} \\
\frac{\partial u}{\partial t_3} &= t_3 - t_3^{1/2} + \cos(t_3)
\end{align*}
\]

From this one sees that initially Facebook can help. Larger usage of Facebook can be helpful but approaches being half as helpful as it was initially.

One also sees that waiting is good at first, but in the long run decreases one's chances.

Ultimately, conversation prior to asking out is good, which makes sense.

In my personal opinion however, the best strategy is to not overthink it and just ask out the girl with whom one most wants to go out.