

The Bridgerton Marriage Mart Game

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Key concepts: Game theory; Static and Dynamic Games; Nash Equilibria; Pareto Optimality



Extraordinary People, Extraordinary Incentives

Dearest Gentle Reader,

The Season is upon us, and the Ton returns to London to commence the marriage mart—or, as we shall call it, the marriage game.

Our dearest Queen Charlotte will soon be introduced to the young marriageable ladies, in the hope that one of them is named the next Diamond of the Season.

The “value” of the Diamond, or should it be better referred to as the “curse” of the Diamond? A shiny Diamond will attract more suitors, though it is by no means implied that they will be the desirable kind. Who will win the game this year? We shall have to wait and see who can best signal social value while navigating the constraints of Regency decorum.

May I remind you of the case of our beloved Daphne Bridgerton, the Diamond of the 1813 Season, in search of love within a most crowded market. Our newly discovered Diamond believed that maximising her reputation would increase her value, attracting more desirable suitors, and what better way of maximising one’s reputation than by secretly agreeing upon a faux courtship with the “in high demand” Duke of Hastings? But do not feel for the Duke, for such an agreement was beneficial to both parties. The Duke would

gain freedom from undesirable suitors, as it was his wish to never fall in love... nor marry.

Our marriage game players this season are all searching for the best match—but do you think a beating heart alone would fulfil such an aim? Well, dearest reader, let me introduce you to Regency society's social norms, and the importance of status. Any player of the game will seek to maximise their happiness (or utility, for our 21st-century readers) as a combination of social status and marriage security, all while avoiding reputational risk and emotional cost. But do not fear, my romantic followers: love may not be a variable in society's rules... yet, fortunately, or unfortunately, for our players, it always finds a way to play its part.

Should we return to our loveliest Daphne and the Duke of Hastings? Having both agreed to fake a courtship, they risked something far more dangerous than scandal: love... and commitment. Both believed that faking the courtship would maximise Daphne's reputation and keep the Duke free from suitors—at least in the short run. But poor innocent souls, what if one begins to feel that most undesirable thing of all? For Daphne would risk her reputation if the Duke does not commit, and for the Duke, the price of love, should Daphne fail to commit, would be the loss of control and freedom. And so, dear reader, I shall go further and give an ordinal ranking to the pay-offs gained by our innocent players as they engage in this dangerous game of faking and commitment.

Matrix 1: A static game representation of Daphne and the Duke's game

		Daphne	
		Fake	Commit
The Duke	Fake	(1, 1)	(3, 0)
	Commit	(0, 3)	(2, 2)

Note: This game has two players, Daphne Bridgerton and the Duke of Hastings, and two possible strategies: Fake or Commit. The numbers in parentheses represent each player's utility (their level of satisfaction), ranked in simple units. The first number is the Duke's payoff, and the second is Daphne's payoff. The outcome highlighted in bold indicates the strategy pair that forms the Nash equilibrium: the best response each player chooses given the other player's action.

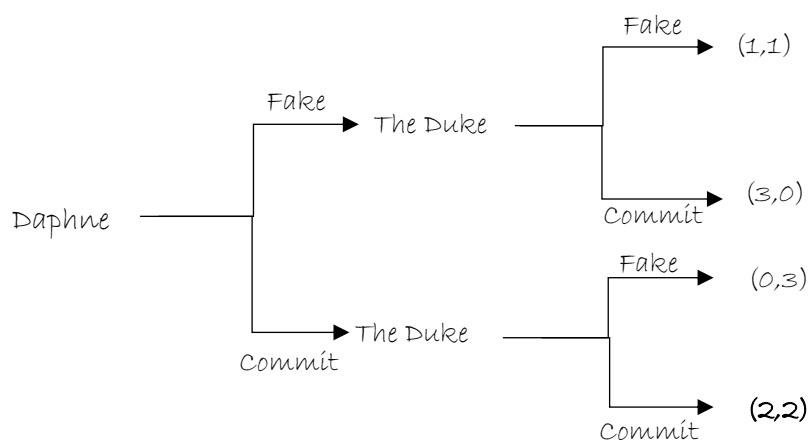
Let me show you this ordinal materialisation of happiness in Matrix 1. If both Daphne and the Duke fake their relationship, they may achieve what they believe are their aims in the short run, but would such an arrangement truly work in the long run, when it is built on

uncertainty rather than trust? A faux courtship relies on vague intentions, hidden feelings, and the constant possibility that either player may withdraw the moment the cost becomes too high. In a society where reputation is everything, such ambiguity breeds insecurity, jealousy, and fear of betrayal, and can leave our players with a low-quality, low-trust outcome, even if their public performance appears perfect. If only one falls in love, it will be the one still faking the relationship who maximises happiness in the short run, for the one who truly commits becomes vulnerable, risking reputation and heartbreak, while the faker keeps control, preserves freedom, and enjoys the benefits of the courtship without paying the full cost of devotion. Yet if both fall in love, and commit to one another, we can only assume it will lead to a long, high-quality, and happy relationship. Don't we all love a romantic novel ending?

Time to come back to reality, and to Matrix 1, where the best outcome given the players' strategies (the Nash equilibrium) is for both to fake their relationship. But could they both be better off? Yes. In Pareto terms, both committing would improve Daphne and the Duke's happiness. Yet do not forget that social norms are everything in the Regency period, and as in every good romantic novel, things are not always as they appear at first glance.

The marriage mart begins in early spring and ends in mid-to-late summer, and, my dearest readers, one can only hope that during this time our players will engage in proper and measured conversation—sharing information, learning one another's intentions, and slowly revealing their true preferences. For the seasonal game is played repeatedly, and is that not the perfect setting for the ending of a good love story? Indeed, that is precisely what happens by the close of the 1813 Season, when Daphne and the Duke finally arrive at the cooperative outcome: they commit, and they marry (Graph 1).

Graph 1: Extended game representation of Daphne and the Duke's game



Note: Graph 1 is a tree (extended-form) representation of the same game shown in Matrix 1. The game is solved using backward induction: the Duke, as the second mover, chooses his best response after observing Daphne's action, considering all possible outcomes. Anticipating the Duke's response, Daphne then chooses her strategy as the first mover. The outcome highlighted in bold represents the equilibrium path of play (and, in this romantic tale, the cooperative outcome our readers secretly desire). Indeed, this mirrors what unfolds in the story, where both players ultimately reveal their true feelings and commit, particularly after the Duke's duel with Daphne's brother forces intentions to become unmistakably public.

You may think that in any romantic love story, destiny or chance are the forces that lead us toward the beautiful and desirable outcome, and as a writer, I confess, I do love to think so. But, my dearest reader, it is strategic thinking, information, and repetition that end up leading our players to equilibrium. After all, even romance is no match for a well-played game.

Yours truly,

Lady Whistledown (Microeconomics Edition)