Tutorial 5 – Product differentiation

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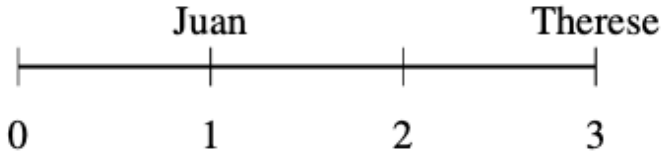
1. Consider a market in which firms choose a point on product space of length 1. If the firms have fixed prices but can choose where to locate, where we would expect four firms to locate? Why?

2. Juan and Therese each own a Taco restaurant in the town of Burritoville. The town is 3km long. Juan is located 1km along the town, and Therese is at 3km along (see the figure below). 300 consumers are uniformly located along the town (between 0 and 3). Consumer *i*'s utility derived from dining at restaurant *j* is given by:

$$u_{ij} = \bar{u} - t|x_i - y_i| - p_j$$

where j = 1, 2 indicate the two restaurants, t is the per unit cost of travelling along the town, x_i is the location of consumer i, y_j is the location of restaurant j, and p_j is the price of restaurant j.

Each consumer eats a meal at exactly one restaurant. Restaurants compete with each other by simultaneously choosing prices. Each restaurant has constant marginal costs of c and no fixed costs.



(a) Calculate the demand for each restaurant in terms market prices and transport costs.
(b) Find the reaction function for each restaurant.
(c) Find the Nash equilibrium prices and quantities for each restaurant.
(d) Explain why Juan sets higher prices than Therese in equilibrium.