6. Competition vs. exclusive territories
   a. In the competitive case, retailers will set price equal to \( w + c_{av} \), where \( c_{av} \) is the expected marginal cost of retailing. Since competition forces the retailers’ expected profits to zero, the manufacturer cannot charge a franchise fee. The manufacturer’s expected profit is \( w(h_{av} - w - c_{av}) \), where \( h_{av} \) is the expected value of the demand intercept. Maximizing with respect to \( w \) implies that the optimal wholesale price is \( \frac{2}{4}(h_{av} - c_{av})^2 / 4 \), and the manufacturer’s expected profit is \( \frac{4}{4}(h_{av} - c_{av})^2 / 4 \).

   In the exclusive territories case, each retailer faces demand \( (h - p) / 2 \). To avoid double marginalization, the manufacturer will set \( w = 0 \) and recover the retailers’ profits through the fixed fee. Each retailer maximizes the expected value of \( ((p - c)(h - p))/2 \), which (assuming \( c \) and \( h \) are independent) is equivalent to maximizing \( (p - c_{av})(h_{av} - p)/2 \). The optimal \( p \) is \( (h_{av} + c_{av})/2 \), and the expected profit for each retailer is \( (h_{av} - c_{av})^2 / 8 \). Since the manufacturer extracts this amount from both retailers, the manufacturer’s expected profit is the same under both competition and exclusive territories.

   b. The competitive case already uses a linear price, and RPM is unnecessary. In the exclusive territory case, the manufacturer could set \( w = (h_{av} - c_{av})/2 \) and impose a price ceiling equal to \( (h_{av} + c_{av})/2 \).

   c. If the retailers observe the realizations of both \( h \) and \( c \) before choosing the price, but after signing the vertical contract, then they have better information than the manufacturer. In the competitive case retailers will set price equal to \( w + c \), so the manufacturer’s expected profit is \( w(h_{av} - w - c_{av}) \). The optimal wholesale price is \( (h_{av} - c_{av})/2 \), and the manufacturer’s expected profit is \( (h_{av} - c_{av})^2 / 4 \).

   In the exclusive territory case, each retailer maximizes \( (p - c)(h - p)/2 \). The optimal price is \( (h + c)/2 \), and the associated profit is \( (h - c)^2 / 8 \). At the time of contracting, each retailer will accept a contract with \( A = E[(h - c)^2 / 8] \), so the manufacturer’s expected profit is \( 2A = E[(h - c)^2 / 4] \). By Jensen’s inequality, the manufacturer will prefer exclusive territories in this setting. The reason is that competition prevents the retailers from using their superior information about demand when setting the price.

   d. If there is no uncertainty about \( c \), then the analogy to third-degree price discrimination is clear. Competition is analogous to uniform pricing, since the retail price is \( (h_{av} + c)/2 \) regardless of the demand realization. Exclusive territories are
analogous to price discrimination, since the monopoly price \((h + c) / 2\) is charged for each realization of demand. Since price discrimination reduces welfare in the linear demand case (see Tirole p. 139), competition is preferred to exclusive territories from a welfare perspective. Direct calculation shows that competitive welfare exceeds exclusive territory welfare by \(\text{Var}(h) / 8\).

e. When retailers are risk averse there is a tradeoff between decentralization and insurance. Competition does not allow retailers to use their information about demand, but it does perfectly insure them, since their profits are always zero. Exclusive territories allow the retailers to set the vertical structure’s optimal price, but the retailers also bear the risk of the vertical structure.

To reduce the amount of risk faced by retailers in the exclusive territory case, the manufacture will reduce the fixed fee and increase the wholesale price. For the intuition behind this, consider a small increase in \(w\) and a small decrease in \(A\). By shifting some of the retailer’s payoff from the variable part to the fixed part, this will tend to reduce the variance of the retailer’s payoff. Since the retailer is risk averse, this means that a small increase in \(w\) and a less than proportionate decrease in \(A\) reduces the retailer’s expected payoff while keeping the retailer’s expected utility constant. However, providing insurance to retailers by increasing \(w\) is costly to the manufacturer because it reintroduces the double marginalization problem.

The manufacturer’s choice between exclusive territories and competition depends on the degree of retailer risk aversion. At low levels of risk aversion, the benefits from decentralizing price setting dominate and the manufacturer prefers exclusive territories. At high levels of risk aversion it is too costly (in terms of double marginalization) for the manufacturer provide insurance for the retailers in the exclusive territory case, and the manufacturer prefers competition (see Rey and Tirole AER 1986 for details).

7. Chicken Delight

a. A franchise fee is not an efficient way to extract retailer profit if market conditions are unobservable to the franchisor, since the franchisor will not be able to set the correct franchise fee in each market. If franchisees can manipulate sales figures by not reporting all their sales, then a royalty is not efficient either. Tying inputs such as dry-mix foods and packaging material surmounts both of these problems by allowing the franchisor to meter demand and implement a form of second-degree price discrimination. If each store uses the same number of cookers and cookers that get used more do not need to be replaced sooner, then CD cannot use cookers to price discriminate. Instead, quality control may be the motive for the cooker tie.

b. If one of the tied goods is a secret blend of herbs and spices, then the tie is necessary for CD to maintain a uniform quality product across franchises. As the Court notes in footnote 9, the less-restrictive alternative of specification is not an option when it would disclose a trade secret. It does not matter if CD does not produce the spice mix itself, because then CD’s secret is who manufactures the spice mix.
c. The Court claims that “it is now clear that sufficient economic power is to be presumed where the tying product is patented or copyrighted.” This claim is ludicrous – it would imply that each and every book possesses market power. The fact that CD possesses a trademark does not mean that it does not face competition from other slightly differentiated franchisors.

d. The damage argument is based on a Kodak-type assumption that franchisees only consider the up-front costs of the franchise contract. However, if this were true and different franchises have roughly the same profitability, we would not expect potential franchisees to select franchises that involve up-front franchise fees when they could instead get a CD franchise for “free”. Hence the fact that other franchises use franchise fees successfully suggests that franchisees recognize the life-cycle costs of the contract.