We consider bilateral trade between an ambiguity-sensitive buyer with $\alpha$-max-min preferences and an ambiguity-neutral seller. The buyer privately receives information about her valuation and the seller makes a price offer. We show that the buyer strictly benefits from ambiguous information. Compared to the unambiguous benchmark, ambiguous information has two benefits: First, it can make the buyer interim pessimistic so that the seller lowers the price. Second, ambiguous information can make the buyer ex ante optimistic so that she expects to avoid buying when her valuation is low without the seller increasing the price. Lastly, we characterize buyer-optimal learning with ambiguity.