

Two kinds of disjunction

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In classical logic, disjunction validates both the law of the excluded middle (which says that "A or not A" is true for every A) and addition (from A, infer "A or B"). In some substructural logics such as Linear Logic, disjunction splits into two distinct logical operators: a multiplicative disjunction that validates the law of the excluded middle, and an additive disjunction that validates addition. I will suggest that natural language disjunction can express either of these two logical concepts. The additive disjunction can be seen in yes/no questions such as "Do you want coffee or tea?" when the answer is either "yes" or "no". The multiplicative disjunction can be seen in alternative questions, such as "Do you want COFFEE, or TEA?" when the answer is either "coffee" or "tea". I will argue that recognizing the difference between additive and multiplicative disjunction leads to an attractive new theory of deontic free choice (from "You may eat an apple or a pear" infer "You may eat an apple").