**Vignette-ish studies**

* Ambiguity and Conflict Management Strategy – Ritov and Drory
  + Includes interesting vignettes about decision making in an inter-personal business perspective– but not measuring ambiguity aversion, rather looks at how ambiguity affects strategy (Avoid, Accommodate, Compete, Collaborate, Compromise)
* An Investigation of Patient’s Reactions to Therapeutic Uncertainty – Curley et al (1986)
  + Participants given a vignette regarding leg pain and 2 possibilities – treatment or no treatment – and asked to give the minimum success rate for the treatment for them to take it (P). This P is then manipulated (to add ambiguity) to be somewhere between P-.2 < P < P+.2 with various ambiguous scenarios such as
    - Treatment is new,
    - Treatment is used, but unreliable
    - Doctor giving P information is inaccurate.
  + Participants asked if they would have the treatment?
  + **Discussion**
  + “Ambiguity avoidance was found in a hypothetical clinical situation, with a sizable minority of 21.0 percent of patients exhibiting this behavior. Although this is a lower percentage than has been found in monetary situations [8-11], the difference is primarily attributable to the conservative test procedure employed, as evidenced by the 24.3 percent who avoided ambiguity in a monetary situation with the present procedure.
* Ambiguity Seeking in Multi-attribute Decisions: Effects of Optimism and Message Framing VICKI M. BIER and BRAD L. CONNELL (1994)
  + Medical scenarios/vignettes given to participants about the probabilities of side effects for treatments. Ambiguity was created in ambiguity condition by giving participants two studies with probabilities of side effects ± 3% or ± 5% different from each other.
  + Participants asked to choose which option they prefer (ambiguous or non-ambiguous on a scale from 1-9 and a forced choice between them.
  + Eight versions of each scenario were created, corresponding to the cells of a 2 x 2 x 2 (Ambiguity x Framing x Probability Order)
  + Also had many mediators – optimism/pessimism, Locus of Control, anxiety
  + **Results**
    - Found ambiguity aversion in the positive framing
    - Didn’t really find it in the negative framing (found a trend towards it in experiment 1, but nothing experiment 2)
  + **Interesting ideas**
    - ‘It is possible that the ambiguity seeking we found is specific to the medical context of our decision scenarios. In fact, one reviewer suggested that medical treatments may be ‘culturally defined as places where hope is appropriate’. This seems unlikely to explain our findings, since Curley et al. (1984) and Ritov and Baron (1990) found ambiguity aversion rather than seeking even in the medical context.’
* SOMETHING TO TALK ABOUT: INFORMATION EXCHANGE UNDER EMPLOYMENT LAW
  + Interesting tangentially related vignette employment study. Ambiguity aversion one reason offered as to why women with long gaps in resume might not be hired in comparison to a man.
  + <https://www.nytimes.com/2016/05/20/business/economy/a-child-care-gap-in-the-resume-whether-to-explain-or-not.html>
* Online Phishing in the Eyes of Online Shoppers
  + Participants put in four conditions
    - Known Certainty, Known Certainty, Unknowable uncertainty and unknown uncertainty
  + Given a vignette which described an online phishing risk (and information about the risk according to the condition) when making an online purchase.
  + Participants then provide
    - How much money they are willing to pay to avoid this risk (willingness to pay; WTP)
    - And whether they intend to make online purchases in spite of this risk (intention to purchase; ITP)
  + **Results**
    - consumers prefer (in this order):
      * Known Certainty (in this case a full guarantee, firm would pay any phishing loss to user at no expense if it did occur)
      * Known Uncertainty (i.e. risk)
      * Unknowable Uncertainty (no way of knowing)
      * Unknown Uncertainty (somebody knows, and there is a way of knowing, but you don’t know)
  + **Note –** study is written terribly.
* Reluctance to vaccinate: omission bias and ambiguity
  + ‘In the present experiments, we test the effects of missing information directly by holding constant the probability of the outcome, a vaccine-related injury. We simply call attention to one factor that can influence the probability of such an injury, membership in a `risk group' for the injury. `Ambiguity' is therefore manipulated even though the probability of the outcome in question remains exactly known. Previous studies of the effect of ambiguity on decision making have often failed to inform subjects explicitly that the probability of the outcome was unaffected by the ambiguity manipulation. Frisch (1988) has found that subjects in experiments such as Ellsberg's often do not know that the expected probability is constant across the conditions being compared. In the present experiments, we test the effects of missing information directly by holding constant the probability of the outcome, a vaccine-related injury. We simply call attention to one factor that can influence the probability of such an injury, membership in a `risk group' for the injury. `Ambiguity' is therefore manipulated even though the probability of the outcome in question remains exactly known. We therefore test the role of ambiguity itself, unconfounded by subjects' beliefs about the effects of ambiguity on probability’
  + …
  + Generally, participants given vignette about vaccinations – both the benefits and the possible side effects and asked (1) whether they would vaccinate and (2) whether they would support a law requiring vaccination.
  + To induce ambiguity they included conditions asserting that the side effects will effect a certain group of children, and it is completely unknown whether their child is part of group.
  + **Conclusion**
    - ‘Ambiguity (salient missing information) is considered relevant only in the case of commissions. Consistent with the view that one feels more responsible for results of commission that for results of omission, subjects seem to think of the effect of missing information on the consequences of their action (vaccinating), not the consequences of their inaction (not vaccinating). Ambiguity concerning the consequences of action increases the reluctance to act, but there is no corresponding effect of the omission option.
    - A possible explanation of this result is that ambiguity increases the feeling of responsibility for a bad outcome that a decision maker causes. Ambiguity therefore has no effect on commissions because those subjects who are affected by feelings of responsibility do not feel responsible for the results of omissions.’
* Communication of Ambiguous Risk Information (Viscusi et al. 1991)
  + Participants given a survey in which they indicated their willingness to move to different areas depending on the risks. The experiment focused on a decision to move to one of two areas Area A and Area B, which are both identical to where they know live.
    - Area A – risks of cancer and nerve disease etc. were ambiguous (that is there were two different studies giving different estimates of risk)
    - Area B – risks were known
  + The known risk in Area B was then changed until it was seen as equivalent to area A.
  + Also had manipulations to see whether the spread of outcomes (that is the difference between the two studies proffered to induce ambiguity) effected decision making.

**CONCLUSION FROM ABSTRACT.**

* + Individuals' perceptions of the risk levels to which they are exposed are likely to be greater: (i) for more ambiguous risks, (ii) for risks for which the unfavorable risk evidence is presented last even when there is no temporal order, (iii) for risks for which the most unfavorable risk studies have been performed most recently, and (iv) for risks where there is asymmetry in the risk ambiguity that imposes substantial potential downside risks. Although these effects are modest for the median individual, the potential for extreme responses that reflect only the most adverse or the most favorable piece of information provided is quite prevalent. These findings are of interest more generally in that they indicate how individuals form their risk perceptions in the presence of risk ambiguity.

**Theory stuff**

**Heath and Tversky**

In an important study, Heath and Tversky (1991) demonstrated that people prefer to bet on events about which they feel more knowledgeable or competent. Heath and Tversky (1991) found, for example, that people prefer to bet on events such as “football” or “politics,” which supposedly have vague or unknown probabilities, over matched chance events.

**Fox and Tversky -**

Fox and Tversky (1995) extended these results by showing that the perception of knowledge can be manipulated by a suggested comparison to others who are more knowledgeable.

A remarkable result that Fox and Tversky (1995) obtain is that the ambiguity aversion disappears in a non-comparative context in which a person evaluates either an ambiguous or an unambiguous bet separately. Thus, in their view the Ellsberg phenomenon is an inherently comparative effect and it does not arise in an independent or separate evaluation of uncertain prospects

**Comparative Ignorance and the Ellsberg Paradox – Chow and Sarin**

‘The key ﬁnding that emerges from our experiments is that the clear bet is priced higher than the vague bet under both comparative and non-comparative conditions. The comparison, however, enhances the difference in prices between clear and vague bets. In the absence of a direct comparison (non-comparative condition) this difference is smaller, but it does not disappear. This reduction in price differential between the clear and vague bets in the non-comparative condition is not evidence against ambiguity avoidance. Our results do not support the strong conclusion of Fox and Tversky (1995) that ambiguity aversion disappears in separate evaluations.’

Studies with more of a Psych Bent

**Is Luck on My Side? Optimism, Pessimism, and Ambiguity Aversion - Briony D. Pulford**

* Uses a qualitative version of urn task
  + urn A - 50 red, 50 black; urn B - ? red ? black. Asks participants, which urn do you prefer?
* 2 conditions – one tells students how the numbers of the balls in the ? urn are determined (which ensures a uniform distribution of all possibilities, drew a number from 0 -100 from a hat), the other says nothing about it.
* Measured optimism – In both conditions the high optimists were more likely to choose ?urn, although the effect was larger in the more information condition.
* Also tested whether participants believed the urn was rigged. There was no differences in the belief in comparing the optimism groups. There was a main effect between conditions however (less information, more likely to believe that urn was rigged).

**Applied Studies**

**RELEVANT FACTORS THAT HAVE BEEN STUDIED**

* Comparative v non-comparative
* Gain v loss
* Framing effects
* Information about underlying ambiguous distributions
* Personality correlates
* Knowable v unknowable uncertainty

<https://www.sciencedirect.com/science/article/pii/S001429211730185X>