

Cooperation & Collaboration During Uncertain Times:



A Decision Making Perspective

Food Packaging Forum

October 4, 2021

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Uncertainty & Risk: Faces of Incertitude

		<i>Possible Outcomes</i>	
		Defined	Undefined
<i>Probabilities</i>	Defined	Risk <i>Differences in product quality among suppliers</i>	Ambiguity <i>Impact of a technical innovation or new scientific research</i>
	Undefined	Uncertainty <i>Competitor actions or regulatory changes may cause revenue fluctuations</i>	Ignorance <i>New packaging materials and their long-term impact on vulnerable groups</i>

So What?

- Get comfortable with uncertainty & ambiguity – they are here to stay

But that's easier said than done,
particularly for environmental choices!

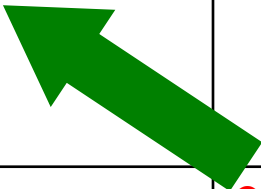
They frequently present as complex interdependent
dilemmas

Food Packaging Poses an Environmental Dilemma

- Decision matrix for simplified (2 decision-maker) dilemma

D-Maker 2 D-Maker 1	Material Choice: Manage collective impact across people, planet, profit (Cooperate)	Material Choice: Maximize individual profit (Defect)
Material Choice: Manage collective impact across people, planet, profit (Cooperate)	$3 + C_1$ $3 + C_2$	1 4
Material Choice: Maximize individual profit (Defect)	4 1	2 2

Nash Equilibrium



Outcomes: 1 = lowest value; 4 = highest value

Insights from Behavioral Decision Making

- It's in the framing

- Economic
- Temporal

- It's in the social context

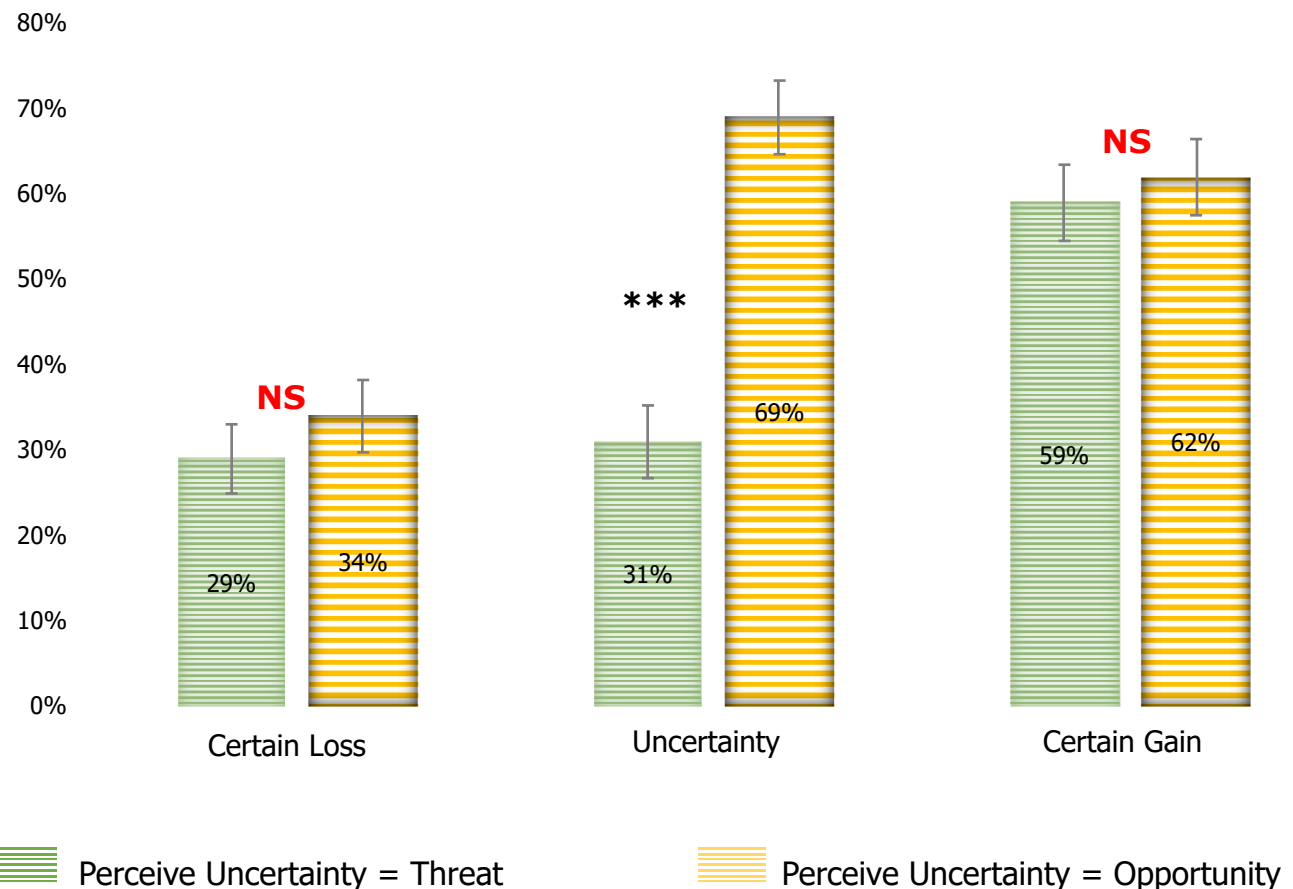
- Intra- and Inter-Group Identity
 - Shared Community
-

Economic Uncertainty: Opportunity or Threat

Participants made choices in an environmental dilemma under three economic frames:

- Certain gain
- Certain loss
- Uncertain outcome and probability

Percentage of Participants who Cooperated By Outcome Frame



Error Bars = 95% CI

***: $p < 0.001$, **: $p < 0.01$, *: $p < 0.05$, ~: $p < 0.1$, NS: $p > 0.1$

Temporal Horizon Impacts Willingness to Cooperate

Argentine Agribusinesses: choices in environmental dilemmas

Length of Interdependency		
Choice	Long-term: own land	Short-term: annual lease
Mutually beneficial outcomes (Cooperation)	84%	16%
Maximize individually beneficial outcomes (Defection)	18%	82%

So What?

- Uncertainty & Ambiguity provide an opportunity to rewrite old scripts
 - Reframe the conversation
 - Change assumptions about time frames
 - Change metrics to those of mutual gain
 - Focus attention on environmental feedback loops
-

Insights from Behavioral Decision Making

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- Intra- and Inter-Group Identity
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Intra- and Inter-Group Cooperation

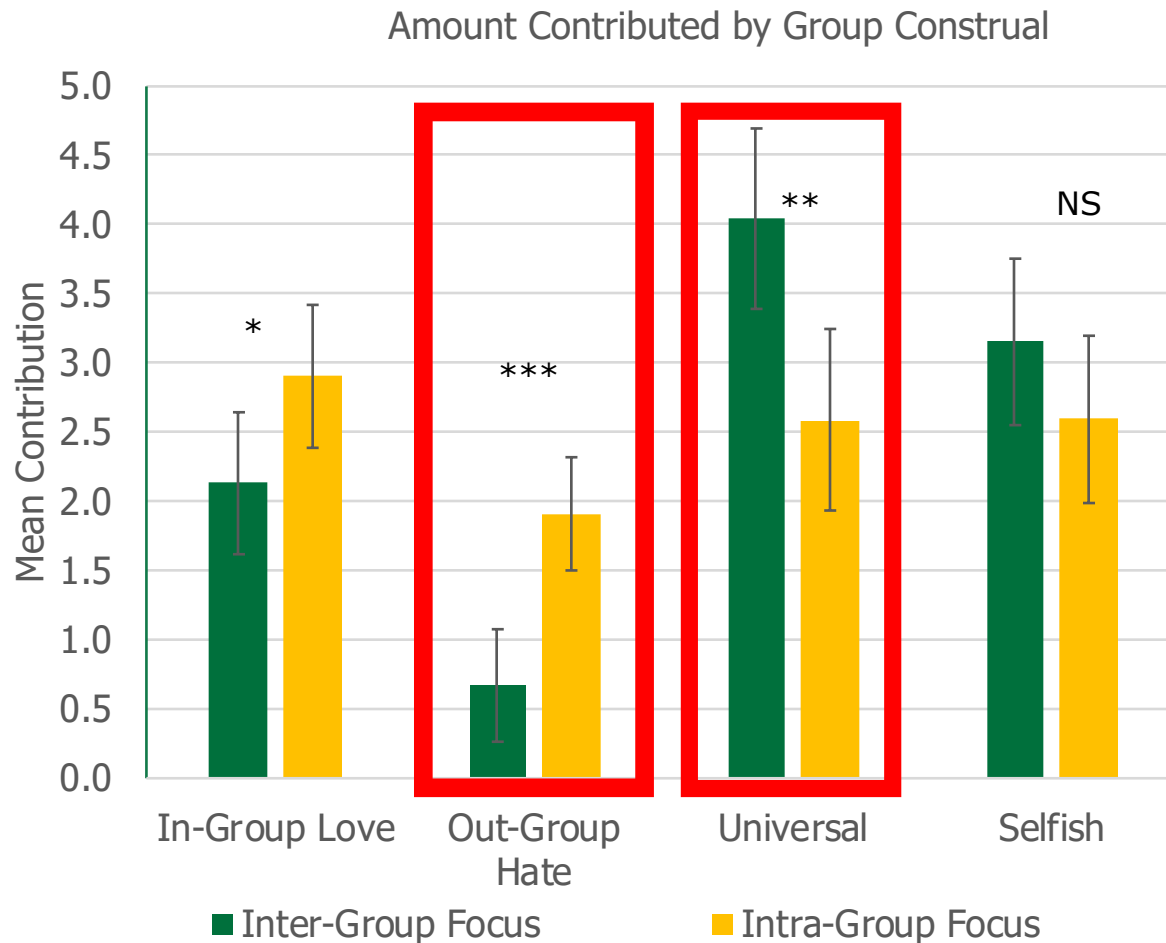
Participants made choices whether to and with whom they would cooperate:

Inter-Group Parochial and Universal Cooperation Game:
Options and Outcomes

	Pool A: In-Group Love	Pool B: Out-Group Hate	Pool C: Universal	Pool D: Selfish
Participant Outcome	+Benefit	+Benefit	+Benefit	+Benefit
In-Group Outcome	+Benefit	+Benefit	+Benefit	Ignore
Out-Group Outcome	Ignore	-Harm	+Benefit	Ignore

(Aaldering & Böhm, 2020)

Cooperation is a Socially Constructed Choice



Intra-group focus



Increased out-group hate

Inter-group focus



Increased Universal Cooperation

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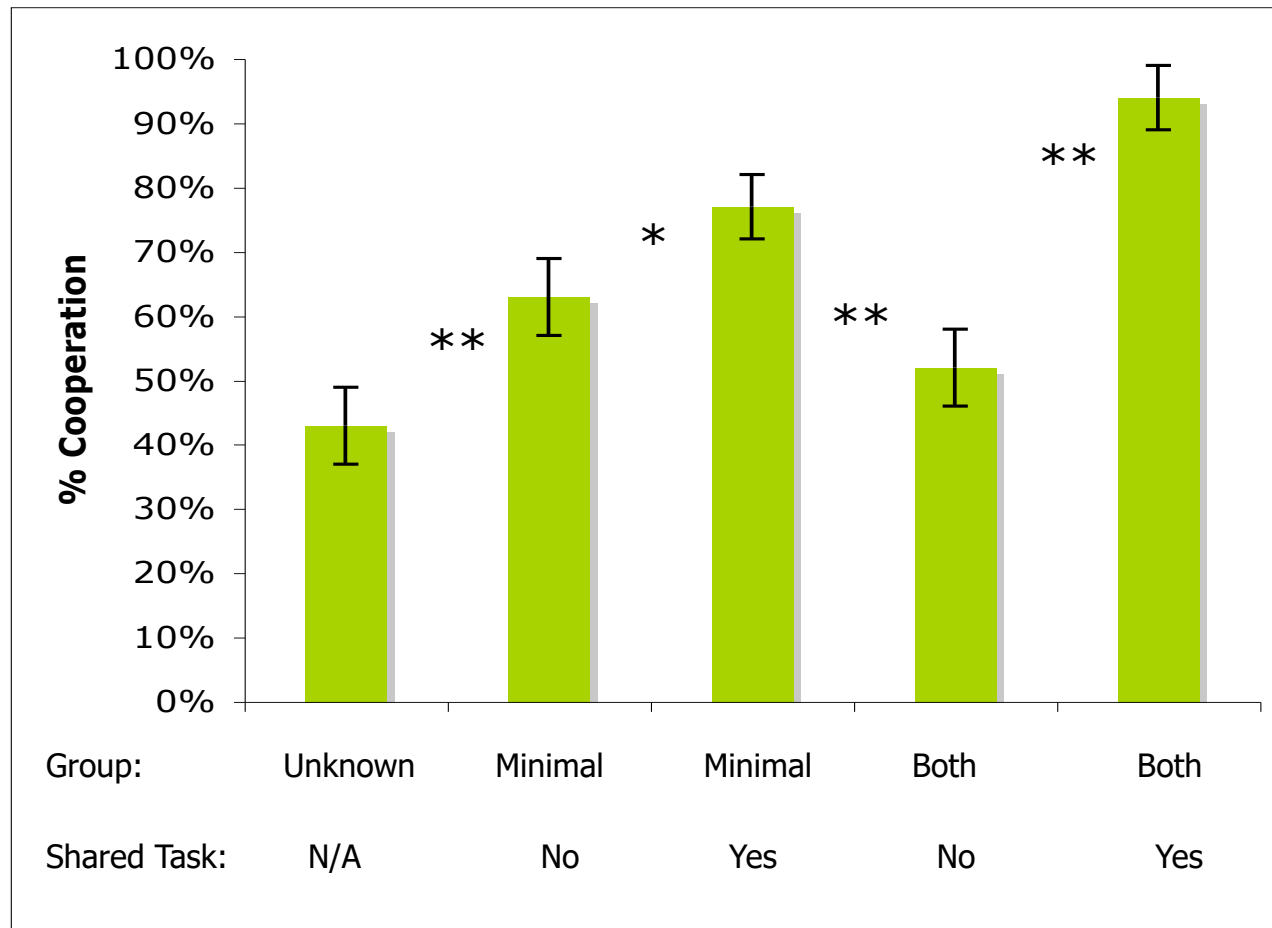
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 - Sub-ordinate and super-ordinate identities can serve as facilitators of cooperation
-

Converting Out-Groups to In-Groups

- Group contexts make social goals more accessible (Krantz, Arora, 2008)
 - Affiliation with others can be a rapid, automatic and basic process (Brewer, 2001)
 - Community emerges when meaningful reality is shared and this can be rapid (Livne-Tarandach 2021)
 - Shared connections increase cooperation (Arora et al 2012)
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Cooperation Levels by Condition & Observed Group Affiliation



Error Bars = 95% CI

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 - Change assumptions about time frames
 - Change metrics to those of mutual gain
 - Pay attention to environmental feedback loops
 - Sub-ordinate and super-ordinate identities can serve as facilitators of cooperation
 - Sharing the reality of challenging tasks helps create community, increasing cooperation
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Thank You!

- ❑ To all of you for listening
 - ❑ Food Packaging Forum for this invitation
 - ❑ My collaborators: too many to list
 - ❑ Funders: NSF, IAI, Manhattan College, Columbia University
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