

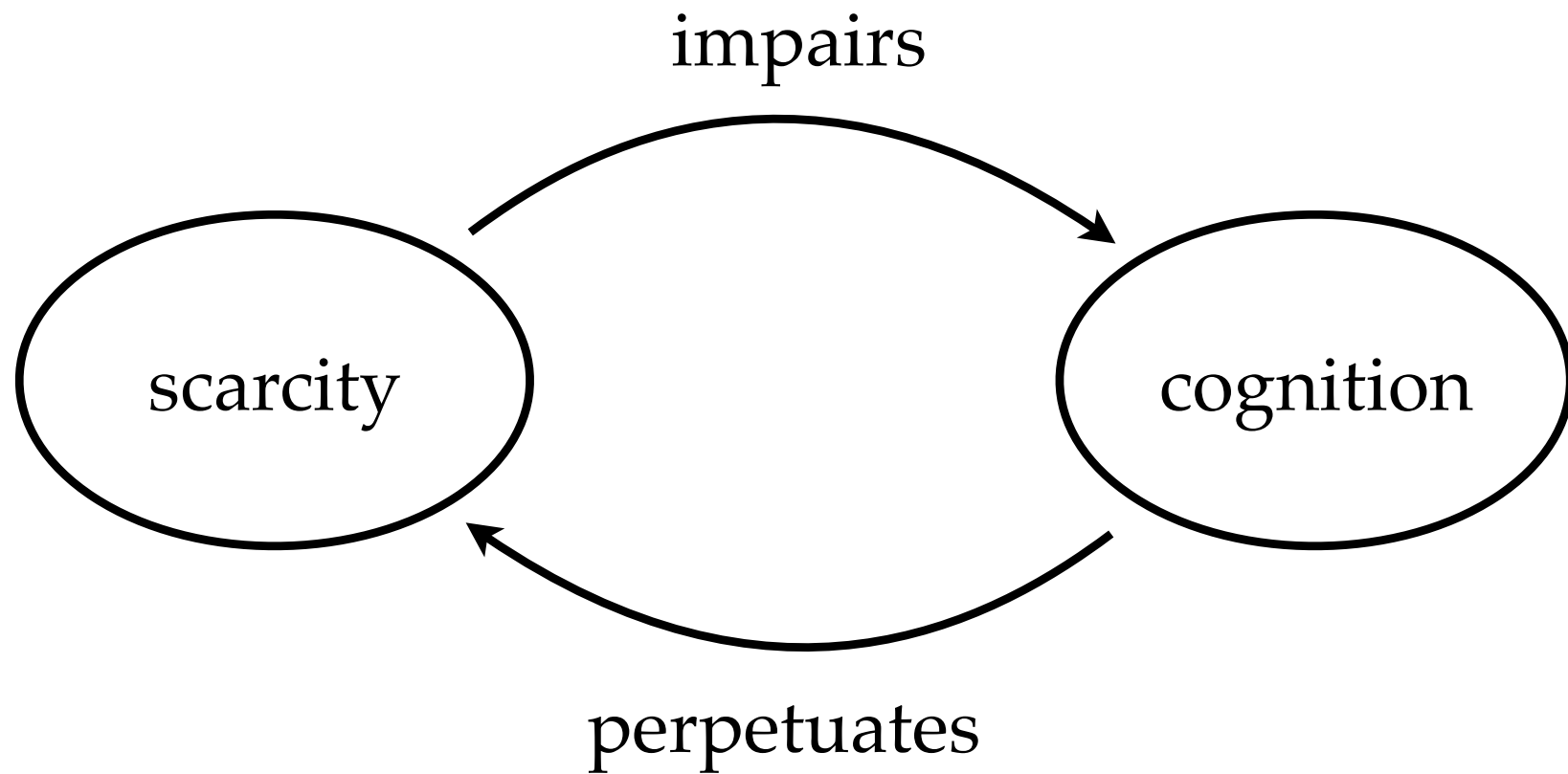


How a lack of resources distorts decision making

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A cognitive framework of scarcity

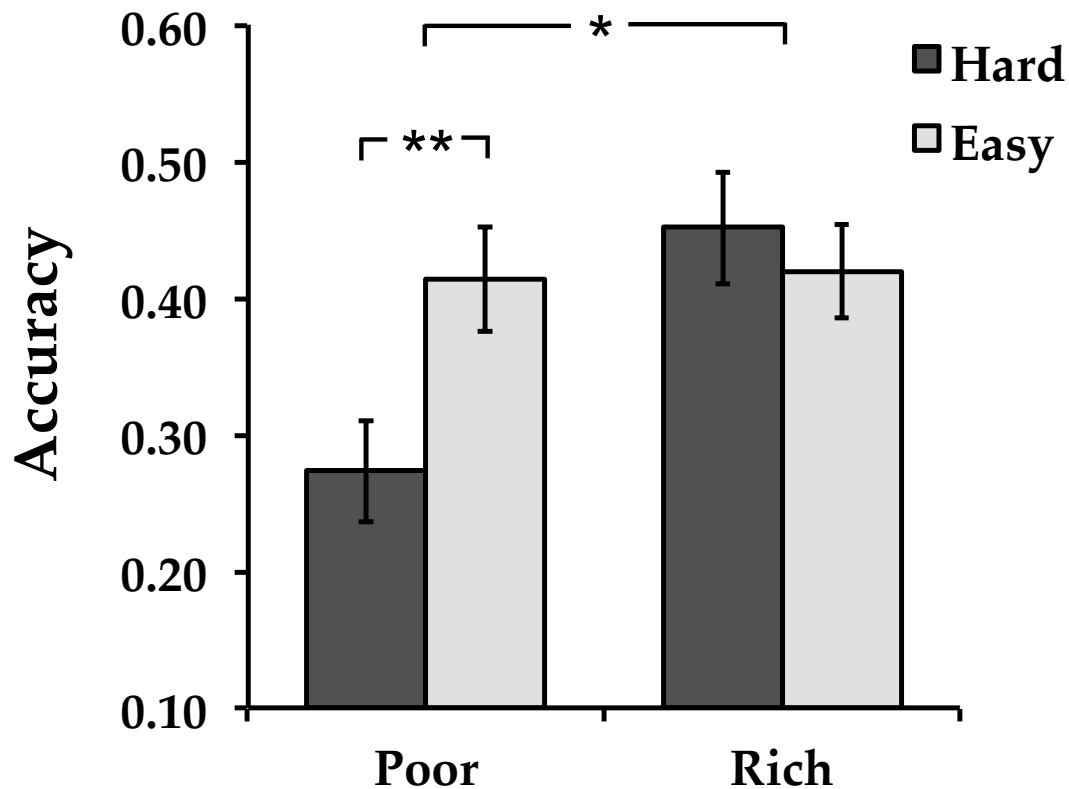


(Mani, Mullainathan, Shafir, & Zhao, 2013; Hall, Zhao, & Shafir, 2014; Shah, Zhao, Mullainathan, & Shafir, 2018; Tomm & Zhao, 2016, 2017; Zhao & Tomm, 2017, 2018)

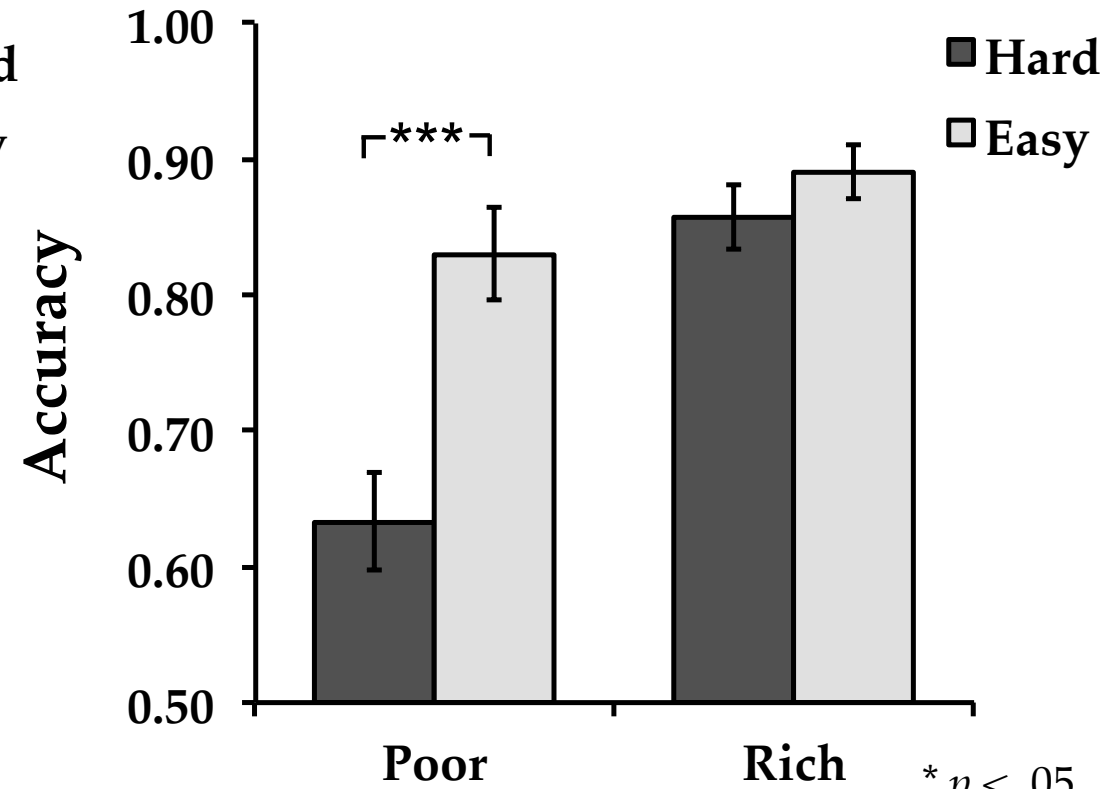
Scarcity burdens the mind



Raven's Matrices



Cognitive Control

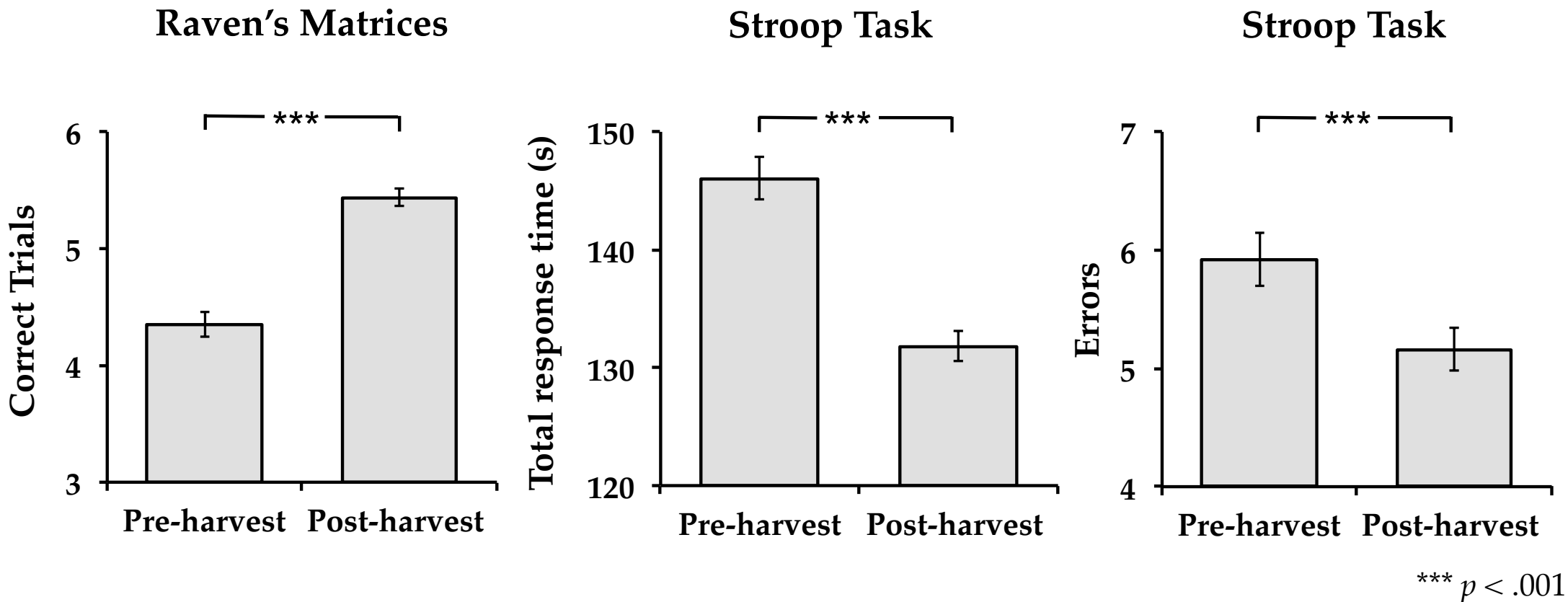


**Scarcity reduces cognitive function
by 10-13 IQ points**

* $p < .05$
** $p < .01$
*** $p < .001$

(Mani, et al., 2013)

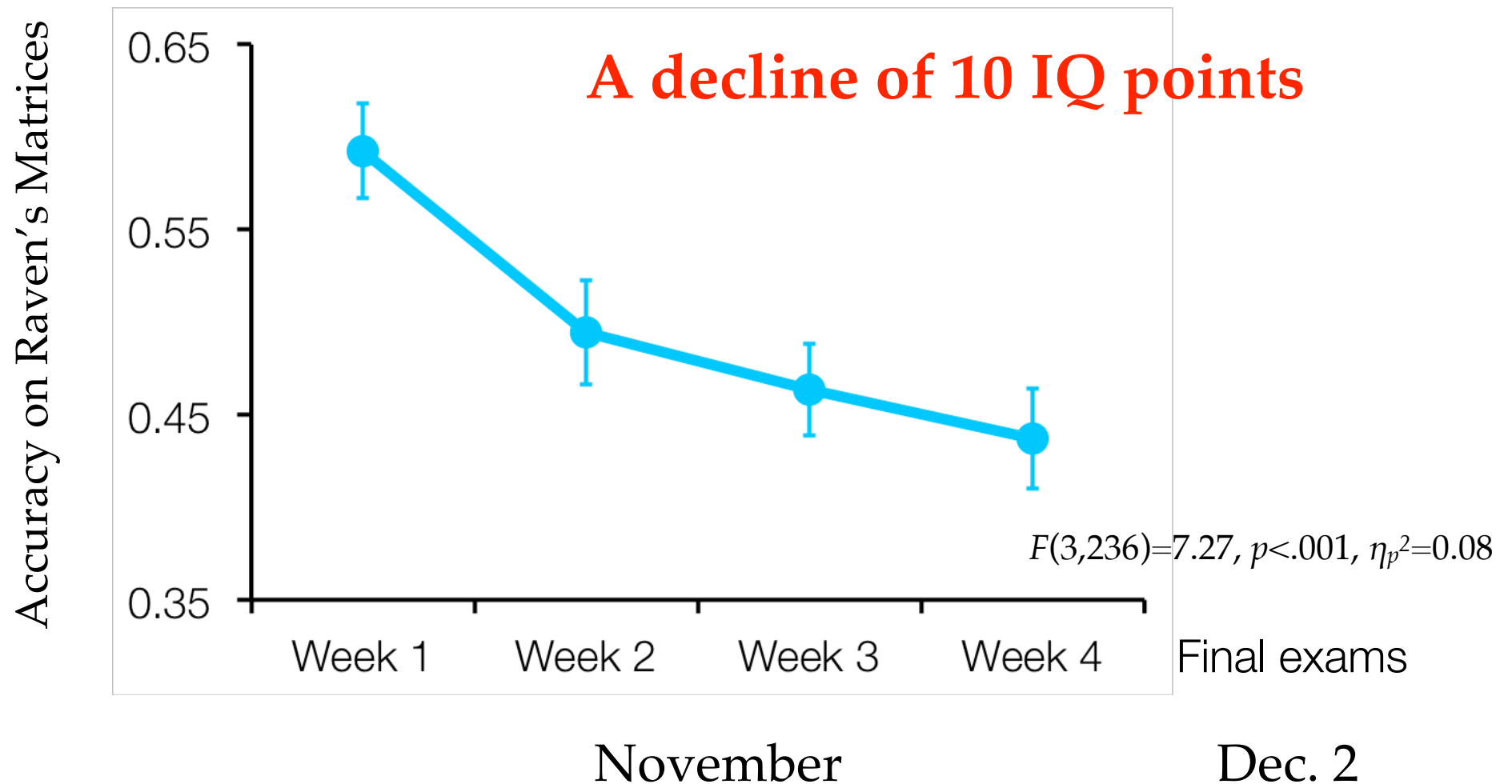
Within-subject decline (N=460)



The same individual performed worse under scarcity than in abundance

Time scarcity taxes the mind too (N=240)


UBC students' cognitive function before final exams



Attentional tradeoffs under scarcity (N=680)

Menu	Price.....	Calories
Starters		
Hummus.....	6.09.....	253
Fish Tacos.....	9.43.....	249
Crab Cakes.....	9.95.....	217
Yam Fries.....	5.46.....	343
Chicken Wings.....	7.97.....	319
Soups and Salads		
Kale Salad.....	5.59.....	154
Corn Soup.....	5.03.....	350
Broccoli Cheddar Soup.....	5.56.....	372
Clam Chowder.....	8.76.....	234
Grilled Chicken Salad.....	7.75.....	283
Grilled Portobello Salad.....	6.36.....	116
Entrees		
Parmesan Crusted Chicken.....	10.76.....	338
Pan Roasted Sablefish.....	14.18.....	289
Glazed Duck Breast.....	12.90.....	429
Seared Tuna.....	10.13.....	275
Buttered Lobster.....	18.82.....	402
Pork Loin.....	15.03.....	457
Seared Halibut.....	14.96.....	270
Bacon Burger.....	12.19.....	576
Desserts		
Chocolate Ice Cream.....	5.66.....	492
Fruits and Yogurt.....	6.21.....	490
Rice Pudding.....	5.74.....	452
Cream Puffs.....	4.82.....	470
Cheesecake Selection.....	7.08.....	594

You may ask for an %18 student discount...



Task: order a meal from the menu

Conditions:

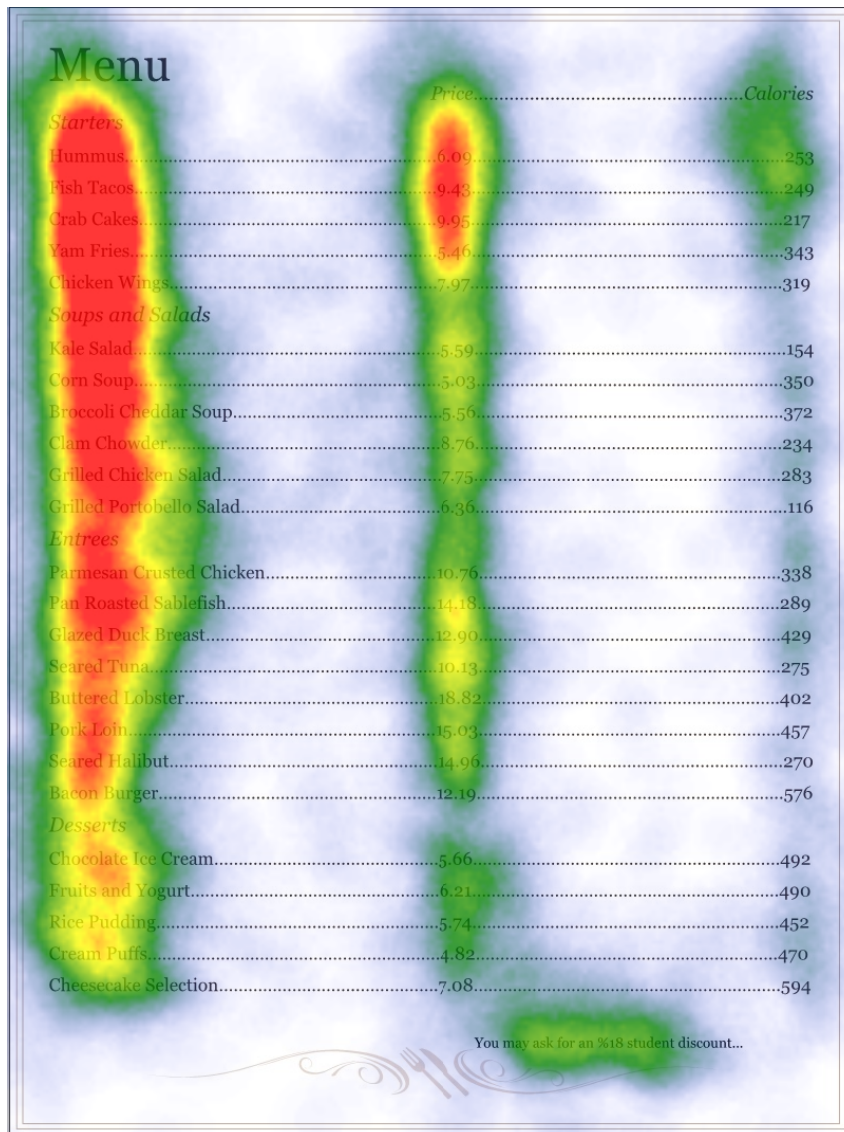
- Rich (a \$100 budget)
- Poor (a \$20 budget)

Eyetracking measures:

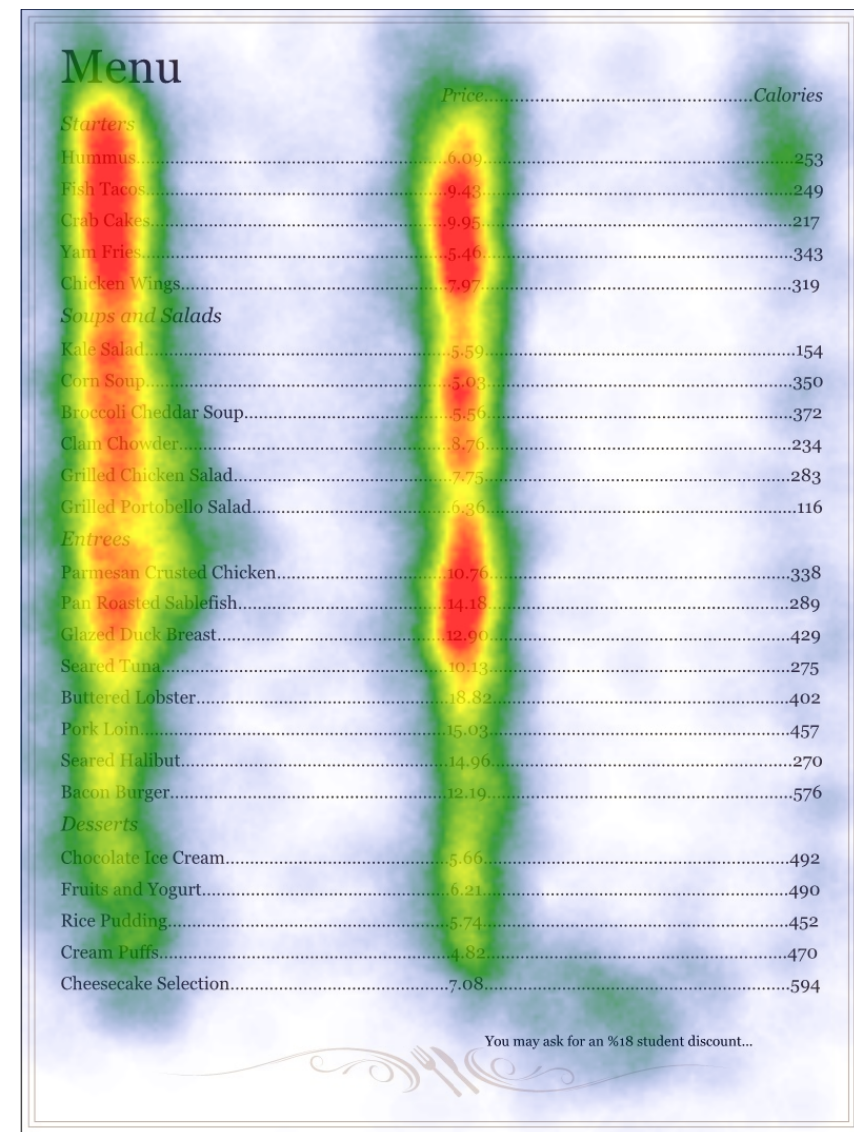
- Dwell time
- Fixations

Eye gaze heat map

Rich condition (\$100)

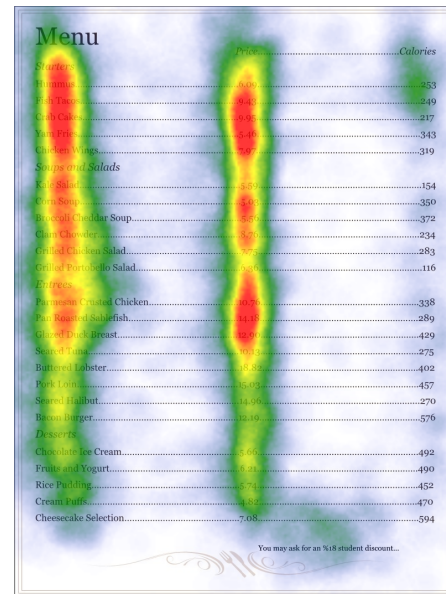
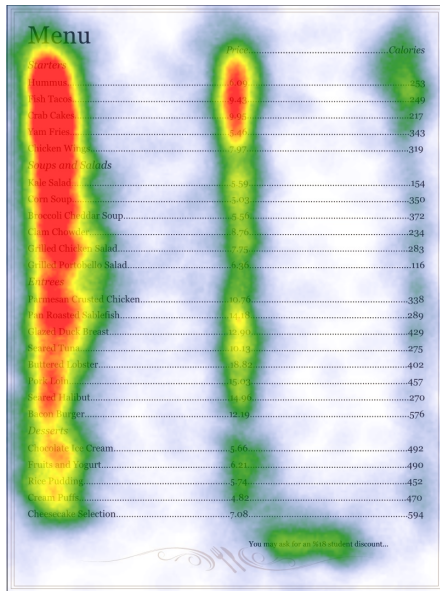


Poor condition (\$20)

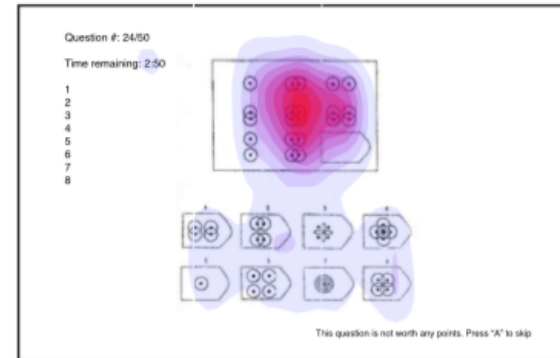


Attentional focus vs. neglect under scarcity

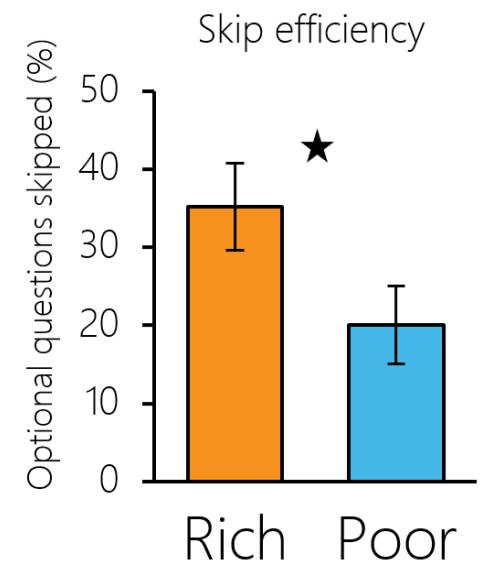
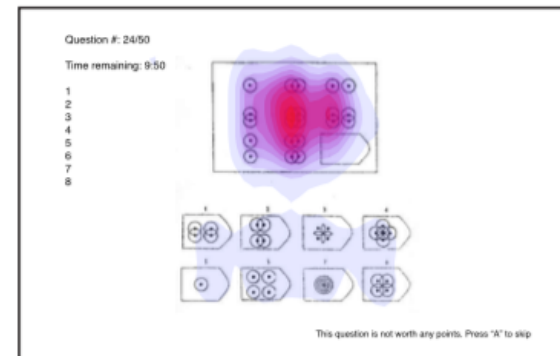
Rich condition (\$100) Poor condition (\$20)



Time rich (40mins)

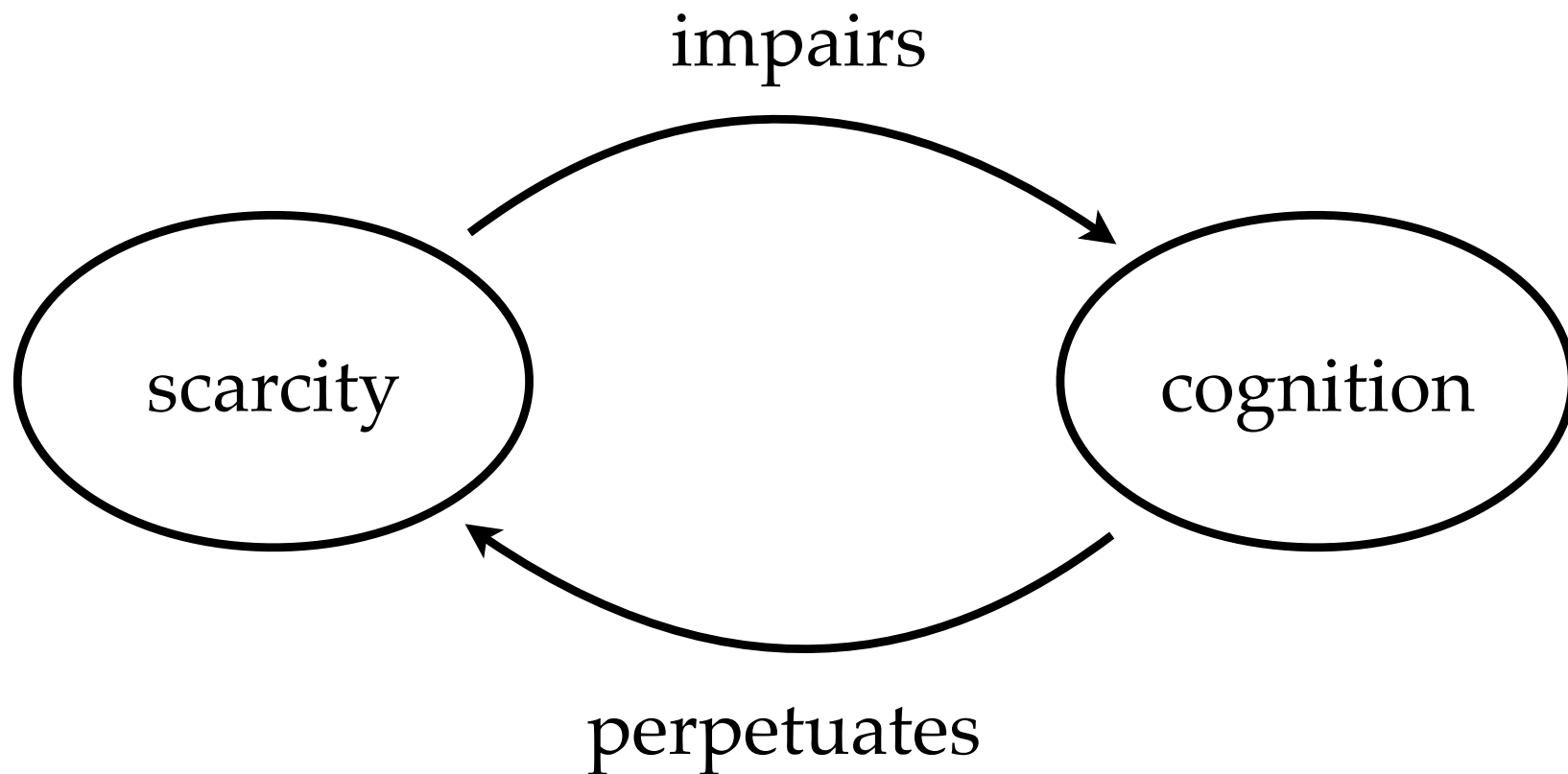


Time poor (10mins)



Scarcity biases attention to price or time information, and induces the neglect of a savings opportunity

A vicious cycle



Reduce cognitive burdens when delivering financial services or literacy training

Panelists on scarcity and decision making



Sam Hirsham

University of Chicago



Suanna Oh

Columbia University



Caroline Roux

Concordia University

Discussion questions - Sam Hirshman

1. A lack of knowledge or a lack of attention?
2. What policy interventions are needed to reduce credit card borrowing costs?
3. What are the implications for the design of credit card statements?

Discussion questions - Suanna Oh

1. What's the cognitive mechanism?
2. Why does the financial salience intervention work?
3. What's the implication for financial literacy and education?

Discussion questions - Caroline Roux

1. How to reconcile the findings with previous work on charitable giving from low-income individuals?
2. What's the boundary condition for scarcity reminders?
3. How rational is it to pursue self-interest under scarcity?