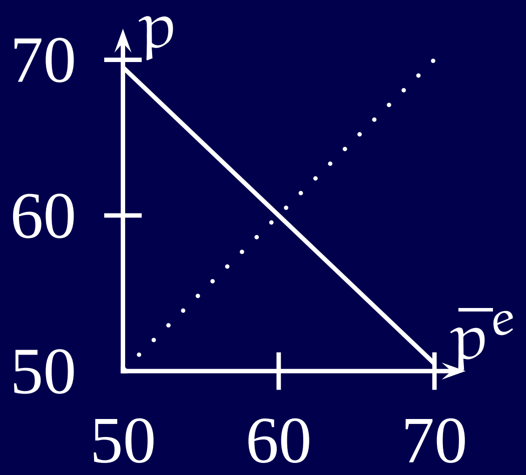
“Price Stability and Volatility in Markets with Positive and Negative Expectations Feedback: An Experimental Investigation”

Heemeijer, Hommes, Sonnemans, Tuinstra

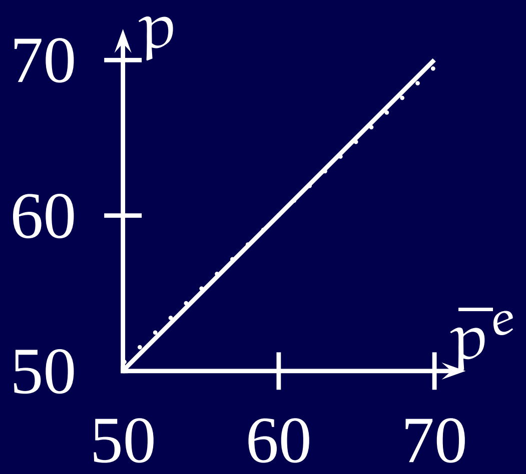
Discussion: Oliver Kirchkamp

Dynamics

negative: $p = \frac{20}{21}(123 - \overline{p}^e) + \epsilon_t$



positive: $p = \frac{20}{21}(3 + \overline{p}^e) + \epsilon_t$



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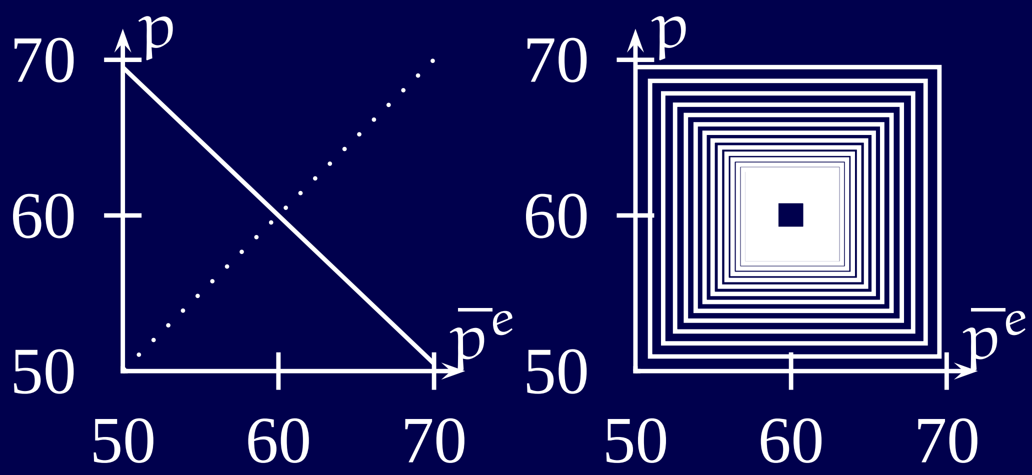

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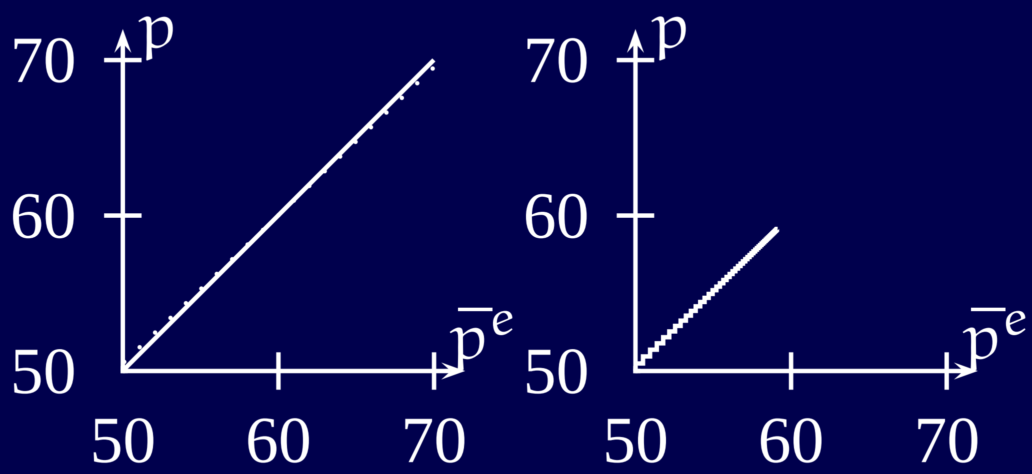

Dynamics

adaptive

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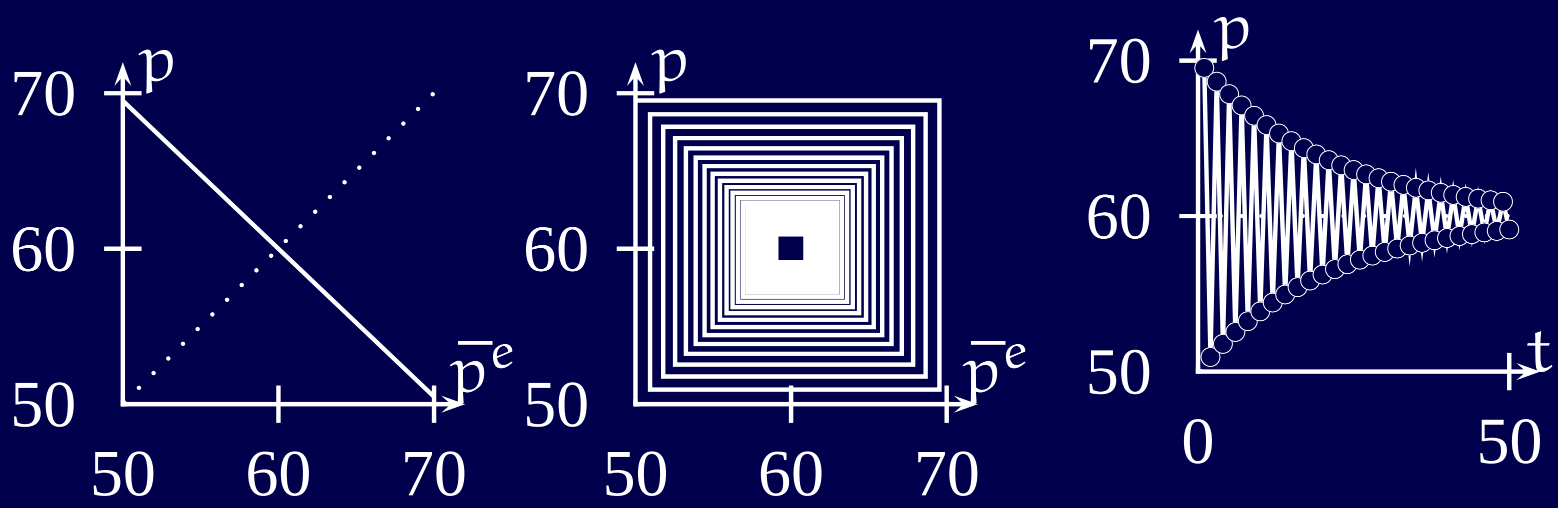

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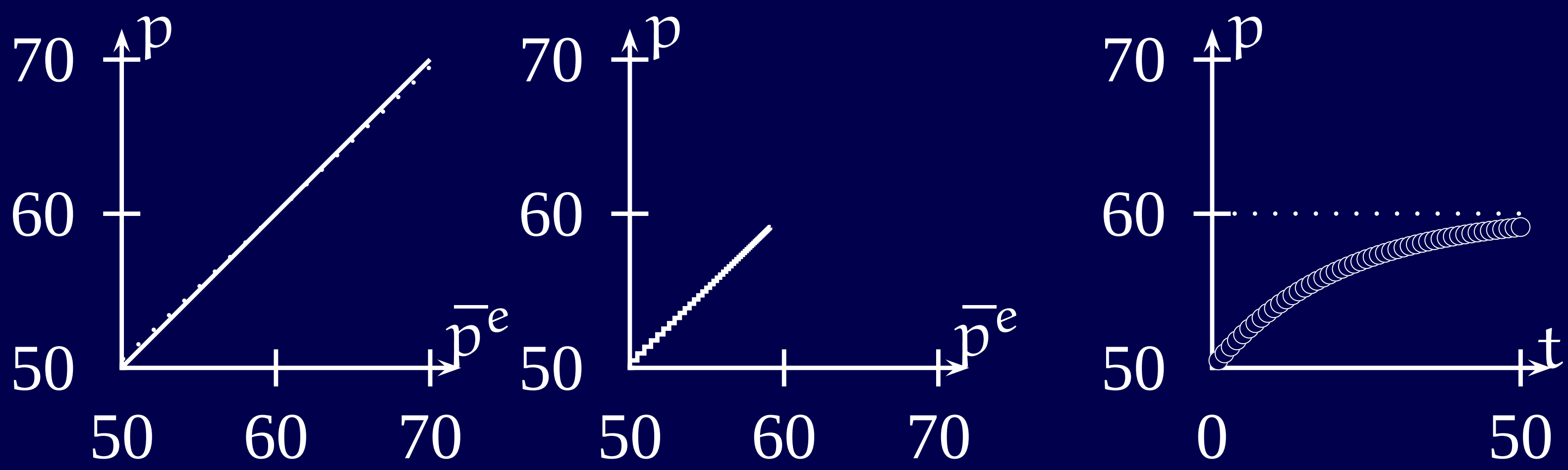

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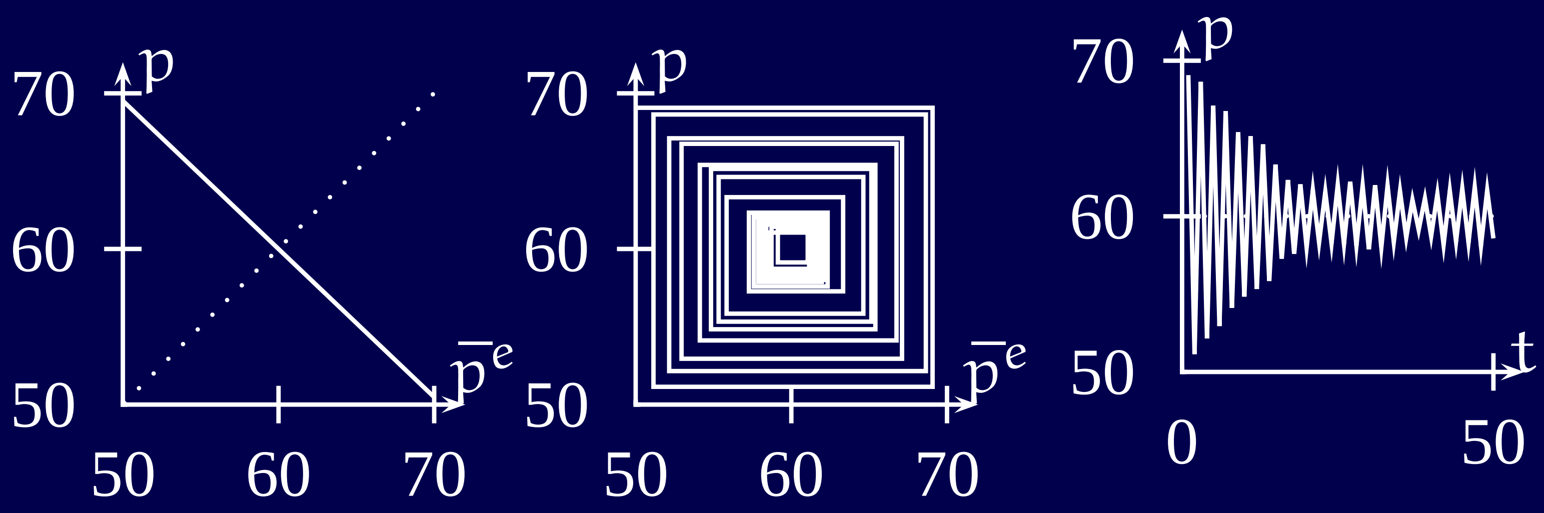
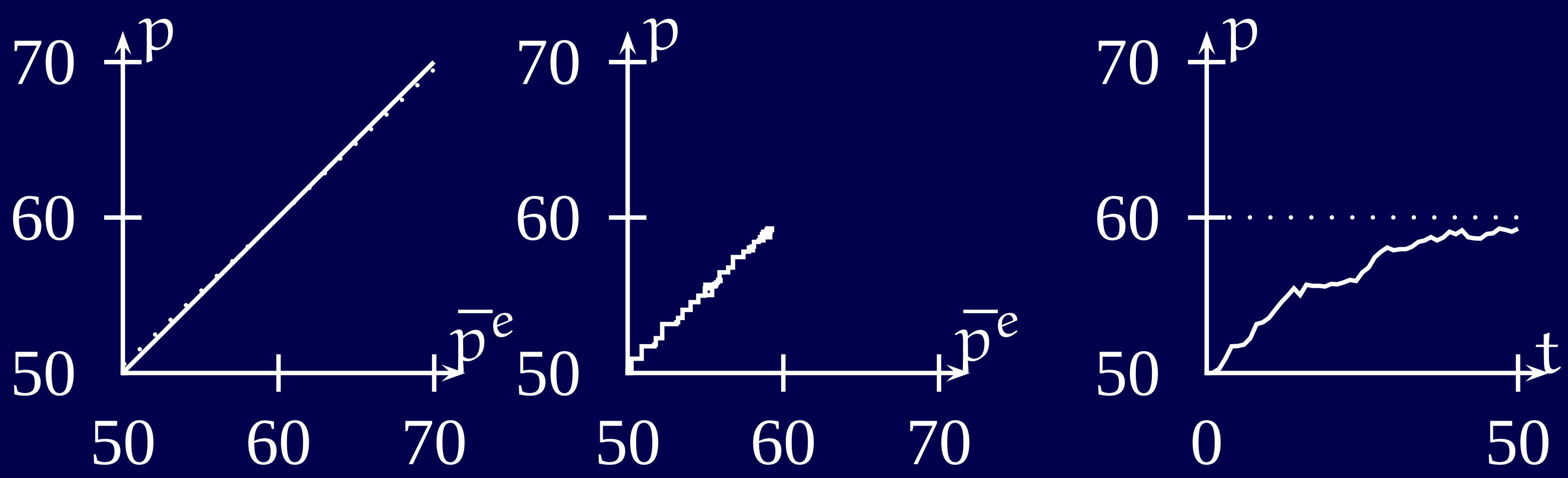


why the noise?

positive: $p = \frac{20}{21}(3 + \bar{p}^e) + \epsilon_t$



Dynamics

negative: $p = \frac{20}{21}\left(123 - \overline{p}^e\right) + \epsilon_t$

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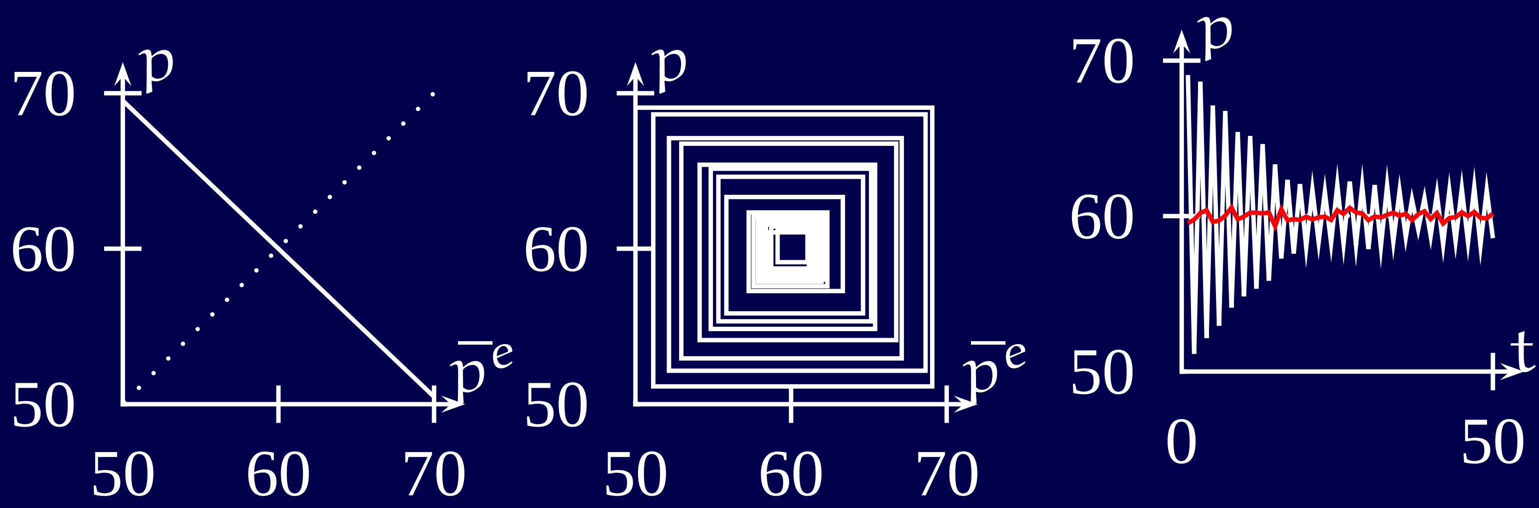
rational exp.



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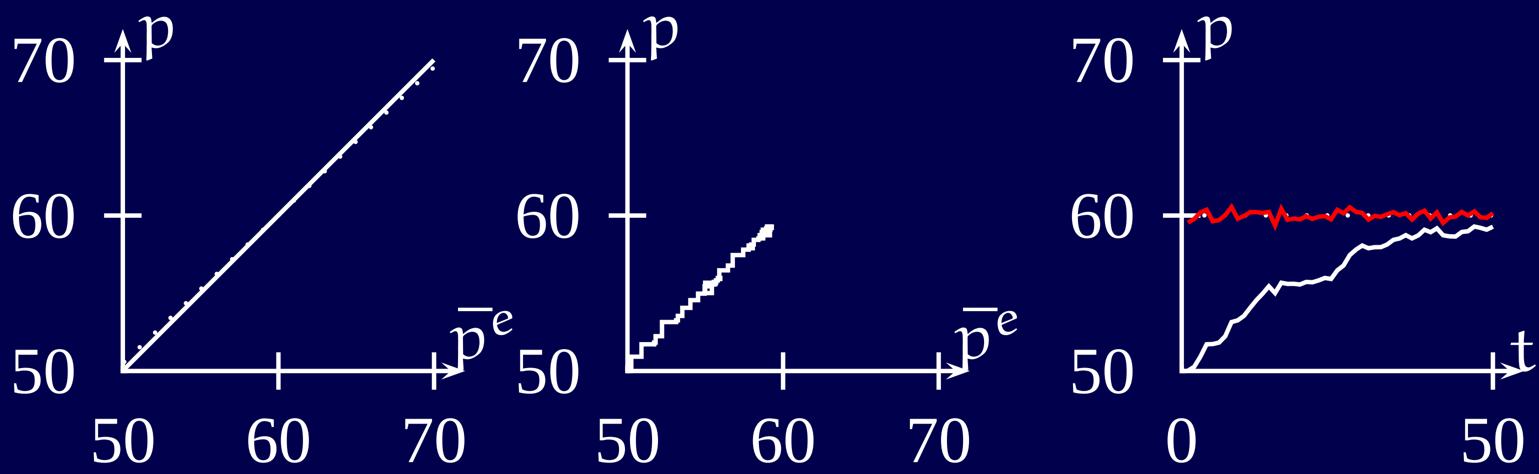

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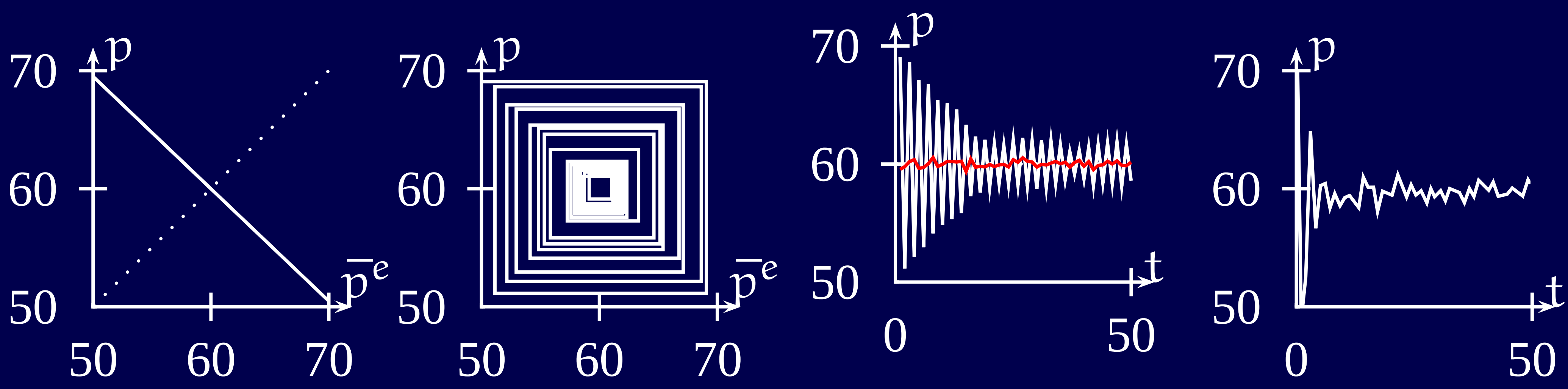

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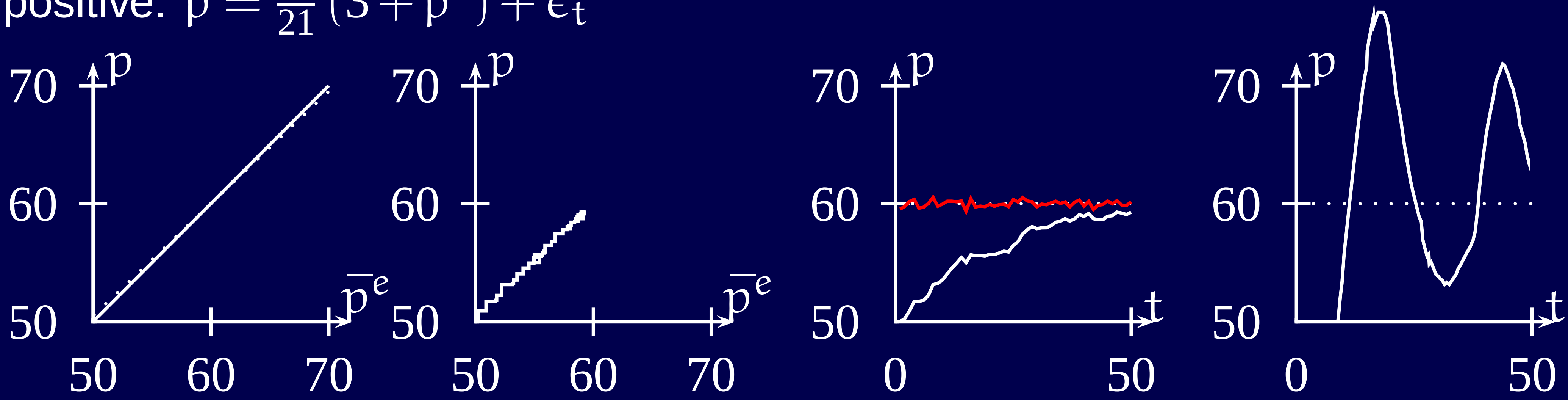

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negative: $p = \frac{20}{21}(123 - \bar{p}^e) + \epsilon_t$

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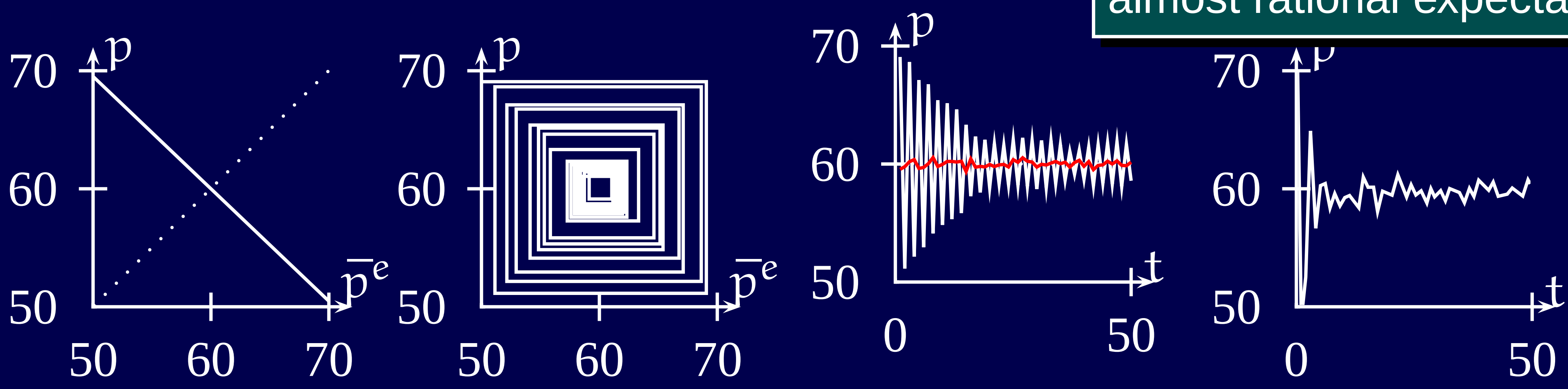
almost rational expectations



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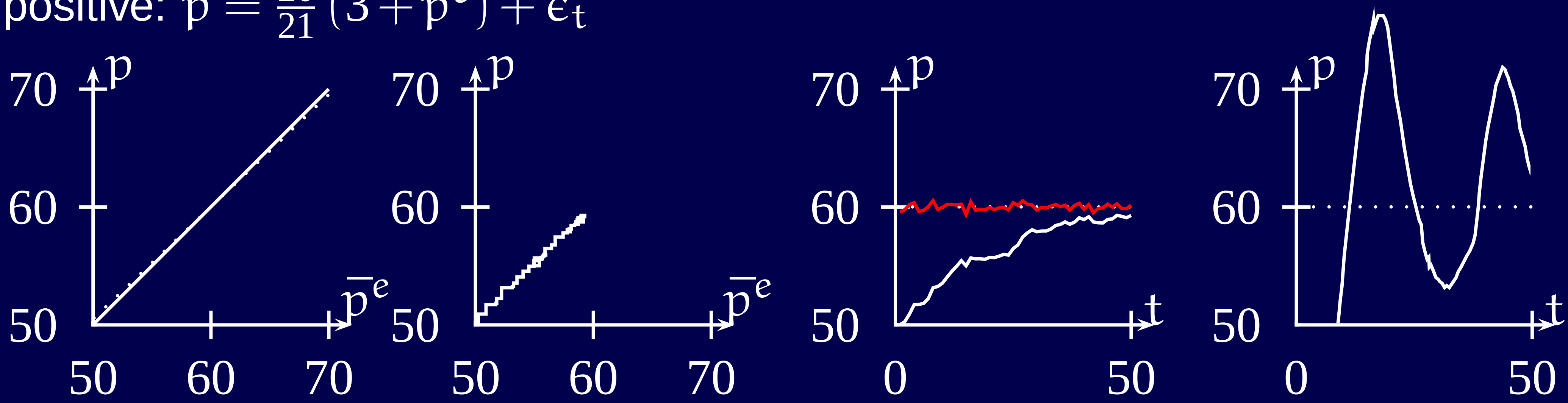

Dynamics

negative: $p = \frac{20}{21}\left(123 - \bar{p}^e\right) + \epsilon_t$

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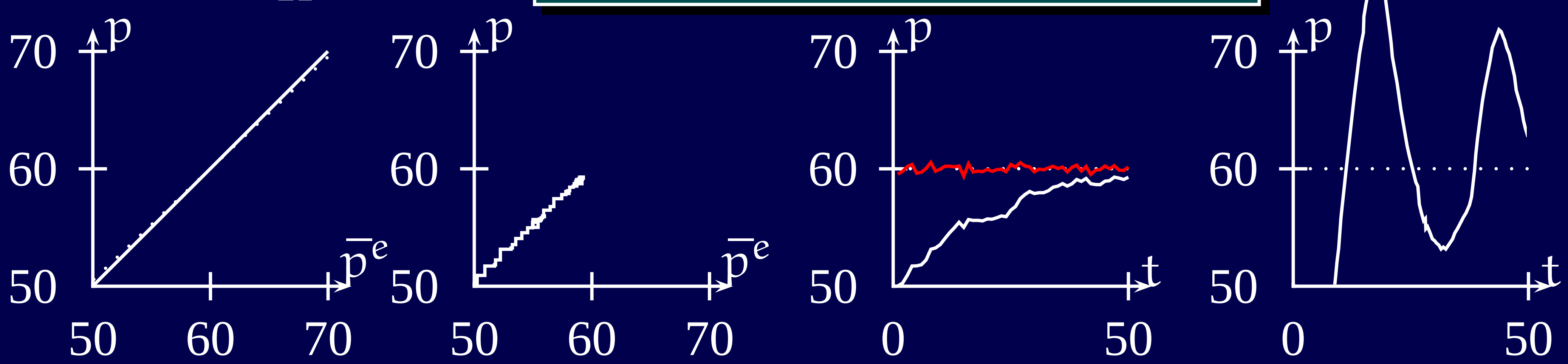
- what is going on here?

positive: $p = \frac{20}{21}\left(3 + \bar{p}^e\right) +$



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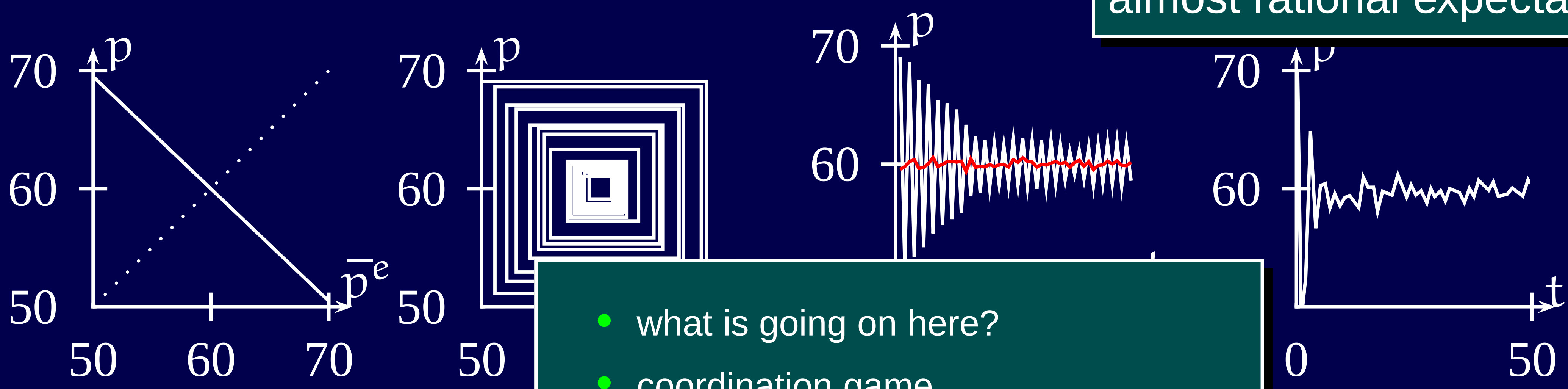
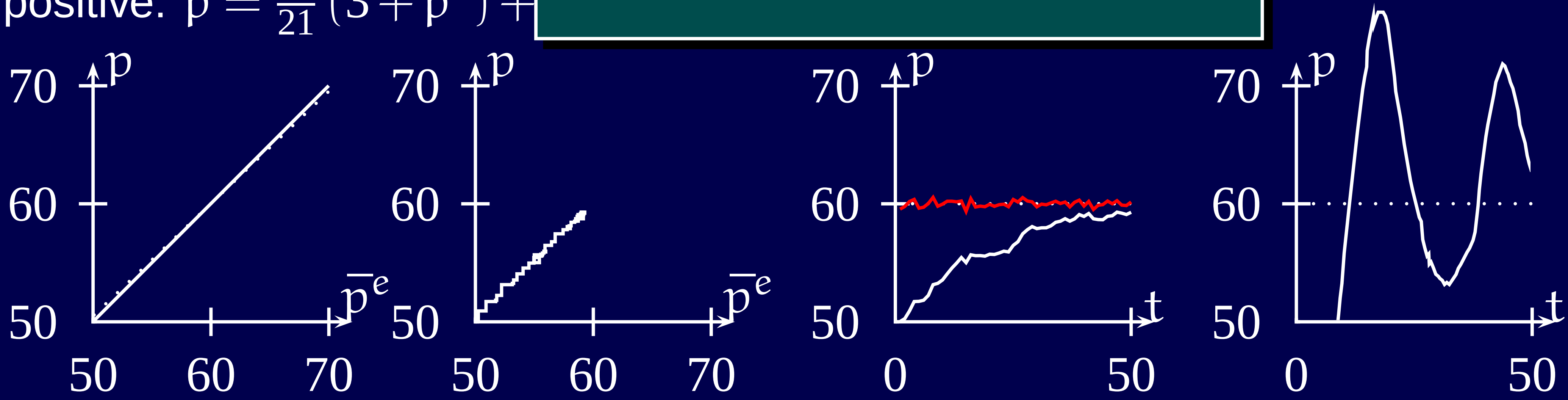


- what is going on here?
- coordination game

positive: $p = \frac{20}{21}(3 + \bar{p}^e) +$



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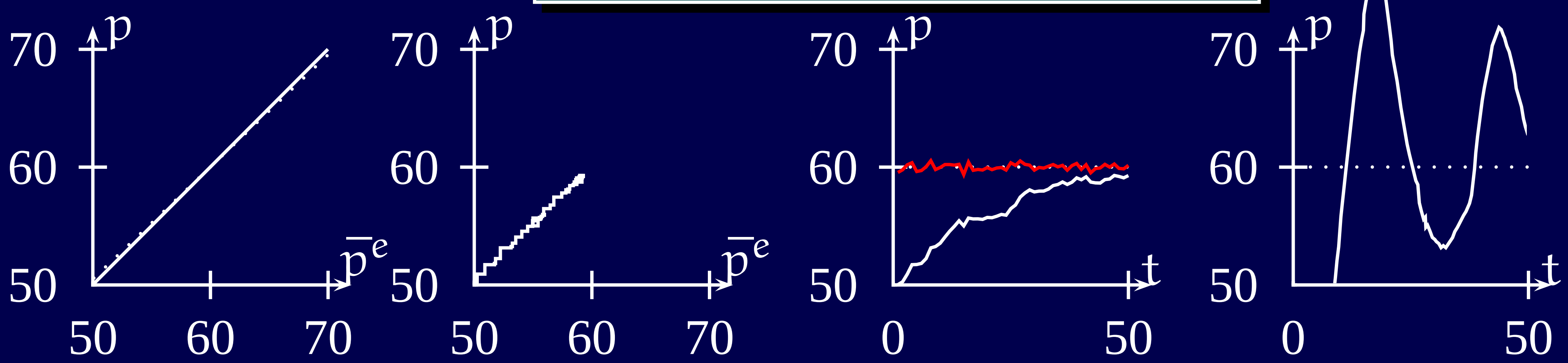
- what is going on here?
- coordination game
- how much depends on parameters?

positive: $p = \frac{20}{21}(3 + \bar{p}^e) +$



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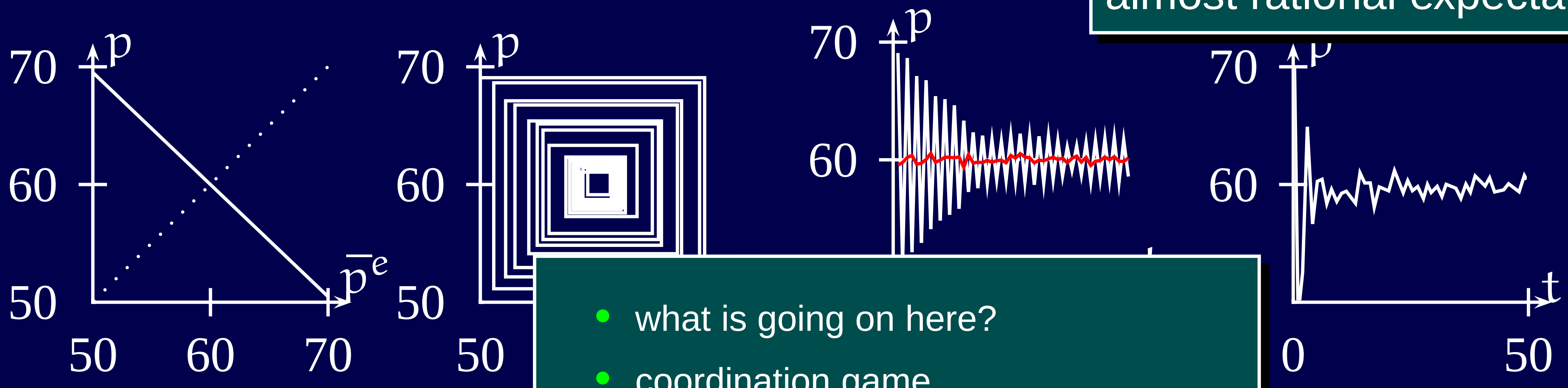
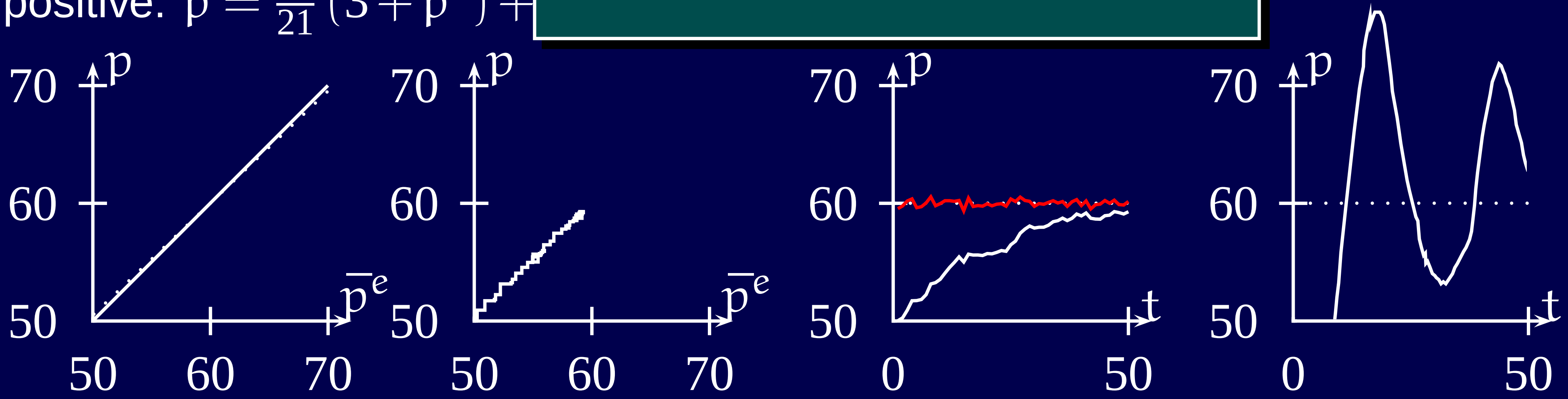


- what is going on here?
- coordination game
- how much depends on parameters?
- is this robust to $\frac{20}{21}$?

positive: $p = \frac{20}{21}(3 + \bar{p}^e) +$



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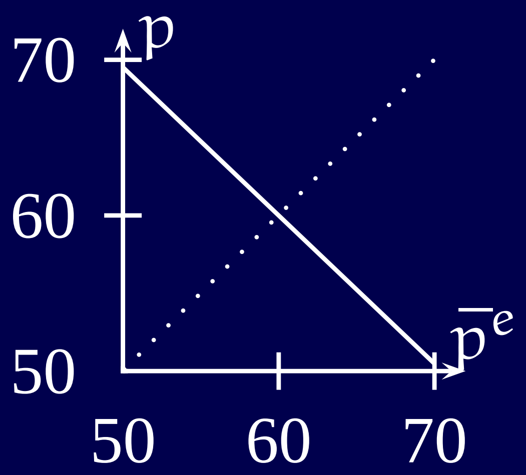
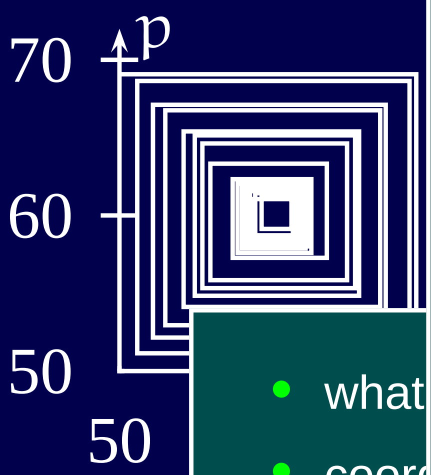
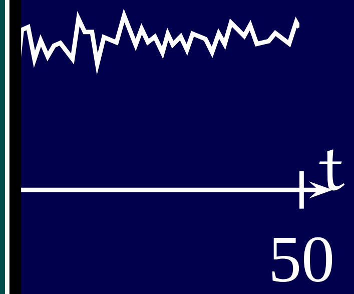
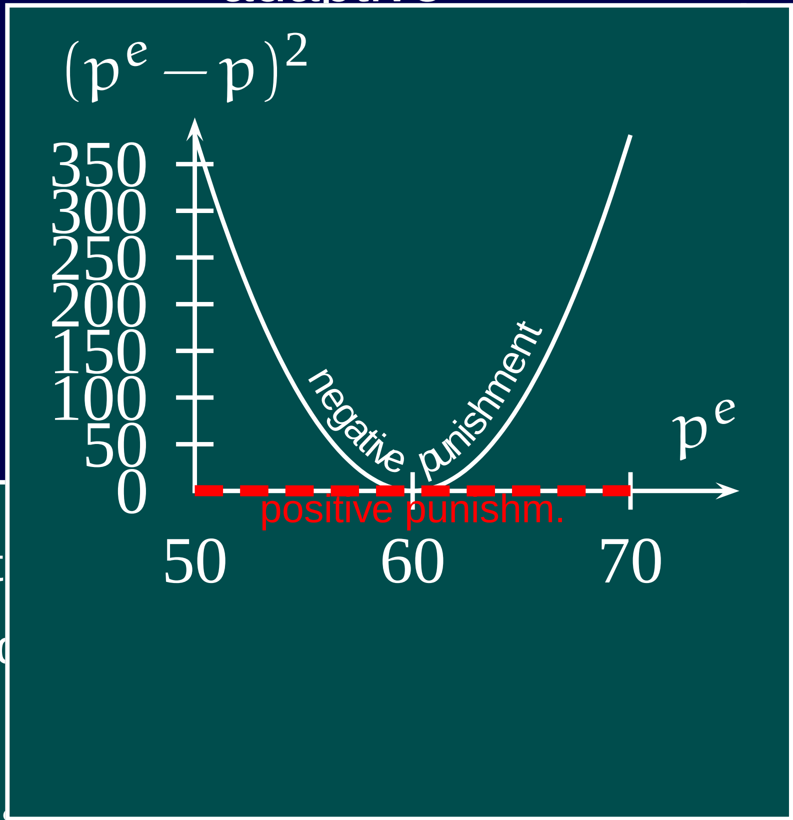


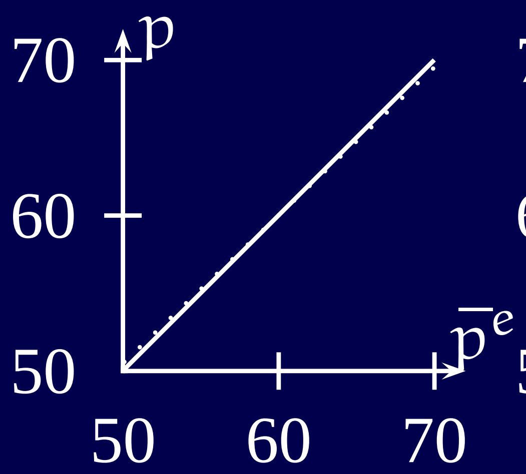


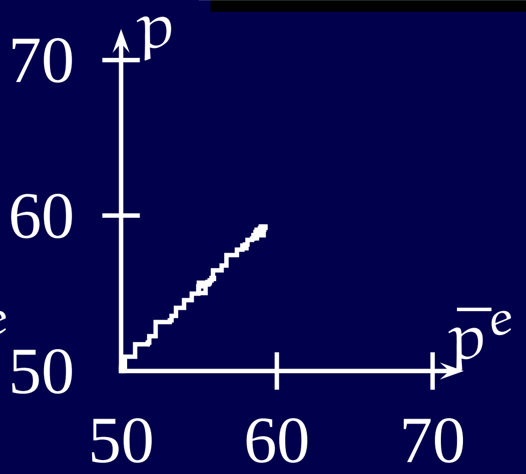


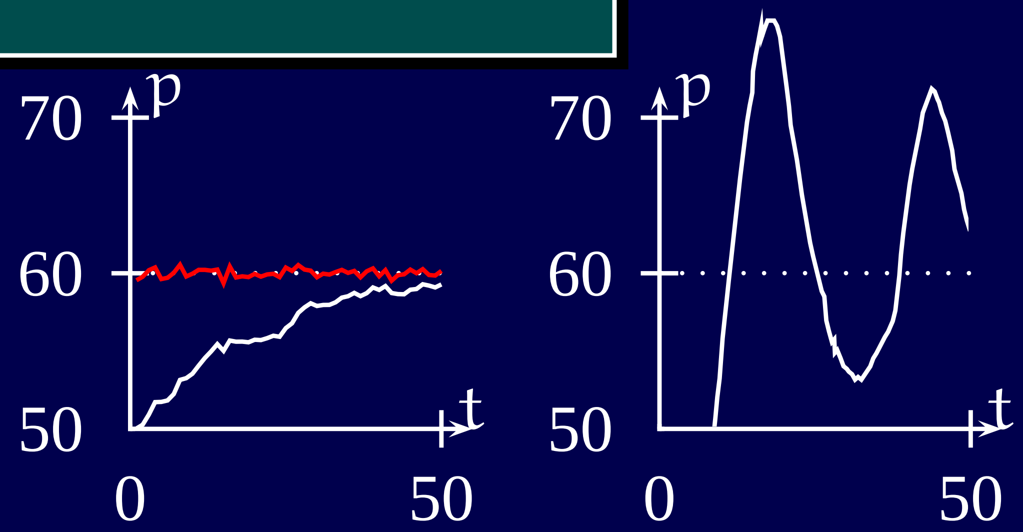
- what ...
- coord...
- how ...
- is this ... $\frac{\ }{21}$?



positive: $p = \frac{20}{21}(3 + \bar{p}^e) + ...$







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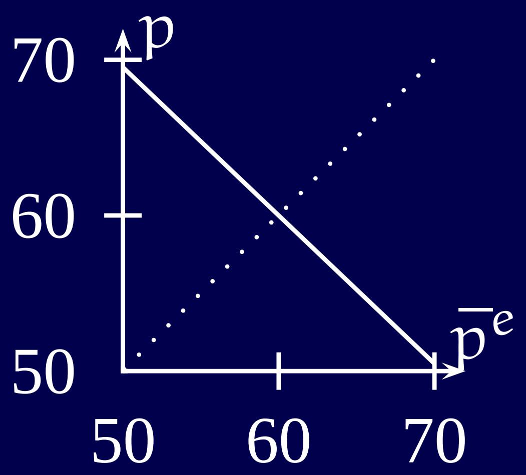

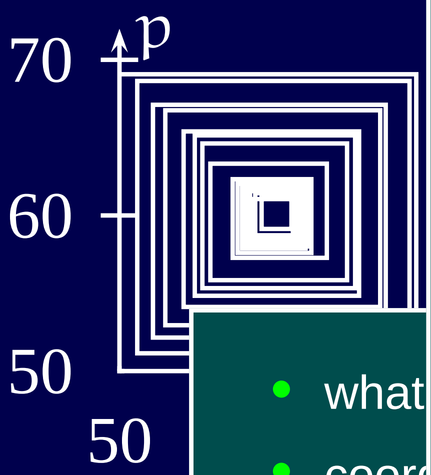

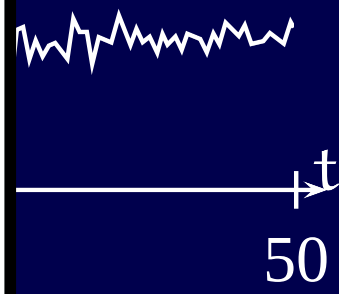

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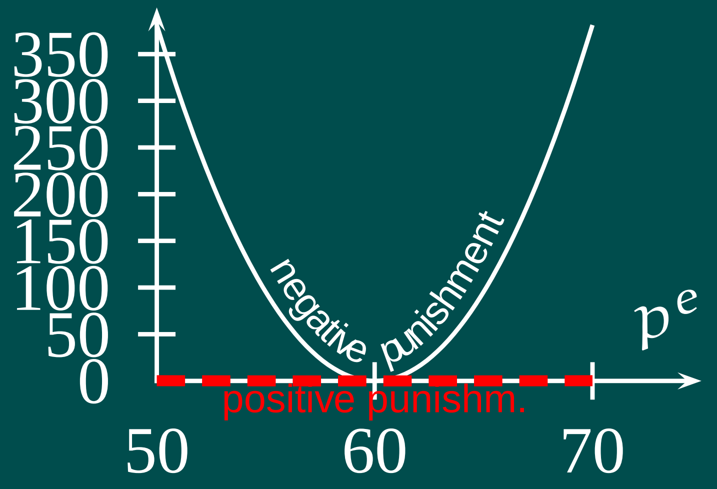
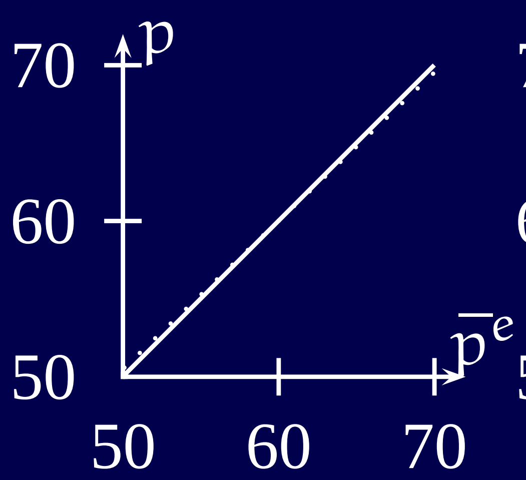
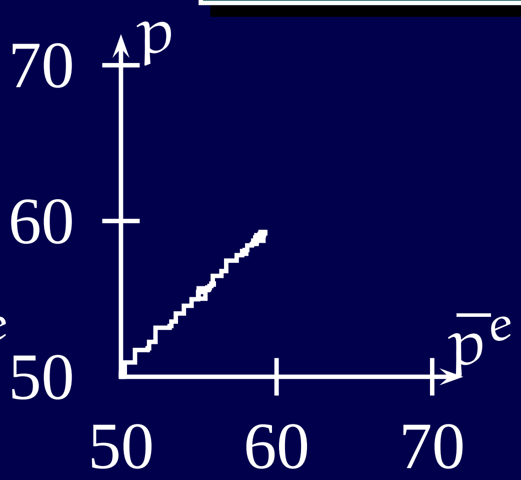
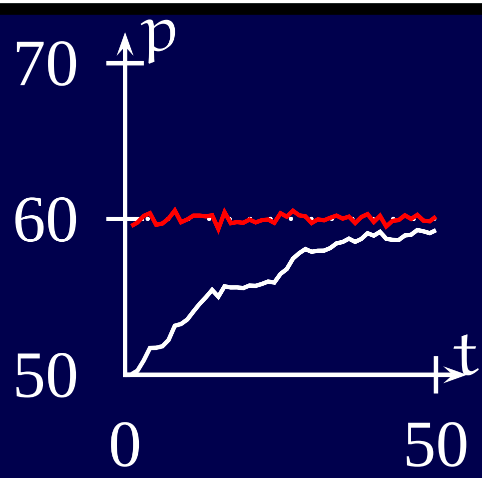


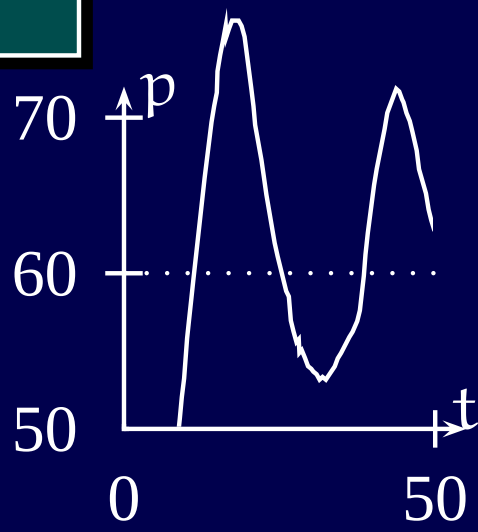
- did punishment differ?

positive: $p = \frac{20}{21}\left(3 + \overline{p}^e\right) +$









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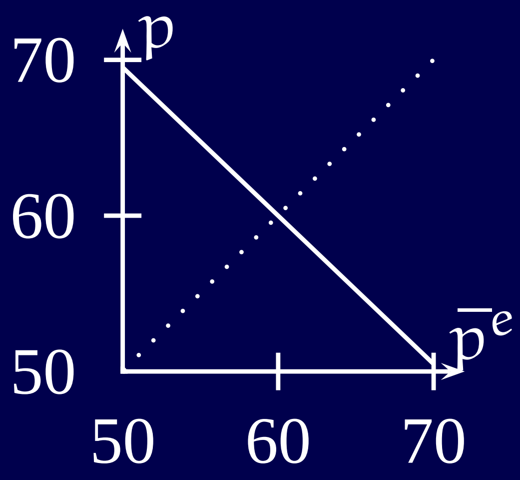

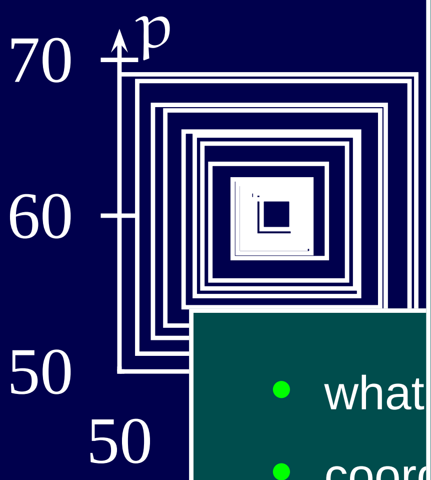

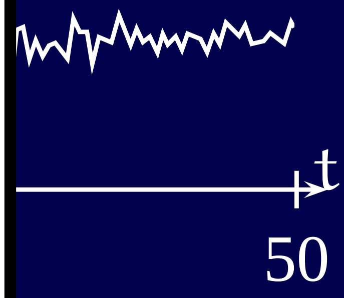

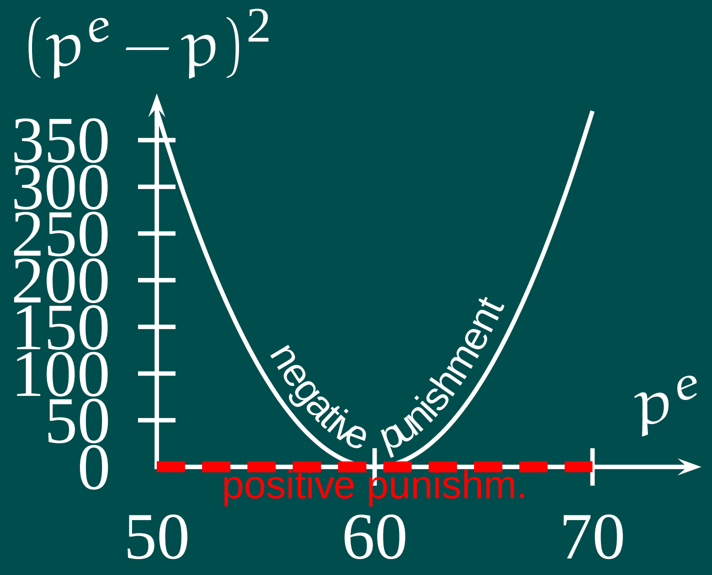

- did punishment differ?
- if so, how?

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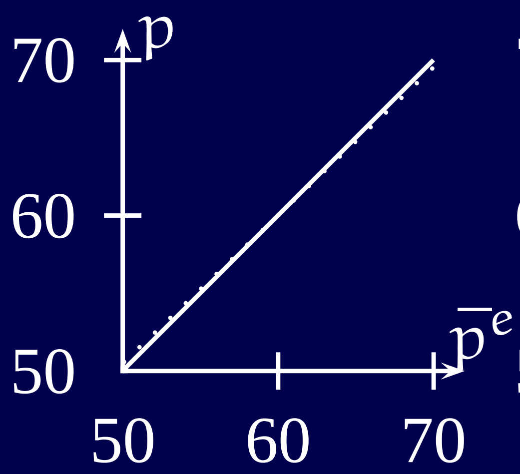

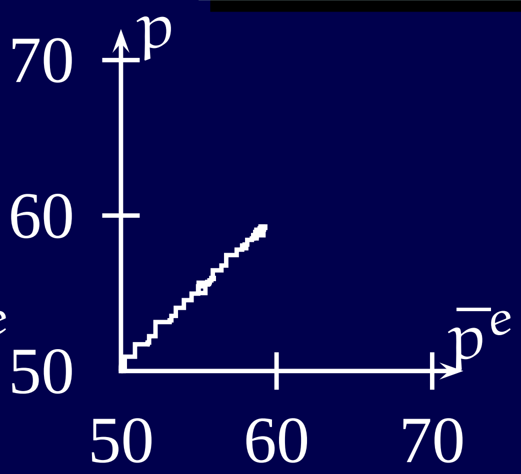

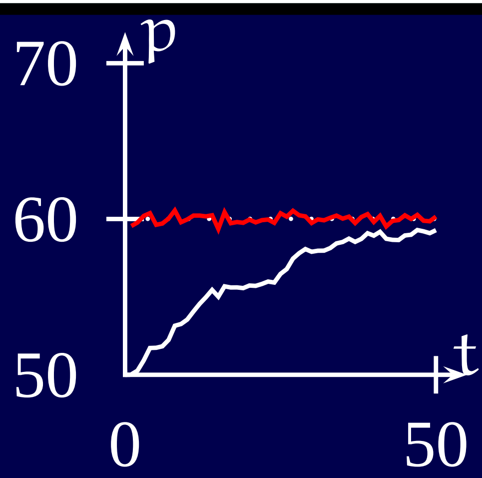

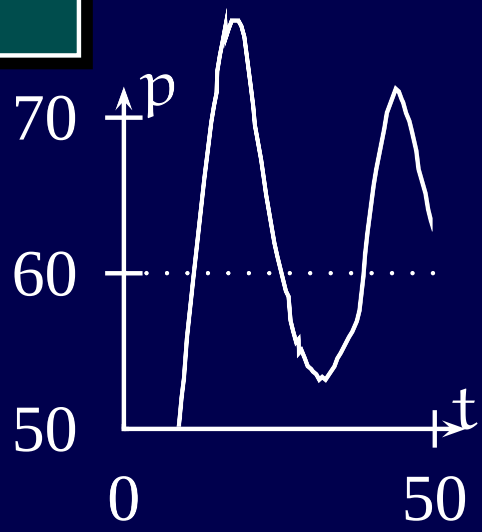

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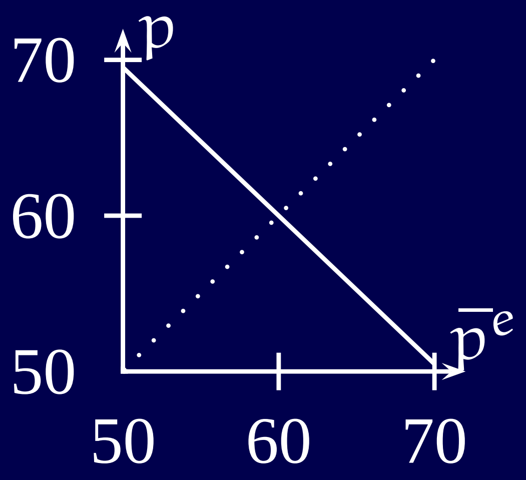
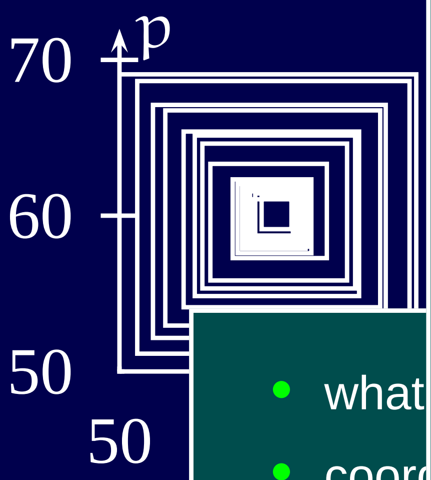
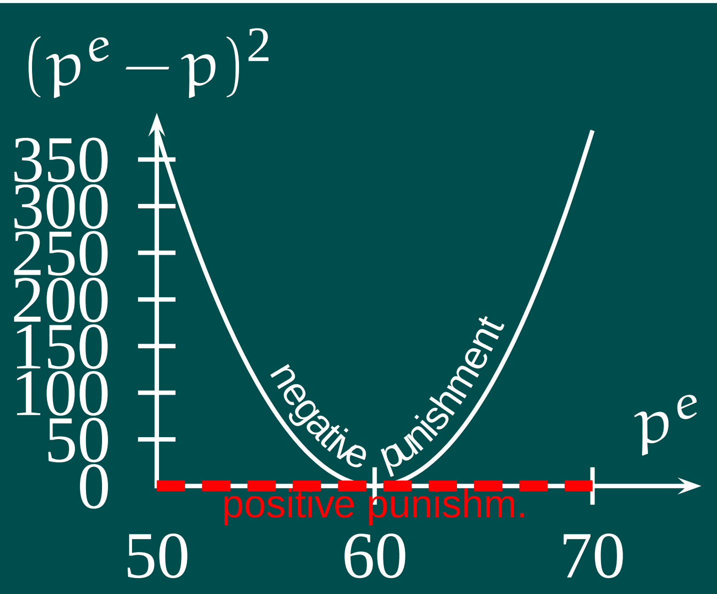




adaptive



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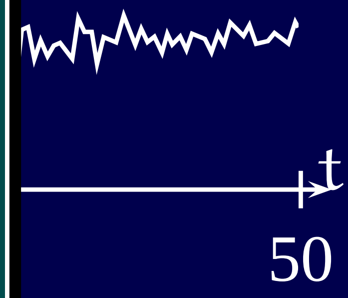

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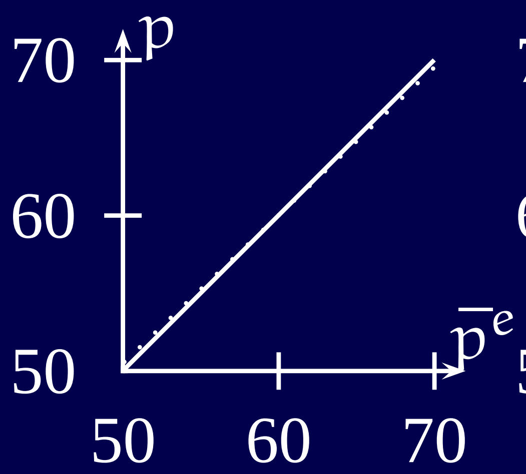

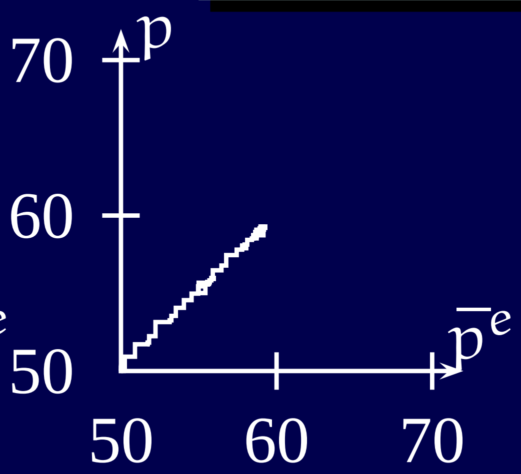

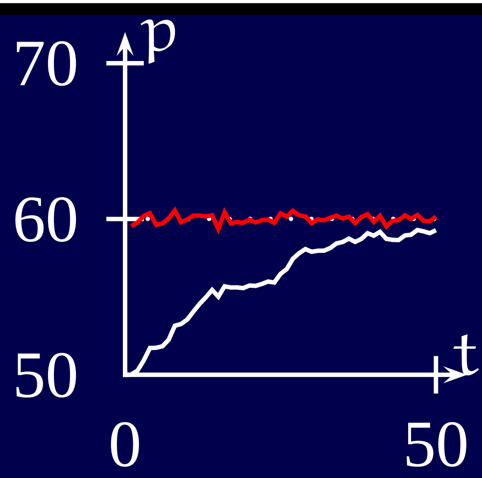

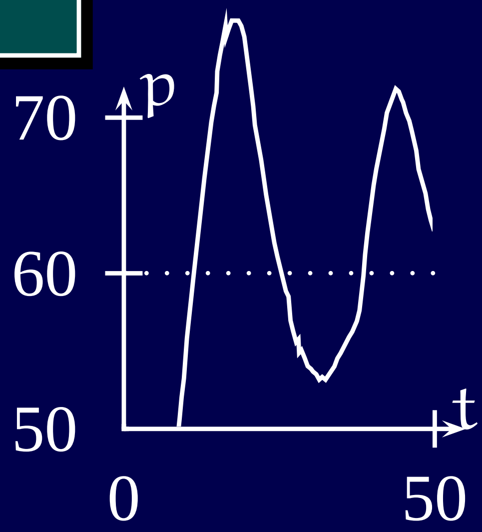

Results

Results

71 out of 78 participants follow

$$p^e_{h,t} = c + \beta_1 p_{t-1} + \beta_2 p_{t-2} + \beta_3 p_{t-3} + \gamma_1 p^e_{h,t-1} + \gamma_2 p^e_{h,t-2} + \gamma_3 p^e_{h,t-3} + \nu_t$$

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should we use this experimental setup to estimate $p^e(\cdots)$?

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should we use this experimental setup to estimate $p^e(\cdots)$?

- do we have experimental control over beliefs of participants?

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should we use this experimental setup to estimate $p^e(\cdots)$?

- do we have experimental control over beliefs of participants?
- what do they know about the feedback process?

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should we use this experimental setup to estimate $p^e(\cdots)$?

- do we have experimental control over beliefs of participants?
- what do they know about the feedback process?
- what do they know about interaction with other participants?

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$$p^e_{h,t} = c + \beta_1 p_{t-1} + \beta_2 p_{t-2} + \beta_3 p_{t-3} + \gamma_1 p^e_{h,t-1} + \gamma_2 p^e_{h,t-2} + \gamma_3 p^e_{h,t-3} + \nu_t$$

should we use this experimental setup to estimate $p^e(\cdots)$?

- do we have experimental control over beliefs of participants?
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- what do they know about interaction with other participants?
- shouldn’t we give participants more clues about what is going on?

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should we use this experimental setup to estimate $p^e(\cdots)$?

- do we have experimental control over beliefs of participants?
- what do they know about the feedback process?
- what do they know about interaction with other participants?
- shouldn't we give participants more clues about what is going on?

40 out of 78 participants follow

$$p^e_{h,t} = \underbrace{(1-\beta_1-\gamma_1)}_{\text{neg}} \cdot 60 + \underbrace{\beta_1}_{\text{neg,pos}} p_{t-1} + \underbrace{\gamma_1}_{\text{pos}} p^e_{h,t-1} + \underbrace{\alpha_1}_{\text{pos}} (p_{t-1} - p_{t-2}) + \nu_t$$

Results II

40 out of 78 participants follow

$$p^e_{h,t} = \underbrace{(1-\beta_1-\gamma_1)}_{\text{neg}} \cdot 60 + \underbrace{\beta_1}_{\text{neg,pos}} p_{t-1} + \underbrace{\gamma_1}_{\text{pos}} p^e_{h,t-1} + \underbrace{\alpha_1}_{\text{pos}} (p_{t-1} - p_{t-2}) + \nu_t$$

Results II

40 out of 78 participants follow

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Conclusion:

- feedback structure (pos/neg) matters

Results II

40 out of 78 participants follow

$$p^e_{h,t} = \underbrace{(1-\beta_1-\gamma_1)}_{\text{neg}} \cdot 60 + \underbrace{\beta_1}_{\text{neg,pos}} p_{t-1} + \underbrace{\gamma_1}_{\text{pos}} p^e_{h,t-1} + \underbrace{\alpha_1}_{\text{pos}} (p_{t-1} - p_{t-2}) + \nu_t$$

Conclusion:

- feedback structure (pos/neg) matters

- when and how does it matter?

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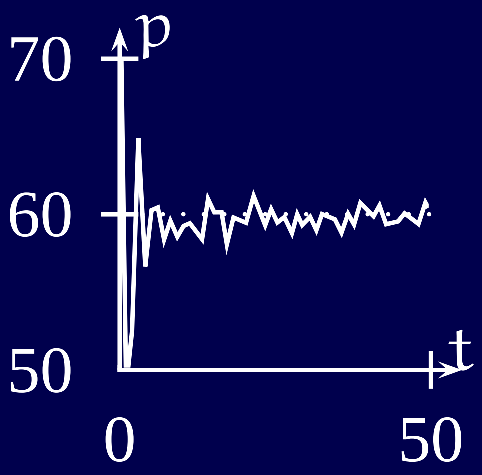
Conclusion:

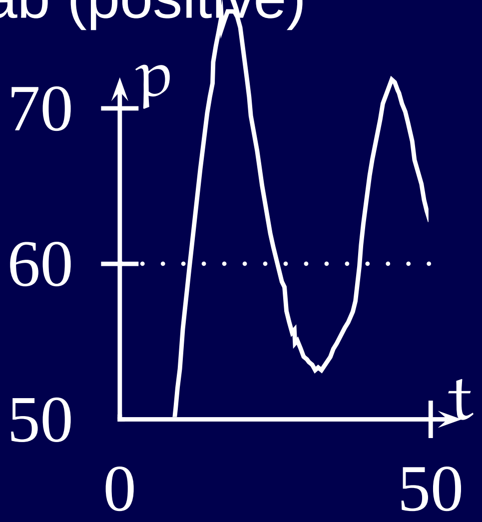
- feedback structure (pos/neg) matters

- when and how does it matter?
- could these expectations explain the lab dynamics?

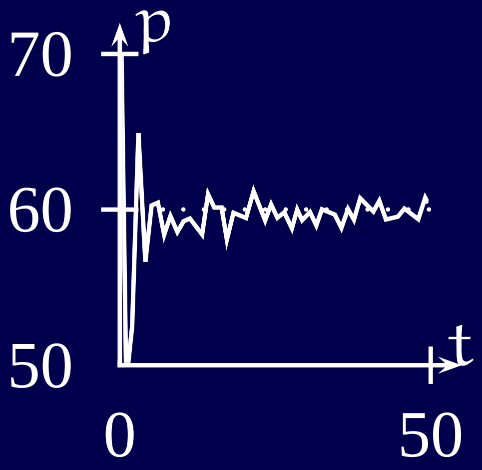
Lab (negative)



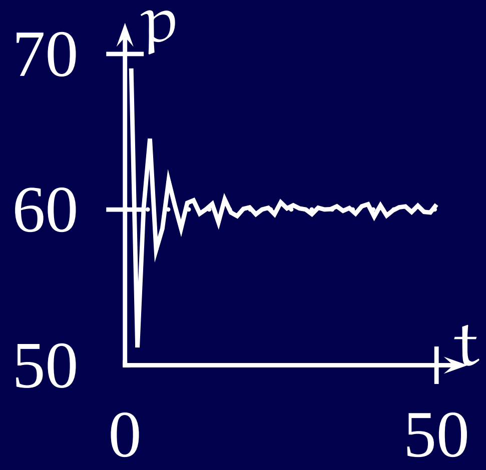
Lab (positive)



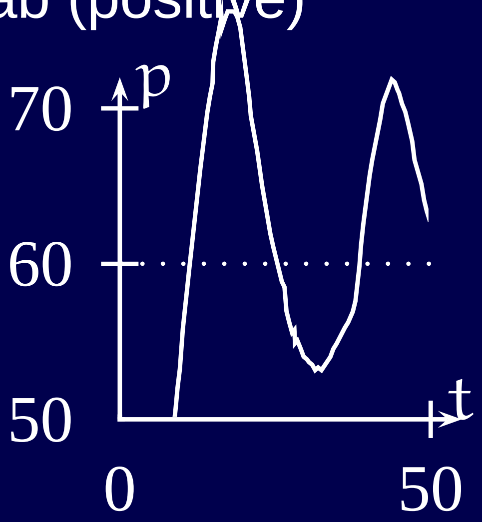
Lab (negative)



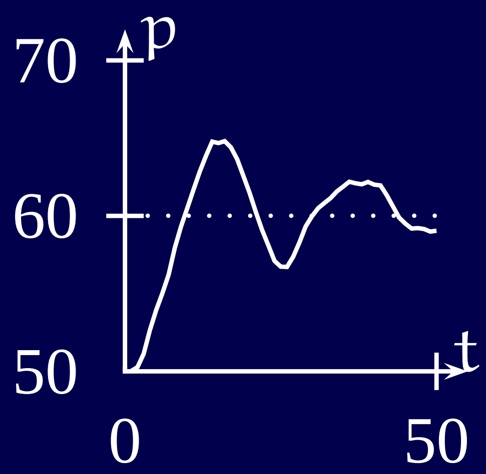
$$p^e_{h,t} = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2})$$



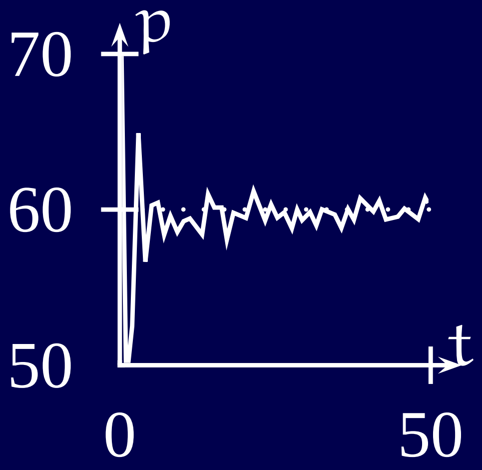
Lab (positive)



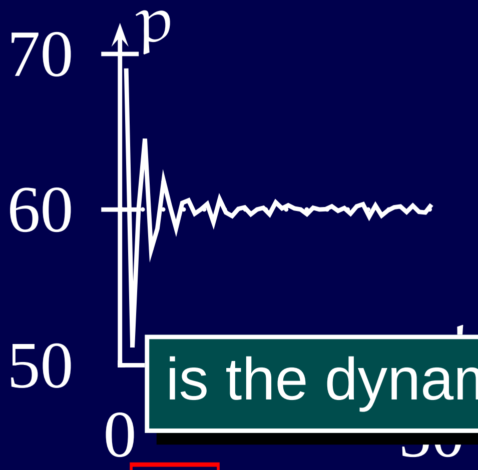
$$p^e_{h,t} = p_{t-1} + .9 \cdot (p_{t-1} - p_{t-2})$$



Lab (negative)

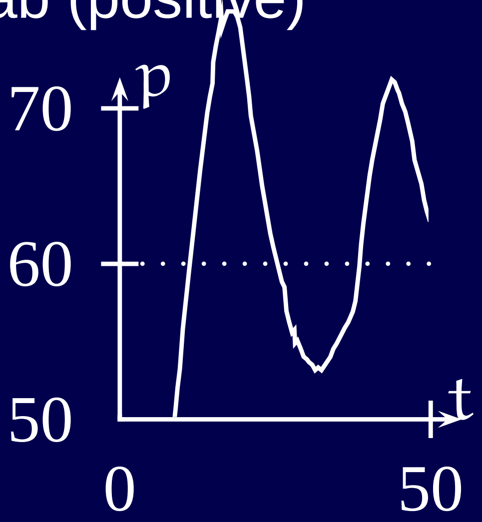


$$p^e_{h,t} = p_{t-1} \boxed{-0.5} \cdot (p_{t-1} - p_{t-2})$$



is the dynamics essentially different?

Lab (positive)



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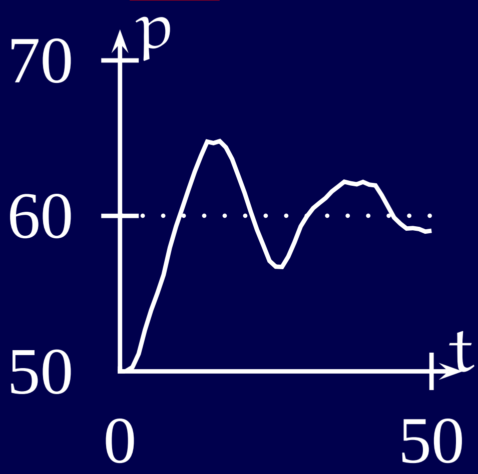

Lab (negative)

$$p^e_{h,t} = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2})$$

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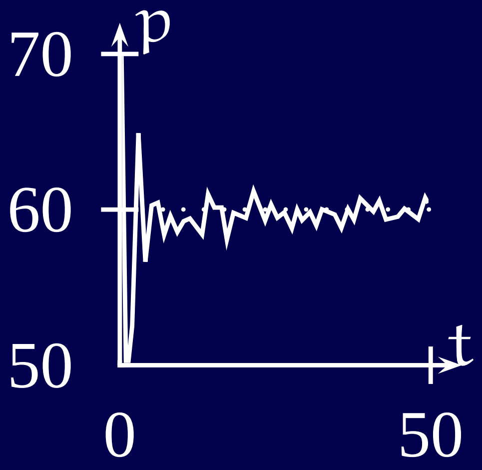

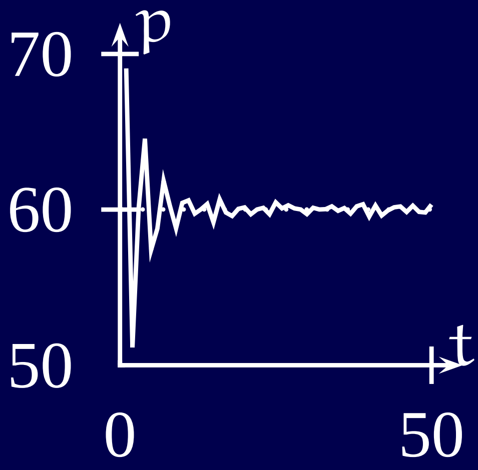

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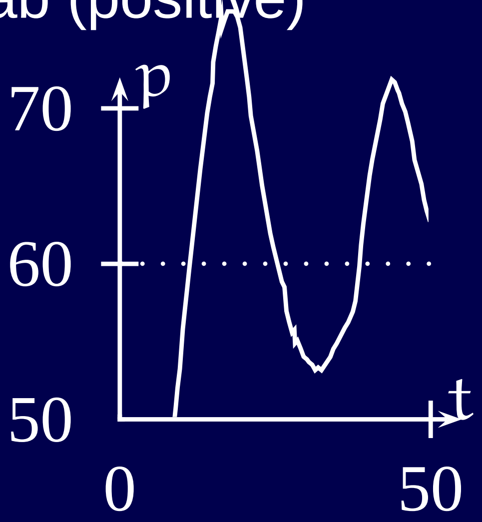
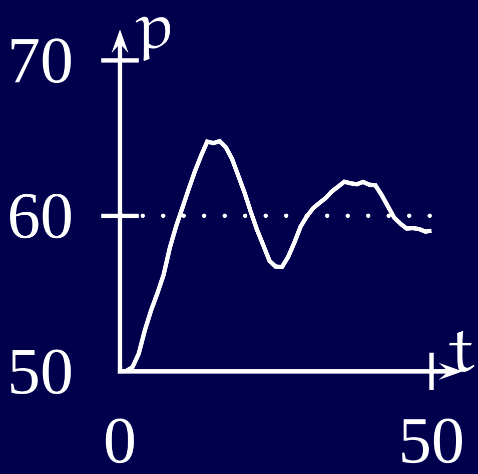
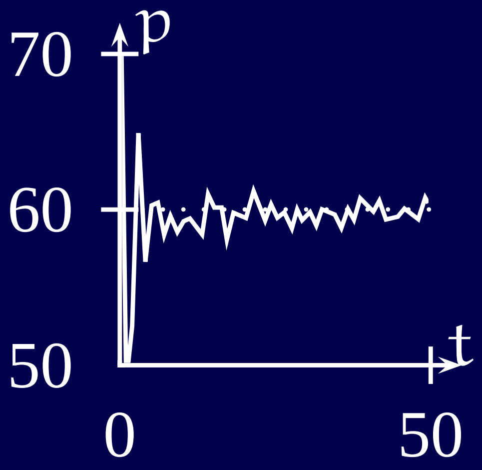


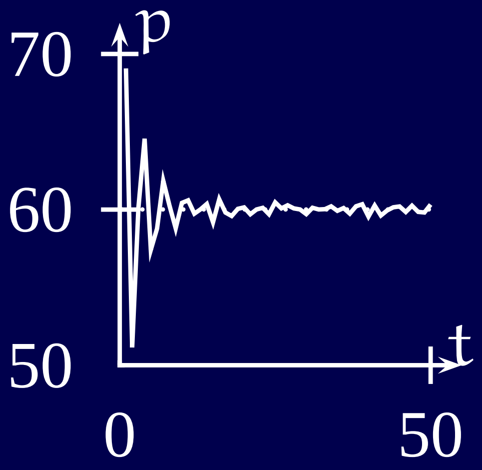


Lab (negative)

$p^e_{h,t} = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2})$

$p^e_{h,t} = \frac{1}{2} p^e_{h,t-1} + \frac{1}{2}\left(p_{t-1} + \frac{1}{2}(p_{t-1} - p_{t-3})\right)$





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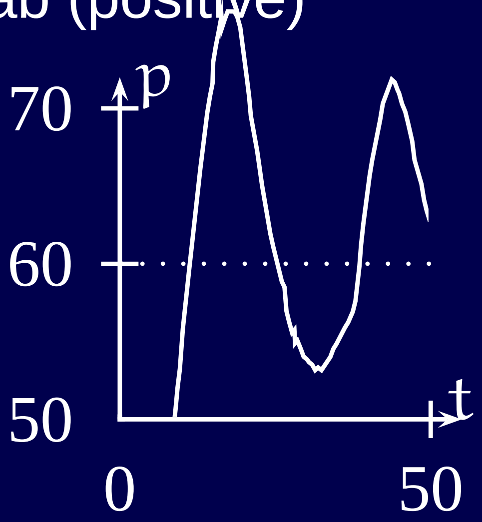
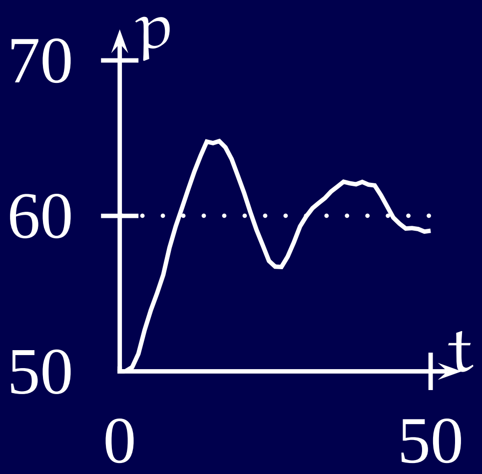
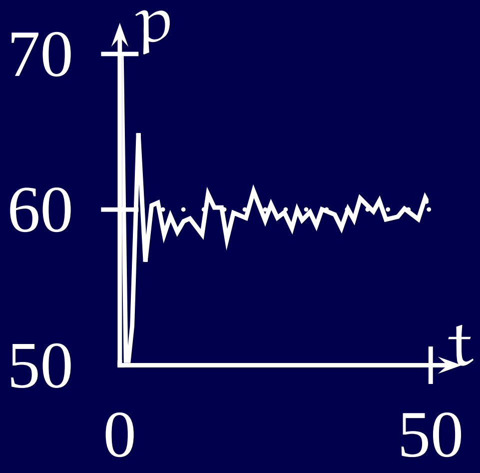




Lab (negative)



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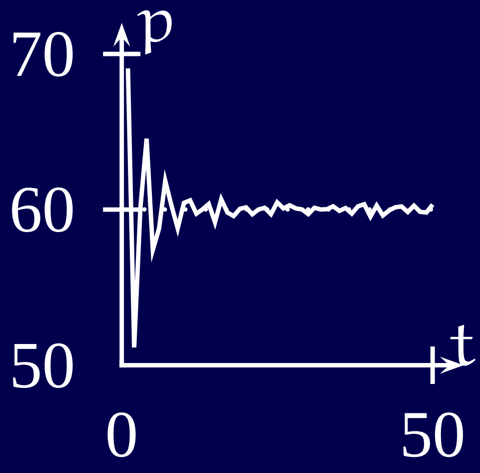

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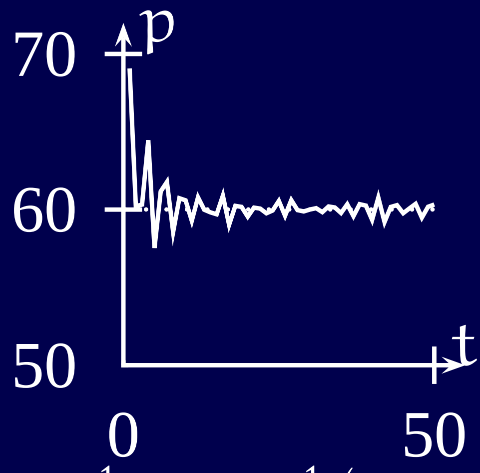

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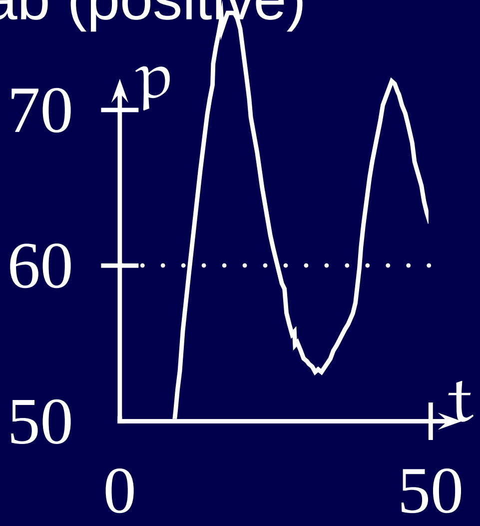

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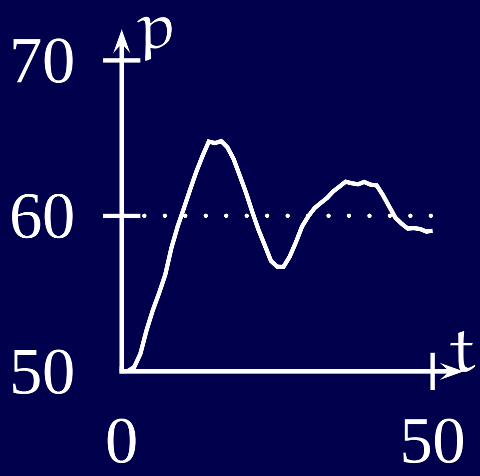

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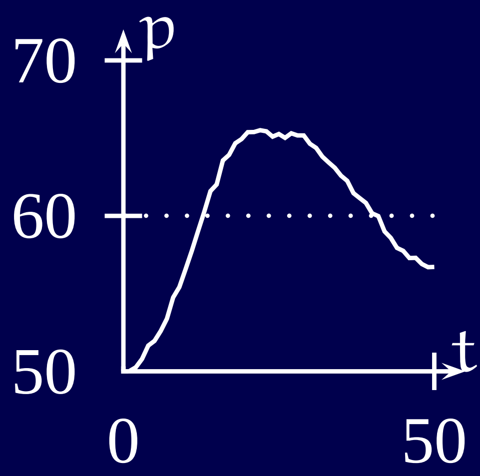

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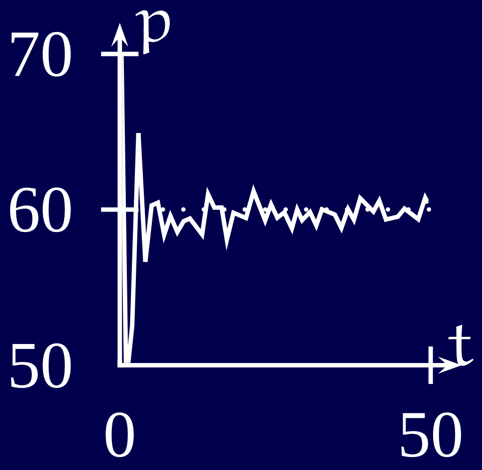

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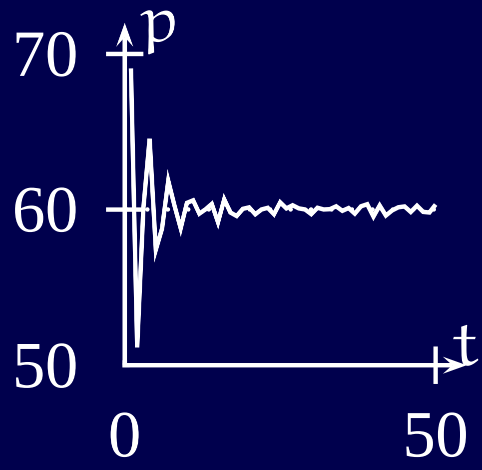

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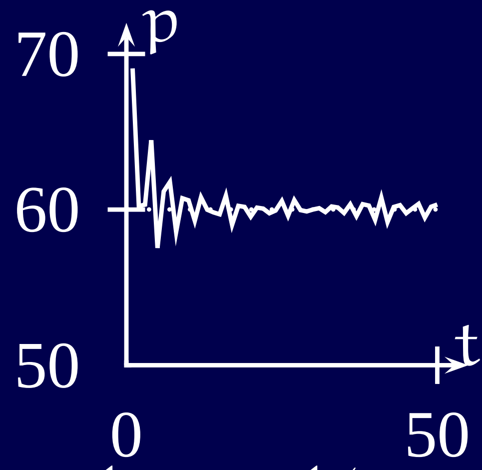

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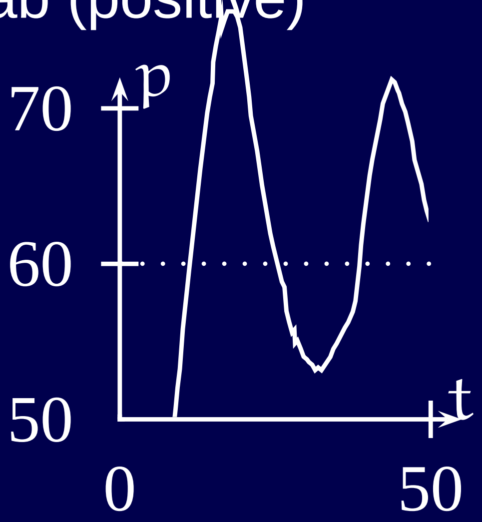

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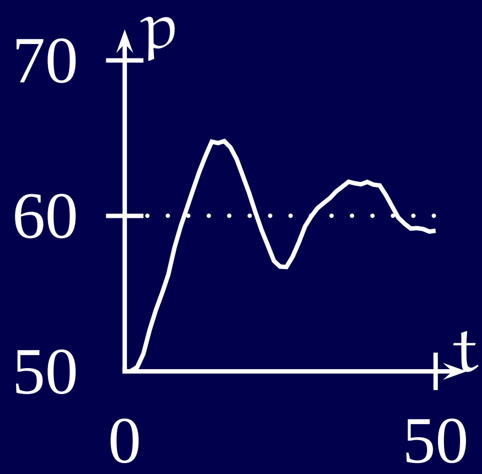

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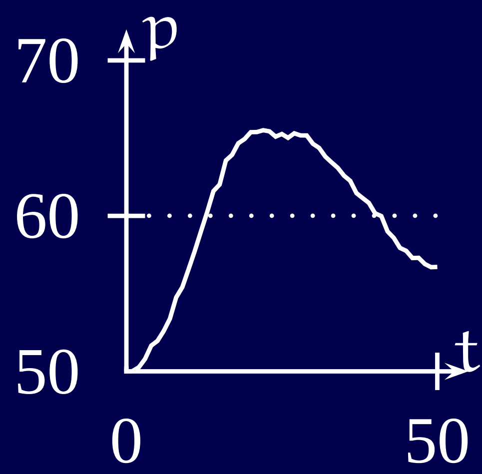

Summary

- why the noise?
- how much depends on parameters?
- how crucial is $20/21$?
- did punishment differ in the experiment?
- if so, how?
- should we use this experimental setup to estimate $p^e(\cdots)$?
  - do we have experimental control over beliefs of participants?
  - what do they know about the feedback process?
  - what do they know about interaction with other participants?
  - shouldn't we give participants more clues about what is going on?
- *how* does the feedback structure matter?
- could these expectations explain the lab dynamics
- is the dynamics really essentially different?