

Global Challenges


UOSM2010 2014

Assessment 1 Feedback

Group Assessment Info

Module leader
James Dyke jd4@ecs.soton

Module webpage
www.gc.soton.ac.uk

A white t-shirt is centered on a blue background. The text "Moving forward from Assessment 1" is printed in a black, monospaced font on the chest of the t-shirt.

Moving forward
from Assessment 1

Global Challenges

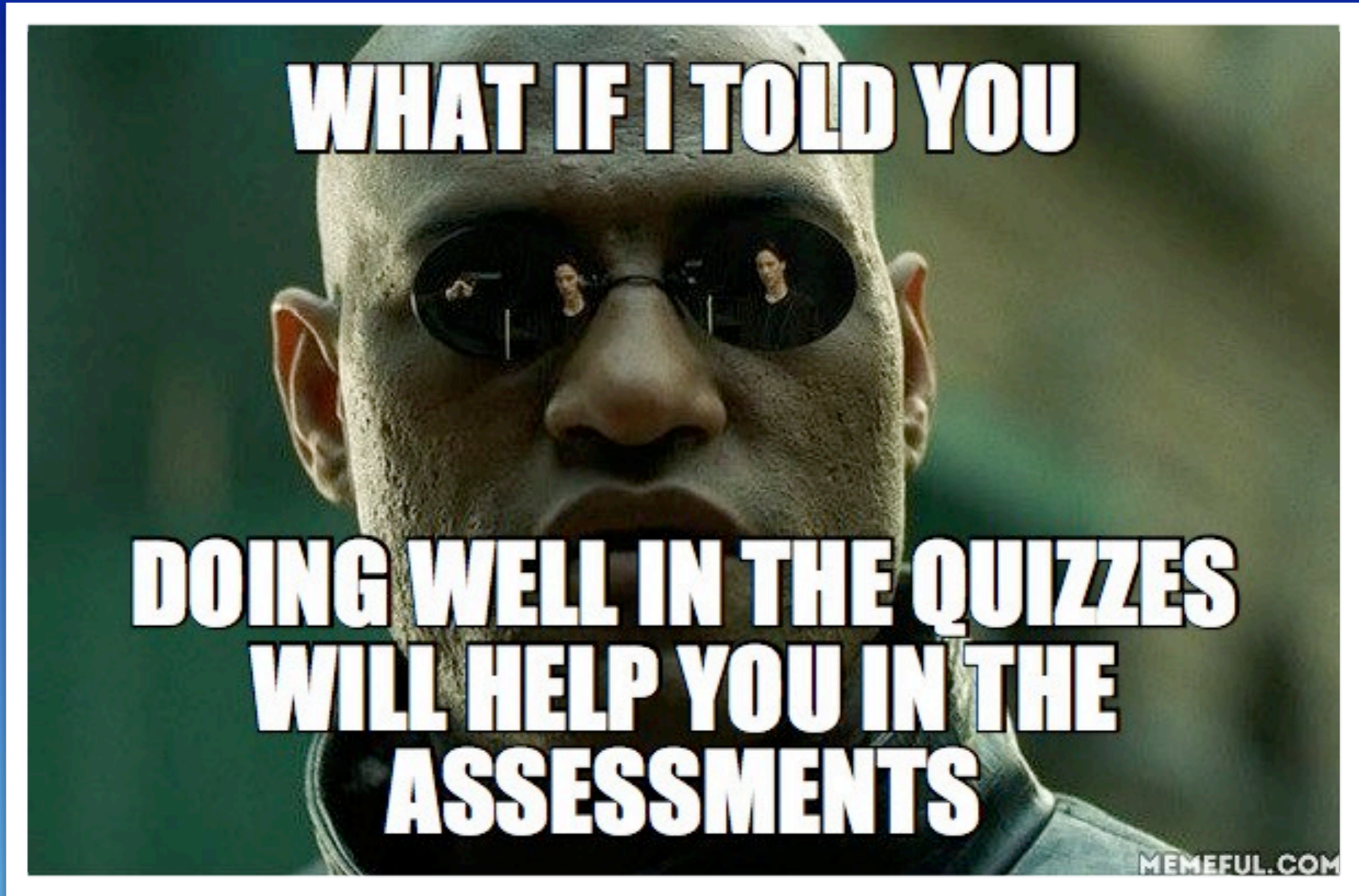
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Global Challenges

QUIZ

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Global Challenges

Global Challenges Leader Board

Who will sit on the Global Challenges Iron Throne in 2014?

Round 4 Leader Board (Biofuels and perfect storm quiz)

House Sauria 38
House of Power 32
Storm Riders 30
Mirage 30
Perspective 28
House of Intentions 26
House That? 26
Globally Challenged 25
Team Fabulous 24
Ozone 23
House Fyre 21
Team Apocalypse 20
Challenge Solved 18
House Phoenix 15

<http://www.gc.soton.ac.uk/global-challenges-leader-board>

Global Challenges

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Remember to write group name

- 1 Where/when was the 7th billion person born (according to the UN)?
- 2 What are the two elements of food security?
- 3 What is “sustainable intensification”?
- 4 List 3 ecosystem services
- 5 How many people live in the forest-agriculture interface?

Assessment 1

Assessment 1

Currently working on marking
Feedback during class and via email

Give an example of a negative feedback loop. How does it respond to changes to its environment? [4 marks]

**USES NEGATIVE FEEDBACK IN SYSTEMS DYNAMICS
CONTEXT**



PEOPLE THINK I'M "BEING NEGATIVE"
memegenerator.net

Global Challenges



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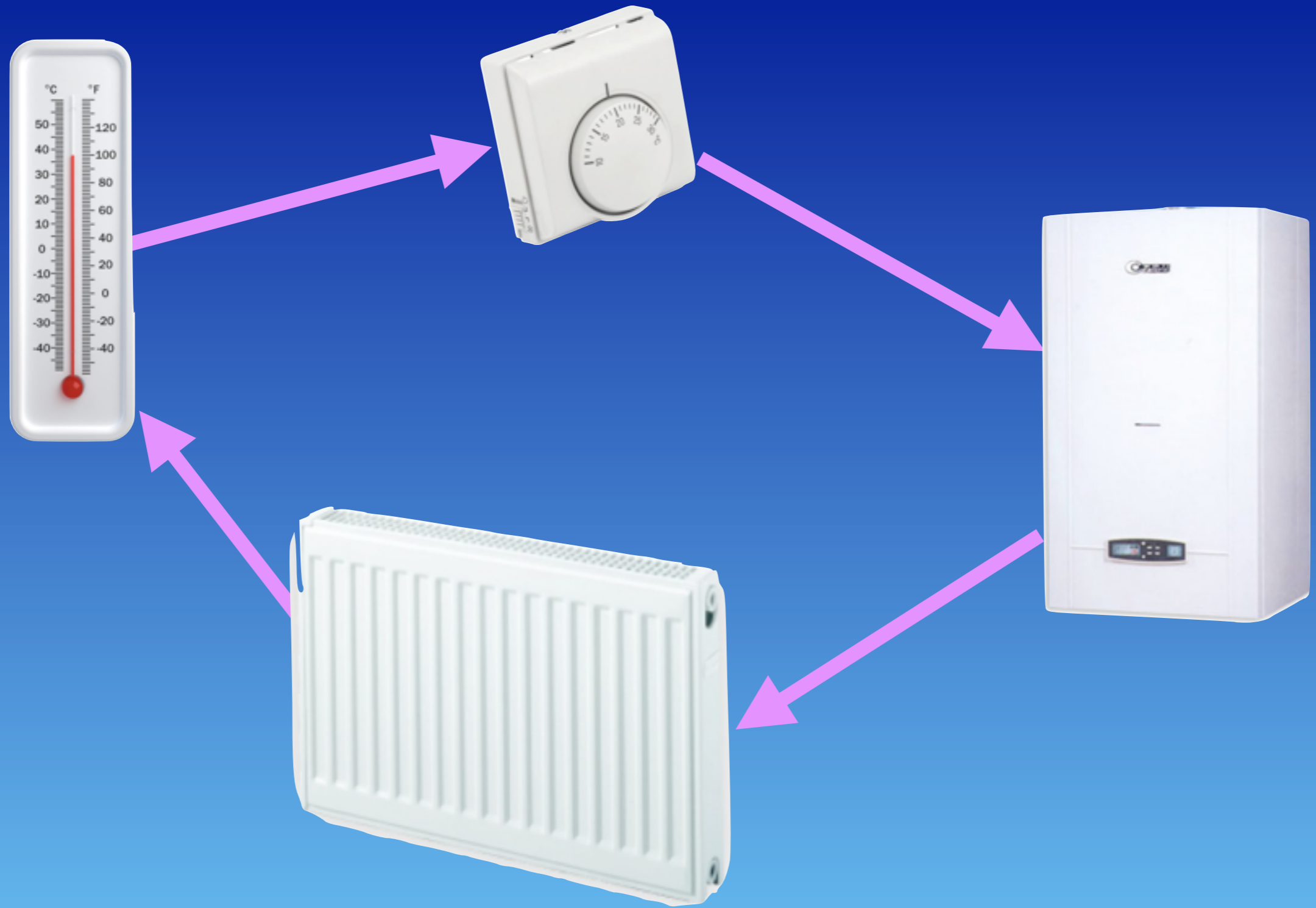
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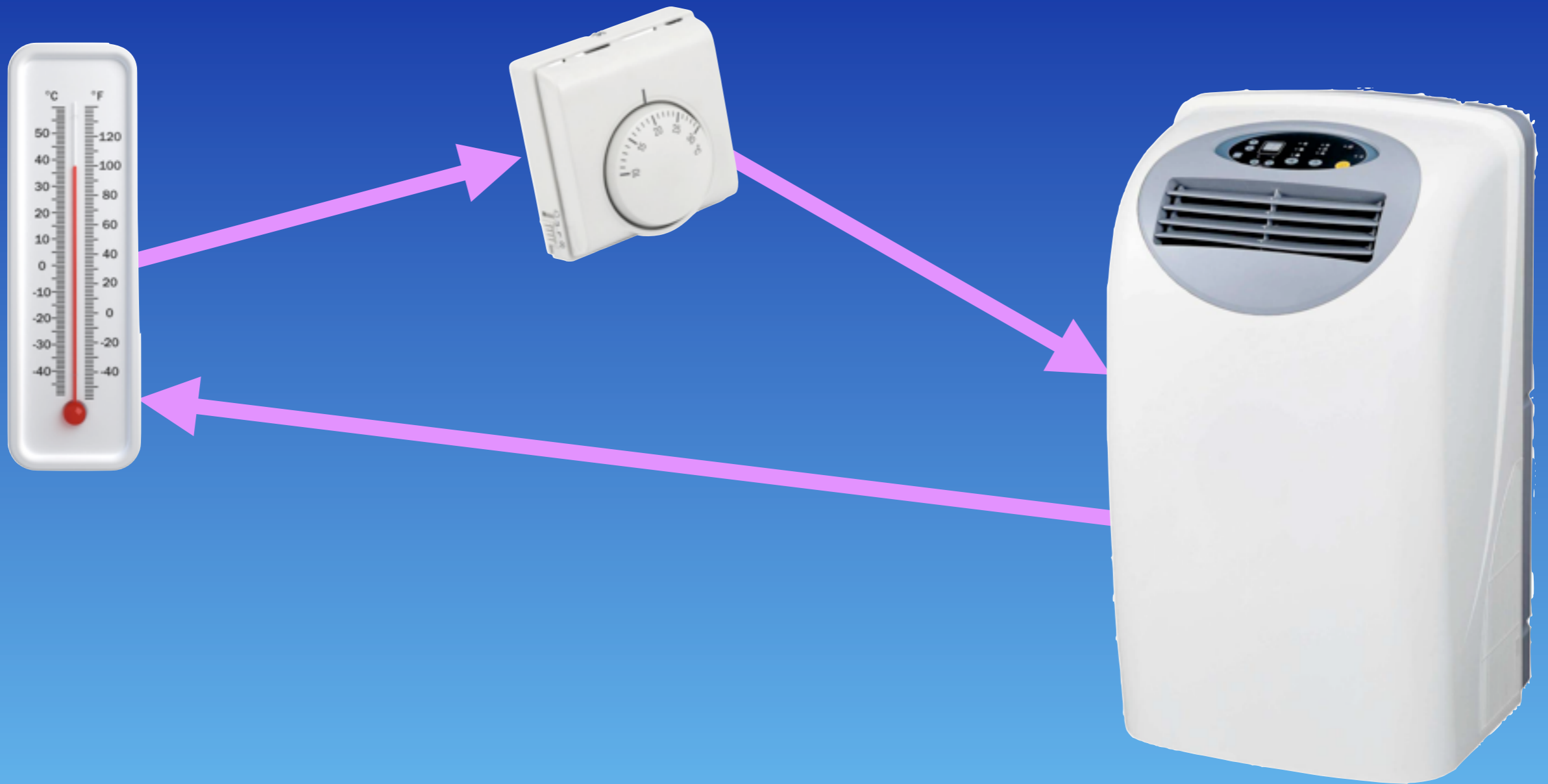
Global Challenges



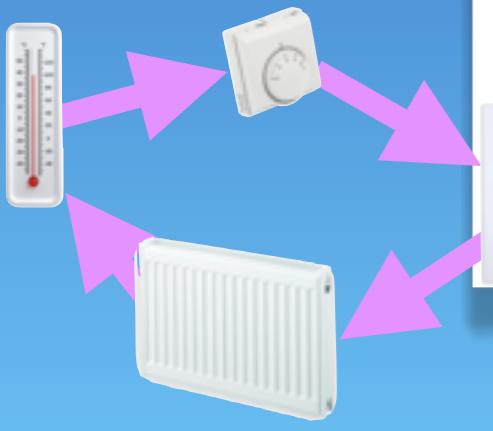
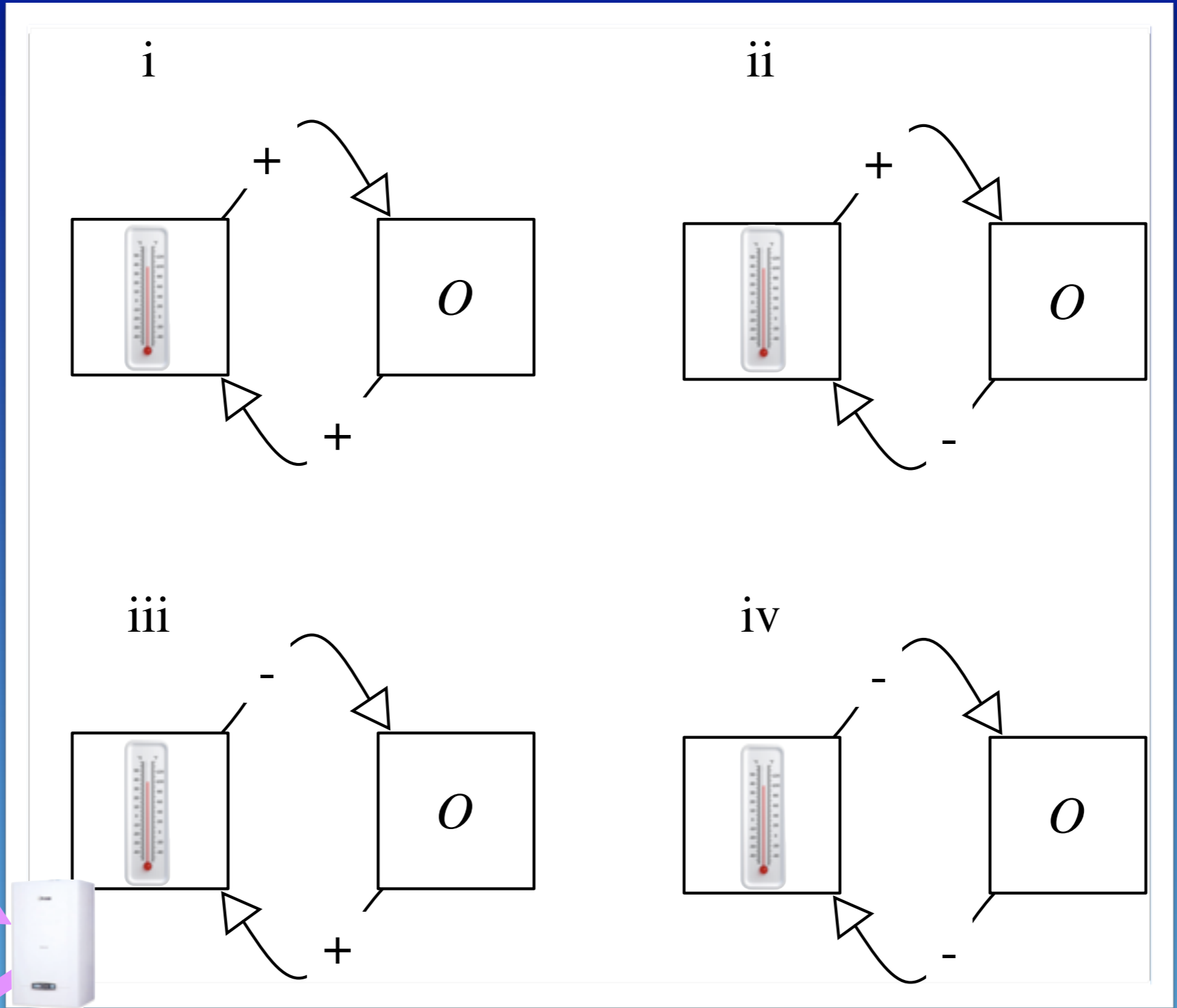
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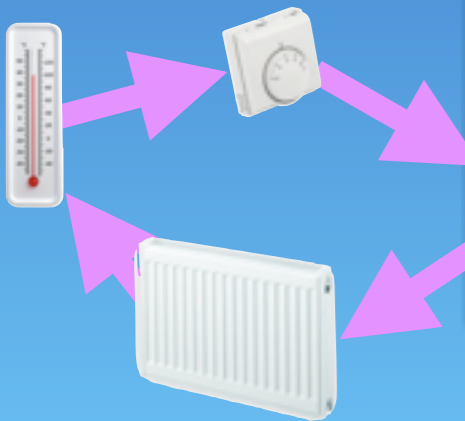
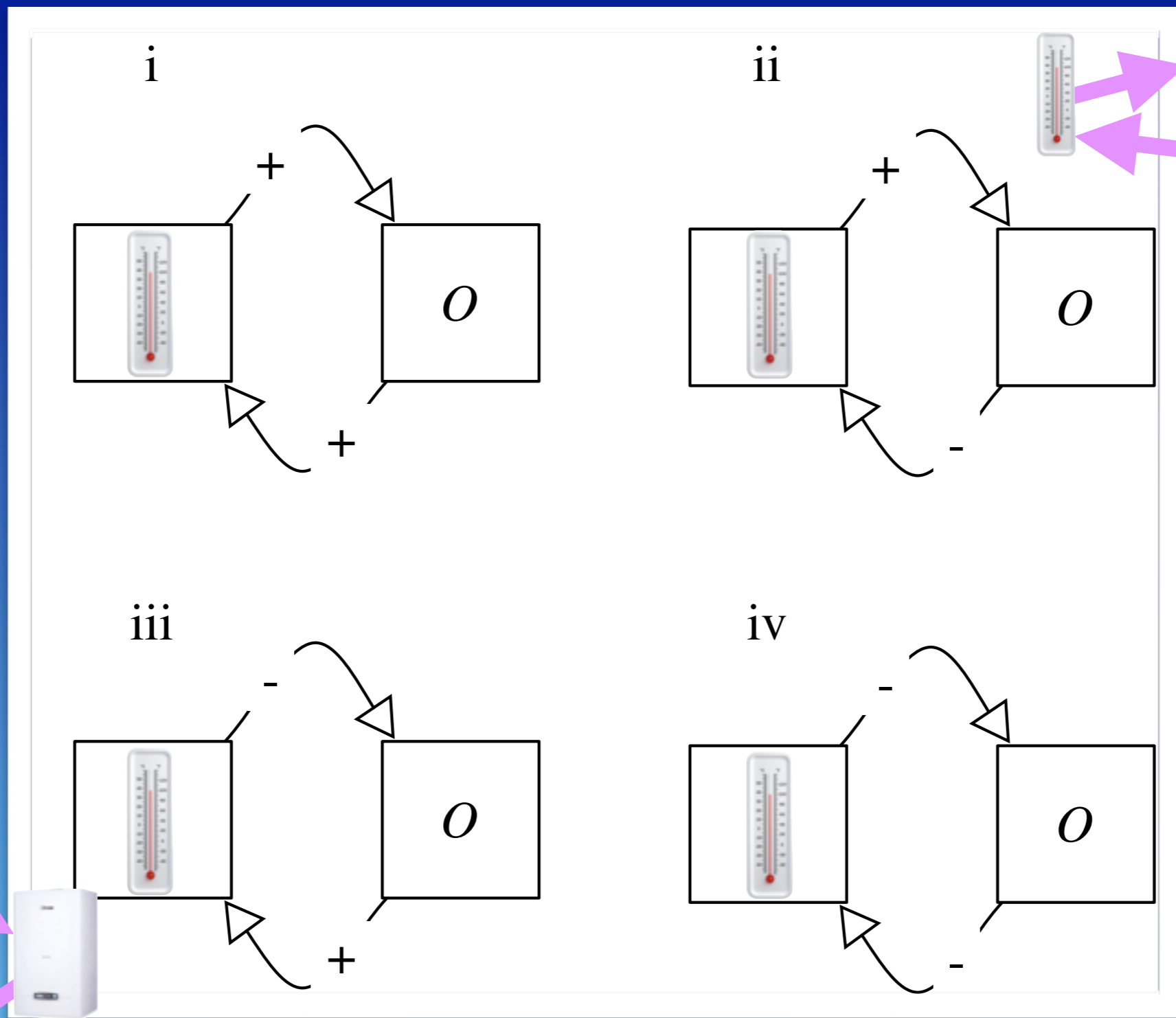
Global Challenges



Global Challenges

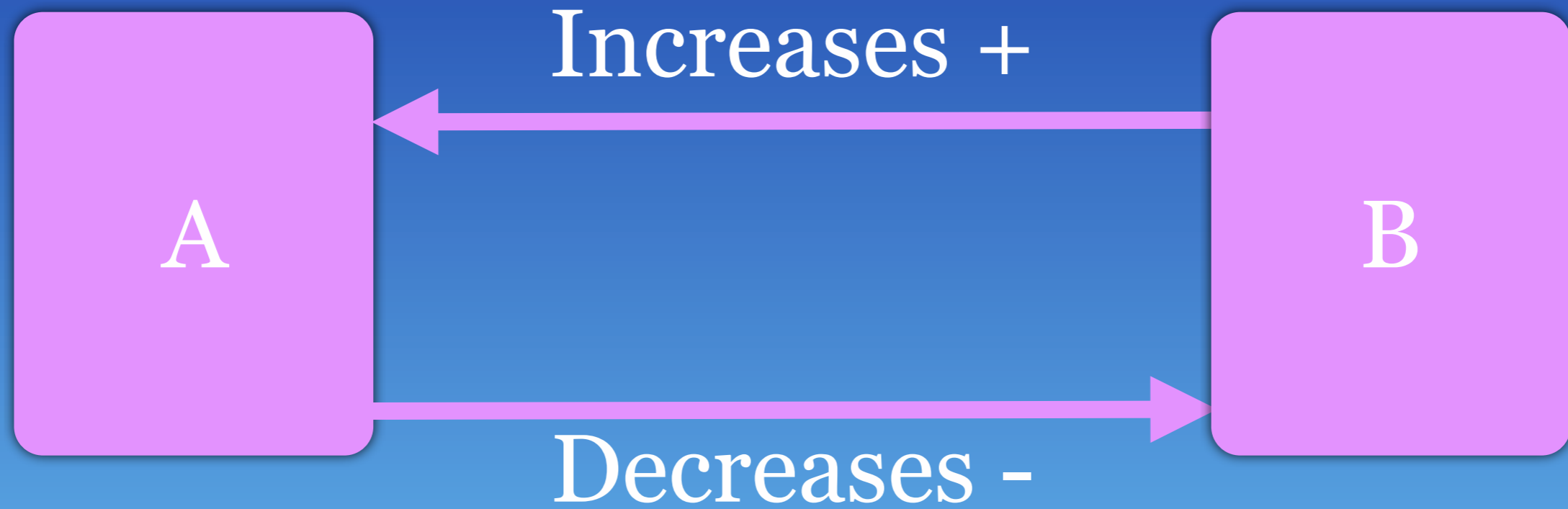


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Negative Feedback



Negative Feedback



Positive Feedback



Positive Feedback

Positive Feedback stops by:

negative feedback

or

overshoot & collapse

Stabilising Loops - Balancing Feedback



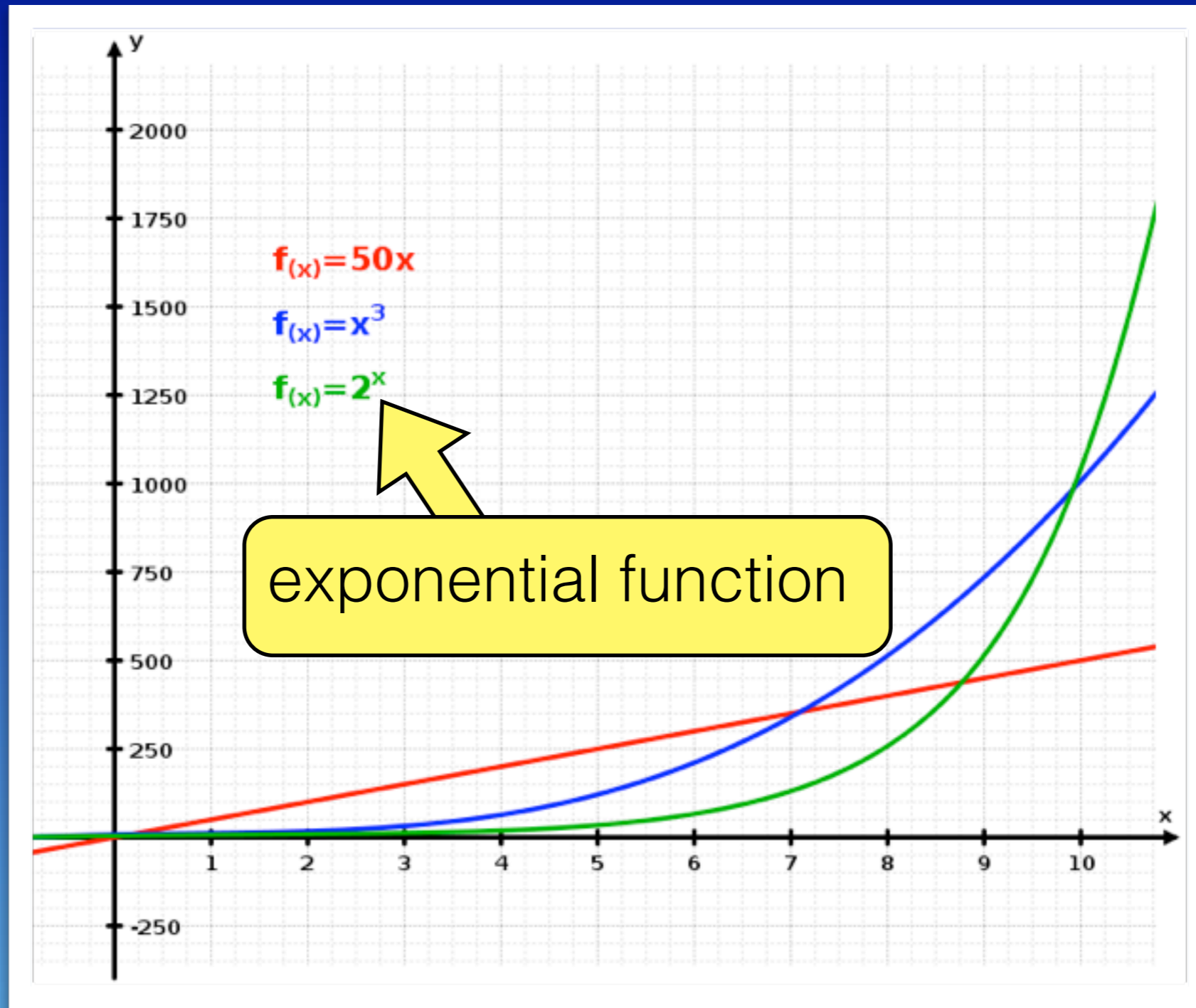


Figure: Wikipedia

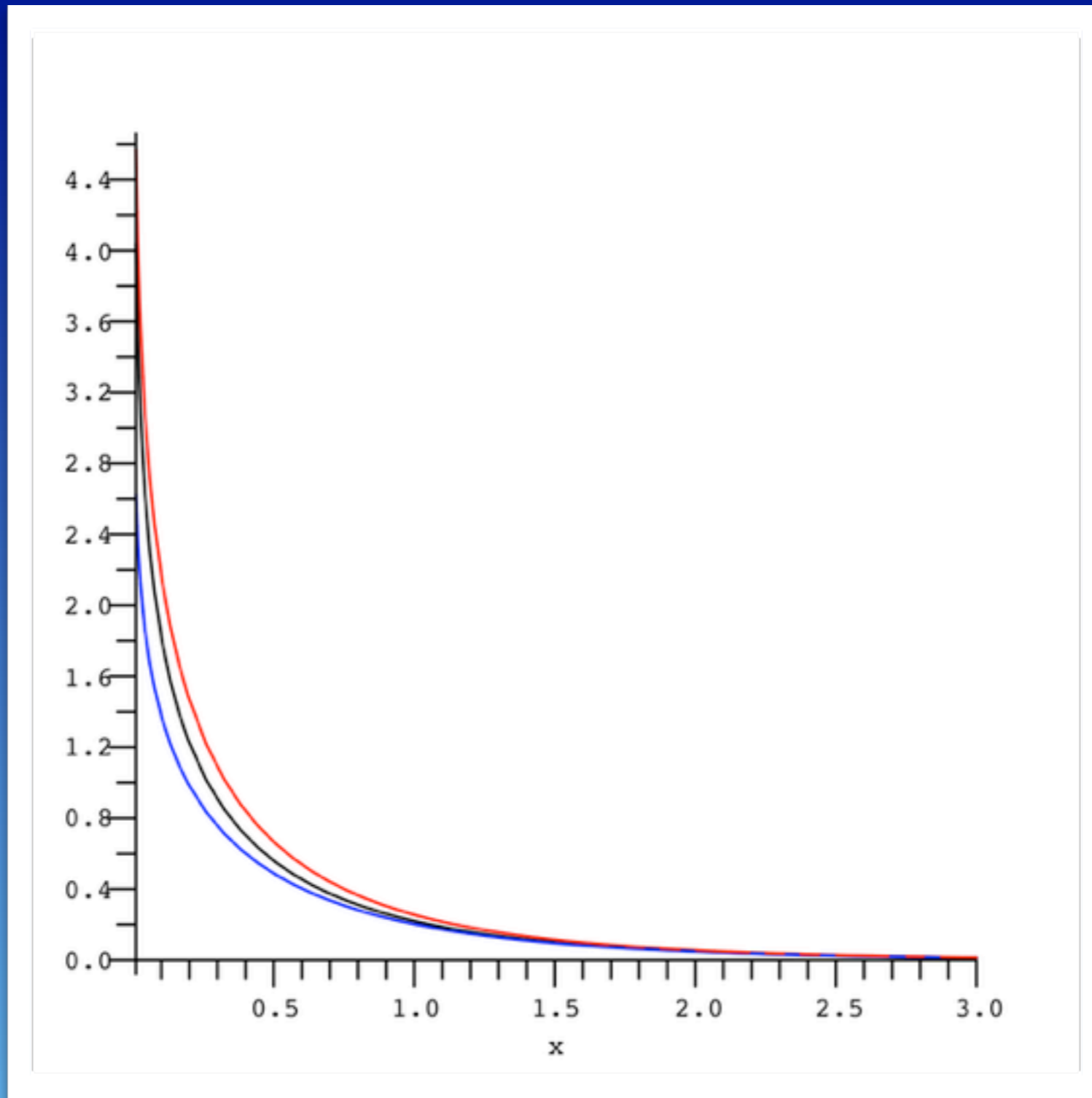


Figure: Wikipedia

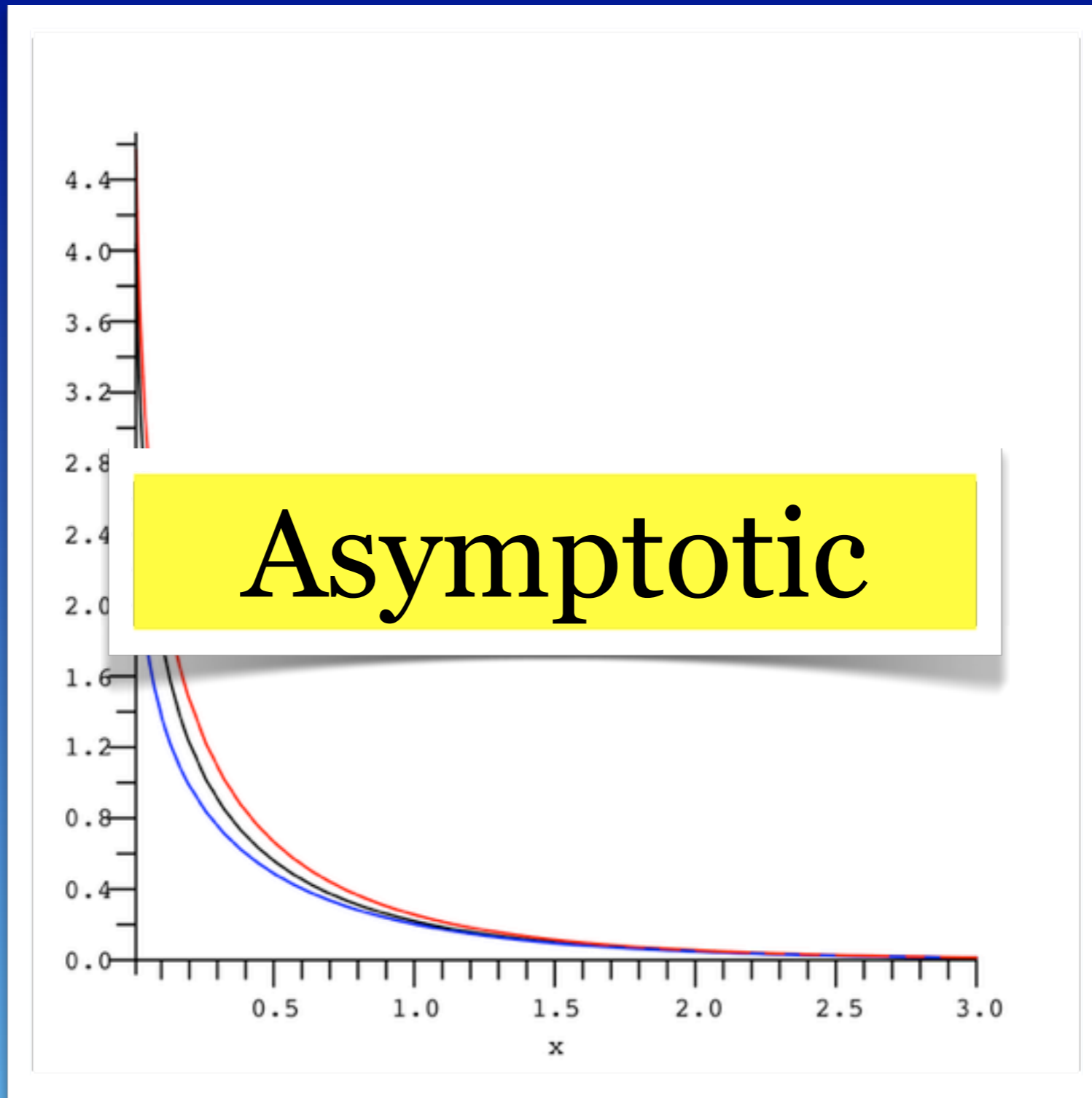


Figure: Wikipedia

What is hysteresis? Explain why a system that exhibits hysteresis may be difficult to control. [4 marks]

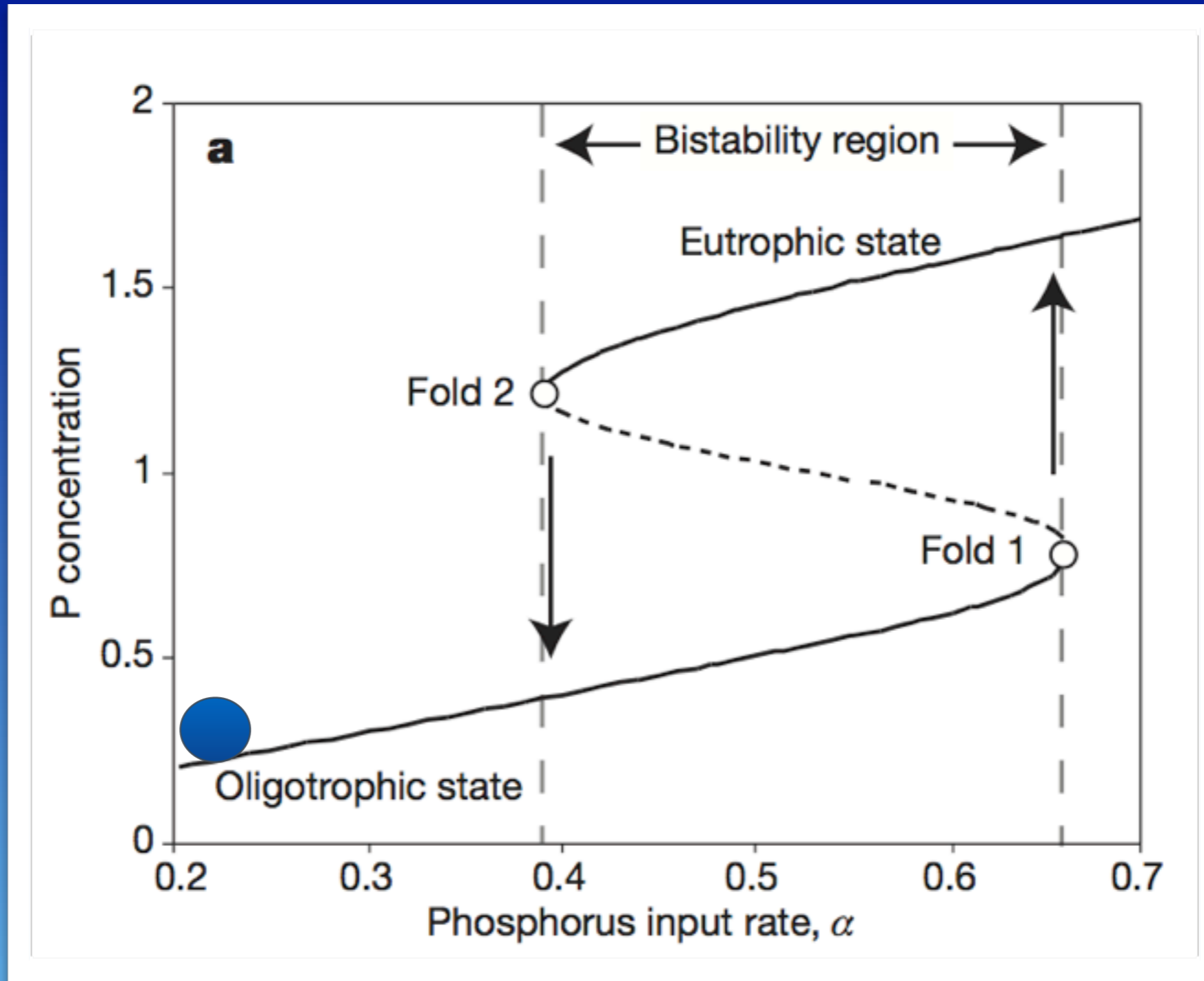


Figure: Wang et al *Nature* doi:10.1038/nature116552012

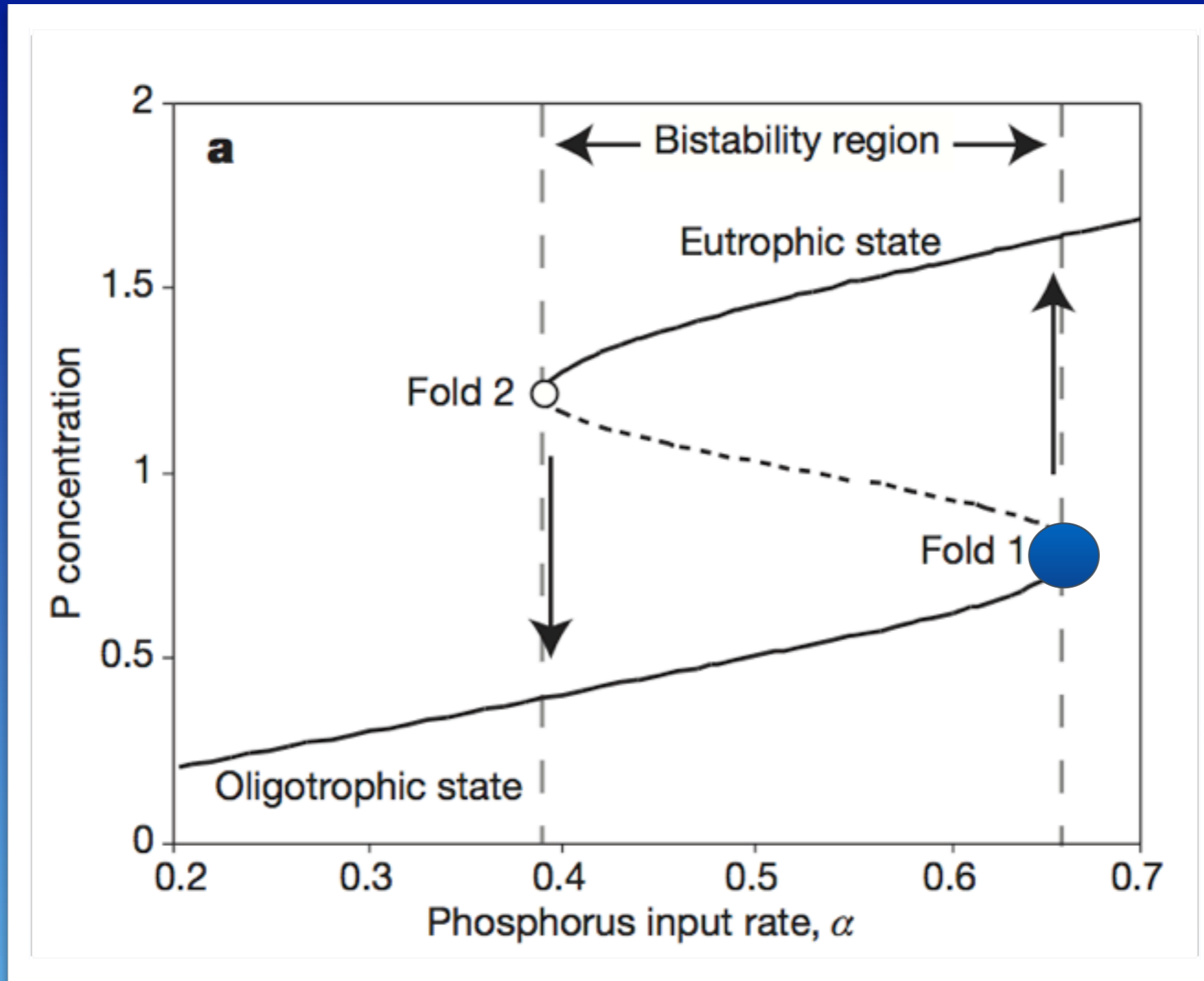


Figure: Wang et al *Nature* doi:10.1038/nature116552012

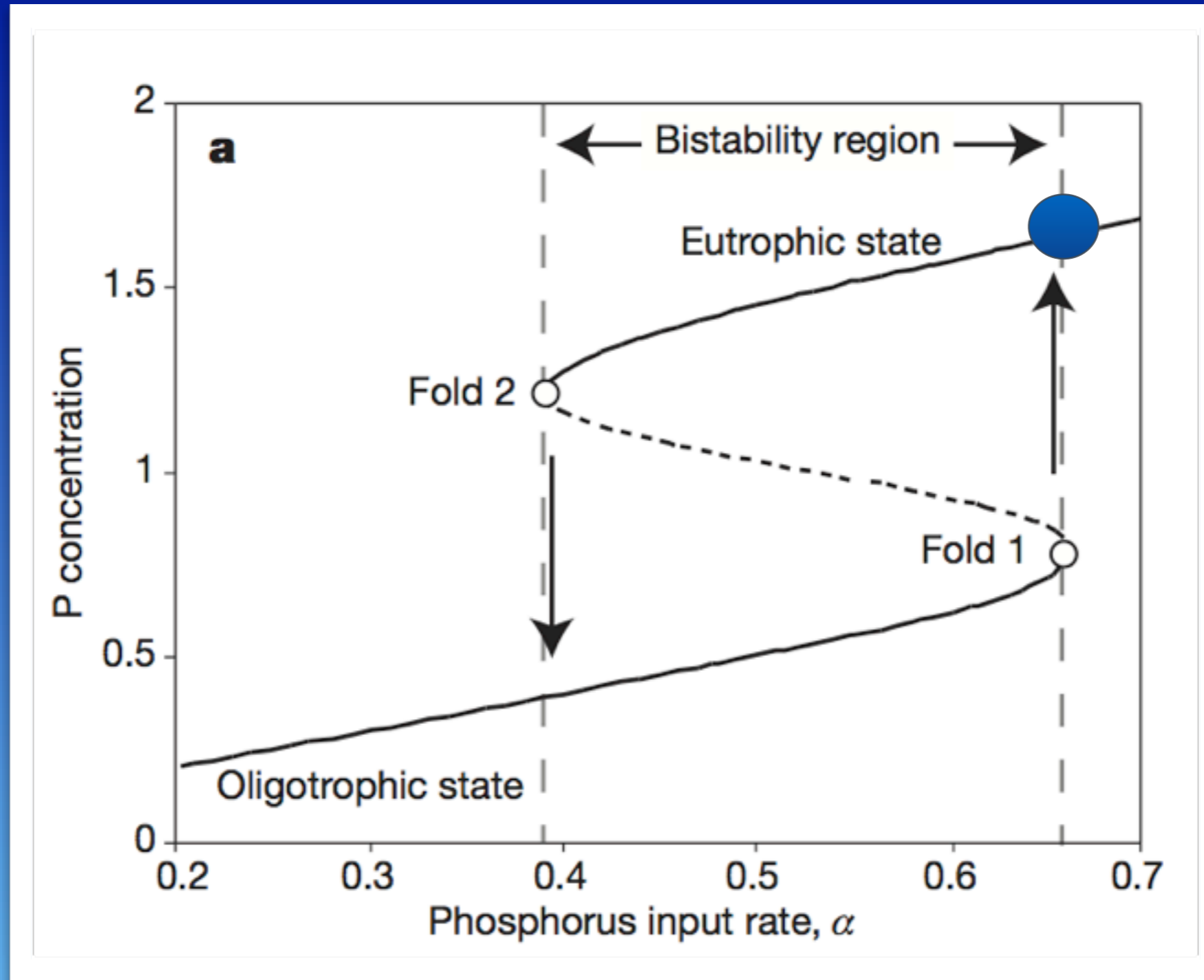


Figure: Wang et al *Nature* doi:10.1038/nature116552012

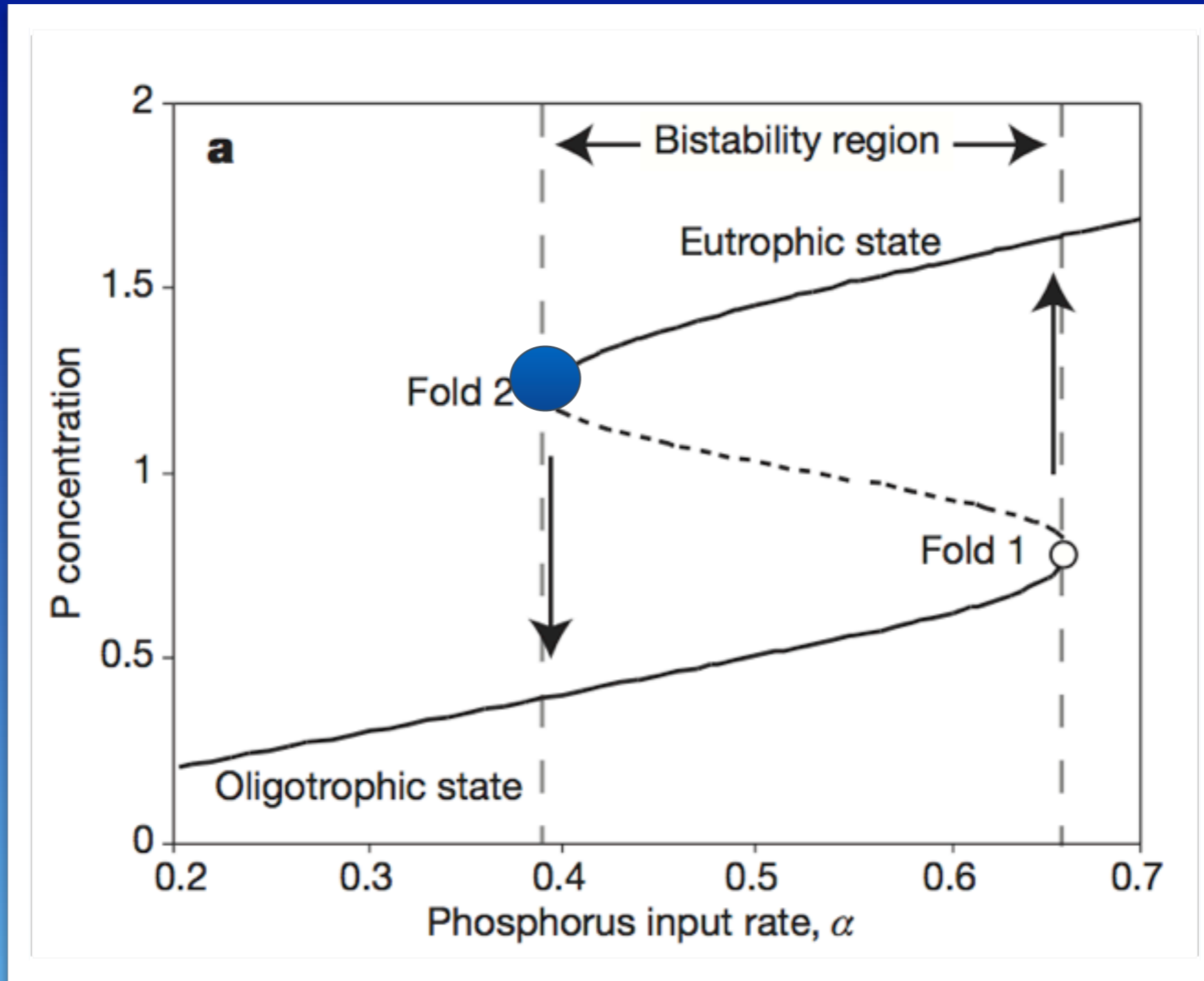


Figure: Wang et al *Nature* doi:10.1038/nature116552012

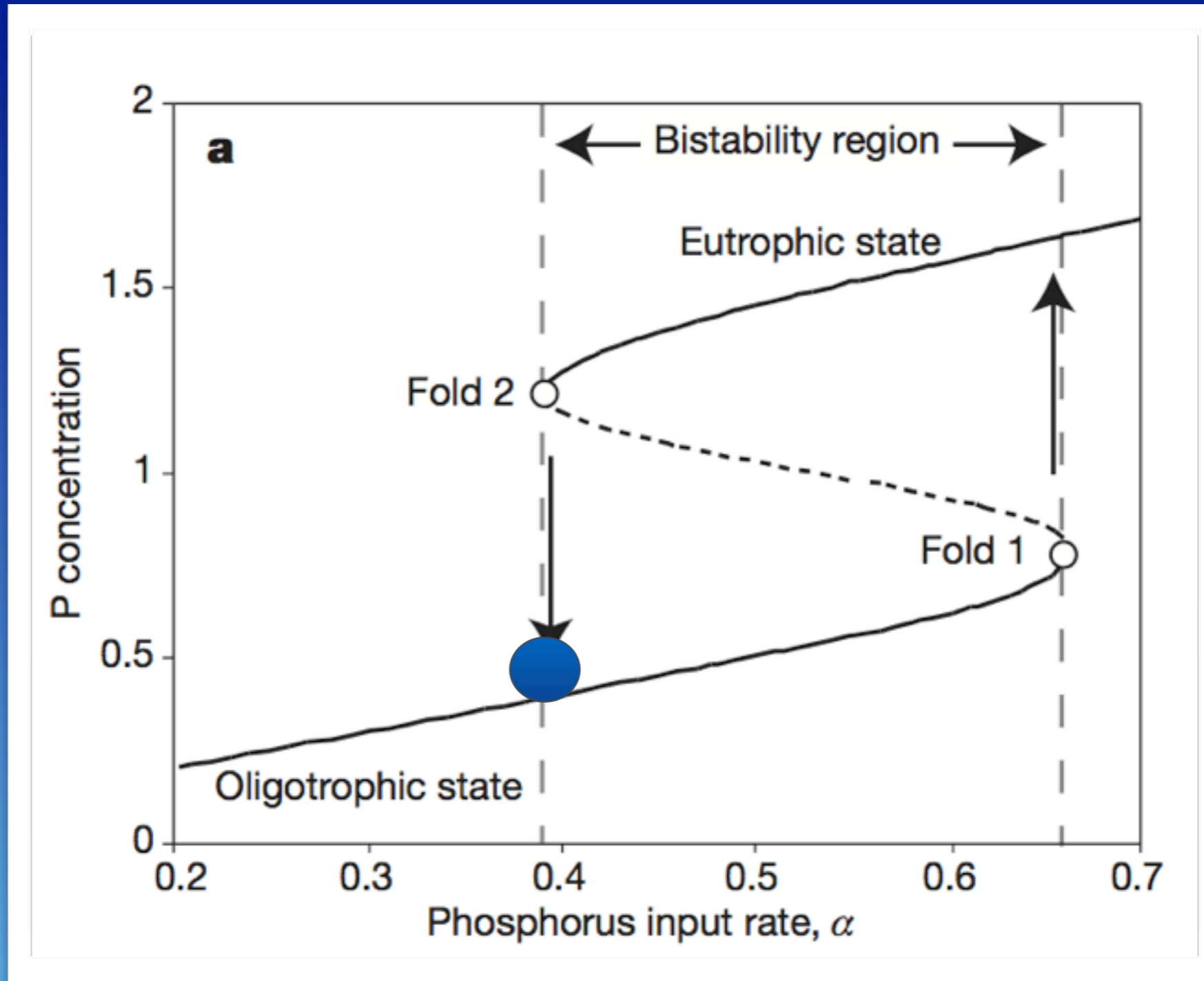


Figure: Wang et al *Nature* doi:10.1038/nature116552012

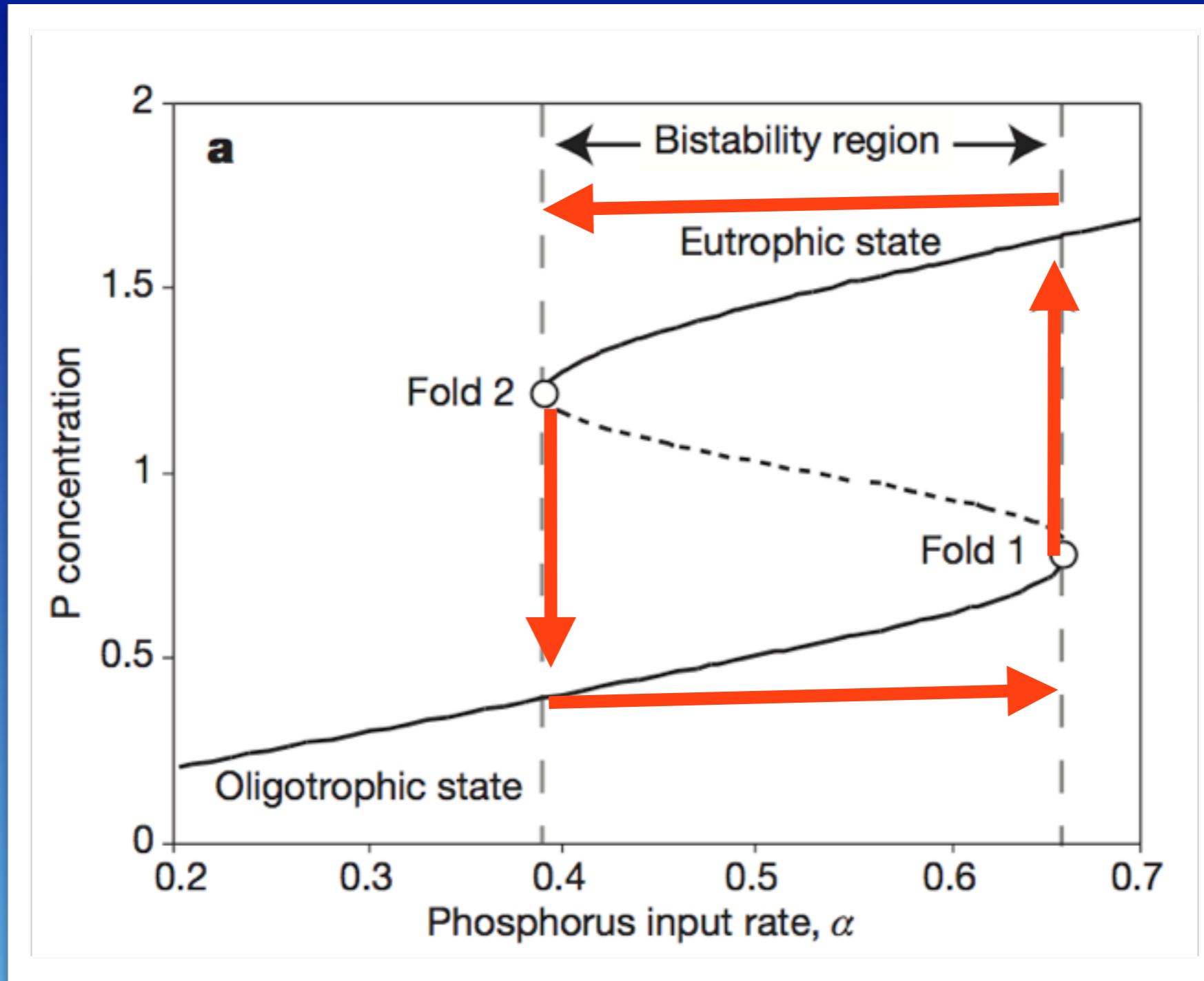


Figure: Wang et al *Nature* doi:10.1038/nature116552012

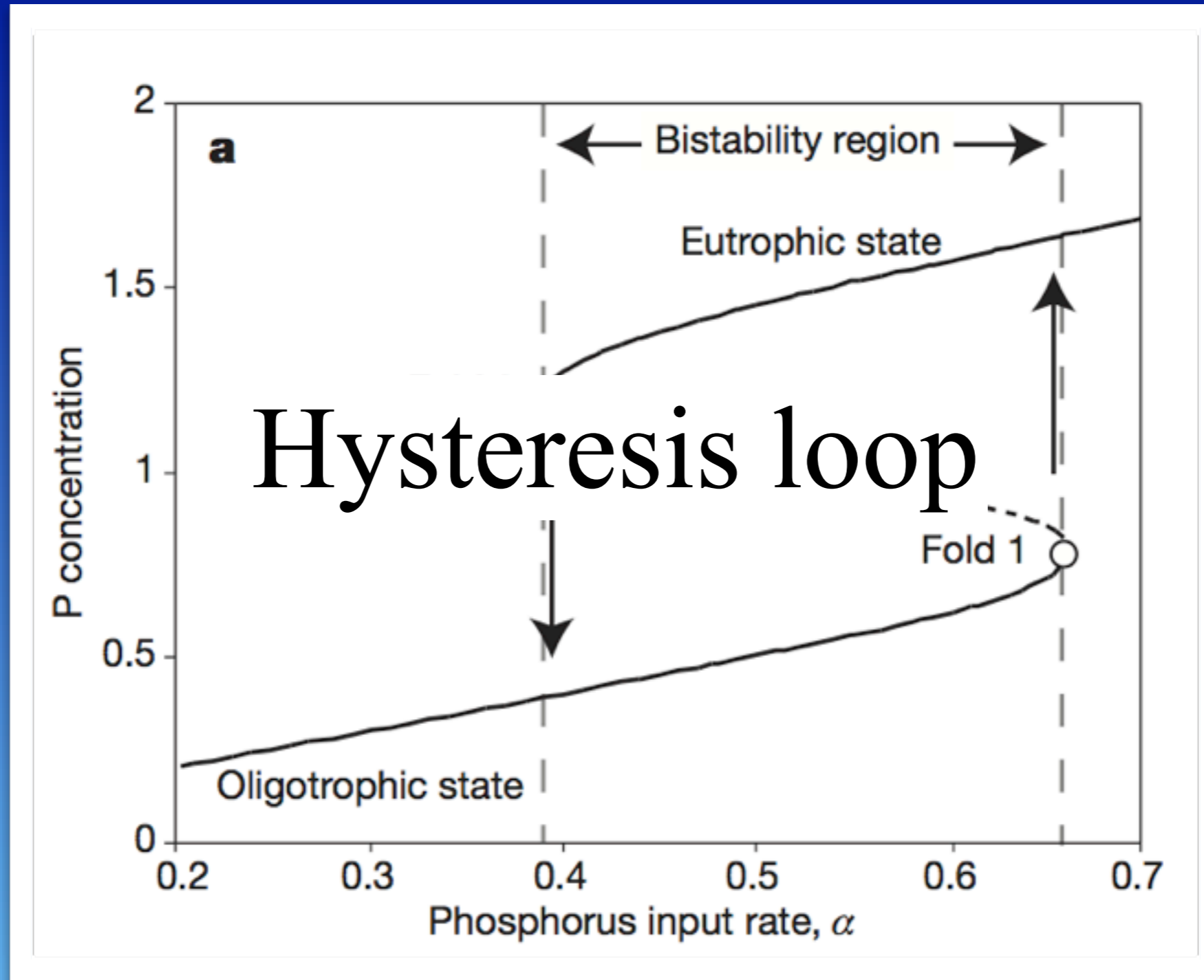


Figure: Wang et al *Nature* doi:10.1038/nature116552012



Image: Guy Billout / Mother Jones

Global Challenges

INDIVIDUAL REPORT 2 – The Systems Storm

Student Name:
Student Email:
Student Number:

There are 25 marks in total for this report. This assessment will account for 25% of your total module mark.

The purpose of this report is to apply systems dynamics analysis to the challenge of Beddington's Perfect Storm (hereafter referred to as "The Perfect Storm").

The word limit for this assessment is 1000 words (not including the text of the assessment template which totals 346 words)

REFERENCES. You will need to cite appropriate peer-reviewed literature in

<http://www.gc.soton.ac.uk/assessments>

own work and that you answer each question individually. Working on this assessment by, for example, Student 1 answering question 1, Student 2 answering question 2 and then Student's 1 & 2 incorporating their answers into their respective assessments may be judged to be an example of plagiarism. Discussion is good. Explaining answers to other students is good. Reproducing another student's answer as your own work is not good.

Q1

Describe the Perfect Storm and sketch out its systems dynamics diagram. As well as Beddington's report, refer to relevant peer-reviewed publications.

Q2

Where are the interactions and feedback loops in the Perfect Storm? How do these feedback loops complicate our attempts to address these challenges? Are there any potential multiple stable states, critical transitions and hysteresis?

Q3

Argue whether we are going to be able to successfully navigate the Perfect Storm.

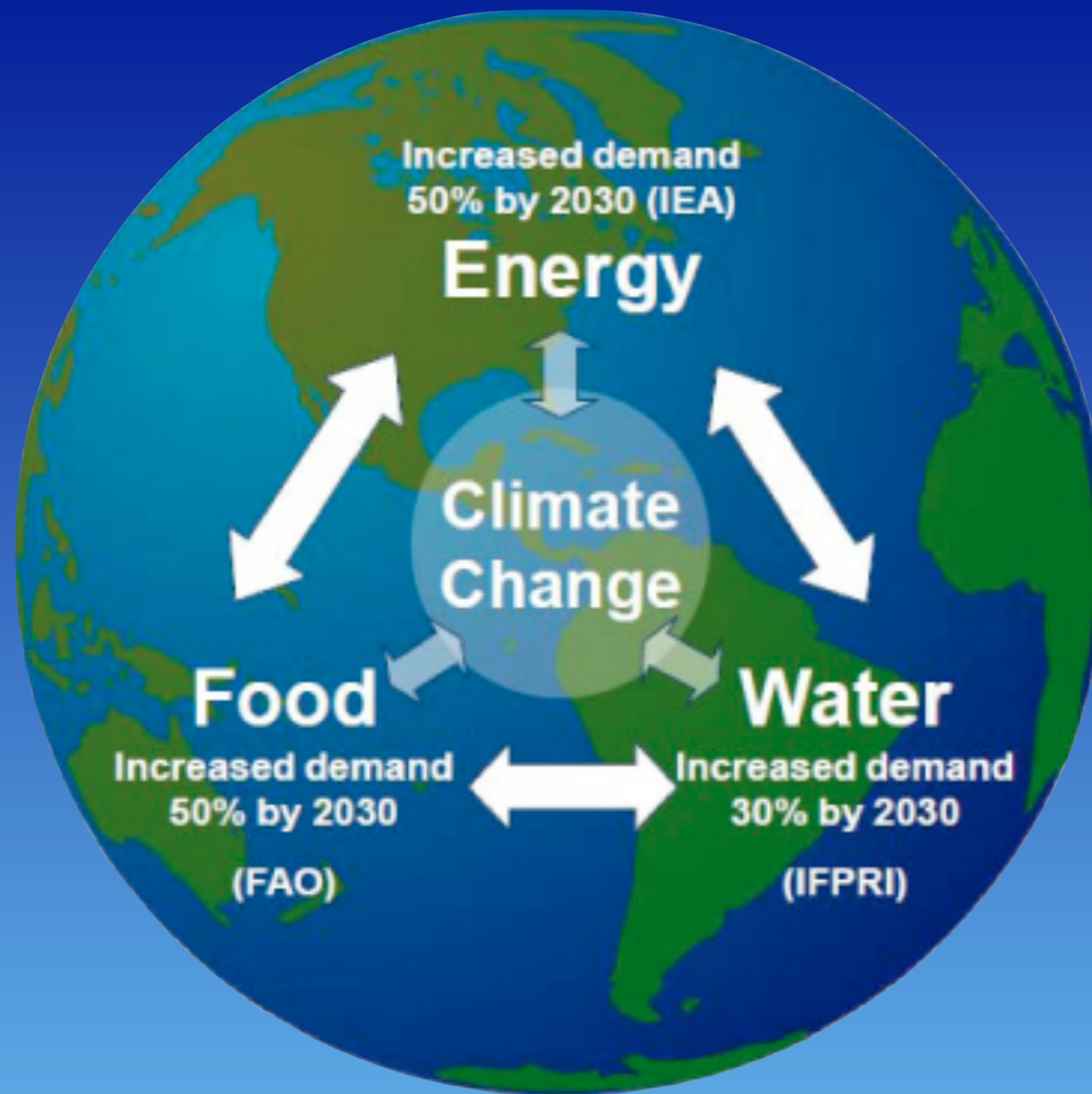


Image: <http://www.igd.com>

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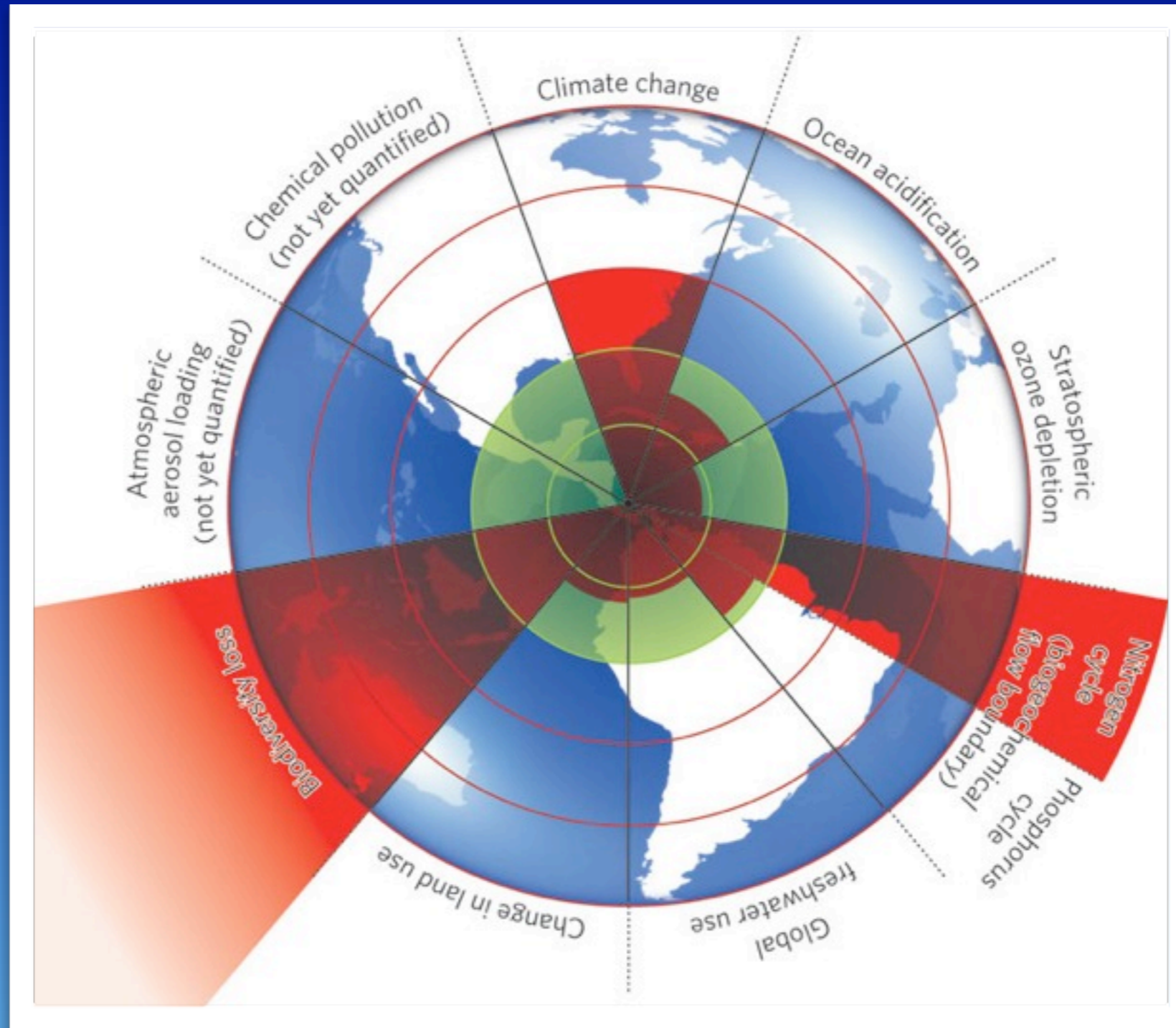


Figure: J. Rockström et al (2009) *Nature* 461, 472-475

Global Challenges



Global Challenges

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Resources

Core material

Donella H. Meadows, *Thinking in Systems: A Primer*

This book serves as the **core text** for the module.

10 copies are available in the library (HN 18.3 MEA).

A Google Books preview can be found [here](#).

Meadows et al *Limits to Growth* 1972. A pdf of this book can be downloaded [here](#).

John Beddington [Food, energy, water and the climate: A perfect storm of global events?](#)

Jared Diamond, *Collapse: How Societies Choose to Fail or Succeed*

In the library: 8 copies of 2011 edition, 3 copies of 2006 edition – (HN 13 DIA)

Tim Jackson, *Prosperity Without Growth*

7 copies are available in the library (HC 79.E5 JAC).

An online lecture is available [here](#).

Mitchel Resnick, *Turtles, Termites and Traffic Jams: Explorations in Massively Parallel Microworlds*.

10 copies are available in the library (QA 76.58 RES)

A Google Books preview can be found [here](#).

The Millennium Project identifies 15 global challenges for humanity. An overview of the challenges can be



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<http://piktochart.com/resources/tutorials>

<http://piktochart.com>

Global Challenges

Tips For Kicking Junk Food Cravings

Have your favorite foods forced you to change your wardrobe to larger sizes? Do you find it hard even impossible to resist getting that slice of cake with your lunch every day? If so, here are some great ways to alter those bad habits.

Identify Your Triggers

Cravings are mental responses to specific triggers. The first step in overcoming the habit is to understand when and why you crave junk food. Common triggers include the right time, stressful situations, when people are alone, hunger, feeling tired, bored, sitting in front of the TV, etc.

Redirect Your Response

- If you are bored find something active to do, take a run, clean your room, or walk your dog.
- Avoid mindless eating when watching TV, sitting in front of the computer or doing work.
- Reduce stress by meditating, listening to soothing music, or taking a bath.
- Find new ways to respond to your triggers. When negative emotions such as loneliness are resolved by activities other than eating, for example calling a friend, the association of food used to cope with triggers can be replaced over time.
- Take your mind off of food by distracting yourself. Take a walk, read a book, or paint.
- To boost your energy level take a brisk walk, a power nap, eat an energy bar.
- Sometimes cravings come up when we are merely hungry. Aim for filling meals with vegetables and protein.

{ Additional Tips }

- Drink this not that: Water vs. sugary drinks.
- Find healthy yet tasty substitutes for junk food. Have a parfait instead of ice cream, replace regular salmon for turkey bacon.
- Eat this not that: Apples and bananas vs. junk food.
- Write it all out. Keeping a journal can help channel your triggers, keep track of your progress and help avoid giving into cravings.

Find A Support System

Friends and support groups with your similar goals can be a great help when you start to lose motivation. Having others to share your experiences with can ensure your success in the long run!



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Redirect Your Response



If you are bored find something active to do, take a run, clean your room, or walk your dog.

Avoid mindless eating when watching TV, sitting in front of the computer or doing work.

Relieve stress by meditating, listening to soothing music, or taking a bath.

Find new ways to respond to your triggers. When negative emotions such as loneliness are resolved by activities other than eating, for example calling a friend, the association of food used to cope with triggers can be replaced over time.

To boost your energy level take a brisk walk, a power nap, eat an energy bar.

Remember, cravings come on when we are merely hungry. Aim for filling meals with vegetables and protein.

{ Additional Tips }



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One section per group member

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Additional Tips

- Drink this not that: Water vs. Soda.
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Friends & Support Groups

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Bibliography

One section per group member



3 references per group member



Bibliography

One section per
group member

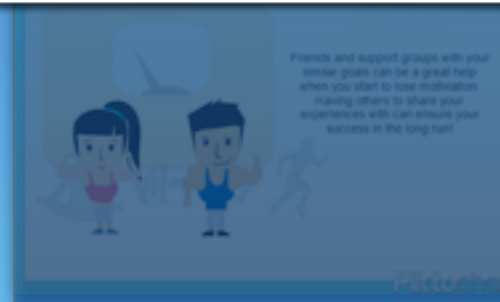


3 references per group member



6 in a group give 18 references

Bibliography



My University of Southampton Courses

Tools

COURSE MANAGEMENT

- Control Panel
- Files
- Course Tools
- Evaluation
- Grade Centre
 - Needs Marking
 - Full Grade Centre
 - Assignments
 - Tests
- Users and Groups
 - Groups
 - Users
- Customisation
- Packages and Utilities
- Help

Delete

<input type="checkbox"/>	Name	GroupSet	Self-Enrol	Available
<input type="checkbox"/>	House Apocalypse	-	No	Yes
<input type="checkbox"/>	House Fabulous 7	-	No	Yes
<input type="checkbox"/>	House Fyre 7	-	No	Yes
<input type="checkbox"/>	House Mirage	-	No	Yes
<input type="checkbox"/>	House Phoenix	-	No	Yes
<input type="checkbox"/>	House Sauria 7	-	No	Yes
<input type="checkbox"/>	House Stark 7	-	No	Yes
<input type="checkbox"/>	House That?	-	No	Yes
<input type="checkbox"/>	House of Intentions	-	No	Yes
<input type="checkbox"/>	House of Power 7	-	No	Yes
<input type="checkbox"/>	Ozone	-	No	Yes
<input type="checkbox"/>	Perspective	-	No	Yes
<input type="checkbox"/>	Storm Riders	-	No	Yes
<input type="checkbox"/>	The Globally Challenged	-	No	Yes

Delete

<https://blackboard.soton.ac.uk>

My University of Southampton Courses

Tools

COURSE MANAGEMENT

- Control Panel
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- Grade Centre
 - Needs Marking
 - Full Grade Centre
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 - Tests
- Users and Groups
 - Groups
 - Users
- Customisation
- Packages and Utilities
- Help

Logon to Blackboard

			Available	
<input type="checkbox"/>	House Mirage	-	No	Yes
<input type="checkbox"/>	House Phoenix	-	No	Yes
<input type="checkbox"/>	House Sauria 7	-	No	Yes
<input type="checkbox"/>	House Stark 7	-	No	Yes
<input type="checkbox"/>	House That?	-	No	Yes
<input type="checkbox"/>	House of Intentions	-	No	Yes
<input type="checkbox"/>	House of Power 7	-	No	Yes
<input type="checkbox"/>	Ozone	-	No	Yes
<input type="checkbox"/>	Perspective	-	No	Yes
<input type="checkbox"/>	Storm Riders	-	No	Yes
<input type="checkbox"/>	The Globally Challenged	-	No	Yes

Delete

<https://blackboard.soton.ac.uk>

The image shows a screenshot of the Blackboard course management interface for My University of Southampton. The left sidebar contains a 'Tools' menu and a 'COURSE MANAGEMENT' section with sub-menus: Control Panel, Files, Course Tools, Evaluation, Grade Centre (Needs Marking, Full Grade Centre, Assignments, Tests), Users and Groups (Groups, Users), Customisation, Packages and Utilities, and Help. The main content area displays a list of courses with checkboxes and a 'Delete' button at the bottom. Two yellow callout boxes are overlaid on the screenshot:

- Top callout: Logon to Blackboard
- Bottom callout: Check (change) groups

Course Name	Available
House Mirage	Yes
House Phoenix	Yes
House Sauria 7	Yes
Storm Riders	Yes
The Globally Challenged	Yes

<https://blackboard.soton.ac.uk>

The image shows a screenshot of the Blackboard course management interface for My University of Southampton. The interface includes a 'Tools' dropdown menu, a 'COURSE MANAGEMENT' sidebar with options like 'Control Panel', 'Files', 'Course Tools', 'Evaluation', 'Grade Centre', 'Users and Groups', 'Customisation', 'Packages and Utilities', and 'Help'. The main content area displays a list of courses with checkboxes and dropdown menus for each. Three yellow callout boxes with black text are overlaid on the screenshot, providing instructions: 'Logon to Blackboard', 'Check (change) groups', and 'Update description'.

My University of Southampton Courses

Tools

COURSE MANAGEMENT

- ^ Control Panel
- ▾ Files
- ▾ Course Tools
- ▾ Evaluation
- ^ Grade Centre
 - Needs Marking
 - Full Grade Centre
 - Assignments
 - Tests
- ^ Users and Groups
 - Groups
 - Users
- ▾ Customisation
- ▾ Packages and Utilities
- ▾ Help

House Mirage

House Phoenix

House Sauria 7

Storm Riders

The Globally Challenged

Available

Yes

Yes

Yes

Yes

No

Yes

Yes

Yes

Yes

Yes

Yes

No

No

Yes

Yes

Logon to Blackboard

Check (change) groups

Update description

<https://blackboard.soton.ac.uk>

Does Group presentation have to be about a different topic?

Does Group presentation have to be about a different topic?

No.

Group Work 50%

Groups will be comprised of 6-7 students. All students within a group will be awarded the same group mark.

The Group Poster will be worth 25% of the total mark. Each group will work together over the course of the module in order to produce a Group Poster that will effectively communicate the Global Challenges. Free online infographic creators such as [Piktochart](#) or similar, may be used to produce the poster. The group poster will synthesise information from at least three peer-reviewed [publications](#) per group member. The poster bibliography will be submitted along with the group poster. Students will supply a Briefing Note of no more than 250 words that will list the three peer-reviewed publications that were used in their section of the group poster, explain how they were used, and their relevance to the rest of the poster.

The Group Presentation will be worth 25% of the total mark. Each group will produce an approximately 12 minute [Prezi](#) (or suitable alternative) presentation. Presentations will be given during the Global Challenges Conference that will run towards the end of the module. The group presentation will feature information from at least two peer-reviewed [publications](#) per group member. The presentation bibliography will be submitted along with the Prezi presentation immediately after the group presentation.

<http://www.gc.soton.ac.uk/assessments>

What do you want to say?
Who do you want to listen?
How do you want to say it

Message

What do you want to say?

Who do you want to listen?

How do you want to say it

Message

What do you want to say?

Who do you want to list

How do

Medium

say it

3 March 2014, 6.01am GMT

Bid to explain climate change risks losing the argument

AUTHOR



Michael Parker

Environment and Energy Editor at The Conversation

INTERVIEWED



Eric Jensen

Associate Professor in Sociology at University of Warwick



John Shepherd

Professorial Research Fellow in Earth System Science at University of Southampton

The Conversation is funded by the following universities: Aberdeen, Birmingham, Bradford, Bristol, Cardiff, City, Durham, Glasgow Caledonian, Goldsmiths, Lancaster, Leeds, Liverpool, Nottingham, The Open University, Queen's University Belfast, Salford, Sheffield, Surrey, UCL and Warwick.

It also receives funding from: Hefce, Hefcw, SAGE, SFC, RCUK, The Nuffield Foundation, The Wellcome Trust, Esmée Fairbairn Foundation and The Alliance for Useful Evidence



One has to understand to believe either way. J>Ro, CC BY

The report released jointly by the **Royal Society** in the UK and the **US National Academy of Sciences** provides a guide to current climate change science for a non-scientific audi-

<https://theconversation.com/bid-to-explain-climate-change-risks-losing-the-argument-23903>

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PLAGIARISM

<http://www.southampton.ac.uk/isolutions/computing/elearn/blackboard/student/studentplagiarism.html>

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For Assessment 1 not necessary to cite references

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For Assessment 1 not necessary to cite references

But do NOT copy/paste text

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For Assessment 1 not necessary to cite references

But do NOT copy/paste text

For Assessment 2, references *necessary*



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4,469,488 articles in English

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- Biography
- Geography
- History
- Mathematics
- Science
- Society
- Technology
- All portals

From today's featured article



Early Netherlandish painting refers to the work of artists active in the Burgundian Netherlands during the 15th- and 16th-century Northern Renaissance. Their output follows the International Gothic style and begins approximately with Robert Campin and Jan van Eyck in the early 1420s, and lasts at least until the death of Gerard David in 1523. It represents the culmination of the northern European medieval artistic heritage. Early

Netherlandish painting occurred during the height of Burgundian influence in Europe, when the Low Countries were renowned for high end crafts and luxury goods. The major figures include Campin, van Eyck, Rogier van der Weyden, Dieric Bouts, Petrus Christus, Hans Memling, Hugo van der Goes and Hieronymus Bosch. They made significant advances in natural

In the news

- **Malaysia Airlines Flight 370** (*aircraft pictured*), en route from Kuala Lumpur to Beijing with 239 people on board, goes missing over the Gulf of Thailand.
- The International Criminal Court finds former Congolese militia leader **Germain Katanga** guilty of war crimes committed during the Ituri conflict.
- The 2014 Winter Paralympics **open** in Sochi, Russia.
- The Supreme Council of Crimea **votes to leave Ukraine** and join the Russian Federation and announces a **referendum on secession**.
- Scientists discover a viable *Pithovirus* specimen, the largest giant virus yet found, in 30,000-year-old samples



Global Challenges

UNIVERSITY OF
Southampton

Global Challenges (UOSM2010) Course Schedule 2014

		Tuesday 12:00-13:00	Friday 09:00-11:00	Guest Lecturer	Assessments	Reading
1	27/1/14	Welcome & Introduction	The Global Challenges			Millennium Project
2	3/2/14	Systems Primer	Assessments Workshop			6 Hats
3	10/2/14	Planetary Boundaries	Climate Change Workshop	John Shepherd		<u>Beddington</u>
4	17/2/14		Governance Workshop	Claire Saunders		<u>Ostrum</u>
5	24/2/14	Coursework Lab	Population Workshop	Jane Falkingham	Report 1	<u>Erlich</u>
6	3/3/14	Doughnut workshop	Energy Workshop	Gail Taylor		Conversation
7	10/3/14	Assessments & Food Workshop	Biodiversity Workshop	Guy Poppy Felix Eigenbrod		Wilson
8	17/3/14	Peak Phosphorus	Time Machine Workshop	Wendy Hall		Burke
9	24/3/14	Coursework Lab	Giving a Talk Workshop		Report 2	Wilson
10	28/4/13	Coursework Lab	GC Conference		Posters	WHO
11	5/5/13	GC Conference	GC Conference			
12	12/5/13	GC Conference	We Choose the Earth			Jackson

Global Challenges

For 14/3/2014

Watch

E.O. Wilson My wish: Building an
encyclopaedia of all life on Earth

Watch

Felix Eigenbrod on Biodiversity