

# Notes and links

## Lessons 1 and 2. January 9<sup>th</sup>, and 10<sup>th</sup>

(Timetable and rooms from my homepage <https://terna.to.it>)

What means economy/economics and what these words mean for you.

Home-work (please send your homework to [pietro.terna@unito.it](mailto:pietro.terna@unito.it))

—

A close look to the program:

[http://fisica-sc.campusnet.unito.it/do/corsi.pl/Show?id=gwpc;sort=DEFAULT;search=;hits=59#a\\_programma\\_gwpc](http://fisica-sc.campusnet.unito.it/do/corsi.pl/Show?id=gwpc;sort=DEFAULT;search=;hits=59#a_programma_gwpc)

My book.

Epstein, J.M. (2014), *Agent\_Zero: Toward Neurocognitive Foundations for Generative Social Science*: see the Cmap/Readings

—

The importance of our Cmap

—

Leibniz's dream

Leibniz (xi. De scientia universalis seu calculo philosophico): ... quando orientur controversiae, non magis disputatione opus erit inter duos philosophos, quam inter duos computistas. Sufficiet enim calamos in manus sumere sedereque ad abbacos et sibi mutuo (...) dicere, calculemus.<sup>¶</sup>

Calculemus = Simulemus

Artifacts in social science

—

A short paper on models, Simon and complexity, by Pietro Terna.

From the Cmap look at

Terna p. 4, three types of models

Axtell and Epstein (on Retirement) p. 6, the **Axtell and Epstein's definition of ABMs**

Complexity and democracy.

Agent-based models and programming. with the boxes “Agent based models (ABMs) for simulation experiments” and “programming capabilities”

A first look to NetLogo

Using NetLogo Starter

The content of the **NetLogo box in the Cmap**

## Lessons 3, 4 and 6. January 15<sup>th</sup>, 16<sup>th</sup>, and 17<sup>th</sup>

homework

Jan. 22<sup>nd</sup>, Tuesday, no lesson

<https://www.accademiadelle scienze.it/attivita/iniziative-culturali/centro-studi-metodologici-01-2019>

Cmap novelties

Chameleons

A first look to NetLogo, continue

Using NetLogo Starter

Look at the files in *Programming examples/NetLogo examples* and to the files a.nlogo, b.nlogo, c.nlogo

Mainly in c.nlogo have a look to the similarities with natural language

Cycles upon the agents and the time ...

The Go button 'forever' (using also reset-ticks: tick and ticks)

```
forever  
for t in range(10):  
  for at in turtles:  
    at.move()
```

at is a turtle within the set of the turtles

-

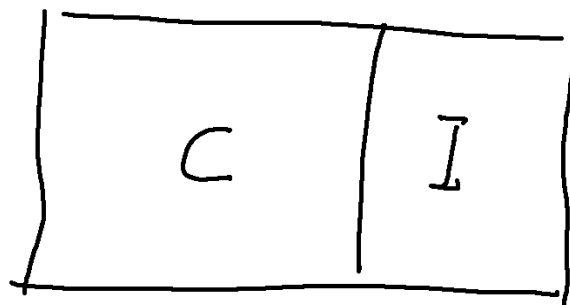
After the usual Segregation model with the movements patch by patch, look at the continuum version continuousSegregation.nlogo

(with many agents, if similar is low, e.g., 30%, no one moves; with more than two colors? please, try)

—

National accounts

A rectangular pie.



≈ 2 incomes 2012

Is the GDP the unique important measure? Absolutely not:

From OECD

Beyond GDP

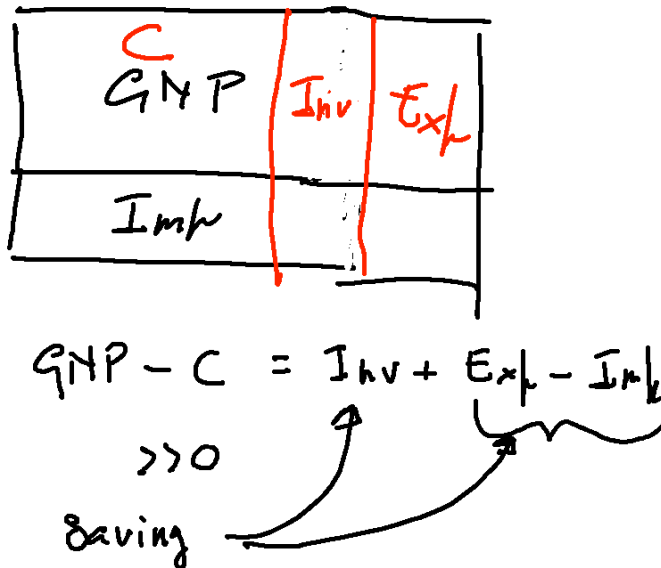
Measuring What Counts for Economic and Social Performance

[https://www.oecd-ilibrary.org/economics/beyond-gdp\\_9789264307292-en](https://www.oecd-ilibrary.org/economics/beyond-gdp_9789264307292-en)

For Good Measure

Advancing Research on Well-being Metrics Beyond GDP

[https://www.oecd-ilibrary.org/economics/for-good-measure\\_9789264307278-en](https://www.oecd-ilibrary.org/economics/for-good-measure_9789264307278-en)



GDP as a sum of *added values*

National accounting, look at the online primer (from the program, at

[https://www.bea.gov/national/pdf/nipa\\_primer.pdf](https://www.bea.gov/national/pdf/nipa_primer.pdf), figure at p.3 and table at p. 4)

<http://hdr.undp.org/en/content/human-development-index-hdi>

the scope of the variables (globals and -own)

**F5**

—

NetLogo: turtles going around and changing their color if they found closely another turtle of a different color (both change to a third color)

Adding a plot

-

patches, example voting

turtles on patches

—

A first look to Python (3)

The content of the **Python box in the Cmap**

—

familiarize with Python live in the IDLE shell or creating a .py file or via IPython and Jupyter notebook

## squibs & links

Mesa <https://mesa.readthedocs.io/en/master/>