

**DRAFT -- LIKELY TO BE UPDATED
COMMENTS AND CRITICISMS WELCOME**

Reflections on Kinds of Value

What's the point of being (financially) rich

**... if you can't have a good philosophical discussion, or appreciate music,
or poetry, ...?**

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NOTE: Neither the University of Birmingham nor the School of Computer Science is responsible for any of the views expressed here.

I am grateful to both for continuing support and access to facilities.

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This paper is

<http://www.cs.bham.ac.uk/research/projects/cogaff/misc/kinds-of-value.html>

Also accessible as bitly/YAUhmZ

or <http://tinyurl.com/BhamCog/misc/kinds-of-value.html>

A PDF version suitable for printing (which may lag behind this) is Also accessible as

<http://tinyurl.com/BhamCog/misc/kinds-of-value.pdf>

A partial index of discussion notes is in <http://www.cs.bham.ac.uk/research/projects/cogaff/misc/AREADME.html>

or <http://tinyurl.com/BhamCog/misc/AREADME.html>

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Events behind this paper (in 2010): Towards an analysis of valuing

It is better to be a human being dissatisfied than a pig satisfied; better to be Socrates dissatisfied than a fool satisfied.

John Stuart Mill, 1863. *Utilitarianism*

My interest in these topics has been re-kindled by an attempt to make sense of developments in national and international financial markets and the strategies governments adopt. For example, the UK government, in a context of dire national debt has been trying to decide how to reduce expenditure on education and research and has concluded that it is best to go on supporting at a high level subjects concerned with science, technology, engineering and mathematics (STEM subjects), while reducing expenditure other areas deemed less valuable, e.g. arts and humanities.

This amounts to the judgment that education in a STEM subject is more valuable to the learner, and also more valuable to the society in which the learner ends up working, than other types of education, e.g. in the humanities. One of the aims of this paper is to challenge the concept of value that was used to take this decision.

The basis of the challenge is rejection of the notion that value should be considered simply as an **economic** concept. There is a deeper, more basic concept concerned with requirements for behaving systems to take decisions: to select between alternatives of various kinds -- alternative goals, alternative actions, alternative policies, alternative beliefs, alternative explanations, alternative predictions, alternative ontologies, and many more.

The core concept I am concerned with is not some abstract measurable type of entity corresponding to the noun "value" (such as is studied in economic theory, and some kinds of moral philosophy or meta-ethics) but rather the verb "to value", referring to a states and processes in intelligent agents that take decisions and act.

Some things humans, other animals and robots do are simply products of innate or learnt reflexes, and not the result of valuing anything. Valuing is related to wanting, preferring, needing, hoping for, aiming for, being disappointed at not getting, and also to selecting and doing.

The ability to value some things and not others, and to value some things more than others, presupposes having an information-processing system capable of considering possibilities for action, possible requirements for and consequences of the actions, and comparing the alternatives in order to select an option. Some of the information-processing requirements will be spelled out later.

In many situations different things are valued but not all of them can be selected, so that choices have to be made: something valued is often not selected when available because selecting it could interfere with doing or getting something else that is valued more.

This notion of valuing does not require the use of some kind of numerical measure. Things valued need not even form a linear order -- often they will only be partially ordered. Sometimes preferences are not even partially ordered because they are intransitive: when two items are compared at a time, A is preferred to B, B to C and C to A. If no situation turns up where all three options are available at the same time there is no problem with this.

Valuing produces a partial ordering when not all pairs can be compared. One can value the physical health of members of one's family more than their physical comfort, but may not be able to compare their health with their having a good education -- and a choice between the two could be so difficult as to be a cause of paralysis, or else a decision to toss a coin, on the grounds that sometimes choosing one of two options is valued more than choosing neither even though neither option is valued more than the other.

Even if the space of things valued does not involve a metric, there may be what could be called a "semi-metrical" or "quasi-metrical" structure. For example, things that are all valued less than some other thing may be valued more when taken together. Given a choice between a holiday in country A or B or C, you may prefer A to B, and A to C, but prefer the option of having two holidays, one in B and then one in C to a single holiday in A.

The fact that valued entities can be combined in this way to form more complex valued entities does not imply that there are values with numerical measures that can be compared or added. Later we shall see that in some situations it can be useful to impose a numerical measure of value either explicitly, e.g. by using a monetary system, or implicitly where trading is done without money.

However, once that move is made there is a danger that monetary value is taken to be some kind of feature analogous to physical properties of things, like mass, electrical resistivity, or temperature, instead of being recognized as being a convenient temporary numerical assignment in the service of a deeper kind of value that motivates individuals.

Evaluation involves cognition

Exactly what it is to value something, or to value something over something else will differ from one sort of agent to another, and can also differ between communities of intelligent agents. The cognitive processes and uses of information when a child selects one lunch menu item over another are much simpler than the processes involved in choosing between two careers, or two university degree courses, which the child may be totally incapable of doing until much later.

Without values intelligent systems must be totally inert

One way of interpreting, or defending, Hume's claim that "Reason is and ought to be only the slave of the passions", is to note the trivial truth that no matter what facts and inference mechanisms (for deriving new facts or hypotheses from old) are available in a machine of any sort that will not suffice to cause the machine to do anything, or to justify the machine in doing anything. For that goals, desires, preferences, values, ideals, or at least reflexes ... are required. These, in combination with facts and methods of inference can lead to selections being made and acted on, whether in biological organisms or in machines.

For many organisms and machines, the genome provides the goals, preferences, or reflexes that cause actions to be selected, when decision making is triggered.

For other organisms there is not a fixed, genetically determined set of

determinants of action, because some that are provided at birth are not suitable for later stages. So the genome specifies mechanisms for the decision making capabilities to change during development.

This may be a fixed process in which new preferences (e.g. a desire to mate, or to feed and protect offspring) develop either at certain stages of development or else triggered by events in the environment, or possibly under the influence of preferences of older conspecifics which are absorbed by genetically determined social influence mechanisms.

Alternatively the process may allow new choices to be made in principles that are developed for the first time by individuals in situations that trigger a desire for change but do not determine the desired change: it is possible to be dissatisfied without having any idea what would produce satisfaction.

In the case of humans it is even possible for individuals to develop policies and preferences that are unrelated to what would provide satisfaction for the individuals. For example, they are capable of becoming obsessive, fanatical, or even addicted.

In part this document is about how policies, preferences and goals can be adopted so that decisions can be taken and actions performed. I shall try to show that this does not require things to have what we might think of as commercial or market values. It is only when social systems develop a certain level of complexity that those become useful and possible.

Before that, there is no such thing as value in the modern sense even though bartering can occur. But even when there are market values, because social institutions have developed that create them, it is possible for individuals or groups, without being inconsistent, to **reject** those ways of taking decisions. That presupposes an alternative source of value, preference, or goal, or, more precisely an alternative way of taking practical decisions.

Some people try to find a theological basis for such alternative values. I regard such attempts as failures for reasons that will be spelled out somewhere else.

Eventually I hope this document will end, not with some prescribed set of values, but rather with an account, and perhaps a working model, showing how that is possible. A good theory of that sort should be testable by showing how it can work in a simulation. So this enquiry must link philosophy with work on computer modelling, or robotics.

Consequences:

- a new way of doing philosophy (linking it to biology and artificial intelligence)

- rejection of the notion of a utility function or measure that expresses values in terms of real numbers, or even assumes that values form a total ordering, with or without a metric.

TO BE EXPANDED

The folly of focusing exclusively on STEM education

Cutting down on funding for education in humanities (including history, philosophy, literature), social studies, and arts, in order to maximise education in the subjects thought to contribute to wealth (STEM), may be a way of cutting down on the supply of things that are of real **intrinsic** value for those who have access to them, and can be shared without losing any, for the sake of things that are of much less intrinsic value, and may also lose their extrinsic value (in the market place) because too many others are trying to do the same.

In short: what's the point of being (financially) rich if you can't have a good philosophical discussion, or appreciate music, or poetry, ...?

What about the role of education in equipping future adults to be good parents, good citizens, intelligent voters, inspiring politicians, revolutionary artists, inspiring teachers, knowledgeable about other countries and cultures,

Considering this issue leads naturally to questions "What is value?" "What makes

one type of activity or product more valuable than others?" And a host of related questions (ethical and meta-ethical) that philosophers have asked about "good", "ought", "should" etc.

What follows is a first draft partial answer that I expect to go on improving and expanding as I learn more about the subject. Comments, criticisms, and suggestions will be appreciated, and acknowledged. I shall start a separate page of comments with a link [here](#). For more on this see [Stefan Collini's review](#) of the Browne report, discussed briefly below.

Background: Previous work

This paper is in part a sequel to two papers published many years ago, both now freely available online (as all results of academic research should be):

- [How to derive "better" from "is"](#) (American Philosophical Quarterly 1969)
- ["Ought" and "Better"](#) (Mind 1970)

My main claim was that the concept "better" is the basic concept and other notions like "ought", "should", "good", "right", "best" -- and I would now also add the notion of "value" -- are dependent on and implicitly or explicitly derived from the notion "better".

The suggestion was that the word "better" (and various closely related words, such as "good", "best". "should" and "ought") implicitly refers to a family of concepts derived from a core multi-parameter predicate, Better, which is rather complicated, but can be summarised briefly here, as follows:

If P and Q are properties, and C is some condition that can be satisfied to different degrees or approximated to different degrees, and R is a respect of comparison (e.g. speed, cost, ease of use) and S is a type of situation or set of circumstances (e.g. in dry weather, or on sloping ground, or in a crowded room) and Z is some subclass of candidates being compared, then

"Better(P, Q, C, R, S, Z)"

is a predicate equivalent to:

"Being P is better in respect R than being Q, with reference to satisfying condition C, in circumstances S, for members of the class Z."

[The paper attempts to make this precise, showing that in this sense "better" can be regarded as a rather complex topic-neutral logical operator.

In part that analysis was based on a study of consumer reports in the magazine Which? <http://www.which.co.uk/> in the 1960s.

No doubt the details of the analysis can now be improved -- work to be done later.]

This basic use of "Better" does not express any approval, and can be used, for example, to say "P is a better type of poison than Q for committing undetected murders when" without implying that it is a good thing to commit undetected murders.

Various other cases can be derived from that form of use of Better by leaving out some of the parameters -- so that they have to be inferred from the context, or by comparing *instances* of types rather than types, giving the form:

"Better(x, y, C, R, S)"

(where the comparison class Z now consists of the two items, x and y).

E.g. "This lawn-mower is better than that one for cutting grass on a slope, in respect of speed of operation (though perhaps not ease of use...etc.)."

More details are in the paper. A type of comparison not discussed in the paper,

which is relevant to a discussion of value is a comparison of something with itself relative to two different conditions, or circumstances, or respects, e.g.

x is better for cutting wood than for cutting plastic
x is a better car for use in a town than for long distance journeys
x is a better car as regards comfort than than as regards economy
studying philosophy is better for stretching your mind than for making you rich

The 1969 paper speculated that historically the practice of leaving the parameters C, R, S and Z to be inferred from context could have led, eventually, to uses of "better" to express a purely subjective preference for one thing over another, as opposed to making a testable statement of fact.

This could be one explanation of how emotive, expressive or prescriptive uses of the word "better" (and also derived words such as "good", "bad", "should", "ought", etc.) came into use.

Quantifying over the parameters C, R, S and Z instead of specifying particular cases, could also lead to a degenerate, muddled use of these words to express what are taken to be "objective" and "absolute" truths about what is better, best, ought to be done, etc.

Compare: the habit of making statements about velocity while leaving the frame of reference implicit, because it is usually inferrable from the context, led some scientists to think they understood a notion of **absolute** velocity, which is not relative to any coordinate frame. This is analogous to thinking that because we often say "So and so is married" without specifying who the person is married to, it follows that someone can be in a state of being married without being married to anyone in particular.

The relationships between "Better" and "Worse" are worth discussing, since there is not, as might at first be thought, a simple equivalence between

"X is better than Y" and
"Y is worse than X".

But I shall postpone that for another paper.

[Note: This analysis of "better" and related concepts, is closely related to the concept of "meta-requirement", discussed [here](#), sometimes (unfortunately) labelled "non-functional requirements", also sometimes called "ilities" because they include things like reliability, usability, extendability, maintainability, etc.]

"Better" and "value"

I have summarised the 1969 paper here because a special subset of the uses of "better" would be comparisons of value, and various notions of having more or less value, or having higher or lower value could be derived from the various uses of "better" to answer practical questions, with the further complication that the conventional adoption of certain sorts of objects as "value tokens" (i.e. money) extends the variety of uses of "better", in the context of comparisons of value where there is a quantity involved.

My interest in these topics has been re-kindled by an attempt to make sense of recent disastrous developments in national and international financial markets and the strategies governments adopt. For example, the UK government, in a context of dire national debt has been trying to decide how to reduce expenditure on education and research and has concluded that it is best to go on providing high level support for subjects concerned with science, technology, engineering and mathematics (STEM subjects), while reducing expenditure other areas deemed less valuable, e.g. arts and humanities.

This amounts to the judgment that education in a STEM subject is more valuable to the learner (i.e. better for the learner), and also more valuable to the society in which the learner ends up working (i.e. better for the nation), than other types of education, e.g. in the humanities.

As explained above, one of the aims of this paper is to challenge the concept of value that was used to take this decision.

Considering this issue leads naturally to questions "What is value?" "What makes one type of activity or product more valuable than others?" And a host of related questions (ethical and meta-ethical) that philosophers have asked about "good", "ought", "should" etc.

Why such concepts are needed: "better", "value" and control

Every living organism is to some extent a control system, using information of various kinds to choose between alternatives, where the alternatives often involve physical actions that use energy stored in the organism, or in some cases energy available for immediate use in the environment.

Many simple organisms do not need to make choices: their genetically determined design gives them a type of body and a collection of reflexes that allow internal and external states to trigger actions, which can be external or internal. They make no choices: they simply react, as physical objects do though the organisms may use stored (chemical) energy in their reactions whereas other physical objects simply produce effects of the physical forces acting on them.

More sophisticated organisms take in information over extended time periods and in the process alter their abilities to discover options and to select between them, sometimes on the basis of collaborative decision making (e.g. using stigmergy, for instance being guided by pheromone trails left by foraging conspecifics).

As environmental pressures become more complex and organisms develop more sophisticated bodies, control systems and information processing systems, evolution produces more and more complex decision making and control mechanisms, including the varieties summarised in Sloman 2006. For example, whereas some organisms can only choose between actions immediately available, others can choose between goals to be achieved and then select actions. Some can also consider possible goals that will arise in the future, and select actions that prepare for those possibilities. Some can take only one-off decisions, whereas others can select between policies, practices, habits, strategies, and values that once chosen will effect a variety of subsequent decisions possibly over an extended time period.

It is widely believed that all such decision making, and all such motivation, **must** be driven by explicit consideration of rewards available to the chooser as a result of the selections. However, there is no logical reason for all motivation to be reward-based. An argument presented in Sloman 2009 shows that it is logically possible, and probably of biological value, for some motive generators and other motivators to be genetically selected rather than learnt by individuals or selected as a way of maximising expected utility. In that case humans could have some values and preferences without having any idea why they have them and without being able to change them -- at least not easily.

NB: this is not a claim that genetically determined values, preferences, strategies are necessarily good ones. E.g. they may have evolved when the environment was very different and been retained in the genome long after they ceased to be useful.

In that case individual learning may sometimes be required for those influences to be overcome -- for the benefit of the individual, the social or family group of which the individual is a member, or even the gene pool. Humans, in particular (like members of other altricial species), are born with a collection of preferences and reflexes that serve them well in infancy but which have to be

replaced during an extended process of learning and development. In part that process may use methods for discovering which values and preferences exist in the immediate social environment and absorbing them (if suitable learning mechanisms are available) into the individual's decision making subsystems.

But those learning mechanisms (in humans) include a critical component that allows individuals to be selective about what they absorb and in some cases to propose new, better principles some of which can be accepted by others as superior to existing ones, so that in addition to cultures influencing the control mechanisms of individuals, individuals can also influence the control mechanisms of the cultures they are in.

At present, although vast academic resources go into the study of such processes I don't think there is any deep understanding of how the processes actually work: at any rate not the sort of understanding that would allow us to design and produce intelligent machines with similar capabilities.

Similar arguments apply, of course, to future intelligent machines: they may be given values or preferences by their designers, or by the processes that produce them (including "post-natal" learning processes) which are not optimal either for them or for their owners (who themselves may change over time).

So, for machines as for animals, it may be necessary to have high-order control mechanisms that can modify, or develop counter-influences on, built in mechanisms for producing values and preferences.

One of the functions of an educational system is inevitably to influence the development of such control systems in part by transferring already developed values, preferences, standards, to the young (using the learning mechanisms that evolve or adapt to support such learning) -- and in part by teaching each new generation how to challenge and, where appropriate, improve on those values. This kind of education will happen whether it is done deliberately or not.

Whether it is done well or badly may not depend only on whether the processes and mechanisms are understood: mechanisms that are understood can be misused, e.g. by producing forms of indoctrination that serve one part of society more than others.

It is not clear that current political leaders and their advisers understand much about these functions of education.

Side-effects of bootstrapping

A common fallacy is to assume that mechanisms that are a result of evolutionary processes must contribute to the original evolutionary functions that produced the mechanisms. Obvious counter-examples are the mechanisms involved in addiction. Like all biological mechanisms, these must owe their existence to evolutionary processes and to the operation of mechanisms produced by evolutionary processes. But it does not follow that mechanisms of addiction help to ensure that genes are replicated. On the contrary addiction to alcohol and other drugs can interfere seriously with normal functioning and even cause premature death.

Likewise, from the fact that certain mechanisms of control M were originally produced by biological evolution or developed in an individual or group under the influence of mechanisms produced by biological evolution it does not follow that the operation of M always or ever leads to improved biological fitness.

There are several different ways in which counter-examples can occur, for example

- (a) things can be selected despite having harmful side effects in some conditions (e.g. genetic mechanisms involved in protection against malaria,

which can also contribute to sickle-cell disease),

(b) mechanisms of development and learning, or motive generation, that evolved to function in a certain sort of environment may produce harmful side effects after the environment has changed,

(c) when several different mechanisms that evolved to serve different biological functions interact during development and learning, those interactions may depend on timing of other processes, and if there is a certain amount of random variation, or environmentally induced variation, in the timings of different sub-processes, that can cause interactions to occur that were never selected for -- some of which may be biologically or socially useful in unexpected ways while others are harmful.

One of the effects of biological evolution, at least in certain socio/cultural environments, is that individuals are able to question things, and not only to ask what is the case, what happens, what options exist, but also to ask **why** things happen, **why** certain things should be done, **why** certain rules should be followed, **why** certain values should be accepted, and so on.

The evolutionary and developmental processes that generate mechanisms that allow such questions to be formulated, and generate motives to search for answers, need not have determined the criteria that should be used for satisfactoriness of answers.

In some cases individuals answer the questions by taking decisions, by embracing one option rather than another. The bases for such decisions are not always scrutable. In some cases there may not be any basis: only the need to decide because time is running out, and the options remaining seem to be all equally good or equally bad according to all available criteria for comparing them. One form of learning is taking such decisions, and then later reflecting on the consequences. Retrospectively reasons may emerge for preferring one of the decisions but no such reasons **have** to be available for a decision to be taken.

Formation of preferences/values/policies

In some cases the decision is not just a one-off selection among alternatives, but the adoption of a **generic** preference or decision to value a certain type of entity, action, experience, process, or state of affairs over others when there is an opportunity to choose. We can describe such a case as the adoption of a particular sort of option as having intrinsic value, or intrinsically higher value than the alternative options that tend to co-occur with it.

But "intrinsic" does not mean or imply "final". All such decisions are in principle open to being reconsidered and later rejected, though individuals differ in the extent to which they are willing to admit (to themselves, or to others) that they have made a mistake, or regret what they have done.

The developmental, learning, and decision-making processes described so far occur in individuals (though they can be influenced by behaviours of groups containing those individuals, or other groups). But similar things can happen to social groups on different scales: families, village communities, nations, etc.

However, the **mechanisms** involved in social decision making and value formation will be different from (though dependent on) those that exist in individuals. Moreover the social mechanisms are typically more changeable than mechanisms that are closer to the physiology of brains.

Just as decision-making systems in individuals serve many different purposes in different contexts, and can make use of different mechanisms at different times (some genetically determined, some products of development and learning in particular environments, and some products of coercive social processes, such as religious or political indoctrination), so also are there varied social decision-making processes. And just as some of them involve specific selection

between options available at a particular time (doing this rather than that), others involve selection of generic determinants of future decisions, e.g. adoption of rules, policies, preferences and values (resolving to do this type of thing in future rather than that type of thing).

Many of those are adopted because they serve previously existing goals, etc. But some lack any such justification and therefore have to be a social analogue of the individual decision to adopt some generic preference, policy, rule, or value. If such a decision cannot be justified because it serves some pre-existing preference, policy, goal, etc. then its adoption gives it intrinsic status. And as with individual decisions, "intrinsic" does not mean or imply "final". All such decisions are in principle open to being reconsidered and later rejected, though societies differ in the extent to which they are willing to allow reconsideration and revision, and the procedures they require for the process.

Moreover, the control systems of a group of individuals need to allow for a wider variety of types of decision than the control systems of an individual. For example there are patterns of trade, patterns of family formation, patterns of dealing with unwelcome behaviours and patterns of collaborative education, all needing the adoption of goals, preferences, policies, and values that make no sense for an isolated individual.

A well balanced educational system should take account of all these aspects of learning and development, instead of focusing only on providing skills and knowledge that have been deemed to be valuable by some or all of the community on the basis of **their** decision-making criteria.

Added: 1 Nov 2010

As far as I know the only part of formal education that explicitly includes such things as analysis and criticism of current standards and values is to be found in philosophy courses, though not all philosophy courses do this, and those that do may not place the analysis in the sort of biological context presented here.

PLACEHOLDER ADDED: 4 Nov 2010

Types of goods/values and their sources

TO BE EXPANDED

Positive goods/values

[Need to distinguish goods for individuals and shared goods across groups on various spatial and temporal scales]

Existence of other animals

- biodiversity
- richness of gene pools
- existence of wonderful non-human creatures of all shapes and sizes

Places on the planet --

- diversity, richness,
- records of biological and geological evolution, . . .

Material consumables

Material durables

Locations/spaces/times

Information

- particular (about specific things, events, places, dates)
- general, re-usable
- useful vs interesting enjoyable mind-stretching...

factual vs how to...
about opportunities
 where to find ...
about any of the other goods and bads listed here

humorous
titillating
various kinds of news

States of mind

One's own states of mind
 what is valued by an individual can vary, on short or long time scales
 cyclic variation -- (not being bored)
states of mind of others
 children, family, friends, broader groups (nations, sex)
 altruism and its variants
states of mind of other types of animal
 valuing a happy baby monkey, cat, dog, bear, lion, raven...
 caring about relieving their suffering
 but not when it is caused by the need of another animal
 to survive?
 (reactions to predator-prey interactions recorded in biological
 TV documentaries.)

Challenges

Relationships

Evaluations by others/status

Processes

learning
 advancing communal knowledge
 solving puzzles (practical, theoretical, toy)

experiencing

 active (e.g. playing music, proving theorems)

 passive (listening, learning about...)

competing

 for fun
 for profit / glory / life-and-death

playing

 many kinds

performing (e.g. artistic)

performing (services)

States

local states: affordances for action (J.J.Gibson)

 other affordances
 -- epistemic affordances,
 -- deliberative affordances,
 -- etc.

weather (at a time)

climate (weather patterns...)

social/political milieu

freedom/autonomy/being unfettered

having challenges

not being duped/indoctrinated

protection

from (states, behaviours, shortages, events,
illnesses,)

including insurance, guards, buildings, etc...

What are the information processing requirements for being
able to value various things positively,

e.g. enjoying working on a challenging task, wanting to promote
well-being of other humans, other species, ...
wanting to preserve wildernesses and other landscapes (e.g. from
mining activities or urban expansion)
valuing the advance of (human?) knowledge about the universe?

Many positive valuations are concerned with reduction, removal, or
prevention of things valued negatively. See below.

=====

Negative goods/values

To be expanded.

(Partly to be based on positive goods and absence or opposite)

What are the information processing requirements for being
able to value various things negatively, e.g. being bored

=====

REFS ON GOODS AND VALUES

(Possibly moved to end of file later.)

- [Wikipedia on economic goods](#)
[Need to collect more (and better) references.]
- Timo Juetten has informed me that Elizabeth Anderson's book
Value in Ethics and Economics
is relevant. I have not read it. Her online papers are here:
<http://www-personal.umich.edu/~eandersn/fulltextlinks.html>
- Christine Lopes suggests that this is relevant reading:
R. M. Chisholm: *Brentano and Intrinsic Value* (CUP 1986)
- Found in <http://www.networkweaving.com/blog/2007/10/3-kinds-of-value-in-networks.html>
"Asset value is talent and resources. Positional value is awareness of the
network and access to assets. Generative value is the ability and willingness
to engage strengths in trust building and collaboration."

Towards a theory of trade value -- and its tokens

Trade is a special case that needs some attention because of the way concepts
developed to serve the needs of trading within and between societies have come
to be used in other contexts, including decisions about education.

NOTE: there's a huge literature on this and I present only a few items that indicate some of the diversity of what's possible. I am not concerned with historical accuracy or completeness, only pointing out a subset of what is possible, as a means of clarifying the scope of certain concepts, and some important conceptual boundaries.

The (still draft) wikipedia article on trade offers a sample of some additional material:

<http://en.wikipedia.org/wiki/Trade>

The papers by Ian Wright listed at the end go into more technical/mathematical detail.

Market value as a "useful fiction"

The notion of market value or economic value or even of price has no application in a simple society where all trade is done by exchanging goods and services, without making any use of money or numerical measures of value. A measure of value is of use only if people wish to be able to transfer their products or services without at the same time committing themselves as to what they should get in return, when they should get it, where they should get it, or from whom they should get it.

If individual trading events have no implications for any other and result from nothing more than agreement by the trading partners, then there is no useful measure of value that applies in a uniform way across trading events. If I can get a pile of bricks in exchange for three chickens from one person and a few days later the same person or another person will give me a similar pile of bricks only if I hand over four chickens (of the same sort), then I can do that if I have four chickens to spare and I want the bricks enough. Neither exchange makes the other one wrong. They are isolated events, and they are different but there is nothing irrational or inconsistent about my behaviour.

Things can get far more complex than that when there are multiple sellers and buyers for every product, and if all sellers know what the buyers want and are willing to offer in exchange and if all buyers know what all sellers are offering and what they want in exchange. In such a system, the flow of information and the fact that a particular buyer or seller can have a choice as to where or with whom to make a trade can in some cases allow a notion of economic value to be defined for everything that is traded. If there is a system of tokens, or some kind of money, in use that can allow each value to be given a number. (Ian Wright compares this with the way in which the weight of an object of a given mass can be determined by the gravitational effects of other objects even though in isolation the object has no weight. There is a strong analogy with the notion of a virtual machine, explained in

<http://www.cs.bham.ac.uk/research/projects/cogaff/talks/#talk86>

(unfinished work in progress).

I shall now elaborate these ideas, bringing out more details concerning the concept of economic value, showing how different it is from the notion of valuing something, including valuing some things more than others.

In particular, things can be valued highly by an individual or a society even if they have no economic value.

Trading in goods alone

When pairs or groups of people get together to exchange goods, services, land, or other things for mutual benefit they don't need to use any notion of objects having a value: they can decide what they will exchange for what, and if everyone concerned is happy, they can go through similar processes later without attempting to be consistent across different bargaining occasions. There is no need for such consistency if everyone is happy after each trading occasion -- because they have met their needs on each occasion, even though their needs have changed, the relative priorities of their needs have changed, and what they have been able to offer has changed.

In such a system there need not be any notion of **the value** of any of the items exchanged. If I want two chickens and have none, and you have two chickens you are willing to swap for things you need, I could end up giving you a bucket of apples for one of your chickens, and a flask of wine for another of your chickens without assuming that there is any equivalence between a bucket of apples and a flask of wine apart from the once-off fact that on this occasion I used each to get something similar from you. There is not even any implication that a bucket and a half of apples is better or worth more than a flask of wine: the notion of what something is worth has no grip in a situation where every trading event is done in isolation.

Nothing in that event has any implications as to what will happen in some other event, though there are counterfactual implications, such as that if someone else had offered me, on that occasion, a very similar chicken for half a bucket of apples then I would have regarded that as a **better** exchange.

But someone else who reacted like me in the actual situation might have reacted differently in another situation. Moreover, how I might have reacted in the hypothetical situation where a second chicken seller offers a chicken for fewer apples may depend on other things, such as my different relationships with the two sellers.

For example, sometimes there's more at stake than the items swapped: I may not know whether I'll ever see the second chicken swapper again, and I may wish to keep up good relations with you, as a regular supplier of chickens. If I don't need more than two chickens and there's nothing else I want to swap my apples for, I might even give you my bucket of apples, take your chicken and tell you that the other chicken owner has a chicken he is willing to swap for half a bucket of apples.

This could be called "paying for good will". But notice that that description did not apply when there was only one chicken seller. So what valuable items you get in your exchange can include not only produce but also "abstract goods", and whether such goods are relevant to the exchange may depend, in complex and unobvious ways, on what else is on offer that you don't buy.

There's more to achieving a happy life than always getting the best material trading results!

Multi-person direct exchanges

The direct-exchange economy involving only two-person transactions described so far is very limiting, even though it may work well enough for some communities.

If the things you can supply in exchanges are typically not wanted by the people who supply the things you want, more complex arrangements are needed.

If everyone comes with goods to the trading place at the same time then it is possible in principle to expand two-person bargaining to N-person bargaining. In an ideal situation, if for each product P, the total number of Ps wanted by all the P-wanters happens to match the total number of Ps brought to the market by the P-vendors, and the same is true for products Q, R, S... then all that is necessary is that all the vendors first put all their goods into stalls, and after that everyone takes exactly what they need. There would be no need even to think about what exactly was traded for what, or how the values of different combinations of items compared, or to compare values of items at different times.

Compare the Marxist slogan:

"From each according to his ability, to each according to his need"

Comment:

This only makes sense where total outputs match or exceed total needs. Of course, it is very unlikely that there would be exact matching of totals

available and totals wanted for every product, but with good will it might be possible to reach agreement that some vendors will take home a few of the unwanted items and some purchasers will make do with less than they had hoped for. If records are kept, then the surpluses and deficits could be arranged to cycle round different members of the community over time.

However, I expect most human communities treat some individuals as special cases, e.g. infants and very young children are not expected to be able to contribute produce and it might be agreed that in times of shortage their needs take priority.

Likewise, the sick, disabled, very old, or mentally sub-normal may be given special treatment.

I believe that in Hottentot societies the very old and sick were often left to die in times of scarcity, and expected no more.

<http://www.medrounds.org/encyclopedia-of-aging/2006/01/hottentot-elderly.html>

It might also be the case that people who can't get everything they need are allowed to keep back some of their produce. But preventing rules like that from propagating effects to undesirable limits (like nobody offering anything) might be tricky.

Another option would be for all produce to be collected and then for each category to be shared out equally between the individuals involved. This might make a community just as happy as another method, even if the result is different from what would have happened if they had each estimated their needs and only got what met their needs.

Both methods also allow subsequent two-party trading to be done by individuals who wish to.

The use of money

It may not be convenient for everyone to get together at the same time and place on a regular basis, so, in order to allow trading of produce to be decomposed across time and space, and also to allow trading of services (e.g. help with digging, building, harvesting, transporting, teaching, etc.) it has often proved useful to introduce intrinsically valueless, but authenticated, and generally accepted, tokens of value -- as long as the community in question agrees on their use. An intermediate case is the use of scarce, but highly valued items such as lumps of gold, or rare and attractive shells. But a system of exchangeable, countable, tokens can work without the tokens being valued for themselves by anyone.

The tokens can be any countable objects, whether naturally occurring (but scarce) such as shells of a particular type, or manufactured in a controlled way, or, more recently, virtual tokens that exist only in computing systems.

[I don't know if any community has ever tried using something non-countable e.g. amount of some enduring fluid, such as wine, or mercury, where comparisons of amount are not based on a precise measure of volume or weight, but rough perceptual judgments -- offering interesting opportunities for crookery.]

When a system of value tokens exists it is possible for people who have a surplus of tokens to shop around for what they need, looking for the lowest prices. This and other factors can produce tendencies for prices to be agreed for various products and services, though geographical variations can be caused by costs and effort involved in travel and transport and local bargaining processes ignoring what is happening elsewhere.

[Modified: 8 Nov 2010]

Where agreement is wide-spread, for whatever reason, we can talk about the current values of various products and services and use a number to specify the value. The economic value is not the same thing as price, as Chris Leithner explains well. [Ian Wright](#) shows how the derivation of a useful numeric concept of economic value (at a particular time), from observations of what is going on in various markets, requires use of complicated mathematical calculations (which he compares with computing the net gravitational attraction

on an object produced by many other objects, moving relative to one another -- i.e. the objects weight, as opposed to its mass).

However, as Wright points out, those measures of value are quite unlike measures of length, weight, volume, density, electrical conductivity, temperature, chemical constitution, etc., which depend on **intrinsic** properties of the things measured. Economic value, in contrast, is inherently **relational** and subject to fluctuation as various relationships that determine it change.

Insofar as the numerical values for measures of intrinsic physical quantities change over time (e.g. the charge on an electron), that can either be because measuring devices and procedures have become more accurate, or because there has been an agreed change in the unit of measurement (e.g. from miles to kilometers), or because a theoretical development has shown the need to modify the derivation of the value from observations. This is different from the weight of an object changing because its height above the earth has changed. Changes in economic value are like the latter, as shown by Wright.

This notion of economic value is more abstract and mathematically complex than the notion of current price, which also fluctuates and fluctuates more rapidly as exchanges occur. But these are different from the fluctuations of the economic value -- a more abstract theoretical construct.

Economic value is not intrinsic value [Revised: 8 Nov 2010]

So, in contrast with things like mass, or molecular composition, the economic value, of a chicken or apple is not a measure of some sort of intrinsic value of that object, but merely a reflection of current patterns of preference, availability, demand, purchases, sales, etc.

For example, the economic value of a bucket of apples can go up and down without anything changing in the bucket. But that's not true of weight, volume, chemical composition, and other physical properties.

If we wish to assign a measure of intrinsic economic value to some apples we might try to do it by combining various causal powers of the apples, e.g. the amount of convertible energy, the nutritional value of the chemicals, and other measures of the effects that the apples can produce on consumers.

There would still be debates regarding which effects should be included in the measure of value. For example should their usefulness as missiles to be used in defending a house against certain sorts of attackers be included in the measure of value? Allowing that sort of hitherto unused or unrecognized potential to be included could lead to an explosion of dimensions of value for apples and for everything else.

Furthermore, this could at best give a vector of different values for apples without there being any obviously right way to combine the different values to form a single number. How could it be sensible to combine a measure (or set of measures) of nutritional value with a measure (or set of measures) of usefulness as a missile to derive a single measure of apple value?

Although there is no sensible way of generating simple numerical measures of intrinsic value of any tradeable commodity, even relative to an individual's valuing, we can still allow that things have intrinsic value for individuals: some people may wish to use some portions of their waking life eating, or growing, or looking at apples, not because some additional benefit is derived as a consequence but because, on those occasions, that is all they wish to do, and none of the alternative possible activities open to them is preferred.

The same may be true of listening to or composing or playing music, playing some sporting activity, learning philosophy, reading history, interacting with children, and other things. Those activities may be capable of attracting

earnings of some sort, but they can also be valued in their own right, for their own sakes. These are intrinsic, not derivative values, or, to be more precise, intrinsic **valuings** -- for we are talking about how an individual values something, not what value that thing has.

There is no reason to assume that these intrinsic valuings **must** be capable of being given numbers that compare with values of marketable commodities and services. (A more complete discussion would need to take account of temporary satiation, the preference or need for a varied life, etc.) Such intrinsic valuings are inherently multi-dimensional, and although they may be partially ordered (individuals can decide which they prefer if given a choice) there is no total ordering (since some choices are impossible to make -- as shown in some great dramas), and those orderings can fluctuate as individuals preferences change -- as happens even during the course of a meal, since you will choose soup over a sweet desert at one stage and reverse the preference at a later stage.

When political parties are led or advised by expert economists whose only conception of value is the kind of monetary value that is found in the market place, they ignore the other intrinsic valuings at their peril. For a society in which the latter are made scarce or inaccessible may be a society in which deep human needs arising from their biological nature and its interaction with a culture are not being met: and the production of economic wealth and acquisition of economically valuable products and services may fail to compensate for the missing items.

(I think an example in the UK was the removal of government funding for free, unassessed, part-time evening classes -- sometimes called "continuing education" classes and a requirement that all part-time classes should lead to a formal qualification. This completely ignored the value of learning for its own sake, and the added value of regular opportunities for challenging intellectual discussion for the retired and unemployed.)

Exactly what the consequences of such omissions might be is not clear at this stage, but they could turn out to be analogous to depriving plants of some of the nutrients essential for their healthy development. The symptoms, in the case of humans, could be disastrous changes in behaviour.

Abuse, fraud, cheating

Although the use of value tokens (e.g. coins, or entries in electronic bank balances) can make trading practices far more flexible, they are open to abuse.

Each form of agreed, authenticated, currency is open to abuse, e.g. by finding a new supply of shells nobody else knows about, by forging new manufactured tokens (coins, notes) without authorisation, or by manipulating electronic data-bases.

Different forms of cheating are possible in different systems. In some cases forgery can be undetectable. If, however, every bank note and every coin has a unique identifier, then it may be possible (at a cost!) for records of transactions to reveal that someone has been using a note or coin that is bogus. But this could require significant extensions to our high-bandwidth internet access.

In particular, the wide-spread use of electronic banking mechanisms now makes it possible for a person's owned value to be fraudulently increased simply by changing numbers stored: it is no longer necessary to transfer anything physical from one place to another. In a badly designed system without cross-checks it may not even be necessary for any other accounts to be reduced: So the system can be robbed without any part of it being robbed. The curious, and inappropriate, label "victimless crime" is sometimes used in this context. It is misleading because a result of the crime is devaluing the money others have

access to, even though it may take a long time for this to be noticed.

Forged account balances may be harder to detect than forged coins or notes. In fact it may be safer for robbers to find ways of simply increasing their balances than to find fraudulent ways of transferring funds from others: in the latter case there is a loser who may detect the loss, report it, and trigger an investigation, but not where the crime simply increases some balance. Of course, it is up to banks to create cross-checking systems where such changes cannot go undetected: though no software system can ever be fool-proof, whatever computer scientists may say. (Of course, some are better than others, and some sort of security system is usually definitely better than nothing.)

The issue of fraud is important, but not my main concern, except insofar as the activities of fraudsters affect the value owned by other people, and there are now more ways in which that can be done than ever before.

For our purposes, there's no significant difference between fraudsters putting more money into the system and governments putting more money into the system (even if they give the process a fancy name, like "quantitative easing"). In both cases, if everyone assumes that the units of money retain their old value they are wrong -- and the error eventually hits people who cannot buy what they used to be able to buy with their money.

Does the same comment apply to a system that provides large numbers of individuals with large amounts of credit at a relatively low cost? If the credit is not properly backed up this is like lending them forged notes and coins.

Fraud and greed

Recent events show that besides fraud there can be stupidity -- arising from high intelligence too narrowly focused by greed.

Ingenious schemes were developed that appeared to increase the financial balances of many people, while appearing to give others more substantial assets in return (e.g. homes to live in).

Instead of simply directly manipulating numbers in balances (fraudulently) these procedures (legally) changed lots of numbers in lots of balances using mistaken assumptions about the improbability of events occurring, e.g. lenders wanting their "money" back. What this seems to show is that there is not a huge difference between fraudulent creation of forged money and strictly legitimate creation of large amounts of debt spread over large numbers of individuals.

We need to return the similarities and differences, later.

Theories of value

Many thinkers, including some great thinkers, have written about value in the context of economic theory, though there does not seem to be any consensus either as to how the concept should be defined or as to how it should be applied in reaching practical decisions. (I have found Chris Leithner's essays on this topic, [referenced below](#), very useful as a source of historical information and critical comment.)

To a first approximation, Marxists regard the value of something as equivalent to the amount of labour that went into producing it (though the idea that value depends on labour required is much older than Marxism).

In contrast, capitalist thinkers regard the value of something as determined wholly by how much (fully informed? rational?) people are willing to pay for it.

Since that amount can depend on many factors, and can fluctuate wildly, it is not clear that this is a useful basis for any theory of value.

There are also subjective theories of value, and more generally, theories corresponding to all the varieties of meta-ethics, leading to theories of value that could be described as emotive, expressive, prescriptive, and objective theories of value.

All the theories I have encountered have serious flaws.

For example, consider attempting to base all estimates of value on labour required to produce something.

If a huge amount of labour goes into producing something initially, but making copies is very cheap, then a seller will typically tend to divide the total cost across many sales in order to have a low cost product that many will purchase -- though whether that happens will depend on what competitor products are available.

Nowadays there are many product types whose costs of production, and costs of distribution of instances of that type have fallen close to zero, because they are essentially just information that can be copied across networks (music, musical performances, novels, learned papers, cookery manuals, and many more). The amount of labour per copy acquired could be close to zero, once a general purpose distribution network has been set up (e.g. the internet), but that does not mean the copies have close to zero value to those who acquire them.

Some items may be valued far more than other items either because of their utility, or because of the pleasure they give (e.g. a recording of a musical performance).

Likewise, some things distributed in this way may be regarded by some people as having very high negative value, e.g. because the content is libellous, heretical, blasphemous, offensive to some group of people. In these cases it will be argued that what is better is irrelevant: the items are intrinsically bad, or have intrinsic negative value. This topic needs further discussion, as does the notion of pain.

The facts about costs of production and distribution, per item sold, falling to near zero suggests that in assessing the value of something, some account should be taken, as capitalists would recommend, of the number of people who want it and are willing to pay money or go to some trouble to get it (with appropriate distinctions to be made between valuing a type that has many instances, a kind of stuff that has many portions, a place or performance that is visited by many people, a unique object, or person that people wish to visit, touch, interact with, etc.)

However, just counting heads is open to various objections, such as that preferences and desires can be highly volatile, which would imply that the value of something can swing quickly between low and high, in either direction, and also the objection that there are many people who have a strong desire for and will go to a lot of trouble and expense to get something, which actually does them (and others) a lot of harm, e.g. dangerous addictive drugs, which not everyone would wish to call valuable, even to the people who want them.

Another objection is that what the majority happens to value should not always be allowed to swamp the preferences of individuals or small groups, who derive great enjoyment from certain things, without thereby harming anyone else.

These objections assume that we have some notion of value that is prior to specifications of how value should be measured.

A particular example is the view that value is something purely subjective.

On this view attempting to specify an objective procedure for assigning values to things is pointless, since objects, kinds of stuff, states of affairs, actions, processes, ideas, theories, works of art, scenery, etc. can only have value for individuals who have subjective reactions to them. On this view it is meaningless to talk about what value something really has, as distinct from the many different values it can have to different people, or to the same person at different times.

Similar conclusions can follow from the assumption that value is not subjective but is relative, in the way that basic uses of "better" were claimed to be in Sloman 1969, as summarised above.

Kinds of notion of value

Let's distinguish different kinds of value notion

Intrinsic (absolute) value

This seems to be a mythical notion, though particular things, states of affairs, activities, etc. can be of intrinsic value to particular individuals, insofar as they wish to have or engage in them for their own sakes, not because they produce some other value.

Extrinsic (relative)

What the potential good and bad consequences are of having, or having control of, something.
There are real notions of value of this sort, especially relative value, where X is Better than Y in some way, etc. (as discussed above).

The idea that there is some absolute measure of this kind of value is mythical partly because the different consequences may be incommensurable and partly because whatever the numerical values are will be evanescent (transient) products of market interactions which can change rapidly and may have little relation to the intrinsic values to people who care about the things valued.

A government trying to build an educational policy on notions of value that can be measured in monetary terms is building castles of sand, likely to be smashed by new waves of fashion, of technology, of personal aspiration, of religious fervour, or best of all, by shared philosophical sophistication, if the masses ever manage to be well educated.

Where has all the value gone?

I have been thinking about about the concept of "value" since the news first broke a few years ago about the great financial scandal/crisis/tragedy....

It is clear that we have a global financial system that is deeply flawed, yet nobody seems able to do anything about it, despite the huge sophistication that exists regarding all sorts of other practical problems.

Our national and international financial, trading, and marketing systems provide channels through which vast amounts of value get sucked or pumped, in a manner that even in normal times seems to be hugely unfair because of the enormous inequalities produced, yet which is so little understood that even the richest and most powerful cannot control it so that it works consistently for their own benefit.

That applies both to individuals (well some of them -- not all have had their wealth destroyed) and to nations, including the most powerful nations on the planet.

As a result, the value pipework seems to have sucked value out of all (or nearly all?) nations on a massive scale. Yet there is no clear place or set of places all that value went to.

Has it all simply disappeared into thin air?

Did it ever exist?

Was the existence of all that value an illusion in the first place, like wealth

that consists entirely of credit given as a result of fraud or as a result of erroneous judgment of potential?

Does the value still all exist, but tucked away unobtrusively in nooks and crannies guarded by large numbers of successful hoarders, who have managed their finances well (by luck or good judgment)?

Is it all lying concealed in the hidden vaults of a relatively small number of enormously rich people (or countries), secretly keeping it available to serve their long term needs, and using only such small amounts that nobody suspects what else they have?

Or, since the number of humans on the planet has been growing exponentially, and the amount of value could not possibly do the same, is the problem that a fixed amount of value has simply been spread more and more thinly over more and more people -- until the inequalities in the spreading process produced gaping holes that were then propagated?

Does the universe, or this planet, or any one country, contain a limited amount of value -- or is value different from coal, oil and iron?

Is all this questioning based on a deep conceptual error: an assumption that value is like energy or matter -- something that can neither be created out of nothing nor can be dissipated into nothing.

Our previous discussions suggest that there is no law of conservation of value corresponding to laws of conservation of matter and energy, and no uniquely correct way of measuring value.

In that respect, value could be like information: something you can give away, yet keep it all, or something you can destroy (e.g. by burning records) without atomic pieces of education continuing to exist, as atoms continue to exist when a building goes up in smoke.

I may return later to the relationships (and similarities and differences) between value and information.

What should a good government do?

Now, at a time when many governments are struggling to find ways to recover from the great crash, perhaps their view of what they are trying to do needs to be examined.

For example, in the UK the government is trying to find ways

(a) to stop the huge financial deficit (value hole) getting bigger

(b) to start reducing its size

(c) to foster value creating activities -- including various kinds of industry and various kinds of academic activity, e.g. research and teaching in areas assumed to produce value for the nation by increasing the flow of income (value flowing into the country) above expenditure -- e.g. value flowing out, in payment for goods and services to other nations (or individuals).

Someone on the UKCRC academic mailing list circulated this on 19th October 2010, drawing attention to a newspaper report about leaders of industry approving of government plans to reduce public expenditure:

> Subject: Re: IT industry leaders supporting rapid cuts (Telegraph)
>
> Notice yesterday's much publicised letter from industry leaders to the
> Telegraph, supporting rapid cuts to build confidence, and indicating
> private industry will soon make up the job losses, is signed by Arm,
> BT, GSK, Sage and Microsoft UK (Microsoft Research and Microsoft UK
> are separate, both reporting into Redmond). Otherwise lots of retail

> (Harvey Nicks etc) ([link](#))Comment:

It's not surprising that large companies, especially those involved in international markets, should welcome government action that will throw lots of potential employees onto the job market, and prevent government organisations

employing the best new graduates.

Hard to fill industrial posts can then be filled by good people at lower salaries than would otherwise have been required.

Leaders of these companies probably don't care about how all the rest will get jobs, or what they'll do while waiting for jobs to become available. And if they are thinking mainly of overseas markets they won't be too concerned about reduced numbers here able to buy their products.

The original poster also wrote:

> The Independent today highlights the lukewarm response it's got from
> economists ([Link](#))

That included: "The Federation of Small Businesses attacked the call by leaders of 35 of Britain's biggest companies for the Coalition Government to stick to its tough deficit reduction plans."

Small businesses know where their bread is buttered.=====

What nobody seems to notice is that world-wide it's a zero-sum game.[Qualified below]

Everybody is trying to take action to enable themselves to be more competitive. But being more successful in those terms is always, necessarily, at someone else's cost, especially on a planet that is unable to cope with **exponential** growth of numbers of human consumers: the hardest problem that nobody in high places wants to address, or even talk about.

Governments seem to be thinking about the wrong problems: their vision is too local -- just like the vision of university leaders and department heads, all constantly scrambling and fighting to get closer to the top of an overloaded greasy rankings pole, instead of trying to work out how they can collaborate to provide the nation, or better still, the planet, with a high quality system of education and research.

Some of the responses I received, pointed out that information processing can increase value without penalising anyone else. This prompted me to send another message a few days later:

Date: Thu, 28 Oct 2010 02:34:29 +0100
From: Aaron Sloman Subject: Re: IT industry leaders supporting rapid cuts (Telegraph)

Thanks for responses to my over-compressed note on the folly of nations trying to be more competitive in a global zero-sum game.

I was assuming a theory of value that is not widely accepted (it's not Marxist and it's not the traditional capitalist theory of value either). I'll try to spell it out another time.

For now the main point is that unlike information, which you can (in many, though not all cases) give away without losing any (though you may lose power, advantage, etc.), the other things for which people compete on world markets -- water (increasingly), land, food, material resources of various kinds, energy, [*] political support, and power (influence) cannot be acquired without others losing some, or at least losing potential access if a resource was previously unclaimed/unowned.

Money, like information, can be given away without losing any, but only by governments with the power to make money (and also successful forgers).

However, the process of making money devalues the money, so even if people have more money as a result of it being handed out by governments, they don't necessarily have more in their pockets.
[Compare the online discussions by Chris Leithner, [cited below](#).]

(However, the extra, albeit lower value, money in the system can sometimes temporarily help to unstick a jammed economy. Whether it's the best, or only, way to do that, is a separate question.)

My comment about it being a zero-sum game was made in the context of discussion of government actions (e.g. allocating funds for different academic subjects) intended to make the nation more competitive (i.e. able to increase the ratio of value coming in from other countries to value going out) at a time when ALL

countries are trying to do the same, except those that are too underdeveloped, and will probably be losers, whatever happens.

With everyone trying to be more competitive there are bound to be losers, and also much waste trying to beat others. Trying to get together for mutual benefit could be a lot more productive, though it may require richer nations to make more sacrifices.

If the total resource to be shared among living things (whether it is land, water, mineral resources, oil, food) cannot grow fast, then exponential growth of human numbers will necessarily reduce the amount available per person -- making the game a **negative sum** game, in effect.

Moreover, national policies to reduce consumption of X by some percentage by some date will be futile because of the exponential growth in numbers of consumers to be fed, washed, etc.

Products, practices and information enabling and encouraging **birth control** are therefore among the most valuable things to export, but not in the normal market sense of 'valuable', since the main value may not be to the exporter, except indirectly, in the long term.

[*] **Solar energy**

Solar energy, along with its derivatives (e.g. wind energy) can be viewed as an exception to the "zero sum" property in the short run (e.g. several millennia perhaps?) -- provided the technology for capturing it does not consume too many other scarce resources.

Even if we find a way to make an effectively infinite supply of energy, we can't do that with **space** on this planet, including space that is precious to other species.

Likewise **the supply of water** which is increasingly a problem in many places (even while others are flooded).

NOTE ADDED 29 Oct 2010: Increasing efficiency

There are some activities that reduce inefficiency, e.g. by making material resources, energy, etc. last longer, so that more value is extracted from a given resource. These can all be counter-examples to the 'zero sum', or 'negative sum' argument, though they are then not best thought of as increasing international **competitiveness**.

Rather, such technology should be given to others at minimum cost, since anything that allows fixed resources to go further, anywhere on the planet, potentially helps everyone and everything on the planet, (including other species).

We should all be **cooperating** to develop such technologies instead of **competing** in the hope of beating others in competitions for markets.

Use of computing

One of the respondents mentioned the possibility of increasing value by using computer power, without harming anyone else. In this context it's worth listening to Andy Hopper's talk on the energy costs of computation and the problems and opportunities for reducing them:

<http://www.youtube.com/watch?v=LN4H6vklxYA&feature=user>

Great software advances in this field, far from being products to be sold to those who can pay, need to be distributed freely for the good of all -- as happened with much of the technology making the internet possible.

How much do governments understand about this?

Some quotations

"In order to feed their egos, interventionist politicians wage war. To do so, they must incur debt and receive the support (or at least the acquiescence) of their subjects; and to obtain money and loyalty, time and again they resort to deceptions and outright lies."

Chris Leithner [Avoid the rush: Prepare now for America's bankruptcy](#)
May 27 2007

Stefan Collini writes a very interesting critical analysis of the recent Browne report on higher education:

Browne's Gamble
Review of
*Securing a Sustainable Future for Higher Education: An
Independent Review of Higher Education Funding and Student Finance*
by Lord Browne et al
62 pp, October 2010

<http://www.lrb.co.uk/v32/n21/stefan-collini/brownes-gamble>

London Review of Books
Vol. 32 No. 21, 4 November 2010
Stefan Collini

The review has several interesting examples of uses of the concepts I am discussing. E.g.

"His frequently repeated mantra is 'student choice will drive up quality,' and the measure of quality is 'student satisfaction'. At the moment, he laments, 'students do not have the opportunity to choose between institutions on the basis of price and value for money.' Under his scheme, such value will be primarily judged by students in terms of 'the employment returns from their courses'. Courses that lead to higher earnings will be able to charge higher fees."

Comment

Notice the slides/links between "quality", "satisfaction" (as a measure of quality), "value", "employment returns"/"higher earnings" (as a measure of quality, or satisfaction?)

Collini points out some dubious assumptions in the report, closely related to the aims of this analysis of the concept of value. He writes:

"By definition, individuals are privileged reporters on what they think they want. The sentence could only do the work the report requires of it if it said something more like: 'Students are best placed to make the judgment about what they should get from participating in higher education.' But this proposition is obviously false. Children may be best placed to judge what they want to get from the sweetshop, but they are not best placed to judge what they should get from their schooling. University students are, of course, no longer children, but nor are they simply rational consumers in a perfect market."

He adds later:

"...individuals often need to be told by someone who knows that a particular line of study is worth pursuing whether at the time they want to or not."

Collini (unlike Browne) is clearly assuming a distinction between what is preferred by X and what has value for X (while nodding towards the capitalist theory of value).

Later he introduces the concept of "public interest" as a determiner of value:

"It is, incidentally, one of the several dispiriting features of this report that even when it shows an inconsistent twitch of non-market reflexes and recognises that there may be a public interest in making sure that certain subjects are offered and studied, it in effect confines these subjects to science and technology (with a token nod to the possible economic usefulness of some foreign languages). The only social value the report seems able to think of is economic:..."

and

"This report displays no real interest in universities as places of education; they are conceived of simply as engines of economic prosperity and as agencies for equipping future employees to earn higher salaries."

Not, for example, equipping future adults to be good parents, good citizens, intelligent voters, inspiring politicians, great authors,

There is an online (so-called) debate on the Browne report at the University of Birmingham. All it contains is two statements, one from the vice chancellor, and one from the President of the Guild of Students.
(31 Jul 2012: No longer available: perhaps the university was ashamed of it?)

Letter to Stephanie Flanders 31 Jul 2012

To: Stephanie Flanders, BBC
Date: 31 Jul 2012
Subject: Limits to growth: What about zero sum games?

Dear Stephanie,

I have just listened to your "limits to growth" discussion (31 Jul 2012).

I don't know why people who discuss growth on radio and TV never seem to pay attention to the following collection of issues:

1. Every nation is trying to grow and all seem to be ignoring the fact that, apart from a limited collection of still untapped resources, it must be (mostly) a zero sum game, constrained by the resources on the planet -- especially spaces of many kinds. In the past the zero sum game was hidden by the ability of industrially and commercially advanced nations to suck wealth from the others. The others are now joining in the competition on more equal terms, and the consequences for the formerly rich are proving disastrous.

2. There is constant discussion of value as measured by humans, but no concern for the needs of forms of life that cannot make choices in our market place. How many humans should be prevented from being born to allow one more orang-utan to live a normal life for members of its species? Would the economists on your panel even understand the question?

3. It is forgotten nowadays that there are deep philosophical problems about any attempt to derive a *single* value metric whether from human choices and preferences or any other source.

It is arguable that there really cannot be any justified total ordering of value: at best there's a partial ordering, and if you study the logic of "better" it becomes clear that even that different partial orderings are incomparable because they are relative to particular goals, needs, ideals, or whatever. Partly as a result of studying Consumer Association (Which?) reports I wrote an analysis of "better" in 1969:

Aaron Sloman,
How to derive ``Better'' from ``is'',
American Phil. Quarterly, 6, pp. 43-52, Jan, 1969,

Online here:
<http://www.cs.bham.ac.uk/research/cogaff/papers.html#1969-02>
or
<http://tinyurl.com/BhamCog/papers.html#1969-02>

(It needs clarification and updating, when I can find time.)

4. Your discussion did not mention that there have been different attempts to define "value" and ways to measure it -- e.g. the Marxist definition in terms of labour is totally different from the concepts of value apparently used by your discussants, both of which would be rejected by some thinkers.

Some References

[What Is Value?: An Essay in Philosophical Analysis](#)

By Everett Wesley Hall

Hartman's work on value (Axiology)

<http://www.valueinsights.com/axiology.html>

(Quotations and links. I have not read all of this.)

Chris Leithner

What is "value" anyway?

<http://www.quebecoislibre.org/04/040515-12.htm>

in *Le Québécois Libre*, [Who Are We?](#)

15 May 2004 No 142

Chris Leithner

The return of Keynesianism

<http://www.quebecoislibre.org/10/100515-5.htm>

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15 May 2010, No 278

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There is a short interview with Mark Moore here (2008):

http://www.nationalschool.gov.uk/news_events/stories/Mark_Moore_Interview.asp

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A. Sloman, 1970,

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A. Sloman, 1993,

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School of Computer Science, University of Birmingham, UK

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<http://www.cs.bham.ac.uk/research/projects/coqaff/09.html#907>

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<http://plato.stanford.edu/entries/value-theory/>

Value Theory, by Mark Schroeder

Wikipedia Entry on "Value Network"

http://en.wikipedia.org/wiki/Value_network

Wikipedia Entry on Prices of production

http://en.wikipedia.org/wiki/Prices_of_production

Ian Wright

The Emergence of the Law of Value in a Dynamic Simple Commodity Economy

in *Review of Political Economy*,

Volume 20, Number 3, 367- 391, July 2008

<http://ideas.repec.org/a/taf/revpoe/v20y2008i3p367-391.htm>

Preprint:
<http://207.45.187.42/~wright/sce.pdf>

Ian Wright

Convergence to natural prices part 1:

Multisector price and quantity dynamics in simple commodity production

Preprint:

<http://207.45.187.42/~wright/wrightNaturalPricesPart1.pdf>

Open University 2009

Cottrell, Cockshott, Michaelson, Wright, Yakovenko.

<http://sites.google.com/site/ianwrightphd/Home/political-economy>

Classical Econophysics, essays in thermodynamics, information theory and political economy.

Routledge Advances in Experimental and Computable Economics.

Routledge. 2009



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