Metarepresented Money

Keeping Ownership Decentralized

Money represents a future commodity ownership. However, the only way of keeping this ownership rightful, hence decentralized, is to price commodities in metarepresented money. Any otherwise priced future ownership will not remain rightfully decentralized.

Still, what is metarepresented money?

Direct Commodity Exchange

Let there be two owners A and B of commodities x and y, respectively, of whom A wants y and B wants x. Without any money — whether metarepresented or not — the only way for both people to obtain their desired commodities is directly from each other:

$A \dashrightarrow y$	$B \dashrightarrow x$
x	y
y	x

Otherwise, A and B must *delegate* their commodity ownership to someone who then *redistributes* it between them. However, such a centralized solution would at least partially contradict the same ownership, by at least partially taking it away from its rightful controllers. Hence, only a decentralized solution can preserve all commodity ownership legitimizing this exchange, by A and B exchanging x and y directly.

Individual Multiequivalence

Still, direct commodity exchange poses two problems:

1. Let there be now (as follows) three owners A, B, and C of one unit of commodity x, one of y, and two units of y, respectively. Additionally, let A want the most units of y, while B and C want at least one of x each. Then, the available unit of x will be worth one and a half units of y. So either A loses value to B or C to A — since the exchangeable quantities of x and y are not worth the same:

$A \dashrightarrow y$	$B \dashrightarrow x$	$C \dashrightarrow x$
$x(1.5y)$	y	$2y$

2. Let (as follows) A, B, and C own a single unit respectively of x, y, and z. Additionally, let A want y, B want z, and C want x. Then, direct exchange could not give any of those three owners their desired commodity — as none of them has the same commodity wanted by who owns their wanted one. Moneyless exchange now can only happen if one of their commodities becomes a simultaneous equivalent of the other two, at least for whom neither wants nor has it. So it becomes a *multiequivalent*, whether the other two owners also know of that multiequivalence or not. For example, A could give x in exchange for z just to then give z for y, this way making z a multiequivalent (as asterisked):

$A \dashrightarrow y$	$B \dashrightarrow z$	$C \dashrightarrow x$
x	y	z^*
z^*	y	x
y	z	x

Likewise, this individually handled multiequivalence poses a new pair of problems:

1. It allows for conflicting indirect exchanges. In the same example, any two or even all three owners could simultaneously try to handle it. For instance, while A would give x in exchange for z (then z for y), B could rather try to give y for the same x (then x for z). To avoid this conflict, A, B, and C must delegate now their individual choice of handling multiequivalence to a public authority — whether to their consensual one or even to other people's. However, such a centralized solution would again at least partially contradict their commodity ownership, by at least partially taking it away from them.

2. In addition to allowing the exchangeable quantities of two commodities not to be equivalent, its indirectness increases the likelihood of that mismatch, by requiring additional direct exchanges. Let the same owners A, B, and C of a single unit respectively of x, y, and z want the most units respectively of y, z, and x. Additionally, let a fourth owner D of two units of z want at least one of x. Then, the available units of x and y will each be worth one and a half units of z. Finally, again let z be an individual multiequivalent. Now, either A loses value to C or D to A, then respectively B to A and A to B — since the exchangeable quantities of x, y, and z are not worth the same.

Social Multiequivalence (Money)

Fortunately, all those problems have the same and only resolution of a single multiequivalent m becoming *social*, or *money*. Then, commodity owners can either give (sell) their commodities in exchange for m or give m for (buy) the commodities they want. For example, again let A, B, and C own commodities x, y, and z, respectively. Still assuming A wants y, B wants z, and C wants x, if now they only exchange their commodities for that m social multiequivalent — initially owned just by A — then:

$A \dashrightarrow y$	$B \dashrightarrow z$	$C \dashrightarrow x$
x, m	y	z
x, y	m	z
x, y	z	m
y, m	z	x

With social (rather than individual) multiequivalence:

1. There are only two exchanges (either a buy or a sell) for each commodity, regardless of who owns or wants which commodities.
2. All commodity owners exchange a common (social) multiequivalent, which eventually returns to its original owner.

Finally, with a social multiequivalent (money) divisible into small and similar enough units, any two commodities can always be equivalent, even if their exchangeable quantities are not. For example, let commodities x and y be worth three and two units of a social multiequivalent m, respectively — $x(3m)$ and $y(2m)$. Then, let their owners A of x and B of y be also the owners respectively of two and three units of that money — A of $2m$ and B of $3m$. If A and B want y and x, respectively, but only exchange their commodities for m units — x for $3m$ and y for $2m$ — then:

$A \dashrightarrow y$	$B \dashrightarrow x$
$x(3m)$, $2m$	$y(2m)$, $3m$
$y(2m)$, $3m$	$x(3m)$, $2m$

Privately Concrete Money

So money must always represent a future commodity ownership. Otherwise, people's money could not always represent their future ownership of anything it can buy. Additionally, to exchange their money, these people must share it with any of those with whom they

exchange it. Indeed, people's exchanged money must represent their future commodity ownership to all of them, even though of different commodities as either buyers or sellers. However, despite purchased by the same exchanged money, this future ownership remains exclusive to either group, which hence cannot share it with the other one. Then, how can the two still share its representation between them?

How could money be simultaneously shareable as that which represents a future ownership and not shareable as each future ownership it represents?

Is all money only shareable instead of also not shareable, by only representing an indefinite future ownership instead of also a definite one? Yet how could money only buy unspecified commodities? It cannot, since people cannot buy anything without specifying their future ownership of it as represented by their money to the seller.

Still, regardless of how the representation of something not shareable can remain shareable:

1. Anything is only shareable by remaining concrete.

2. Anything is only representable by remaining abstract.

Consequently, since a future commodity ownership is only shareable while represented by something concrete, it must be directly abstract. Likewise, for its concrete representation to be also representable:

1. It must become as abstract as (not concretely distinguishable from) that future ownership it represents.

2. Unlike the resulting abstract, intermediate representation, its newly unrepresented one must remain concrete.

Then, money could be simultaneously concrete, hence shareable, and abstract, hence not shareable, respectively as its unrepresented and represented representations. Indeed:

1. Abstractions are only shareable while represented by something concrete.

2. Indirect representations of anything must include its abstract representation by something else.

However, even if represented, hence abstract, anything representing money must remain shareable, hence concrete. Yet how could now an intermediate representation of indirectly represented money be *abstractly concrete*? Only by having its concreteness privatized by a public monetary authority. Then, it becomes publicly abstract by remaining privately concrete to that authority. So:

1. If already privatized, this privately concrete money must be represented by something publicly concrete. For example, when people price their future commodity ownership as gold entrusted to a public authority, this monetary gold is only shareable while represented by a publicly concrete certification of that entrustment.

2. If not yet privatized, the same privately concrete money must represent its false privatization. For example, when people price their future commodity ownership as gold not entrusted to anyone, this monetary gold is only shareable while representing its false entrustment to a public authority.

Still, no private concreteness is representable as money unless it is already money, which must be simultaneously shareable and not shareable. So even to whom it is privately concrete, money must simultaneously be directly abstract, but how? Only by representing a future increase in its current amount. There is no other way for its whole private concreteness to become directly abstract. Finally, no privately concrete money can depend on its future expansion, to then become as abstract as its increased future self, unless it represents a debt. Indeed, all this abstractly self-expanded money must eventually become concrete:

1. In its abstract excess over its already concrete sum to whoever holds it.

2. In its remainder to whoever owns it.

Then, its future increase and existing quantity are liabilities, respectively, of its owners to its custodians and conversely, so money becomes a dual-principal debt. However, all private concreteness of this money must still be directly abstract. By which even its already concrete part must become an additional but now single-principal, interest-paying debt of people not owning it — whether holding it or not — to its custodians.

This way, every public authority with any private control of other people's money must increasingly contradict their future commodity ownership, by taking it increasingly away from them. For example, a gold trustee will charge a fee to store monetary gold belonging to another person. Additionally, this entrusted money will eventually become a liability of yet another person — regardless of whether as the actual metal or not — so storage fees become interest payments on lent money created entirely from its lending.

Metarepresented Money (Metamoney)

Still, whether increasingly centralized away from its rightful controllers or not, the monetary representation must always be:

1. Concrete, to let buyers and sellers share it.
2. Abstract, to prevent buyers and sellers from sharing the different future ownership it represents to either group.

Then, how to reconcile its concreteness and abstractness without allowing its concrete privatization by a public authority?

Fortunately, despite necessarily shareable by being concrete to all people exchanging it, or *socially* concrete, money can rather be not shareable by being abstract to each one of them, or *individually* abstract. Indeed, its representation by the same person can simultaneously:

1. Remain shareable as part of a *concrete process*.

2. Become not shareable as just an *abstract object*.

For example, cryptocurrencies — like Bitcoin — use asymmetric encryption to represent money as a directly private although indirectly publicized number. So money becomes *metarepresented*, or *metamoney*, since it no longer publicly represents its whole privately represented self. However, for such a purely abstract (numeric) money to remain shareable, the process of certifying its past transactions or balances must become a consensus among all its owners. Otherwise, they would be unable to agree on its future transactions or balances, being thus prevented from using it. Additionally, to certify anything in their shared history, any consensus among these people must be public to all of them. Consequently, the rather private representations of their metarepresented money are always directly uncertified. Then, despite remaining socially concrete as its publicly certified, consensual metarepresentations, money becomes individually abstract as its privately uncertified, nonconsensual representations. While conversely, to publicly certify people's money as metarepresented in their transactions or balances, that same consensus process:

1. Cannot publicize their direct representations of this money, which are private.

2. Must remain decentralized, for all those people to agree on the same transactions or balances.

Only this way, no public authority can privately control other people's money, or then contradict the rightful future ownership it represents, which instead must also remain decentralized. Therefore, only metamoney can completely achieve the original purpose of money, by keeping not only people's bought or sold commodity ownership rightfully decentralized, but also their priced future one.