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# Aristotle's Worst Idea

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# Aristotle's Worst Idea

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Aristotle is generally credited with having made a revolutionary advance in scientific methodology: he introduced *functional explanation*, that is, explanation of the form of an organ by reference to its function. For example, tongues are soft and spongy *because* their purpose is to absorb nutriment: form follows function.

To this brilliant proposal, however, he added an unfortunate codicil, namely the idea that any disposition of nature -- any organ or any process -- properly has *one and only one* function. I call this idea 'monotelism'. Monotelism got into the intellectual bloodstream of the west and did much damage.

**Monotelism is Aristotle's worst idea.**

Aristotle's commitment to monotelism shows up rather comically in his disdain for 'the Delphian knife' -- clearly an ancient equivalent of the Swiss Army knife. He also casts aspersions on a tool known as an ὀβελλισκο-λύχνιον, which seems to have been a combination toasting-fork and lampholder, used by soldiers in the field.



The problem with these tools is that they are made 'for cheapness' sake'.

He also thinks that, contrary to the ideal, nature is sometimes forced to double up on the functions of animal organs:

...elephants' trunks serve as nose, as hand, as leg, and even as snorkel;

...apes' tails serve both as limbs in climbing and as anus-lids;

...human lips serve both for speech and for the protection of the teeth.

But in all such cases (and they are numerous) nature falls short of the ideal, which is monotelism.



Monotelism seems a gratuitous idea. After all, we generally admire the doubling up of functions: it seems ingenious, efficient. Many languages have an aphorism expressing admiration for such doubling up:

killing two birds with one stone  
faire d'une pierre deux coups  
zwei Fliegen mit einer Klappe schlagen  
prendere due uccelli con una fava  
matar dos pájaros en un tiro

Why would Aristotle think badly of such efficiency? Would it not be a virtue in Nature to be *polytelic*?

Part of the answer lies in his metaphysics: purpose or function is involved in the 'essence' of a thing, and a thing cannot have more than one essence.

Part, too, lies in the aristocratic culture of his time. There was a broad preference for tidiness and order: everything has its proper place, its proper function. People who resort to polytelic devices do so 'out of stinginess': they must be poor.

Finally, he advances an argument, not very convincingly, that when an organ has several functions it must suffer some compromise of design. If an insect's tongue doubles as a stinger it cannot be very good at both jobs.

I argue that this commitment to monotelism got into the bloodstream of western thinking; it became an **unacknowledged presupposition**, and did great harm in our thinking about several different subjects -- in fact, the most important subjects:

- gender
- sex
- money
- labour
- most recently, a subconscious allegiance to monotelism has been the source of the huge design mistake in the human genome project; it is the essential danger in genetic engineering.

## Gender



The unique function of women is domestic.

We know how deeply rooted this idea has been, and how hard we have had to work to dislodge it.

## Sex

The unique function of sex is procreation.

This idea was adopted in one branch of Stoicism, and from there it passed into Christian theology. It has permeated our culture.



## Money



Although there are biblical prohibitions of usury, there was also a philosophical argument, stemming from Aristotle himself, according to which the sole purpose of money was to represent goods; hence charging interest is a perversion of the purpose of money. Dante placed usurers lower in hell even than sodomites.

## Labour

The principle of the division of labour is inspired by monotelism: if the workforce can mirror the functional organization of a living body, then maximum efficiency will be attained -- but at what cost in alienation?



## Genetics

The human genome project set out to map the correspondence between *genotypes* and *phenotypes*, loosely, between genes and the traits to which they give rise. This project was governed by what has come to be called the "central dogma", namely that **there is a one-to-one correspondence between genes and traits**. On the basis of this dogma, it was projected that there would be 120,000 genotypes (since that is the number of trait-registrations). However, the number of genes has had to be revised downward to about 25% of the original estimate: 30,000.

This error is the result of a presupposition of monotelism. The truth is that one gene may have more than one function, may be matched with more than one trait.

In the polytelism of genes lies the whole danger of genetic engineering: you may alter a gene to alter a trait, but you don't know what other traits

you may be altering at the same time!

Monotelism has done a lot of damage, and it may yet do a lot more.

