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Hybridity—Elements of a Theory[1]

Introduction

The Symposium's theme of "Hybridity" is concerned with mergers, fusions and crossovers, of our physical selves, between our selves and artefacts, but also among our organisations and artefacts, and at the more abstract level of cultures.

My own background and interests are a combination of business disciplines and professions, information technologies, and the strategic and policy implications of information technologies. I needed to stand back from the theme, and ask myself what it was that I was contributing to. This document represents the notes arising from my reflection and research.

Etymology

As a literalist, I have to begin with the name that the rose has been given. Dictionaries give the origins of the word as the Latin *hibrida,* which is variously depicted as "mongrel," and more specifically as "the offspring of a tame sow and a wild boar." An extended dictionary-style essay on the concept is in the *Wikipedia*[2] entry.

Biological Application

There are two biological applications of the term which need to be distinguished. The first is a cross between populations or cultivars of a single species. In many cases, this is indistinguishable from natural processes. Many of the applications of the notion of "race within species" have pejorative overtones, such as "crossbreeds," "half-breeds," "mongrel" (particularly in relation to dogs), and "mulatto" (for negroid with white / Caucasoid crosses, derived, misleadingly, from the Spanish for mule).

The second biological category is the offspring of two different species, or of two different genera. Examples include loganberry (raspberry x blackberry), London Plane (Oriental Plane x American Sycamore), mule (male donkey x female horse) and liger and tygon (lion x tigers, and tiger x lion). Cross-species hybridisation seems likely to be of greater significance to this discussion than within-species/inter-racial breeding.

Cross-species hybridisation does appear to occur naturally, but very rarely. Most instances result from direct interventions by man (e.g. breeding of domesticated and stock-animal), or arise indirectly from interventions by man, such as the mating of animals, whose natural territories do not normally overlap, in zoos (e.g. lion-tiger crosses).

A chimera can be regarded as a special case of hybridity, in that it has (at least) two different populations of cells which are genetically distinct. See Ainsworth C. ("The Stranger within," *New Scientist,* 15 November 2003). A chimera would appear to be potentially unstable. Whether it has correlates beyond the biological realm is open to question.

Broader Applications

The term "hybrid" has been generalised to refer to any recognisable entity that is made up of elements drawn from multiple sources. A hybrid is of particular interest where its elements are derived from heterogeneous sources, or it is composed of elements of a different or seemingly incongruous kind. The instrumentalist is naturally interested in combinations that are efficacious in some way, whereas the voyeur is interested in the spectacular, irrespective of whether the combination is functional or viable.

There are active areas of hybridisation in the arts, particularly the media-intensive arts. The concept is also much used in all forms of art criticism and media studies.

There are yet broader applications, of an intellectual nature. For example, a meme, and especially a memeplex, may be a compound, drawing on multiple sources, and evolving through a process somewhat analogous to natural selection in biological evolutionary theory.

Hybridity in the Humanities and Social Sciences

The concept has been used in a number of schools of thought. In Postcolonial Studies, for example, hybridity has been defined as "the creation of new transcultural forms within the contact zone produced by colonisation." It takes many forms including cultural, political and linguistic. Pidgin and Creole are linguistic examples.

A perspective from the discipline of English sees it as "the integration (or, mingling) of cultural signs and practices from the colonizing and the colonized cultures." This approach applies to a newcomer in a strange land, particularly a newcomer with some form of power or dominance over the local culture. Migration differs from colonisation in that the newcomer has less power. In both cases, over time, assimilation occurs, and both the newcomer and the host adapt, resulting in one or more hybrid cultural forms; in both cases cultural and perhaps authority relationships remain with the newcomer's origins, and perhaps with other outposts, resulting in diaspora, and hence additional sources of cross-and retro-fertilisation (e.g. Kalra V., Kahlon R.K. & Hutnyk J. "Diaspora and Hybridity," *Sage,* September 2005).

In Sociology and Anthropology more generally, hybridity refers to the creation of dynamic mixed cultures. The specialist term "syncretism" is used for attempts at reconcilliation of disparate, even opposing, beliefs and schools of thought.

In Post-Modernist Political Studies, hybridity represents a counter-concept to that of "stable national identity", "rearticulating and inventing narratives of origin, place, displacement, arrival, culture, transit, and identity." Much of this appears to be associated with Bhabha H. K. *The Location of Culture,* Routledge, London and New York, 1994, which offers a poststructurally vague definition of the term.

Yao S. (in "Taxonomizing hybridity", *Textual Practice 17,* 2 July 2003, pp 357–378) offers a taxonomy of hybridization strategies, which builds upon the inescapably biologistic conceptual foundations of the term "hybridity" and includes the following "categories" or "modes". These are capable of application in other contexts. The list below is drawn from Yao, but varies the descriptions and re-sequences the categories so that they commence with that showing the least adaptation, and culminate in the most substantial:

- **mimicry** is the creation of a new element within an entity, mirroring an element evident in another entity. The context of the original element is not carried over, or is subordinated to the patterns of the entity into which the element is absorbed;
- **grafting** is the relatively superficial employment of an element from one entity in conjunction with another entity, with change to the element and/or the host only to the extent necessary to enable the connection to be achieved, comparable to "interfacing" in information technology terms;
- **transplantation** involves incorporation of a new element within a host entity, with greater attention to changes needed in order to ensure effective interaction between them;
- **cross-fertilization** requires that an element from one entity be comprehensively integrated into the new host in such a way as to generate new possibilities;
- **mutation** requires that the host be re-defined as a result of the integration into it of the previously foreign element.

Qualifying Characteristics

There are many variants possible in the processes of hybridisation. This section identifies the characteristics that are definitional, and without which it is inappropriate to talk of hybridisation having occurred. The key characteristics are as follows:

1. **A New Instance.** An entity must be recognised which has existence distinct from its progenitors. Mere inter-connections between people, artefacts and organisations do not represent hybridisation, unless the association between them is such that a new entity comes into being.
2. **Dual (or Multiple) Inheritance.** The new entity must exhibit elements from two or more progenitors.
3. **Significant Difference.** There must be a significant difference between the new entity and its progenitors. The addition of minor features, or the refinement of existing features, does not justify the declaration of a new entity-type (i.e. that is specious rather than a species). For example, there are many contexts in which humans have had artefacts fused with them, without giving rise to the significant change necessary to justify use of the term "hybridisation." Orthoses like walking sticks are mere adjuncts to human activity; and prostheses replace body-parts in order to recover lost function. Neither reaches close to creating a hybrid, because the differences between the augmented human and the original human are too limited.
4. **Integration.** The entity needs to be more than merely "eclectic", i.e. it cannot be just a set of elements without inter-relationships. There must be an integration or fusion of some features of one entity with some from at least one other entity, to produce a new entity.

Optional Characteristics

In addition to the definitional aspects of hyribidity, there is a range of characteristics that are at least of interest and potentially of importance. They include the following:

1. **Functionality.** The hybrid may or may not have advantageous traits, creating new potentials both individually and socially.
2. **Dysfunctionality.** Alternatively, key traits may be missing, or harmful traits may be present.
3. **Flexibility.** The new entity may or may not have sufficient flexibility to cope with differences in circumstances.
4. **Adaptability.** The new entity may or may not have the capacity to change its elements or behaviour over time, as its environment changes. Any such feature may or may not represent "learning."
5. **Viability and Survival of the New Entity.** For hybridisation to have taken place, it is implicit that the new entity must come into existence and remain in existence, despite threats present in its environment, for long enough to be recognised. How long it survives is not, however, a factor critical to the question as to whether or not it is a hybrid.
6. **Survival of the Progenitor Entities.** Hybridisation does not necessarily imply that the original entities are subsumed, or otherwise cease to exist, e.g. through cannibalisation. The qualifying condition is that a new form arises. The old forms may either be destroyed and cease to exist, or they may continue their independent existences.
7. **Replicability.** Whether an entity is or is not a hybrid is independent of the question as to whether or not it is feasible for other entities similar or identical to it to be created.
8. **Procreation.** By procreation is meant here the capacity of the entity, alone, or in conjunction with other entities, to self-replicate, i.e. create another entity with the same elements.

Hybridisation does not necessarily imply that the new entity has the ability to procreate. Even if there could only ever be one instance of a particular entity-type, it would be reasonably called a hybrid if it satisfied the qualifying conditions expressed in the previous section.

9. **Category of Instances.** It is immaterial whether or not the instance is a singular, or is one of a class, category or species.
10. **Entity Dominance.** It is not material to the question of hybridity whether the instance gains its elements from its progenitors equally or unequally, nor from which progenitor which features are acquired. Despite the gender aspect of the biological origin of "wild male over domesticated female," there is no necessary dominance relationship between the prior entities.
11. **Purposiveness.** It is irrelevant to the question of hybridity whether the mix of features results from happenstance, accident, largely blind experimentation, or the purposive behaviour of an instrumentalist (in biological terms, a breeder or eugenicist; or, in the context of artefacts, an architect, engineer or industrial designer).

Replication of Instances, and Emergence of Category

It was suggested above that a hybrid is a hybrid whether or not there is only ever one such. Nonetheless, there will tend to be a great deal of interest in hybridity that gives rise to multiple instances. This represents, in the abstract, a category, and in biological terms a race or species. There are several ways in which multiple instances of an entity-type might come into existence. They include the following:

- repetition of the replicative processes whereby the first instance came into being;
- alternative replicative processes, from the same origins;
- alternative replicative processes, using different progenitors, but resulting in progeny similar enough to be regarded as the same entity-type;
- self-replication, as occurs in biological organisms, in the form of natural reproduction, including assisted natural reproduction (such as *in vitro* fertilisation).

If the entity can procreate, then the offspring of two different instances within the same category might be capable of reproduction or might be sterile (e.g. in biological reproduction, due to chromosome mismatch). Even if reproduction is possible, it might be that the progeny would revert to the form of one of the source-entities, rather than sustaining the form of the new instance. In addition, hybrids may lend themselves to hybridisation with other entities, to produce yet further categories or races.

Some Domains of Potential Application

My interests are instrumentalist, rather than artistic, or merely intellectual. Within my frame of reference, there are many contexts within which the concept and basic principles of hybridity might be fruitfully applied:

- **involving only non-living forms.** Possibilities include:
    - artefact with artefact (robotics);
- **involving non-living and non-human forms.** Possibilities include:
    - vegetable with vegetable;
    - animal with animal;
    - combinations of vegetable, animal and/or artefact;
- **involving human life forms.** Possibilities include:
    - human with human(s);
    - human with vegetable(s);
    - human with animal(s);
    - human with artefact(s) (cyborgism);

  - human with combinations of vegetable, animal and/or artefact;
  - human with human(s) mediated by artefacts, e.g. artificial telepathy;
- **involving human organisational forms.** Organisational forms include corporations, government agencies, formal associations and informal associations. Possibilities include:
  - organisation with artefact(s), as is evident with technology-dependent and technology-centric organisations, "Sorry, the computer's down," IVR, online-reservations-and-payments-only airlines, and eGovernment and the associated transfer of data-capture responsibility to the citizen and withdrawal of counter-services;
  - organisation with organisation(s) mediated by artefacts, e.g. technology-dependent and technology-centric organisation chains and clusters, linked supply-chains, and cascading network infrastructures.

A particular application of the notion is the hybridisation of government agencies with corporations, through such mechanisms as outsourcing, public-private partnerships, and corporation-dominated nation-states (in such contexts as mining, logging, and island tourism). In some cases the connections are mediated by artefacts, particularly information technologies.

Human-Artefact Hybridisation and the Digital Persona[3]

The concepts of hybrid, hybridity and hybridisation are rich, and open up a rich array of possible applications. The remaining sections of this paper consider just one example: the impact of the processes of human-artefact hybridisation on the digital persona. A digital persona is a model of an identity, which is established through the collection, storage and analysis of data about that identity. The concept was introduced in Clarke (1994).

Various categories of digital persona need to be distinguished:

- a *projected* digital persona is an image of one's self that an individual conveys to others by means of data; and
- an *imposed* digital persona is an identity projected onto on a person by means of data, by outside agencies such as corporations and government agencies. A special case is the *public* digital persona, which is an identity projected onto a person by means of data, by an interested public, such as fans.

Another distinction is between:

- a *passive* digital persona, based on data alone; and
- an *active* digital persona, which performs acts. Most typically, it is software performing as an agent on the identity's behalf. The software may remain under the control of the principal, or may become *autonomous*.

In Clarke (2005), an examination is undertaken of human-artefact hybridisation. This encompasses prosthetics to replace lost functions, orthoses to extend human functions, and other aspects of emergent cyborgism. It also considers the influences of robotics, artificial intelligence research and experiments in the area of artificial life.

The emergence of human-artefact hybrids gives rise to a number of prospects. The purpose of this brief paper is briefly to consider the impact of human-artefact hybridisation on projected and imposed digital personae.

The Projected Digital Persona

The Internet affords humans many opportunities to project themselves, variously accurately, honestly, fancifully and criminally dishonestly. The scope arises from the absence from the Internet protocol suite of any intrinsic authentication of *identities and locations,* and the ability of a person to influence the information that appears to decribe them. For example, the From: entry in an email, the IP-address from which a message is sent, the

IP-address to which a response appears to be returned, and the name and address of a domain-name owner, are all manipulable.

Needless to day, these potentials can be applied to good (such as anonymous political speeches and whistle-blowing), to harm (e.g. masquerade for fraudulent and other criminal purposes), and a great deal in between (varying from a humorous trick, to mischief, and trouble-making).

In some circumstances, a person may be able to provide *profile* information, or may be required to do so. Examples include a declaration to an age-restricted web-site that the user is over 18, basic demographics associated with an account with an ePublisher, consumer preferences declared to an Internet merchant or eCommerce intermediary, and life-stories and interests with a self-styled "social networking service." Once again, there is little scope for authentication of such data, and it ranges from honest, via imaginary, to dishonest, to fraudulent.

A further opportunity arises from contributions that a person makes within fora such as email-lists, chat-rooms and blogs. An identity establishes a reputation based on perceptions by the relevant community of consistencies of a philosophical or stylistic nature. These consistencies may be genuine, or contrived. Instances have been documented of members of serious-minded communities being aghast when masquerade is discovered (e.g. a women's list infiltrated by a male posing as a female psychologist).

Further opportunities for an individual to establish identities are provided by role-playing games (RPGs). Many of these are specific to highly imaginary situations in obviously artificial settings. The technique is applicable much more broadly, however. For example, it can be applied to business games, and to scenario-building in organisational decision-support contexts. Network-mediated human communication is well known to enable many people to lose some of the inhibitions that limit their performance in face-to-face situations, and hence creativity is capable of being effectively harnessed in this way.

Another layer of opportunity arises from *avatars*.[4] At the most "real" extremity, visual representations of a role might be a photograph of the participant, perhaps captured by the person's own workstation camera at the time of the interaction, but possibly selected from among a set; but it is more commonly an icon, image, cartoon or modified photograph intended by the individual to convey particular characteristics.

Although originating in the context of online games, avatars are readily applicable in much more serious and workmanlike settings, such as electronically-facilitated or -enhanced meetings. In addition, it is entirely feasible for still images to be replaced by video, and for pseudo-3D effects to be built into the avatar. Multi-player action games increasingly involve *active avatars,* with the avatars of the player and their opponents being depicted as performing the actions, under the players' control.

Features can be provided by *physical artefacts,* such that hybridised individuals could more effectively project aspects of digital personae. The cyberpunk sci-fi genre has investigated this with the character Molly in Gibson's *Neuromancer* (1984), who has "has extensive body modifications, most notably blades under her fingernails which can be used like claws, an optimized reflex system and implanted lenses covering her eye sockets with added optical enhancements."[5]

Although those particular hybrid features appear to have been intended primarily for physical use and physical effect, the digital projection of such features could reasonably be expected to convey a great deal of digital persona information to participants in virtual spaces.

The Imposed Digital Persona

Data concerning individuals may be generated by outside agents. Alternatively, data may be interfered with by outside agents. Where this is done with a purpose in mind, it results in a digital persona being imposed on the individual concerned.

One example is a consumer profile developed by corporations with a view to increasing the accuracy of their marketing decisions about how, when and what to advertise to whom.
In the Internet context, this is assisted by data gathered about the behaviour of network identities, through such means as click-trails (legitimate), cookies (variously legitimate and not so), and spyware (illegitimate).
The email-logs and web-cache entries maintained by Internet Service Providers (ISPs) are a potentially rich source of such data. A mini-case study in this area is Google WebAccelerator. This is an attempt to attract consumers to use a proxy-server / intermediary so that the company can capture vast quantities of search-terms, web-behaviour and cookies, and associate them with net-identities. The payback for the company is a comprehensive profile for each user, which enables the selling of more precisely targeted advertising, and hence the generation of substantial revenues.
There are of course various forms of countermeasure available to net-consumers. Refusing cookies is inconvenient, so it can be more effective to provide data when it's requested. Tools exist to enable automated filling out of web-forms with data that is plausible, but that may or may not bear any relationship to the actual user. A more sophisticated approach is to arrange for multiple individuals to use the same net-identity. This results in a composite digital persona, which relates to no specific human being (although the risk remains that the corporation might impose it on someone).
Beyond the purely digital is the prospect of the manipulation of artefacts that are inserted into humans. For example, individuals who have heart pacemakers or door-opening chips inserted may discover that various parties are capable of reading data from them, or changing data in them. If the artefact has an effector component (such as logic-driven release of a chemical into the blood-stream), their behaviour would be subject to manipulation by any party that knew how to manipulate that "endo-prosthesis."
An even more substantial interference with hybrids would arise from the imposition of artefacts on humans. The institutionalised are already becoming subject to anklets and wristlets containing chips, and mobile phones are becoming locatable with a high degree of accuracy. It is a small further step for identification chips to be inserted into people, as they already are into pet dogs and livestock.
Proposals have already been made for two categories of people: at one extreme, senile dementia patients (for whom consent is meaningless anyway) and prisoners; and at the other extreme, affluent frequent flyers (who are being offered incentives such as faster passage through borders). The chips would quickly migrate into the community by means of prisoner release, parole and day-release schemes; and through imposition on people convicted of recidivist crimes, particularly paedophilia.
This paper has provided an overview of the concept of "hybridity", re-visiting its origins, considering its applications in biology and beyond, and examining its various characteristics and subcategories. The additional insights that the concept of hybridity can offer were evidenced by the discussion of one small example. A theory of hybridity has very wide scope, and is therefore potentially a very fruitful line of intellectual development.

1 On the basis of these Notes, a full paper was developed entitled *Human-Artefact Hybridisation: Forms and Consequences.* It is accessible at *http://www.anu.edu.au/people/Roger.Clarke/SOS/HAH0505.html*
2 *http://en.wikipedia.org/wiki/Hybridism*
3 This document is at: *http://www.anu.edu.au/people/Roger.Clarke/SOS/HAHDP0505.html*
See also Clarke R. (1994) „The Digital Persona and Its Application to Data Surveillance," *The Information Society 10,2.* June 1994, at *http://www.anu.edu.au/people/Roger.Clarke/DV/DigPersona.html*
4 *http://en.wikipedia.org/wiki/Avatar*
5 *http://en.wikipedia.org/wiki/Neuromancer#Plot*