Ambient Functions - Abandoned Children to Zoos

Chris Hurley

Precis

Since records are timebound and contextual metadata must be understood by an observer whose frame of reference is different from that of the recordkeeper, there is a need for external validation. The processes of terminological control (based on definition) are inadequate for this purpose. What is needed is a process of contextual control (based on observation). Ambience is the context of provenance and it is there that we will find external validation of provenance data. Functions offer one possible tool for crafting ambient relationships. Ambient functions define and give meaning to agents of recordkeeping within the context in which they operate. Ambient functions should be distinguished from business activities and processes which do not afford the basis for meaningful discrimination necessary when formulating appraisal categories and useful search patterns.

About the Author

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> **context** *n.* Parts that precede or follow a passage and fix its meaning (**out of**~, without these and hence misleading; ambient conditions; **in this~** (connection); hence **contextu**AL *a.* [ME, f. L *contextus* f. CON(*texere text-* weave)]

> **function.** *n., & v.i.* **1.***n.* Activity proper to person or institution; mode of action or activity by which thing fulfils its purpose; office-holder's duty, employment, profession, calling; religious or other public ceremony or occasion, social meeting of formal or important kind; (Math.) variable quantity in relation to other(s) in terms of which it may be expressed or on which its value depends; basic operation in computer; hence -LESS *a.* **2.***v.i.* Fulfil a function, operate, act. [f. F *fonction* f. L *functio -onis* (*fungi funct-* perform; see -ION)][1]

Records are timebound[2]. They evidence an event locked in time. That evidence cannot be updated or adjusted to take account of subsequent happenings. Yet evidence itself is timely. Records provide evidence **now** of what happened **then**.

Contextual metadata documents circumstances relevant to the making of the record - who, when, how, why. These circumstances are contemporary with the making of the record but they are historical by reference to the user of the evidence[3]. The metadata is unchanging but our interpretation (understanding) of it is affected by fluctuations in the external environment.

Contextual metadata validates a record by linking it to the external environment. When we know the name of the **author** of a communication we know **who** created it. I have in my hand a letter from the Duke of Wellington (C-in-C Allied Forces) to Marshal Blucher (C-in-C Prussian Forces) dated 17 June 1815 saying "*For God's sake, come.*" The message itself carries with it part at least of the contextual knowledge I need to comprehend its meaning.

That knowledge derives from the data which is integral to the message itself (name, date, and possibly the office of the correspondents) but also from my own knowledge of the **roles** of the persons concerned and the circumstances in which they found themselves on 18 June 1815. Context comprises both the data carried by the record and the knowledge brought to the record by the user. Contextual knowledge forges the link which is the basis of understanding. Efforts now being made to regularise the process whereby knowledge of context is captured as metadata for electronic recordkeeping should not blind us to a fundamental truth. Because records themselves are timebound, metadata must be verified within a context which is both current **and** historical.   Records cannot remain current unless the metadata is externally validated -

> The Reference Model acknowledges, but does not solve, some fundamental problems
> in the distributed network environment. For example, a major concern is how the

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[1] *The Concise Oxford Dictionary* 6th ed.

[2] David Bearman, Towards a Reference Model for Business Acceptable Communications, December 1994. Unpublished proposal.

[3] By "historical" I do not mean ancient. An evidenced fact is historical from the moment of its creation. A record created at 1530.07 Australian Eastern Standard Time on 27 May 1995 is historical at 1530.08. An understanding of the record requires external validation at 1530.08 by reference to circumstances obtaining at 1530.07.

identifier uniquely assigned by one domain is guaranteed to be unique when the object is incorporated into a universe in which identifiers assigned by other domains are present. Obviously uniqueness can be ensured by combining a unique identifier within a domain with a unique identifier for the domain. The problematic aspect of this is that domain identifiers need to be truly unique to a person or organization but we want to define a system in which the domain identifier does not have to carry too much intelligence and yet can be meaningfully related to its successor and precursor identifiers.[4]

Metadata essential to an understanding of a record (*x* created the record) must be comprehensible (who is *x*?). Knowledge of context could conceivably be encoded but understanding cannot. Understanding depends upon contextual knowledge which is also historical and thus must necessarily exist outside the record.

Figure One

- **beeves**   See **ox**
- **bull**   uncastrated male ox
                      See also **calf**
                      xx **ox**
- **bullock**   castrated male ox
                      See also **calf**
                      xx **ox**
- **calf**   young male ox less than one year old (thereafter use **bull** or **bullock**)
                      See also **steer**
                      xx **bull; bullock; ox**
- **cattle**   See **ox**
- **cow(s)**   female ox
                      See also **heifer**
- **heifer**   young female ox less than one year old (thereafter use **cow**)
                      xx **cow**
- **kine**   See **ox**
- **ox (oxen)**   domesticated, horned, cloven-footed, ruminant stock of the genus *Bos taurus*.
                      See also **bull; bullock; calf; cow; yearling**
                      xx **livestock**
                      x   beeves; cattle; kine
- **steer**   castrated young male ox less than one year old (thereafter use **bullock**)
                      xx **calf**
- **yearling**   ox which is more than one and less than two years old
                      xx **ox**

This can be done by definition or observation. Definition controls the meaning or use of descriptive data (terminological control) whereas observation documents identity through relationships (contextual control).

Farmer Jones and Farmer Brown possess horned, cloven-footed, ruminant animals of the genus *Bos* consisting, at the present time, of "Ferdinand", "Tulip", "Thunderbolt", and "Tinkerbell". They agree to control the words they use when describing these and similar animals in their herds - **Figure One**.
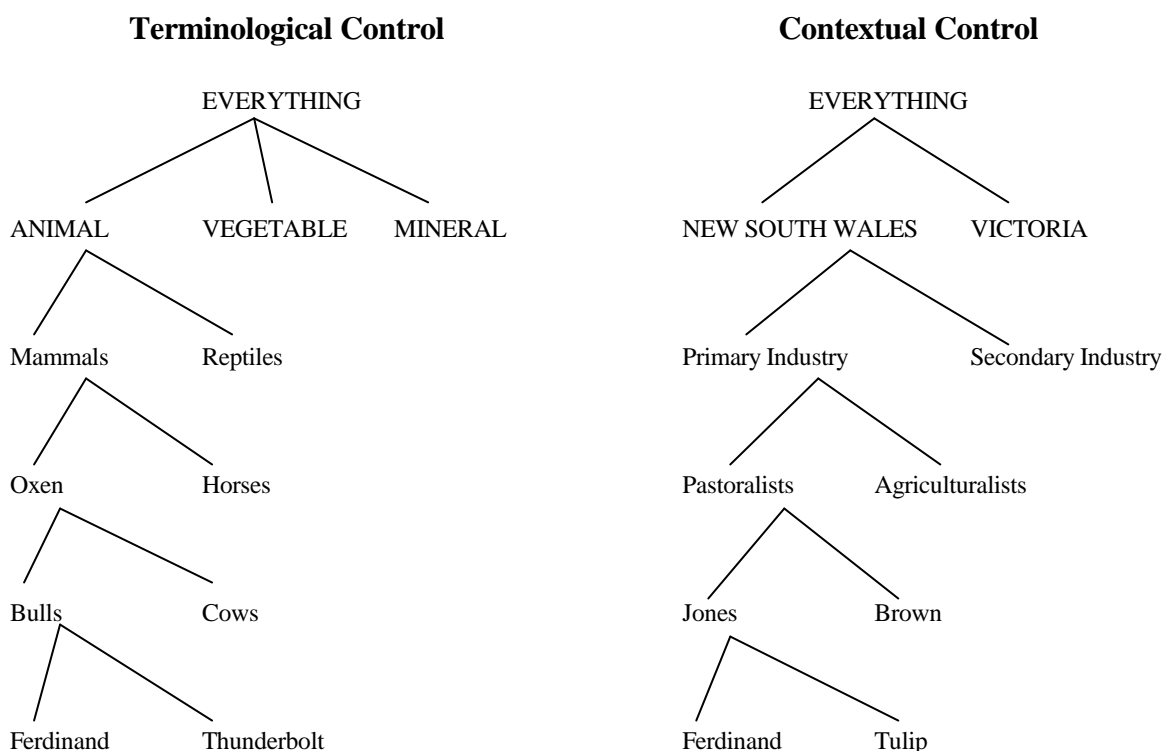
Ferdinand and Tulip (belonging to Jones) and Thunderbolt and Tinkerbell (belonging to Brown)

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[4]   David Bearman, Towards a Reference Model for Business Acceptable Communications

can be described using terms from the authorised list in a way which eliminates some (but not all) uncertainty as to meaning. Using the term *bull* makes certain statements about age, gender, and progenitive capacity - nothing, it should be noted, which enables us to identify Ferdinand and Thunderbolt as individuals. It is their names not their descriptions which do that.

Suppose Thunderbolt and Tinkerbell now produce a bull calf which Brown decides shall also be called Ferdinand. There is no possibility, within the domain established jointly by Jones and Brown, of distinguishing between Jones's Ferdinand and Brown's Ferdinand. While the name Ferdinand satisfactorily identifies an individual bull within the exclusive domain of each, within the joint domain they have established, the same name is used twice for different individuals.

Figure Two

Terminological Control

EVERYTHING

ANIMAL   VEGETABLE   MINERAL

Mammals   Reptiles

Oxen   Horses

Bulls   Cows

Ferdinand   Thunderbolt

Contextual Control

EVERYTHING

NEW SOUTH WALES   VICTORIA

Primary Industry   Secondary Industry

Pastoralists   Agriculturalists

Jones   Brown

Ferdinand   Tulip

Terminological Control is ...	Contextual Control is ...
A TRUE HIERARCHY - Yes	**A TRUE HIERARCHY - No**
MULTI-LEVEL - Yes	**MULTI-LEVEL - No**
TIMEBOUND - No	**TIMEBOUND - Yes**
CONTINGENT - No	**CONTINGENT - Yes**

It will be seen that each method has problems. What if Jones sells out to Smith? Do we then refer to Smith's bull Ferdinand? If we do, how can we be sure that it is the same bull? If we go on referring to it as Jones's bull Ferdinand it only makes sense as long as people can remember who Jones was and eventually confusion will arise. What if Jones sells out to Brown? Then we have two animals which can accurately be described as Brown's bull

Ferdinand. Controls only work within a defined area ("domain"). These two animals may be confused with other Ferdinands with which the country probably teems.

The description "Jones's bull Ferdinand" gives identity and meaning by linking the object of description to its context. A numbering system ("Ferdinand 1") gives identity and meaning by establishing a unique identifier which applies to this beast and no other (within the joint domain established by Jones and Brown). The first description puts Ferdinand in context by "surrounding" his name with external knowledge (the fact that he belongs to Jones and who Jones is) necessary to identify Ferdinand as an entity. The second description requires no contextual knowledge - the identity of Ferdinand is established by assigning him a unique identifier which singles him out as an entity.

Terminological control establishes Ferdinand's identity as a particular representative of a defined class or category. Contextual control establishes Ferdinand's identity as an individual by nominating the relationship Ferdinand has with other entities. Herein lies the essential difference between terminological and contextual control. The difference can be set out diagrammatically - see **Figure Two**.

Terminological control is hierarchical ("multi-level")[5]. The definitional characteristics of the containing category are shared by individual examples at the next lowest level. Thus "Ferdinand", a bull, must necessarily be a mammal within the framework of terminological control and cannot conceivably **ever** be a reptile. Contextual control imposes no such restrictions. "Ferdinand" happens to belong to Jones but might just as easily be the property of Brown or be sold to a new owner in Victoria. There is no necessary or logical connection between the status of an individual at one level and the category it belongs to at another.

It is this difference which gives each method its peculiar strengths and weaknesses when dealing with change. Terminological control is not timebound. It establishes relationships which are themselves impervious to external change. If Ferdinand is a bull then he is necessarily a mammal and no power on earth can ever change that. Contextuality is gloriously timebound. If Ferdinand belongs to Jones in New South Wales today he can also belong to Gabriel in Victoria tomorrow. If Jones and Gabriel form a partnership, Ferdinand can even belong to both simultaneously. Contextual relationships are meaningless unless they are fixed in time and circumstance, unless they show when the relationship exists. Terminological relationships exist outside of time.

Contextual control is contingent, terminological control is not. Contextual relationships are observed connections. Terminological relationships (though ultimately subject to reality checks of some kind) are essentially logical expressions. It would be possible to define "unicorn" into a terminological control system.

Contingency distinguishes terminological from contextual control - is indeed the point of contextual control. Terminological analysis articulates logical relationships between defined categories. Relationships are themselves necessary outcomes of the definitions. Given two defined terms, the relationship between them (and therefore the relationship between any two particular instances belonging to defined categories) can be predicted without further observation -

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[5]   David Bearman, Multi-Level Description *Archives and Museum Informatics* Vol.8, No.1 (Spring 1994), pp.80-83.

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ALL.     To say she is his mother is an utter bit of folly!
             Oh, fie! our Strephon is a rogue!
         Perhaps his brain is addled, and it's very melancholy!
             Taradiddle, taradiddle, tol lol lay!
         I wouldn't want to say a word that could be reckoned as injurious,
         But to find a mother younger than her son is very curious,
         And that's the kind of mother that is usually spurious.
             Taradiddle, taradiddle, tol lol lay![6]
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Terminological relationships can be changed, however, if a definition is altered to take account of hitherto unconsidered possibilities (that one's mother is a fairy, for example) even though the observable circumstances in a particular case are otherwise unchanged -

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STREPH.      Oh, I've no longer any reason to conceal the fact - she's a fairy.
 PHYL.       A fairy!  Well, but - that would account for a good many things!....
             ................................................................
STREPH.      ....You know, my grandmother looks quite as young as my mother.  So
             do all my aunts.
 PHYL.       I quite understand.  Whenever I see you kissing a very young lady, I
             shall know it's an elderly relative.[7]
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With contextual control, it is the observable circumstances of the particular case which (being unpredictable) determine the relationship between any two instances.   Of any contextual relationship, it is possible to say that it might have been otherwise -

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BOAT. For he might have been a Roosian,
          A French, or Turk, or Proosian,
          Or perhaps Itali-an!
ALL.  Or perhaps Itali-an!
BOAT. But in spite of all temptations
          To belong to other nations,
          He remains an Englishman![8]
```

A contextual relationship gives meaning to something through the contingent associations which are observed to exist (in a particular set of circumstances) between that thing and another. The relationship establishes (evidences) the circumstance - gives it its meaning. The significance for recordkeeping is obvious. Contextual control is the method we must use in order to preserve meaning in the midst of change.

Archivists are accustomed to establishing context by showing the provenance of records - identifying the "records-creator". This is to say that a contingent relationship is observed to exist between a body of records and an identifiable person, family, or corporation which is said to have created the records.

AMBIENCE

In a previous article on standardisation[9], I proposed (taking up a cherished idea of Peter

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[6]   William Schwenk Gilbert, *Iolanthe* (1882) Act I

[7]   William Schwenk Gilbert, *Iolanthe* (1882) Act II.

[8]   William Schwenk Gilbert, *H.M.S. Pinafore* (1878) Act II.

[9]   Chris Hurley, Standardisation 1987 : A Recapitulation *Archives & Manuscripts* Vol.18, No.1 (May 1990), pp. 63-73.

Scott's) collective action to establish a single contextual framework within which all archival programmes could document records. This would, in effect, document the "domains" by reference to which each archival programme externally validates its documentation. The key to standardisation, as I then saw it, was to agree on a model for external validation of context (from the "top" down) not to make uniform the manner in which we individually described things (from the "bottom" up)[10].

Ambience is the context of provenance. Wellington is the provenance of his own correspondence. Ambience shows relationships between him and –
- his family (mother, father, brother, wife, children),
- offices held (commander-in-chief, prime minister), or
- terms descriptive of his activities (soldier, statesman).

A corporation can be placed in context by showing relationships between it and -
- other corporations (previous, subsequent, superior, subordinate),
- organisational structure (governments, record groups, *fonds*), or
- terms descriptive of its activities (functions).

Ambience is provenance once removed. The provenance of Wellington's papers could be shown as both Wellington and the Wellesley Family and in some cases such joint provenance is desirable (the joint correspondence of Wellington and his wife, for example). Otherwise, ambience may be used - vicarious provenance, as it were.

The traditional provenance statement - "these are Wellington's papers" - should not be confused by haphazardly relating records to associated people and corporations. It may be desirable, however, to say - "these are Wellington's prime ministerial papers" - depending on the recordkeeping process, to establish a provenance link with another entity. An ambient relationship is another way of doing this. To say that "these are the papers of the husband of Kitty Pakenham" is to say something different from (if not more than) "these are papers which contain correspondence with Kitty Pakenham" or "these are papers which mention Kitty Pakenham".

All systems which have to deal with change run into the same problem - that description is a product of observation and observation varies as the circumstances of the observer change. A single all-encompassing contextual statement, by reference to which all other "domains" could be validated, establishes a documentable "point of view". A universal context statement (extending a single domain over the entire world) might look like the one I have set out in **Figure Three**.

Apart from any pedantic objections to the attributes I have chosen to give to my conception of "human experience", there are several difficulties with any formulation based solely on recordkeeping needs. It is clear that this example is not of "universal" utility. The terms used ("earth", for example) themselves need a context. The need for a frame of reference goes

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10 I have included a more detailed outline of my 1990 proposals for universal contextual analysis as an Appendix to this article in the belief that the original may be difficult to access for a foreign audience. The repetition may be useful in another way - because it proceeds from an analysis of context in structural rather than functional terms. This may be more comprehensible as an illustration of ambience (even though it is rooted in Australian history) because data about administrative structures is a more familiar as a way of establishing context for most archivists. I have felt it desirable to banish these examples to an Appendix, however, so as not to obscure the thrust of this piece - the use of function to achieve contextual control.

beyond recordkeeping. Museum curators, for example, having to deal with time scales in which human experience scarcely registers, would find the suggested point of view constricting. Even within the limited time scale it contemplates, it will not fit very well their conception of reality - they might, for example, find it preferable to start from the notion of "mammalian activity". Except by way of comic relief, therefore, I am by no means yet ready to attempt the formulation of contextual data at anything like this level.

Figure Three

Cosmic Registration Form	Reference Code: **BIG 1**

Title :	**Human Experience**	

Dates :	**by 150,000 BC to date**	Place :	**Earth**

Controlled By (Superior Entity) : **subject to further research**

Previously : **Chaos**	Subsequently : **Oblivion**

Controls (Subordinate Entity) :

Assyrian Civilisation	**Chinese Civilisation**	**Indian Civilisation**
etc etc etc	etc etc etc	etc etc etc

Inventory of Cosmic Registration Systems - CRS
CRS 1   Register of Universal Domain Identifiers

As I have written elsewhere[11], contextual data should be developed independently of the perceived uses to which it will be put. This turns out to be very hard. Even at these highly rarefied heights (perhaps particularly so) it is difficult not to betray an inherent bias derived from the point of view implicit in the task one wants to accomplish.

All categorisations involve choices. Wellington played the violin. I am unlikely, however, to designate him as a "musician" - more likely as "soldier" and "statesman". It would be correct to document all his activities but an undiscriminating description would cause as many problems as it solved - by cluttering up each ambient category with both "significant" and "insignificant" data.

Moreover, while some categorisations are (or can be made) exclusive many cannot. If I describe Wellington as "commander-in-chief" this distinguishes him, for the nominated period, from all other "soldiers" (at any rate, within one particular ambience) because there is (one hopes) only one of these. If I describe him as "statesman" there is no such distinction because (whatever one's private views) there is a logical possibility of more than one statesman at any time.

FUNCTIONS

Contextual control is needed to organise observed facts at the ambient level into a meaningful body of knowledge to provide external validation for recordkeeping metadata. I call this

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[11]   Chris Hurley, Problems with Provenance *Archives & Manuscripts* (Nov. 1995) forthcoming.

knowledge "archival data"[12]. Functions tell us much that we need to know in order to identify and comprehend recordkeeping activity. Any examination of archival guides and finding aids (see **Figure Four**) demonstrates how central they are.

Figure Four

SYDNEY CITY COUNCIL ARCHIVES
AGENCY DOCUMENTATION

101 Agency No.	CA 116
102 Agency title	Health & By-Laws Committee
103 Date Range	1898 - 1939

....

401 Agency controlling	CA 100, Sydney City Council, 1842+
403 Agency preceding	CA 124, Finance Committee I, 1843-1982 [from 1882-1898]
	CA 96, Garbage Disposal Committee, 1898-1902
404 Agency succeeding	CA 53, Health & Recreation Committee, 1939-1969

....

501 Functions exercised	CF 03, Garbage & refuse cleaning
	CF 12, Public health
	CF 13, Community services & facilities
	CF 14, Parks & public spaces management
	CF 21, Governance of the Council

....

801 Description

This Committee was responsible generally for controlling all matters affecting the health and recreation of the citizens. This included supervising the carrying out of the provisions of any acts of Parliament or municipal by-laws affecting public health, dealing with petitions and complaints from persons affected by the by-laws, controlling the park and reserve lands under the control of the City, managing the public baths and bathing places, dealing with all matters relating to the collection and disposal of garbage ... etc. etc. etc.

In this example -
- The descriptive text is almost entirely functional.
- The functions of the subordinate body must necessarily belong to the superior ("controlling") body also.
- It is likely that functions were inherited from (and passed on to) the predecessor and successor bodies.

Functions themselves have a history and a character independent of the recordkeeping agent which is being described. As separate entities -
- Much of the functional description of corporations and persons could be held separately and associations made by linking the two entities in carefully defined relationships.
- The necessity for repeating functional description at both superior and subordinate levels disappears.
- The necessity for repeating functional description for both predecessor and successor agents of recordkeeping disappears.

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[12]   Chris Hurley, Data, Systems, Management, and Standardisation *Archives and Manuscripts* Vol.22, No.2 (November 1994), pp. 338-359.

Basically the reason for separating them is the same as for separating out data on records and context - because the two have a utility and life-span which are different from each other.

We need to unravel what exactly is meant by function. Distinctions must be made between the different kinds of activity undertaken. The fact that Wellington played the violin is not necessarily something we would choose to document by linking his description to the functional descriptor "*musician*" whereas we might wish to do so for "*soldier*" and "*statesman*".

Similar distinctions can be made when dealing with corporations. The Melbourne metropolitan water authority (Board of Works) from 1890 to 1991 had three primary functions -
  • water supply : damming water and connecting it to metropolitan households
  • drainage : flood control
  • sewerage : draining of household discharge.

In pursuit of its functions, the Board carried out many other activities. Needing plans of the geography of houses to which it connected water and sewerage, for example, the Board undertook surveys and drew up detailed plans. It is possible, therefore, to identify "survey" as an activity undertaken by the Board in support of its function "water supply". Similarly, its engineering works can be thought of as ancillary to (supportive of) its primary or mandated functions.

This is clearer when it is understood that "survey" is the mandated function of another agency - viz. the Surveyor-General's Department. Similarly, most agencies undertake housekeeping activities (e.g. accounting) which are also the function of some other agency - the Audit Office whose mandated function it is.

Functional ideas which distinguish and identify a recordkeeping agent are the ones which are useful for purposes of contextual control. In another place[13], I have suggested that these are *primary* functions - the exclusive domain, responsibility, or mandate of an agency. This implied a one-to-one relationship between each mandate function (or set of functions) and a single agent of recordkeeping - that the recordkeeper could, in effect, be defined (and therefore identified) in terms of its exclusive mandate.

Some mandate functions do indeed establish an exclusive domain - parliament, for example, is the only legislator but it is not the only lawmaker (delegated lawmaking powers are exercised by municipalities and other bodies). It will always be possible to keep on refining a function so that it is the exclusive domain of a single agency but in practice it is not convenient (or always desirable). One of the advantages of an ambient function is that it can be used to draw together several agencies within the exercise of a single function.

A shared relationship (simultaneous multiple jurisdiction) can be distinguished from an inheritance (previous/ subsequent). Thus, in **Figure Five**, functions are used to define the nature of an inheritance between other contextual entities ("History - Groups" and "History - Agencies") to produce a chronology or succession of entities which carried out the function. Where one or more other agencies shared responsibility for the function (which often occurs

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[13]   Chris Hurley, What, If Anything, Is a Function? *Archives and Manuscripts* Vol. 21, No. 2 (November 1993), pp. 208-220.

with subordinate agencies) there is no room in the succession and a separate category ("History - Other Agencies") must be established. A function is thus "inherited from, and exercised by".

Figure Five

agriculture	
VRG Function No.: 0245	**VA Function No.:** 0203

History (Groups) :
   to 1872 : Chief Secretary VRG 26
1872-1985 : Agriculture VRG 34
	History (Agencies) :
	   to 1872 : Chief Secretary's Department VA 475
	1872-1985 : Department of Agriculture I VA 618
	1985-1991 : Department of Agriculture & Rural Affairs VA 2649
	1991- ct : Department of Agriculture II VA 3014

History (Other Agencies) : 1872-1882 : Department of Crown Lands & Survey VA 538 1936-1981 : Chicory Marketing Board VA 3133 1938-1991 : Western Metropolitan Market Trust	

Use for : regulation of primary industries generally including:-
• inspection of stock and control/eradication of diseases in stock
• regulation of agriculture and rural industries
• provision of research and development, advisory and technical services
• marketing of products and trade promotion
• pastoral industries
• farming and husbandry
• other programmes directed at regulation and control of primary industry
  (including "industry stabilization schemes") e.g.
   - quotas
   - orderly/controlled marketing
   - price control
	Do not use for :
	• agricultural education
	• animal protection
	• export marketing
	• fisheries and wildlife
	• fisheries (commercial licences)
	• fish marketing
	• forests
	• grain storage and loading facilities
	• land settlement
	• meat inspection
	• quarantine
	• rural finance
	• veterinary services

Agriculture to 1985 In the early days of settlement, sheep suffered from diseases such as scab and catarrh. Numerous regulations were made to prevent the spread of disease and for the provision of care for diseased stock on stations established for the purpose. These regulations were administered by Stock Inspectors appointed by the Superintendent of Port Phillip (VRG 11) and later the Colonial Secretary (VRG 16) and the Chief Secretary (VRG 26). The first official recognition of the part agriculture might play in the Victorian economy came with the establishment in 1859 of a Board of Agriculture within the Chief Secretary's portfolio by an *Act for the Establishment of a Board of Agriculture* (22 Vic., No..83). The Board consisted of the Chief Secretary, the Commissioner of Crown Lands and Survey, three persons appointed by the Governor-in-Council and representatives of agricultural societies. The Board;s main business was to distribute Government grants in aid among agricultural societies, and to conduct an experimental farm at Royal Park... Large scale selection of land began early in the 1870's, in many cases by people with limited knowledge of farming, and it became obvious that some Government assistance and regulation would be necessary. In 1872, a Minister of Agriculture (VRG 34) was appointed, taking over responsibility for functions previously administered by the Chief Secretary including the control of stock diseases and the right to destroy stock and compensate owners. In the same year, a department of Agriculture (VA 618) was established as a branch of the Department of Crown Lands and Survey (VA 538). .... [here follows five pages of closely written text describing the function to date]	

 (agency 1234 is the successor of agency 9876 **in respect of** function *xyz*) or "exercised jointly and concurrently by" (agency 1234 and agency 9876 **share responsibility** for function *xyz*).

It should be noted that this analysis is not yet complete because it has no place for a third possibility : the relationship of an agency with a function which is neither inherited nor shared. Business functions, processes and transactions will not serve ambient (contextual) needs. Disposal categories and search patterns can be formulated on the basis of such ideas but they are not **meaningful** because they lack all connection with the contextual environment which is necessary for **discrimination**. If the Records Management Office of New South Wales identifies "*training*" as one of its business functions, this will not distinguish between that and other training activities carried out within the State's public sector. What makes training functionally unique is its connection with "*records management*" - it can be distinguished from all other programs as "*records management training*". Similarly, we can describe client services generically but disposal and retrieval require that each set of clients is distinguishable. The evaluation of records (for the purpose of either appraisal or retrieval) will want to separate client records of the water authority from those of the welfare agencies responsible for neglected children.

Wellington, when he is sorting through his papers, will decide what is important by evaluating (appraising) their relative value by reference to his own perception of their connection with events of his life. That evaluation involves, in part, the application of his own memory of his life and his own evaluation of its significance. His memory supplies the ambient knowledge or understanding necessary to evaluate and dispose of his papers. The corporate memory is the organisational equivalent.

Neither personal nor corporate memory can **document** its own context without an external frame reference. At a very high level, all ambience (both corporate and personal, public and private) merges into one socio-historical context which is our knowledge of ourselves and our past.
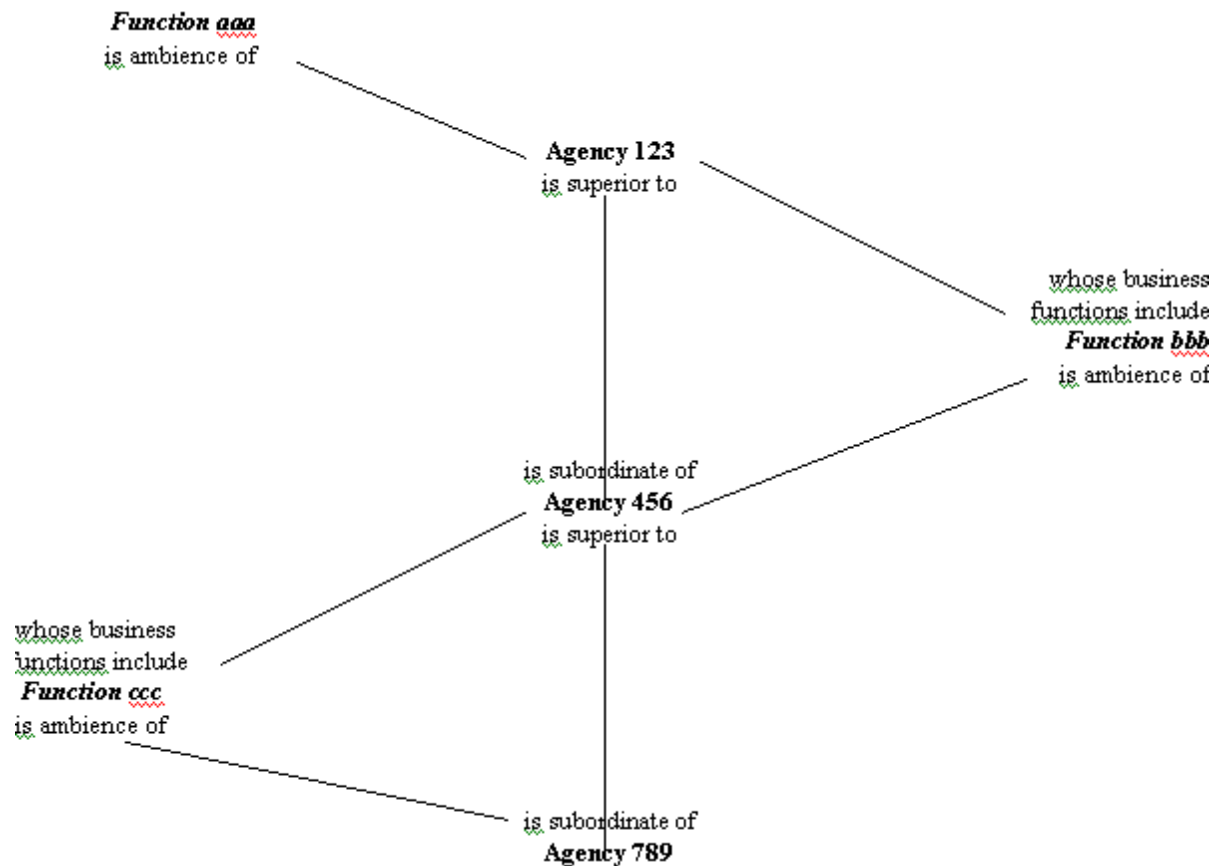
It might be argued that ambient knowledge is not necessary for the successful conduct of business because higher level contextual knowledge is "bred in the bones" of recordkeepers. An understanding of fundamental purpose and one's place in the world is just something one knows without being told and without the need to document it. This is true. The Duke would not begin by conducting an internal monologue about his own role and significance. Knowledge (and indeed certainty) as to his position in the world was as much a part of his makeup as it is of the "personality" of most organisations.

The point is that any such knowledge (essentially contextual knowledge) may not be in the possession of all who need it for purposes of appraising and using records. Because it is historical knowledge it can be forgotten (both personally and organisationally) unless it is documented as "archival data" accessible to users of the data store which holds the records. In the case of a person dealing with his own records that data store is his own memory, but human knowledge is fallible. Reliance on corporate "memory" in a world of networked data where administrative arrangements are rapidly changing and, in the non-custodial model, responsibility for records may be long lived is even more hazardous. In either case some documented knowledge of context will be necessary for third parties involved in appraising and retrieving records.

The business process of a superior agency (which itself stands in an ambient relationship to its subordinate) might be an ambient function for the subordinate agency (**Figure Six**). Whether relationships between ambient and business functions can be made which parallel the more traditional superior/subordinate relationships between agencies is something we have yet to discover.

It would, of course, be possible to write structure out of this model altogether. We could treat an organisation as being so fluid, so wholly devoid of structural form, that identification of recordkeeping agent (as distinct from function) is irrelevant. The question is entirely an empirical one. If such unstructured organisations exist - organisations which are purely functional - so be it. Context is derived from observation. My observation is that business processes are not unstructured - that activity is a mix of structure and function, that the understanding of each is informed and strengthened by an understanding of the other, and that our best descriptions of context come from interweaving the two.

Figure Six

Function aaa
is ambience of

Agency 123
is superior to

whose business
functions include
Function bbb
is ambience of

is subordinate of
Agency 456
is superior to

whose business
functions include
Function ccc
is ambience of

is subordinate of
Agency 789

Ambient functions are not simply aggregates of business functions. The mandate or mission statement of an organisation serves no ambient purpose unless it can be related in some way to an external domain in which the relative value and meaning of the mission can be found by reference to a wider context. A function is ambient, therefore, when it defines (validates) provenance by reference to the external environment.

AMBIENT FUNCTIONS

> I have recently suggested that functions may be the basis for another type of ambient entity. Functions which are treated, not simply as attributes of an entity or as the basis for a vocabulary of retrieval, but as ambient entities in their own right must be related to other ambient, provenance, and recordkeeping entities. They properly define and differentiate jurisdictional responsibility and activity. The names of such entities, when worked into a thesaurus can, conceivably, provide access at any level and thus afford the nearest that archivists may ever get to something like a subject approach - one which is based on provenance. At least two archives using the system (the Public Record Office of Victoria and the City of Sydney) has begun experimenting with this.[14]

They already exist in archival documentation but they are embedded in our descriptions - particularly of provenance and other contextual entities. Fashioning ambient entities is not so much a matter of gathering new data as refashioning data we already have. The five closely written pages of text describing the function "agriculture" (**Figure Five**) is derived from text once spread out over the descriptions of seven agencies and two record groups. Focusing on function has the advantage of compacting and synthesising the description into one continuous piece of prose while allowing the provenance entities through which the function passed to be represented independently (**Figure Seven**). Once this separation is made, we have in functions another kind of contextual entity whose chief potential use I believe is ambient but which could also be used to show provenance (i.e. function *xyz* "created" series *1234*).

Linking provenance to ambience is not a matter of definition. Contextual understanding is based on observation. The understanding is our interpretation of the meaning of the life of a person or corporation. Even though ambient understanding is not "objective" it is nevertheless what we need to evidence recordkeeping activity. It can used as evidence because it is empirical and is subject to reality checks. It is evidence because we have found it out, not because it is tautological.

We understand Wellington to be a soldier and a statesman, not a musician. We might recognise him in a description which said he was a diplomat or an administrator, because these are the activities by which we can relate him to our understanding of what he did (what he meant) in the world in which he operated. We do not understand him to have been a violin player - though this was undoubtedly one of his activities. I have at home a book on *Jefferson as Scientist*. Such a title is arresting precisely because it affronts the commonplace perception of the man as a statesman and political philosopher.

Similarly, I perceive the Melbourne water authority in terms of the ambient functions which I observe it to have exercised. This observation is "real" because I can reasonably argue that the authority should be understood in those terms from observation of its mandate and behaviour - things which are apparent to all. There is room for argument about the terminology, but the conclusions are empirically based and, however flawed by the subjectivity of observation, are distinguishable from pure whim.

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[14] Chris Hurley, The Australian ("series") System **in** *The Records Continuum : Ian Maclean and Australian Archives first Fifty Years* edited by Sue McKemmish and Michael Piggott [Monash Occasional Papers in Librarianship, Recordkeeping and Bibliography, No.5] (Clayton, Ancora Press, 1994), p.158

DEPARTMENT OF AGRICULTURE 1872-1985   **VA 618**

In 1872 the Department of Agriculture was established as a branch of the Department of Crown Lands and Survey (VA 538). From 1882 the Department of Agriculture was established in its own right. In 1985 the Department was superseded by the Department of Agriculture and Rural Affairs (VA 2649).

Location of Records
Some records have been transferred to the PRO, but holdings are patchy. See list below and *List of Holdings*, section 3.2.0.

Historic Record Groups

Period within Group

1872-1882	Lands	VRG 18
1872-1985	Agriculture	VRG 34
1903-1904	Forests	VRG 41

Functions Transferred From Previous Agencies

Function	*Year of Transfer*	*From Agency*
Agriculture	1872	VA 475 Chief Secretary's Department
Herbarium		
Botanic Gardens	1873	VA 475 Chief Secretary's Department
Forests	1875	VA 538 Department of Crown Lands & Survey
....		
Fisheries (Commercial Licences)	1910	VA 669 Public Works Department
Animal Protection	1981	VA 551 Ministry of Conservation

Functions Transferred to Subsequent Agencies

Function	*Year of Transfer*	*To Agency*
Herbarium	1874	VA 475 Chief Secretary's Department
Botanic Gardens	1874	VA 538 Department of Crown Lands & Survey
Forests	1890	VA 538 Department of Crown Lands & Survey
Forests	1905	VA 2720 Department of Mines & Water Supply
....		
Fisheries (Commercial Licences)	1913	VA 475 Chief secretary's Department
Agricultural Education	1983	VA 714 Education Department
Agriculture	1985	VA 2649 Department of Agriculture & Rural Affairs
Animal Protection	1985	VA 2649 Department of Agriculture & Rural Affairs

Inventory of Series

contents date range	*series date range*			
Chief Chemists Outward Correspondence Books				VPRS 7593
1887-1910	?1887-?1910	25 units	Open	LAV
Central Administration Correspondence Files				VPRS 10163
1888-c1964	1911-1964	539 units	Open	LAV
....				
Nominal Card Index to Central Administration ... Correspondence				VPRS 8092
1965-1985	1965-1985	6 units	Open	LAV

We will probably agree   that Wellington is properly described as soldier and statesman and we may legitimately argue about whether he can be described as "musician" but by no stretch can we, upon the basis of our observation of the known facts, describe him as a "ballet-dancer". There is a distinction to be made between three allowable categorisations

(soldier, statesman, musician) and the one which is not possible on any interpretation (ballet-dancer).

This leaves room for argument about emphasis and perspective. Melbourne's water authority began life as the "Board of Works". This reflected an early perception that its primary functions did indeed include engineering activities - at a time when water supply was limited by the lack of dams and mains to store and deliver the product. After a hundred years, with the mains laid and a system of dams in place, the "works" side of its activity was less significant. Then it changed its name from Board of Works to Melbourne Water.

The distinction between ambient functions and business functions roughly equates to the distinction between ambience and provenance - bearing in mind that an entity which is ambient in one relationship can stand as provenance in another. Like other aspects of context, therefore, it appears that function can be usefully analysed into at least two "levels". This is not to preclude analysis into more than two levels so long as it is understood that a new "level" need not be established each and every time a superior/ subordinate relationship is identified.

It is possible, therefore, to imagine a superior/subordinate relationship within a "level" - e.g broader/narrower function within a controlled analysis of ambient functions - or a relationship across "levels" - e.g. business process belonging to an ambient function. So far as I am aware, there is no archival writing which satisfactorily discriminates between superior/subordinate (broader/narrower) relationships within - as distinct from between - "levels". This results from the fact that ideas about functions are still ill-developed.

The model outlined in this article was derived from a perception of the inadequacies of leaving ambient function as a component of the description of corporations. Agency descriptions cry out to have the functions taken out and described separately. That done, the superior/subordinate relationships are still expressed through the agencies not the functions. Thus the associated thesaurus (**Figure Eight**) shows a predominance of "RT" and "UF" links and very few "NT" or "BT" ones.

Because ambient functions are being used to associate agencies together (including agencies which themselves have a superior/subordinate relationship), there is a problem with analysing the functions "hierarchically". This problem remains to be resolved. The model described here has not been fully developed. The implied relationships between functions associated with superior/subordinate agencies has not been followed through. A well articulated methodology of functional analysis at the ambient level has not yet emerged.

Ambient functions being contextual, those identified within one domain (e.g. the Victorian government) are not useful within another (e.g. the New South Wales government). In the same way, documentation of the Victorian Department of Agriculture could not be used to describe the New South Wales Department of Agriculture. To define the boundaries of functions independently of observation - as abstract, pure concepts (functional ideas which, because they are not localised, would be equally useful in Victoria and New South Wales) and then relate them to any agencies which are found to have carried out each function - would deprive them of their value as tools of contextual control. The content and boundaries of an ambient function must be based on an examination of what actually happened, of how a particular jurisdiction viewed and assigned the function, not on an abstract conception of that activity. In relation to each other, New South Wales and Victoria can only have a shared meaning in the context of an ambience that encompasses (is external to) both - e.g.

"Governments of Australia".

Figure Eight

abandoned children **use** welfare services (neglected children)
aboriginal affairs {GpF 0175}{AgF 0149}
  UF : board for the protection of aborigines, central   NT :   education (aborigines)
         central board for the protection of aborigines   health, public (aborigines)
         chief protector of aborigines   housing, public (aborigines)
         guardian of aborigines   welfare services (aborigines)
         koories
         missions
         protectors
         reserves
         stations
aboriginal relics and skeletal remains **use** archaeological survey (aboriginal)
aboriginal sites on crown land **use** crown lands (historic sites)
accident compensation **use** transport accident compensation; workers' compensation
accident rehabilitation {GpF 0346}{AgF 0420}
  UF : rehabilitation   RT :   workers' compensation
accident rehabilitation (motor accidents) **use** transport accident commission
accidents, industrial **use** health and safety (workplace); workers' compensation
acclimatisation society **use** fisheries and wildlife; zoos
       ....
agent-general and trade commissioners {GpF 0286}{AgF 0348}
  UF : overseas representation   RT :   economic development
         trade commissioners   immigration (nineteenth century)
                            immigration (twentieth century)
                            overseas investment in victorian industry
agricultural colleges **use** educational institutions
agricultural education {GpF 0119}{AgF 0246}
  UF : vocational training   BT :   education
agriculture {GpF 0245}{AgF 0203}
  UF : animals   NT :   grain storage and loading facilities
         crops   meat inspection
         dairy products   veterinary services
         farming   RT :   animal protection
         fruit   crown lands (public)
         husbandry   economic development
         industry (primary)   fish marketing
         inspection of stock   fisheries and wildlife
         livestock   forests
         marketing   land offices
         milk   municipalities
         pastoral industries   quarantine
         primary industry   rural affairs
         regulation   settlement schemes (closer settlement)
         research and development   settlement schemes (irrigable land)
         stock, inspection of   settlement schemes (soldier settlement)
         vegetables   settlement schemes (soldier settlement)
         welfare, animal   soil conservation
                            state laboratories
       ....
zoos {GpF 0180}{AgF 0114}
  UF : acclimatisation society   RT :   crown lands (public)
         sanctuaries

This process, the process of determining and documenting ambient functions as tools to be used in contextual control, may be distinguished from the process of controlling the language

which is used to describe the functions. Such a language may itself be controlled using the techniques of terminological control to develop a thesaurus and a defined language for retrieval.

The use of a thesaurus to control the names of ambient functions can give the appearance that the process is, after all, one of terminological control. This is not right. The making of the thesaurus is an adjunct to the observation and identification of the ambient functions as contextual entities. Relationships between them are established when documenting them contextually. This must occur **before** any attempt is made to apply the techniques of terminological control. The relationships reflected in the thesaurus are those which have already been established by means of contextual analysis.

CONCLUSIONS

Archivists are only at the threshold of an understanding of functional analysis. I have tried to demonstrate how functional analysis of provenance fits in with other ideas about context and with functional ideas more closely allied to record-making (business functions, processes, and transactions). Others[15] have stressed the importance of business functions for appraisal and retrieval and I have no quarrel with their analysis. I do not see ambient functions as an alternative to business functions but as complementary, but the need to link into a wider perspective, as I have sought to demonstrate, is also needed and this has also been recognised by, among others, Terry Cook[16].

The outstanding unresolved question to my mind is what kind of "hierarchical" relationships bind functions at different "levels". Is the relationship between an ambient and business function and thence with processes and transactions a hierarchical or a contextual one? Is functional analysis based on definition or observation? I believe functions are contextual, that they can be used to show both provenance and ambience, and that the rules for establishing relationships between them and with recordkeeping need to acknowledge the empirical basis of our understanding. It is for this reason (I believe) they are valuable for appraisal and retrieval - because this is how they enable that process of discrimination to occur which is fundamental to each. The task ahead is to explore and demonstrate that proposition.

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[15] David H. Thomas, Business Functions : Toward a Methodology <u>in</u> *University of Pittsburgh Recordkeeping Functional Requirements Project : Reports and Working Papers LIS055/LS94001* (September, 1994).

[16] Terry Cook, Electronic Records, Paper Minds : the Revolution in Information Management and Archives in the Post-Custodial and Post-Modernist Era, *Archives and Manuscripts* Vol.22, no.2 (November, 1994), pp. 300-328 - to name but one instance.

**A PROPOSAL FOR HIGH-LEVEL AMBIENT ENTITIES
TO CONTROL AUSTRALIAN CONTEXT**
See *Archives & Manuscripts* Vol.18, No.1 (May, 1990), pp. 63-73.

At the national level (assuming this to be a good approach - how long, after all, have nations provided a sound descriptive basis for analysing human activity?) a common contextual framework should comprehend both public and private sector activity. If for no other reason, this must be because of the two way traffic between the two sectors which sees various activities hopping back and forth between them. In Australia over the short space of less than 150 years, utilities and other enterprises (including electricity, gas, water, banking, insurance, education, health, welfare, railways, tramways, buses, and airlines) have begun as private, been wholly or partly taken over by government, and are now being corporatised and privatised (wholly or partly) yet again.

It is, of course, arguable that the entire notion of "private" vs "public" represents a 19th/20th century western European bourgeois bias and that no contextual data built upon such distinctions is helpful. Even in the European tradition, it is unclear that the distinction is viable much before 1800. Where, for example, would one place the British East India Company?

CONTEXT FOR POST-1788 EUROPEAN PUBLIC SECTOR

In the government area, I proposed in 1987 that we in Australia should "digest" archival data around an analysis of the administrative structures which impinge upon government recordkeeping from the beginnings of European settlement in 1788 to the present. Such an analysis involves finding a context not only within the official structures of Australian government, but also looking outside it into the administration of our colonial past.

Supra-national context

For Australia, during its colonial era (extending up at least as far as the adoption by Australia of the Statute of Westminster in 1942), these are -
- Kingdom of Great Britain (1707-1801);
- United Kingdom of Great Britain & Ireland (1801-1922);
- United Kingdom of Great Britain & Northern Ireland (1922-   ).

There is also a connection with other imperial structures such as the Western Pacific High Commission. There was a memorable day in Australian Archives during the early 1970s while we were documenting captured German New Guinea records when we trembled on the brink of registering the Holy Roman Empire as predecessor to Bismarck's Second Reich, and where that might have led us along the road towards a universal context statement we can only speculate about because, regrettably, nothing ever came of it.

Of course, most of the categories I have nominated as supra-national are, from a global perspective, only national structures from another point of view. Until we have a truly global contextual perspective, we all have to make do the best we can within a parochial perspective from a point close to but not actually at the "top".

National level context

In Australia, each governmental jurisdiction during its successive phases provides a convenient categorisation, e.g. -

New South Wales :
> Penal Colony (1788-1823); Crown Colony (1823-1855);
> Self-Governing Colony (1855-1901); State (1901-   )

Victoria :
> Penal Settlement (1803-1804) founded within NSW and abandoned;
> Military Establishment (1826-1828) founded within NSW and abandoned;
> District of Port Phillip (1836-1851) founded within NSW;
> Crown Colony (1851-1855) separated from NSW;
> Self-Governing Colony (1855-1901); State (1901-   )

Commonwealth of Australia :
> Commonwealth of Australia (1901-   )

Victoria is currently a State of the Commonwealth of Australia, formed in 1901 when six former colonies (New South Wales; Queensland; South Australia; Tasmania; Victoria; and Western Australia) federated. At that time, the six colonies ceased to exist and seven new entities came into existence. The former Colony of Victoria existed from 1851 to 1901 having previously been part of the Colony of New South Wales (established 1788).

Sub-national context

These are high-level contextual entities (Organisations, Groups, "Fonds") devised by each documentation programme and often, in the Australian descriptive tradition, encompassing much provenance data. When documenting the public administration of the geographical area now known as Victoria, at least four archives programmes are involved -

- The Archives of New South Wales is interested in (has records on) the pre-separation period up to 1851 - as custodian of records from the superior authority up to that date for activities documented locally.
- The U.K. Public Record Office is interested in (has records on) the period from separation (1851) to federation (1901) as custodian of records from the superior administration (albeit that imperial ties were loosening during this period) and arguably through to the 1980's when State legislation was at last no longer sent to London under the "repugnancy" rule.
- The Australian Archives (Commonwealth) is interested in (has records on) the colonial period as custodian of records relating to many functions handed over in 1901 (customs, defence, etc) and as successor to the superior administration (UK).
- The Public Record Office (Vic) is interested in (has records on) the whole of the government of Victoria including those of functions administered at a superior level or handed on (to or from) other administrations.

In a purely Australian *National Digest* it would be desirable to make linkages with high level national categorisations from Britain which are relevant to the documentation of Australian records (e.g. Colonial Office; Board of Trade; Treasury all of which had more than usually significant links with Australian government recordkeeping systems). In a truly universal system, Australians could rely on a British *National Digest* to supply us with the other end of such relationships. Until that day dawns, we must make up the deficiency for ourselves.

Under the **national** heading for "Victoria" in an Australian *National Digest* it would be desirable to bring together :-

(1)   High level categorisations from the British national system which are repatriated groups or fonds of Victoria's official administration. The Governor of Victoria was nominally commander-in-chief of British military (but not naval) forces during part of the nineteenth century. It is arguable that this creates a joint provenance for such records which presumably are now in Britain.

(2)   High level categorisations from the NSW Archives which are repatriated groups or fonds of Victoria's official administration. The records of the early failed settlements in Victoria (1803-1804 and 1826-1828) would be obvious examples.

(3)   High level categorisations from the Australian Archives system which are representative of records (functions) inherited from Victoria in 1901 and subsequently. These are described in the Australian Archives system as records of NSW before 1851 (e.g. pre-1851 customs records from Melbourne) or as the Colony of Victoria from 1851 to 1901 and the state of Victoria after 1901 (e.g. for customs records which passed in 1901, immigration records which passed in 1923, or aboriginal records which passed in 1971).

(4)   High level categorisations from the system of the Victorian Public Record Office.

By the same token, all of the high level categorisations (record groups) identified by the Victorian Public Record Office dealing with the pre-separation period should be viewed in a *National Digest* from the perspective of both Victoria and New South Wales. The "mixed" nature of their associations results directly from the failure to establish an externally verifiable contextual framework. The records of the pre-1851 Port Phillip Administration were created by the Colony of New South Wales, were inherited by the Colony of Victoria, and have come to be possessed by the State of Victoria.

In the absence of an agreed national contextual framework, Victoria is compelled to document these records from a Victorian (rather than a national) perspective. A high-level national contextual framework of this kind represents a far more effective way of controlling mixed provenance records than the joint "guides" and union lists one still sees being proposed.

The purpose of agreed (standardised) **supra-national** and **national** contextual categories is to provide each archival documentation programme with a common framework within which to arrange **sub-national** high level contextual categories of their own devising. A Victorian *Digest* was produced in 1990 in the hope that when people saw a concrete example its usefulness would be apparent and they would adopt the approach as a national goal. Unfortunately, it wasn't and they didn't. It seems unlikely, therefore, that anything much will come of the idea - for a while at least.

CONTEXT FOR POST-1788 EUROPEAN PRIVATE SECTOR

For the sake of argument, I also proposed in 1990 that categorisations of private sector corporations could be used to standardise documentation. Some archives categorise holdings by separating "union" and "business" records. Industries like "mining", "manufacturing", "motor vehicle", "pastoral" are identified. Similarly, persons are described by linking them to categories of activity - "soldier", "statesman".