

Ambient Functions - Abandoned Children to Zoos

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Résumé

Puisque les documents appartiennent à leur époque et que la méta-information contextuelle doit être comprise par un observateur dont le cadre de référence est différent de celui d'un gestionnaire de documents, il y a un besoin de validation. Les processus de contrôle terminologiques (fondés sur l'observation) sont inadéquats. Un processus de contrôle contextuel basé sur l'observation est nécessaire. "L'ambiance" est le contexte de provenance et c'est là que l'on retrouvera la validation externe de l'information sur la provenance. Les fonctions constituent un outil possible pour constituer ces relations d'ambiance. Les fonctions ambiantes définissent et donnent un sens aux gestionnaires de documents à l'intérieur du contexte dans lequel ils oeuvrent. Les fonctions ambiantes doivent être distinguées des activités courantes et des différents processus qui ne requièrent pas un tri élaboré que nécessite la catégorisation des critères d'évaluation ou des plans de recherche.

Abstract

Since records are timebound and contextual metadata must be understood by an observer whose frame of reference is different from that of the record-keeper, 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 record-keeping 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.

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 **contextuAL** *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

We are taught that records are timebound,² by which it is meant that 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*. In this and a companion article being published concurrently in *Archives and Manuscripts*, I attempt to say how archivists' ideas about provenance and function might be used for this purpose.

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 While the metadata itself is unchanging, 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 at least part of the contextual knowledge I need to comprehend its meaning.

That knowledge derives from the contextual data that 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 17 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 that is the basis of understanding. Efforts now being made to regularize the process whereby knowledge of context is captured as metadata for electronic record-keeping should not blind us to a fundamental truth. Because records themselves are timebound, metadata must be verified within a context that 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 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*?). While knowledge of context could conceivably be encoded, understanding cannot. Understanding depends upon contextual knowledge, which is also historical and thus must necessarily exist outside the record.

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

Two farmers in New South Wales, Jones and Brown, each 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. (See **Figure One**.)

Ferdinand and Tulip (belonging to Jones) and Thunderbolt and Tinkerbell (belonging to Brown) can be described using terms from the authorized list in a way that eliminates some (but not all) uncertainty as to meaning. Using the term *bull* makes certain statements about age, gender, and progenerative capacity--nothing, it should be noted, that 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 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

Ferdinand's identity cannot be clarified by combining name with authorized term:

- **this is the bull Ferdinand, this is also the bull Ferdinand.**

Identity can only be clarified by describing each individual by reference to the context in which it exists:

- **this is Jones's bull Ferdinand, not Brown's bull Ferdinand**

or by agreeing on a method for contextual control for identity data within the joint domain already established between Jones and Brown:

- **this is Ferdinand 1 (Jones's bull), not Ferdinand 2 (Brown's bull).**

Within the area of the joint domain established by Jones and Brown, either method will satisfactorily remove much of the uncertainty surrounding identity by establishing an external validation of the description of each bull in question.

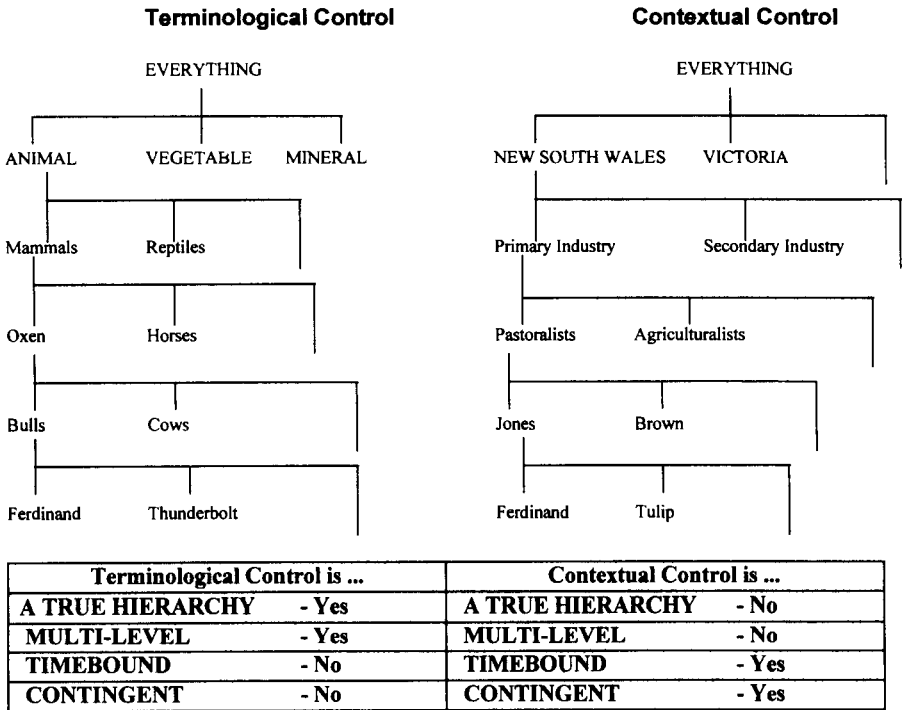
It will be seen that each of the methods has problems. What if Jones sells out to Smith? Do we then refer to Smith's bull Ferdinand? If we do, how can we be sure that it is the same bull? If we go on referring to it as Jones's bull Ferdinand, we are using a term that only makes sense as long people can remember who Jones was. Eventually confusion will arise. What if Jones sells out to Brown? Then we have two animals that 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 description ("Ferdinand 1") gives identity and meaning by establishing a unique identifier that applies to this beast and to 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 that singles him out as a separate 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 example at one level and the category it belongs to at another.

Figure Two



It is this difference that gives each method its peculiar strengths and weaknesses when dealing with change. Terminological control is not timebound. It establishes relationships that 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.

This difference can be expressed in yet another way. 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” in 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:

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

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:

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

With contextual control, it is the observable circumstances of the particular case that (being entirely unpredictable) determine the relationship between any two instances. Of any contextual relationship, it is possible to say that it might have been otherwise:

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 that 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 record-keeping 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 that is said to have created the records.

Ambience

In a previous article on standardization,⁹ I proposed (taking up a cherished idea of Peter Scott's) collective action to establish a single contextual framework within which all archival programmes (both government and private) could document records. This would, in effect, document the "domains" by reference to which each archival programme externally validates its documentation. The key to standardization, 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).

Ambience is the context of provenance. The Duke of 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),
- organizational 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 record-keeping 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 that contain correspondence with Kitty Pakenham" or "these are papers that mention Kitty Pakenham."

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 etc etc etc	Chinese Civilisation etc etc etc
		Indian Civilisation etc etc etc
Inventory of Cosmic Registration Systems - CRS		
CRS 1 Register of Universal Domain Identifiers		

All systems that 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 record-keeping 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 beyond record-keeping. Museum curators, 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.

As I have written elsewhere,¹⁰ 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 categorizations involve choices. Wellington played the violin. I am unlikely, however, to designate him as "musician"--more likely as "soldier" and "statesman." While it would be correct to document all his activities, an indiscriminating description would cause as many problems as it solved, by cluttering up each ambient category with both "significant" and "insignificant" data.

Moreover, while some categorizations 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 organize observed facts at the ambient level into a meaningful body of knowledge to provide an external validation for record-keeping metadata. I call this knowledge “archival data.”¹¹ Functions tell us much of that we need to know in order to identify and comprehend record-keeping activity. Any examination of archival guides and finding aids (see **Figure Four**) demonstrates how central they are.

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, and
- it is likely that functions were inherited from (and passed on to) the predecessor and successor bodies.

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.

Functions themselves have a history and a character independent of the record-keeping agent that 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, and
- the necessity for repeating functional description for both predecessor and successor agents of record-keeping disappears.

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 that 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, and
- 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, the Surveyor-General's Department. Similarly, most agencies undertake housekeeping activities (e.g., accounting) that are also the function of some other agency--the Audit Office, whose mandated function it is.

Functional ideas that distinguish and identify a record-keeping agent are the ones that are useful for purposes of contextual control. In another place,¹² I have suggested that these are *primary* functions--the exclusive domain, responsibility, or mandate of an agency. This implied that there was a one-to-one relationship between each mandate function (or set of functions) and a single agent of record-keeping--that the record-keeper 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; it is not, however, 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) to do so. 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 that carried out the function. Where one or more other agencies shared responsibility for the function (which often occurs 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” (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 that 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 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 programmes as “*records management training*.” Similarly, while we can describe client services generally, 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 organizational 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.

Figure Five

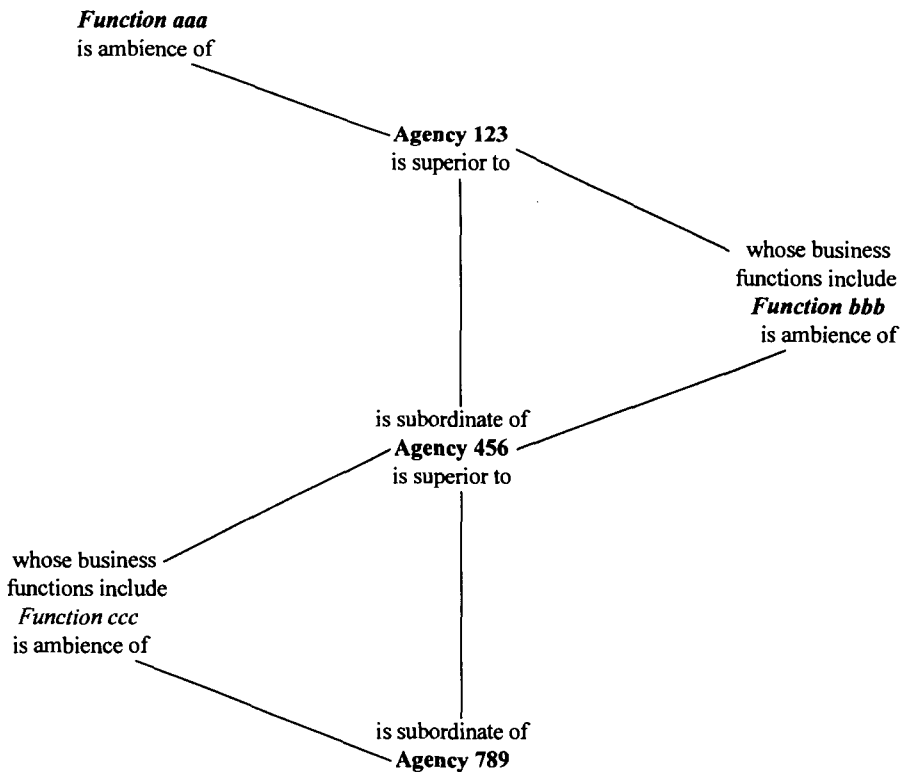
agriculture	
VRG Function No.: 0245	VA Function No.: 0203
History (Groups) : to 1872 : Chief Secretary VRG 26 1872-1985 : Agriculture VRG 34	History (Agencies) : to 1872 : Chief Secretary's Department VA 475 1872-1985 : Department of Agriculture I VA 618 1985-1991 : Department of Agriculture & Rural 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- <ul style="list-style-type: none"> • 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. <ul style="list-style-type: none"> - quotas - orderly/controlled marketing - price control 	Do not use for : <ul style="list-style-type: none"> • 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 <i>Act for the Establishment of a Board of Agriculture</i> (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]	

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 record-keepers. 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 organizations.

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 organizationally) unless it is documented as “archival data” accessible to users of the data store that holds the records. In the case of a person dealing with his own records that data store is his own memory; human knowledge, however, 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 that parallel the more traditional superior/subordinate relationships we are accustomed to make between agencies is something we have yet to discover.

Figure Six



It would, of course, be possible to write structure out of this model altogether. We could treat an organization as being so fluid, so wholly devoid of structural form, that identification of a record-keeping agent (as distinct from function) is irrelevant. The question is entirely an empirical one. If such unstructured organizations exist--organizations that 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.

Ambient functions are not simply aggregates of business functions. The mandate or mission statement of an organization 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 record-keeping 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) have begun experimenting with this.¹³

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 synthesizing 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 (i.e., showing contextual relationships with records-creating corporations and persons), 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 record-keeping activity. It can be 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 recognize him in a description that 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.

**Figure Seven
(Guide to Records)**

DEPARTMENT OF AGRICULTURE 1872-1985		VA 618
<p>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).</p>		
Location of Records		
<p>Some records have been transferred to the PRO, but holdings are patchy. See list below and <i>List of Holdings</i>, section 3.2.0.</p>		
Historic Record Groups		
<i>Period within Group</i>		
1872-1882	Lands	VRG 18
1872-1985	Agriculture	VRG 34
1903-1904	Forests	VRG 41
Functions Transferred From Previous Agencies		
<i>Function</i>	<i>Year of Transfer</i>	<i>From Agency</i>
Agriculture	1872	VA 475 Chief Secretary's Department
Herbarium	1873	VA 475 Chief Secretary's Department
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		
<i>Function</i>	<i>Year of Transfer</i>	<i>To Agency</i>
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		
<i>contents</i>	<i>series</i>	
<i>date range</i>	<i>date range</i>	
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

Similarly, I perceive the Melbourne water authority in terms of the ambient functions that 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 that 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.

This is not mere obfuscation. Empirical knowledge, however flawed by the subjectivity of observation, is distinguishable from pure whim. We shall 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 categorizations (soldier, statesman, musician) and the one that 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. It then changed its name from Board of Works to Melbourne Water.

The distinction between ambient functions and business functions roughly equates the distinction between ambience and provenance, bearing in mind that an entity that is ambient in one relationship can stand as provenance in another. As with other aspects of context, therefore, it appears that function can be usefully analyzed 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 that 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 removed 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.

Figure Eight

abandoned children use welfare services (neglected children)	
aboriginal affairs {GpF 0175}{AgF 0149}	
UF :	board for the protection of aborigines, central central board for the protection of aborigines chief protector of aborigines guardian of aborigines koories missions protectors reserves stations
NT :	education (aborigines) health, public (aborigines) housing, public (aborigines) welfare services (aborigines)
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 trade commissioners
RT :	economic development 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 crops dairy products farming fruit husbandry industry (primary) inspection of stock livestock marketing milk pastoral industries primary industry regulation research and development stock, inspection of vegetables welfare, animal
NT :	grain storage and loading facilities meat inspection veterinary services
RT :	animal protection crown lands (public) economic development fish marketing fisheries and wildlife forests land offices municipalities quarantine rural affairs settlement schemes (closer settlement) settlement schemes (irrigable land) settlement schemes (soldier settlement) settlement schemes (soldier settlement) soil conservation state laboratories
.....	
zoos {GpF 0180}{AgF 0114}	
UF :	acclimatisation society sanctuaries
RT :	crown lands (public)

Because ambient functions are being used to associate agencies together (including agencies which themselves have a superior/subordinate relationship), there is a problem with analyzing the functions "hierarchically." This problem remains unresolved. 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 localized, would be equally useful in Victoria and New South Wales)--and then relate them to any agencies that 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."

This 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 that 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 that have already been established by means of contextual analysis.

Conclusions

Archivists are only at the threshold of an understanding of functional analysis. In this article and its companion piece, 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). Others¹⁴ have stressed the importance of business functions for appraisal and retrieval and I have no quarrel with their analysis. I see ambient functions not as an alternative to business functions but as complementary. The need to link into a wider perspective, however, as I have sought to demonstrate here, is also needed. This has also been recognized by, among others, Terry Cook.¹⁵

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 a 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 record-keeping need to acknowledge the empirical basis of

our understanding. It is for this reason that they are valuable for appraisal and retrieval--because this is how they enable that process of discrimination to occur that is fundamental to each. The task ahead is to explore and demonstrate that proposition.

Notes

- 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.
- 4 Bearman, "Towards a Reference Model."
- 5 David Bearman, "Multi-Level Description," *Archives & Museum Informatics* 8, no.1 (Spring 1994), pp. 80-83.
- 6 William Schwenk Gilbert, *Iolanthe* (1882) Act I.
- 7 *Ibid.*, Act II.
- 8 William Schwenk Gilbert, *H.M.S. Pinafore* (1878) Act II.
- 9 Chris Hurley, "Standardisation 1987: A Recapitulation," *Archives & Manuscripts* 18, no.1 (May 1990), pp. 63-73.
- 10 Chris Hurley, "Problems with Provenance," *Archives & Manuscripts* (November 1995).
- 11 Chris Hurley, "Data, Systems, Management, and Standardisation," *Archives & Manuscripts* 22, no.2 (November 1994), pp. 338-59.
- 12 Chris Hurley, "What, If Anything, Is a Function?" *Archives & Manuscripts* 21, no. 2 (November 1993), pp. 208-220.
- 13 Chris Hurley, "The Australian ("series") System," in Sue McKemish and Michael Piggott, eds., *The Records Continuum: Ian Maclean and Australian Archives First Fifty Years* (Clayton, 1994), p.158.
- 14 David H. Thomas, "Business Functions: Toward a Methodology," *University of Pittsburgh Recordkeeping Functional Requirements Project: Reports and Working Papers LIS05/LS94001* (September, 1994).
- 15 Terry Cook, "Electronic Records, Paper Minds: the Revolution in Information Management and Archives in the Post-Custodial and Post-Modernist Era," *Archives & Manuscripts* 22, no.2 (November, 1994), pp. 300-328--to name but one instance.