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Ambiguous Labels:
Facet Analysis of Class Names in Finnish
Public-Sector Functional Classification Systems†

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Abstract: Functional classifications are used internationally as a method for organization of records. However, understanding of functional concepts varies, different applications exist, and usability issues have been reported. A study was performed to address the contradiction between the need for contextual records classification and difficulties in their practical use, with an aim of prompting a focus on labels used in class names and their contribution to the understanding and usability issues faced with functional classifications. Facet analysis was used to analyze the verbal expressions used in class names. Results from the study reveal the use of ambiguous class names. Differences and inconsistency in the logic used in naming classes were detected both between and within organizations. It is clear that uniform, common, and functional classifications can hardly be achieved by combining existing systems. Instead, other measures are needed.

1.0 Introduction

Understanding and interpretation of functions in the context of function-based records organization varies. Functions, activities, transactions, and processes can be characterized with several phrasings to represent the functional environment. It is open to interpretation what

exactly the functions in a given organizational context are and what the relationships are between functions, activities, and related concepts. It is not clear what form such descriptions of functions should take in functional classification systems if they are to be unambiguous and clear expressions to the systems' users.

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A function-based approach predominates in records organization. The method is internationally recognized and widely used. Record-keeping professionals in particular value this functional classification (Foscarini 2012; Orr 2005; Packalén and Henttonen 2016) and see the advantages it provides for managing records in an electronic environment. Certainly, there are advantages in the approach (Shepherd and Yeo 2003, 74; Smith 2007, 56), including addition of context to electronic records and the ability to facilitate records' appraisal. Alternatives for the method are not always stated (Shepherd and Yeo 2003, 73) or seen (Packalén and Henttonen 2015). However, also various problems with the approach have gained attention in recent studies (Calabria 2006; Gunnlaugsdottir 2012; Ifould and Joseph 2016; Packalén 2015). The disadvantages are concentrated primarily in the areas of functional classification systems' usability and the logic applied in functional classifications. In addition, recent efforts notwithstanding (Alberts et al. 2010; Henttonen 2015a), the theoretical foundation of the method remains quite weak.

While the approach is in widespread use, instructions on creating and applying functional classification in an organization (Foscarini 2012) are confusing. Therefore, applications vary. In Finland, detailed instructions on how to name the classes do not exist. The recent emphasis on goals of increasing users' participation in processes involving their records in the digital era and harmonizing functional classifications across organizations demands clarity and shared understanding of concepts such as function, activity, and transaction, their relationships with each other, and how they are formed and read.

The aim with this paper is to create a better understanding of how functions manifest themselves in functional classification systems by way of analysis of class names used in functional classifications. For this, a study was carried out in Finland (Packalén and Henttonen 2016), where functional classifications are a norm for records organization in the public sector. Attention was focused on the class names used at the lowest functional level in the systems. The study addressed the various forms of expression applied in denoting organizational activities. Beginning with facet analysis as a framework for analyzing the class names used, the work then turned to generalization of the findings and to description and visualization of the various attributes used in class names.

2.0 The purpose of organization

"Classification is a way of seeing," according to Kwaśnik (1999, 46). Every classification serves a purpose, and what a classification covers depends on its purpose. The environment where it is used is meaningful. Cultural war-

rants (Beghtol 2001, 103-5) create a basis for the decisions made in determining which concepts are used, their order and relationships, and the whole semantic basis for the system. The purpose of systematic organization (that is, classification) is to serve users; hence, the classification system needs to be logical and simple (Meriläinen 1984, 35), both semantically and in the phrasing of the syntactic relationships. Meriläinen (109) issues a reminder that terminology used in library classification systems follows strict terminological rules, with respect to both content and the form of words. In the context of assigned indexing languages, the norm in choosing the form of words is to use nouns to the greatest extent possible. Verbal nouns, active or passive, are used to denote even activities, such as "cataloguing." Various rules (Foskett 1996, 79) exist to guide in using the singular or plural. Often, a term in natural language has several meanings; therefore, the vocabulary used in subject languages is normalized for information retrieval's sake. Natural and subject language vocabularies use lexicons in different ways. Natural language lexicons use words and sometimes phrases (Svenonius 2000, 128-9), while subject languages use only specific terms indicating the subject content. Uniformity in practices (International Organization for Standardization 2013) is enhanced also with international standardization.

In records and archives management, the increasing volume of digital items led to a change of perspective in classification. Not just records' retrieval but also understanding the context of records and the action of which they serve as evidence guided this paradigm shift in records organization in the 1980s. Functional classification lends itself well to meeting this requirement. This manner of classification differs greatly from subject-based classification. Its purpose is to describe the functions of the organization, the main functions, and the supportive functions as well. A functional classification system (National Archives of Australia 2003, 7) is based on analysis of the organization's functions and activities. It is about the context of records, why each record exists. Criteria for designation of concepts in class names in records' functional classifications do not exist in the quantity and specificity familiar from other indexing languages. Understanding of functions varies (Alberts et al. 2010; Foscarini 2009; Hurley 1993), and there are no common rules that determine their naming. Existing guidelines for creating functional classifications are difficult to understand (Foscarini 2009), so the systems end up varied and subjective. Also, an organization's functions and units, as well as subject terms (Kennedy and Schauder 1998, 115), may coincide terminologically. Previous studies (Alberts et al. 2010; Calabria 2006; Foscarini 2009; Ifould and Joseph 2016; Orr 2005; Packalén 2015) show various difficulties

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in using functional classifications. The approach is not in-tuitive to users, and they face difficulties in relating their day-to-day work procedures to abstract functions that do not necessarily match the real work processes. Also, various users who are not record-keeping professionals need to use functional classifications in organizations (Packalén 2016), yet their needs may not be met. Initially, the difference in classifications between archives and libraries (Ribeiro 2014, 324-5) lay in its use as a means of physical organization in archives and of retrieval in libraries. A customer-oriented approach has been familiar at libraries from the very beginning, while archives have focused instead on the arrangement of documents. Today, users' needs, especially that for accessibility, make a distinction between these two contexts irrelevant. Users are forcing archivists to focus on subjects.

3.0 Structural and conceptual elements of functional classification

In a functional classification, the organization's functions are divided into main classes. Each main class is then divided into smaller sections, until a decent level of specification has been gained. In such a hierarchical classification, classes are listed for the system in advance. Any further classes cannot simply be added by users of the system. Accordingly, certain supporting functions usually exist in every organization, such as administrative functions, financial management, and the personnel administration. In addition, there are organization-specific specialist functions.

The various classification structures display diverse advantages and problems. One of the advantages of hierarchical classification (Kwaśnik 1999) is that it provides a wider perspective on the thematic whole. From users' points of view (Meriläinen 1984, 27), the main problem in enumerative classification systems is the predetermined classes. Listing every possible class that users might wish to use beforehand is impossible. Therefore, the user needs to settle on the least erroneous one. Also, the systems are often extensive and therefore clumsy to use.

A central issue in the problematics of functional classification is the concept of function. This is a widely used concept, yet definitions of it are few and understanding varies. That said, previous studies and literature (Alberts et al. 2010; Foscarini 2009; Hurley 1995; Sabourin 2001; Schellenberg 1956; Shepherd and Yeo 2003; Tough 2006) do provide some definitions and viewpoints. Alberts et al. (2010) define a function as "an action description that emphasizes the group carrying out the action, their responsibility, and how their action supports a general goal or organizational state," and thus functional classification (376) is "an action taxonomy organized on the basis of identified goals and sub-goals, which in turn reflect desired states of

the organization." The authors (372-3 emphasis original) go on to state that "an action has a subject, a verb, one or more objects and possibly adverb phrases—*[subject is [verb]ing [object], [subject] is [verb]ing [in order to…]*." A verb alone is not an action when this definition is applied.

Some attention has been paid internationally to naming conventions for function-related categories in classification systems. Hurley (1993) categorically states that a function is not a subject, giving the example that the function of a legislature is to legislate. The focus in functional analysis should, therefore, be on functions and processes, not subject terms. For instance, "conferences" is a subject term, but "attending conferences" and "arranging conferences" are different processes and must be classified separately, Shepherd and Yeo state (2003, 76). They clarify also that activities occur at process level; they have a clear beginning and end, in contrast to functions and sub-functions, which have no time limit. Although transitive verbs should be used to describe functions and their components, in practice these may be replaced with a noun form. At function level, the verb or verbal noun may even be omitted sometimes. At other levels, it should always be present, as in the case of "recruiting staff." Labels such as "staff" and "invoices" are not acceptable, since they do not describe the process (79). The terms used at the highest level in a functional classification system (Tough 2006, 15) should describe the purposes of the organization in order to direct the record-keeping systems toward the organizational goals, instead of technical ones. Sabourin (2001) clearly addresses the issues of titles denoting subjects or objects instead of functions, and Xie (2007, 6) differentiates between "activity-indicating" categories (oriented more toward subject-based systems), e.g., "vehicles," and "activity-denoting" categories, e.g., "motor vehicle management." Henttonen (2015a) makes a point of addressing the relationship between records and categories in the classification; a record should be created or used in the category in order to have a real functional relationship with that category.

Guidelines that Schellenberg (1956, 53) offered decades ago outline three elements that should be considered in classification of public records: the action of the record, the organizational structure of its origin, and the subject. Action may be discussed in terms of functions, activities, and transactions. Schellenberg used the term "function" to cover the responsibilities of an organization in connection with achieving the broad purposes designated for it. He saw consistency in naming the classes as important and stressed that the same principle should be followed for each successive level—e.g. function at one level and activities at another (63). Also, he stated, titles should reflect functions, activities, or transactions, and such headings as "general" or "miscellaneous"

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should be avoided. Neither should business units and workgroups (Shepherd and Yeo 2003, 74) be used as a basis for classification. The group "miscellaneous" (Lybeck 2006, 46) is suitable only for occasional records that do not have any other place in the grouping. If it is used a large amount or for many matters, there is a need for more detailed grouping.

4.0 The Finnish public sector as a record-keeping context

In Finland, a function-based approach to records organization started to gain ground in public-sector record-keeping during the 1980s. Since then, organizations in the public sector have followed this approach (Orrman 2007, 66), and record-keeping professionals (Packalén and Henttonen 2016) today seldom even see any alternative but to create record-keeping plans that follow a function-based structure. Furthermore, public-sector record-keeping in Finland not only is subject to laws but also follows codes of conduct and recommendations from the National Archives Service.

It is noteworthy that knowledge organization systems differ in various record-keeping cultures, as Henttonen (2012, 2) stresses. The Finnish functional classification system (Henttonen 2015b, 217) and record-keeping practices differ greatly from the systems used in some other countries. In Finnish public-sector record-keeping practice, the organizations create record-keeping plans that describe and guide the creation, maintenance, and preservation of their records and archives. The entire life of records, from creation to their preservation or destruction, is covered in the plan, which follows an approach of functional classification. Registration is a key operation in Finnish public-sector record-keeping. Today, the same functional structure is followed across registration systems, with Finnish registration tradition having their origins in Swedish (Sundqvist 2009, 79) registration practices. This helps to ensure reliability and openness of actions in the public sector. Eventually, when the records move from active use to archival, this proactive record-keeping strategy and the function-based record-keeping plans mean that the structure applied in their organization remains the same. Before functional classifications became commonplace in Finland's public sector, "ABC" classification systems (Henttonen 2015b, 221), based on record types, were followed. Registers, minutes, outgoing and incoming letters, etc. formed the main classes, which were identified with letters: "A," "B," "C," etc.

Today, functional classifications in the Finnish public sector typically follow a three-level, enumerative, hierarchical structure in line with the model offered by the National Archives Service (Kansallisarkisto 2016), though concep-

tual and hierarchical relationships in processes may vary, depending on the organization's process descriptions. Guidance for labeling of the classes has not been presented. Organizations are free to apply their own system in this respect. Usually (Orrman 2007, 68), functions in the first three main classes stay the same: 0 for general administration, 1 for personnel administration, and 2 for financial administration. Use of technology (71) and demands for compatibility and uniformity necessitate some changes in the systems in the course of time. Overall, however, they remain the same as they were several decades ago.

5.0 Methods

The following research questions were addressed in the study:

1. What kinds of labeling are used in titles at the lowest functional level in Finnish public-sector organizations' functional classification systems?
2. Do the titles used at the lowest functional level in functional classification systems in Finnish public-sector organizations represent functions?

The data for the study consisted of descriptions of functional classification systems received in Spring 2013 from three, quite different Finnish public-sector organizations: one municipality (A), one university (B), and one national-level governmental organization (C). The systems followed a hierarchical, enumerative structure typical in Finland. They differed in contents and in accordance with the divergent functions of the organizations. The total number of class names at the lowest level of each functional classification systems (the level before record types are indicated) is presented below in Table 1. In the systems at organizations A and B, this was the third level, while it varied in organization C, being either third or fourth in the hierarchy. In addition to the title, a numeric notation such as "02.05.05" was used in the classification systems to denote the class; however, the study focused only on class names. The lowest-level class names were

Organization	Number of classes in the lowest class in the hierarchy
Organization A	221
Organization B	606
Organization C	730
Total	1,557

Table 1. The total number of class names used at the lowest level of classification.

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selected since normally this is the level used for classifying records in organizations' registration practice. At that level, records belonging to the same action group are connected with each other.

The selection of data for the study involved sampling (Pickard 2007, 59), "the process of selecting a few from the many in order to carry out empirical research." The probability sampling techniques applied and the methods used in the analysis are described next, sequentially. As Table 1 shows, the number of classes was much lower in organization A than in the other two organizations' systems. Therefore, we used cluster sampling in order to select a representative sample from each of the classifications, with 105 class names selected from each system. This makes the total number of class names analyzed in the study 315. For comprehensiveness—inclusion of class names from every function class—systematic sampling was used for each of the classification systems. In line with this criterion, $k = N/n$. In organization A, $221/105 = $ a k value of 2; in B, $606/105 = $ a k of 6; and in C, $730/105 = $ a k of 7. The starting class name was randomly selected. In a further round, the class names already selected for the sample were skipped. The randomly selected start points were 9 in organization A, 21 in organization B, and 77 in organization C.

The class names selected were listed one organization at a time in an Excel spreadsheet. They were then sorted via facet-analysis methods as described next. The labeling of the classes usually involved more than one term. Therefore, to find out the various attributes the title represented, a class name might be deconstructed into its constituents, and these assigned to different facets. However, terms describing other terms without having a meaning of their own were bundled together with the main term. Each facet was allowed for one entry in one class name. Hence, the titles consisting of several elements denoting the same facet, e.g., "medals, decorations, honorary titles, and rewards," counted as one entry to the facet in question. In a standard descriptive statistical analysis process, the entries under each facet were summed in Excel. To illustrate findings for nominal-level data, a frequency distribution can be calculated and presented (Pickard 2007, 252–4). For data display, tables and simple bar charts were derived from each classification individually and in conjunction with the others. Also, characteristics of each classification were qualitatively described.

5.1 The facet-analysis approach applied and the facets used in the analysis

In the study, a facet-based approach formed the foundation for analyzing the class names used. In facet analysis (Suominen et al. 2009, 223), a special dictionary is created to describe the content of a document. The expressions used are organized into facets that represent certain types of concepts—e.g., actions, products, or methods. Instead of creating a dictionary, the aim for the facet-analysis process in the study was to find homogeneous, mutually exclusive groups to syntactically describe the elements of verbal expressions used in the class names at issue.

There are various interpretations of what constitutes a facet (Broughton 2006, 68), from simple description of field names to complex models that support automated object description and retrieval. Broughton (2002) describes facet analysis as a "rigorous process of terminological analysis whereby the vocabulary of a given subject is organized into facets and arrays, resulting in a complex knowledge structure with both semantic and syntactic relationships clearly delineated." The starting point for the study was a simple one: seeing facets as viewpoints (Suominen et al. 2009, 224), as different angles from which to look at the scope of the object.

The first known system of faceted classification was created by Ranganathan (1951), to classify library materials. However, earlier references (Hjørland 2013) to facet-based classification exist. More recently, the method came to be applied in various electronic contexts (Broughton 2006), including Web environments, and faceted systems are quite common at present. Broughton (2002) sees facet analysis as providing a method appropriate for management of terminology and concepts in diverse environments. More extensive theoretical exploration and examination of the logic used in facet analytic tradition (presented by, for example, Hjørland 2013) are beyond the scope of this study.

The study applied facet-based approach to identify what kinds of elements characterize the class names used. Therefore, against the standard methodology of facet analysis (Vickery 1960), five suitable facets (facets 1-5 as described below) were *a priori* derived from previous research and literature describing how to create a functional classification (Alberts et al. 2010; Hurley 1993; Sabourin 2001; Schellenberg 1956; Shepherd and Yeo 2003), what kinds of elements to use, and what kinds to avoid in creating the system and labeling the classes. Also, characteristics presented in previous studies and literature describing functions, either idealistically or in terms of the elements used in functional classifications in practice (Foscarini 2009; Kennedy and Schauder 1998; Lybeck 2006; Xie 2007), were utilized in creation of the facets.

The categories (Suominen et al. 2009, 225) that exist in the grammar of natural languages are word classes (noun, adjective, etc.) and sentence elements (subject, object, etc.). The former could be described as absolute, while sentence elements are situational; i.e., their role may

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change. In the study, facet categories were understood as sentence elements, to allow for the existence of various roles in terminology used in class names. Categories are concepts that define other concepts. They may be illustrated in the form of a question (225), as with the facets used in the study (see Table 2.):

Facet	Question	Example
Facet 1: Actor	Who / which part of the organization is acting?	President (in the class name "President's minutes")
Facet 2: Action	What is happening / What is being done?	Organization (in the class name "Organization of an exam")
Facet 3: Object of Action	What is the object / target / receiving end of the action?	An exam (in the class name "Organization of an exam")
Facet 4: Subject	What subject / matter / theme is dealt with in the class?	Phone directories (the class name "Phone directories")
Facet 5: Object of Documentation	What is the outcome / record articulated in the class name?	Minutes (in the class name "President's minutes")

Table 2. The facets used in the study and examples of how they were used in the analysis.

Some of the class names analyzed consisted of only one word, while others were longer and more complicated, comprising arcane grammatical expressions. Any kind of qualifying or specifying concept in a class name was separated into a facet that included the associated main concept; for instance, in a class name "Domestic cooperation in general," the terms "domestic" and "in general" were assigned to facet 2 (action) because the main concept was "cooperation." Hence, facets 1-5 as presented above were not more widely deconstructed into their constituents. It is important to note that one class name was not equal to one facet; because of the varied nature and structure of the class names, their distribution across facets varied. Some class names fitted one facet, while others included elements from several facets. For this reason, while the sample size was the same for all the classifications, the total quantity of elements after division by facet differed between classification systems.

To find out what kinds of elements the class names represented, we assigned the various verbal expressions used in class names to appropriate facet categories, as exemplified next. In the class name "organization of education and teaching," "organization" was categorized under facet 2 (action) and "education and teaching" under facet 3 (object of action). "Research data" was assigned to facet 4 (subject), while "road plan" fell under facet 5 (object of

documentation). "Ending of contract and pension" was divided such that "ending" was under facet 2 (action), "contract" under facet 3 (object of action), and "pension" under facet 4 (subject). Language does not always simply bend so as to allow categorization exclusively under one facet, however. As Svenonius (2000, 141-4) states, concepts such as organization are multi-referential and could be categorized as either processes or entities. Problems arise also with abstract terms. Finally, even when the terms are concrete, various problems with overlapping categories and confusion of purpose or redundancy may arise.

Although the analysis focused on terms in class names as sentence elements, certain morphological characteristics typical of the Finnish language that might have an influence on meaning and understanding of words could not be ignored. The Finnish language (Karlsson 2001, 1) belongs to the Finno-Ugric language family that differs quite a bit from, e.g., English or French, belonging to the Indo-European language family. Morphological derivation is the most important method of forming new words in the Finnish language. For example, nouns that often indicate result of an action can be formed with derivation (Karlsson 2001, 237), e.g., the Finnish word "ostos" (denoting "purchase") can be formed from the root word "osta/a" (denoting "buy"). Also, in Finnish language (231), a given word form may contain many derivative suffixes in succession. Hence, Finnish is an economic language (Lepäsmaa et al. 1996, 14). With extensive use of derivation from roots, individual words include a large amount of information. When translated to other languages they often cannot be translated by one word, e.g. the Finnish derivative word "perheellisyys" is equivalent to the English expression "whether a person has a family or not."

Unambiguousness and precision in choice of words in writing (Iisa et al. 1999, 201) is important for reaching one's goal. In technical vocabulary, noun phrases are common. Additionally, descriptions of an act are often part of technical vocabulary. In Finnish, it is possible to form two distinct kinds of nouns from the same action. Verbal expressions of these sorts are widely used, since they serve as a major concept, extensively describing the issue in question. When such expressions are used in a piece of text, the act of doing becomes a noun (208-9). In the study, the influence of such terms was seen especially with the concepts grouped under facet 2 (action). The act of doing something is not clearly and unambiguously expressed, and it could be understood as a subject just as well. An example of such an abstract class name in the sample is "early childhood education." It is not clear what exactly is being done around the theme. However, since the class names analyzed were used in the context of functional classifications, such expressions were read primarily as action descriptions. For practical and economic

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reasons, the analysis focused on class names as separate verbal expressions, without considering their wider context, the upper-level class names used in the classification. However, totally ignoring aspects of contextual understanding was impossible—language always has a meaning that is formed in joint effect with other words.

6.0 Findings

After the elements in class names were distributed across the five facets presented in the "methods" section, the findings were illustrated: figures were drawn to show the number of elements for each facet. Below, the findings are described for organizations A, B, and C, respectively, and the attributes then are discussed as a whole.

6.1 Classification in organization A

In the classification in organization A (a municipality), elements in class names were most often (53%) categorized as describing actions. For the most part, verbal nouns were used, e.g. "employment." Ultimately, however, it is open to interpretation whether the expression was an action or a subject that described the action. As noted above, such ambiguous phrases were read as actions in the study. Approximately half (47%) of those action descriptions had an object, and objects of actions accounted for 25% of all the phrases used in class names. There was relatively little use of subject terms in class names, with only under a fifth (17%) of the elements being subjects. In this classification system, one element fitted the "actor" facet. The actor in question had an action but did not have an object of action. For organization A, only a few "object of documen-

tation" elements (4%) were found. In fact, "initiatives" was the only one describing an "object of documentation." Interestingly, multiple class names ending with the word "general" were used in this classification system. The distribution of the elements into facets in organization A is shown in Figure 1.

6.2 Classification in organization B

Organization B's (a university) class names typically used terms describing the object of documentation (25%). In total, class names that include terms describing an object of documentation, action (23%), and subject (23%) were quite evenly used. In this classification system, various types of objects of documentation (e.g., "minutes," "forms," and "guidelines") were often stated in class names. In action descriptions, an object was present in 56% of names. Organization B had the classification system that featured expressions describing the actor. The actors identified were various units inside the organization and work groups such as "steering group for occupational health care." Sixteen per cent of the elements in class names were categorized as fitting "actor." Interestingly, one of the titles in the sample from this system was used three times. Figure 2 describes the distribution of elements by facet in the classification at organization B.

6.3 Classification in organization C

The class names used at organization C (a governmental organization) were often long and tortuous expressions. When considered in terms of our facets, most denoted an action (42%). As much as 75% of the actions included
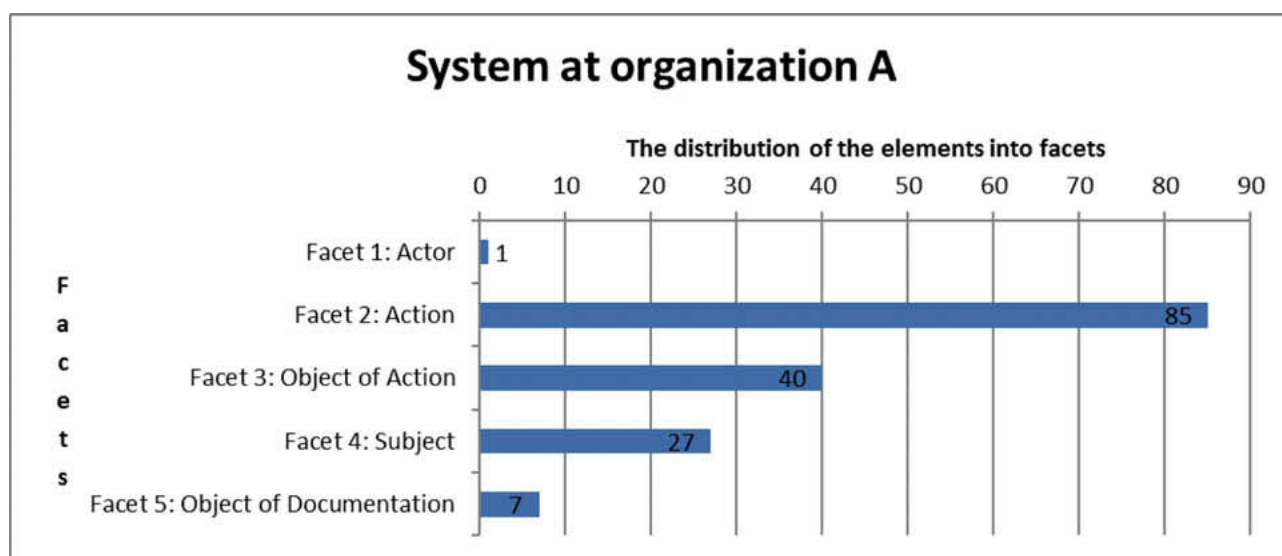

Figure 1. Distribution of elements by facet for the lowest-level class names in organization A.
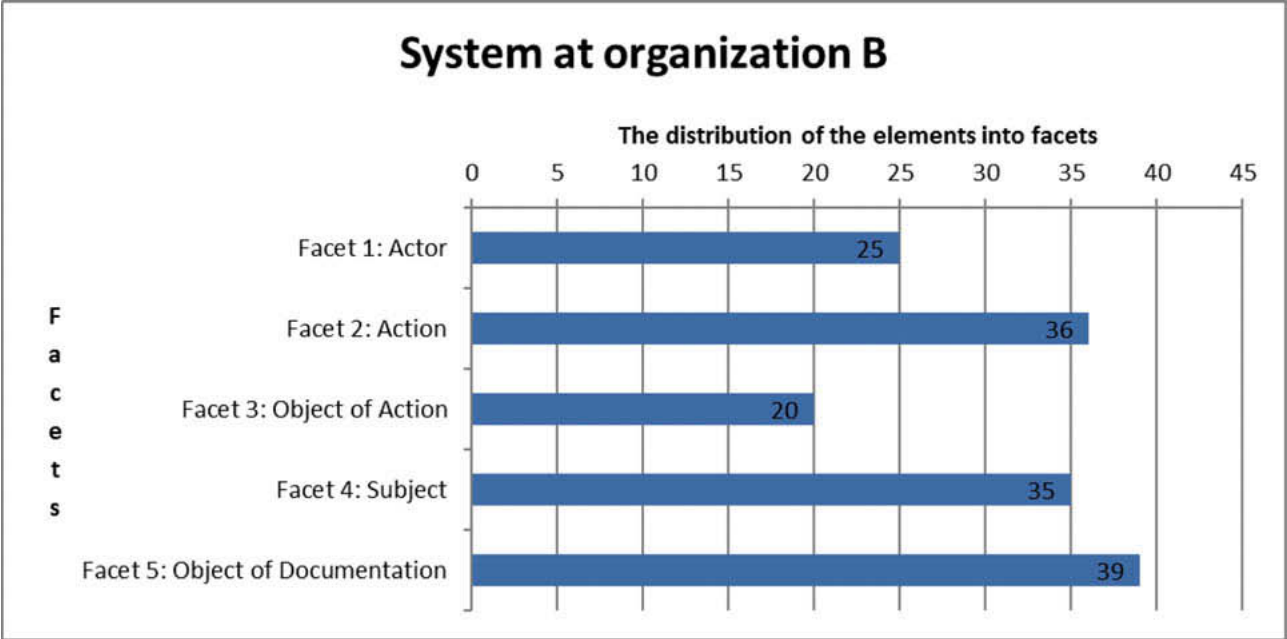
Figure 2. Distribution of elements by facet for the lowest-level class names in organization B.
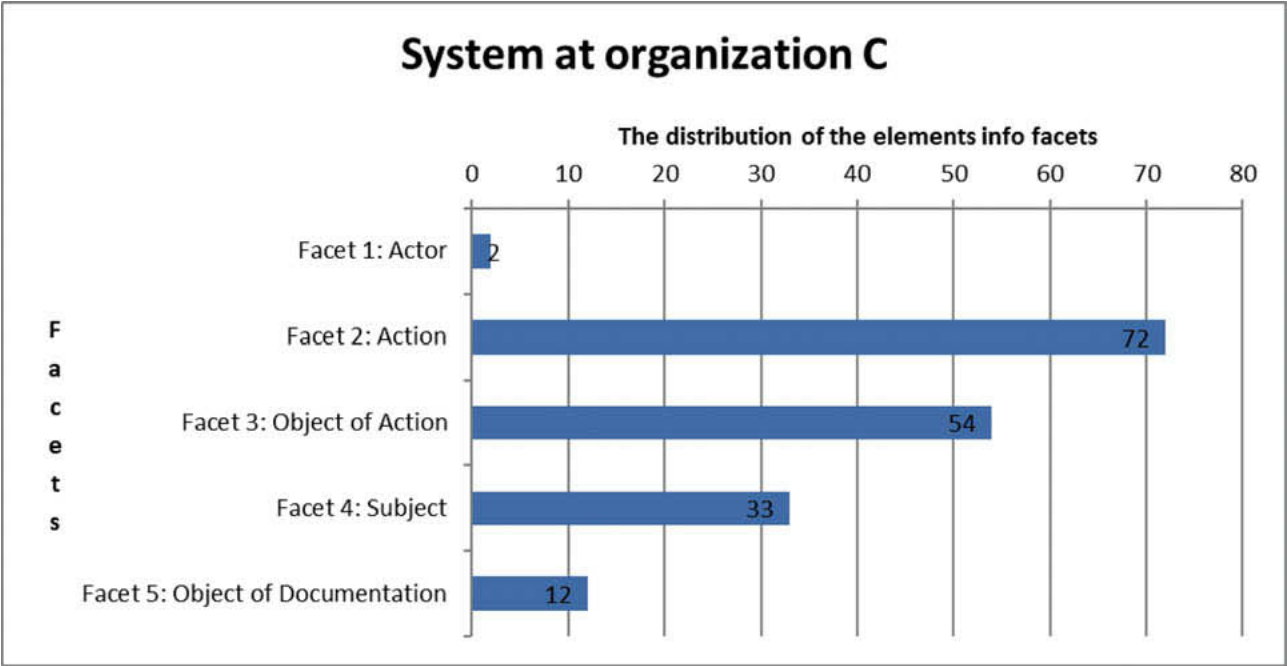

Figure 3. Distribution of elements by facet for the lowest-level class names in organization C.

an object of action. Approximately a fifth (19%) of elements in class names were subject terms. In addition, there were some objects of documentation mentioned in class names (7%). These were, e.g., "request for comment" and various "clearances." Two actors were found. Figure 3 shows how the elements were distributed by facet in organization C.

Interestingly, some references to paragraphs of a law were used in class names at the organization. These were

categorized on the basis of the phrase used. Also, "proceedings" was used in class names in this classification system several times, e.g., "liquidation proceedings" or "appeal procedures" for various objects of action. While we interpreted proceedings as actions, they are fundamentally open to interpretation and might have been read as subjects as well. Also, some class names in organization C featured plural nouns that had a verb root. Such expressions as "procurements" were read as subjects since the expression

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could hardly be understood as an action. It is possible, though, that they were meant to be action descriptions.

6.4 Class names used in organizations A, B, and C

Various class names were used at the lowest level of the functional classification systems in the three Finnish public-sector organizations. Most phrases in the labeling were read as actions (40%). The concepts used to describe the action were usually individual verbal nouns or other indirect wordings, e.g. "advancement of industry and trade." Hence, it is open to interpretation whether they are actually actions or more like subjects broadly describing the subject of the action. Morphological derivation was common in the phrases. More than half of the actions included an object (59%). "Objects of actions" accounted for 23% of the total number of elements as categorized by facet. Figure 4 gives an overview of the elements' distribution.

In the class names analyzed, an actor was present in six percent. Otherwise, actors may have been hidden within the "action" and "object" of "action" facets. However, they were not visible from the labeling, given that, in classifications that describe the functions of an organization, the actor in most cases is the organization itself. Furthermore, organizations have functions that they do not literally perform but control as an authority. To some extent, the action of control was seen in titles, e.g., "supervision of seedtrade." Partly, however, this role of an authority was not displayed; instead, the object of such control was stated as the action itself, e.g., "founda-

tion and nurture of wetlands [that has multiple influences, and …]." Also, subject elements were used in the labels, with 19% of elements in class names being categorized as subjects, e.g., "maps, address, and place information"). The phrases read as subjects were varied. Sometimes individual words were used, but more complex thematic entities were used in class names too. Object of documentation was explicitly denoted in 12% of elements in class titles. The types of objects of documentation referred to varied and extended beyond those used in official procedures (statistics, contracts, etc.).

Overall, actions had a significant presence in elements at the lowest level. However, the expressions used for action were largely ambiguous, diffuse, and abstract. Furthermore, organizations A, B, and C differed greatly from each other. Each of the classifications displayed its own typical features in class names; however, none of them maintained a specific logic across all title wordings.

7.0 Discussion

The study was designed to reveal what kinds of labels are used in the lowest-level class names in functional classifications in Finland's public sector and how an organization's functions manifest themselves in those class names. The findings show differences in many respects. In addition to variation between organizations, variation existed in the phrases used in the lowest-level class names within the individual functional classification systems. There were some abstract, high-level concepts, e.g., "service activity subject
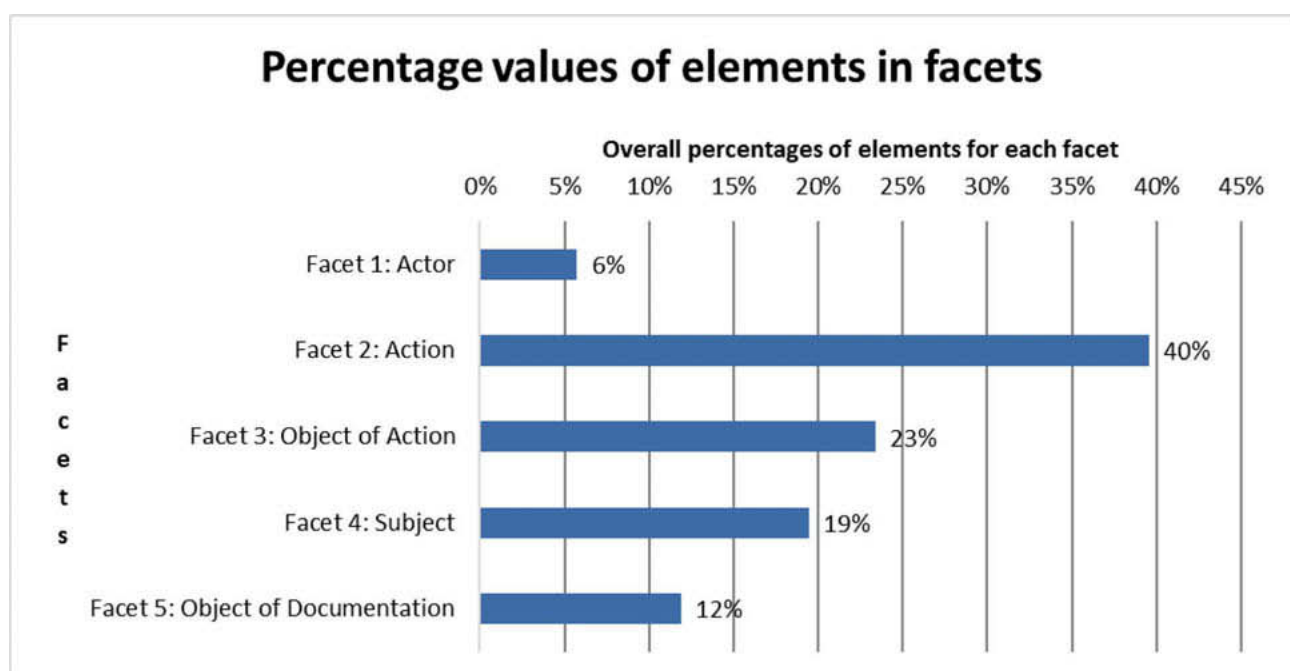

Figure 4. Percentage distribution of the elements across facets in total in classifications A, B, and C.

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to a charge" and some concrete phrases, e.g., "news related to the university that has been published by others." Consistency in forms of expressions was lacking. In addition, the phrases were ambiguous. Often, whether a given element expressed action or a subject was a matter of interpretation. It was clear that a class name alone does not provide enough information for reliable understanding of its content; users need scope notes or other supportive instruments. The elements used in class names evidenced an attempt to use function-based expressions, yet this was not readily apparent, because of the miscellaneous labeling systems. None of the classification systems followed any consistent logic in its lowest-level class names.

Public-sector organizations vary in their size and structure. In this study, the classification systems analyzed were from three distinct kinds of organization (again, A was a municipality, B was a university, and C was a state entity). While they shared support functions such as "administration" and "personnel management," they differed in their main functions. All the organizations were subject to the same record-keeping and archival legislation and regulations pertaining to public-sector organizations in Finland. However, there were no detailed guidelines for labeling of classes. Therefore, the heterogeneity of the class names is in some ways not surprising. It is possible that the results would have differed less between the classification systems examined if the systems had come from organizations in the same field of activity. However, it is also possible that their structure would have differed greatly even then, because the field of activity may not determine what facets are "chosen" to be made visible in a class name.

The action-description structure presented by Alberts et al. (2010, 372-3) was absent from the classifications analyzed in the study. Functions were shown mainly via indirect, derivative nouns with a verb root. The labels used in the class names were ambiguous, whether through conscious decisions in creation of the systems to use high-level expressions to cover a wider range of issues (Iisa et al. 1999, 208-9) or unconsciously shaped through a common use of derivation in the Finnish language. It is also possible that attempts were made to follow general rules for indexing languages (Foskett 1996) by using nouns as much as possible. The ambiguousness of Finnish words created through derivation might have been partially unavoidable. At the same time, the functional classification systems analyzed in the study did not seem to follow the principle, presented by Schellenberg (1956, 63), that the structural principle selected for titles at one level in the hierarchy should be used throughout that level.

Abstract terms and class names (Packalén 2015) that are open to various interpretations cause difficulties in classifying records even for the professionals involved. The abstract and ambiguous terms at the lowest functional level may exert a combined effect with the usability issues that previous studies too (Calabria 2006; Gunnlaugsdottir 2012; Ifould and Joseph 2016) have highlighted. According to one earlier study (Calabria 2006), users think about subjects, not functions.

In the Finnish public sector, there are ambitions of harmonization among functional classification systems. The differences among class names shown in the study casts doubt on the possibility of creating common functional classifications by combining and rewriting the existing systems. Integration of such varied approaches and viewpoints to express the organizational functions and activities in numerous functional classification systems might encounter unforeseeable challenges.

Facet analysis was useful for finding the forms of expression used in functional classification systems' labeling. However, the analysis was difficult. The class names used were miscellaneous and ambiguous, and some seemed challenging to categorize at all. The "actor," "action," and "object of action" facets turned out to be especially difficult, since a corresponding structure was unfamiliar in class names. Merging these into a single facet might have left things clearer; however, the authors decided to keep them separate, to highlight the visibility and non-visibility of actions and the associated actors and objects in class names. Notwithstanding, in the endeavor to harmonize functional classification systems, applying a facet analysis in advance might be one valuable option. The authors also see collaboration between various public sector organizations and with various groups of employees in the organizations, e.g. recordkeeping professionals, information technology personnel and other users of the systems, as important.

The main limitation of the study was that the ambiguous class names rendered various interpretations possible in categorization of the elements by facet. The study used the criteria presented in the "methods" section for interpreting and reading the class names. While other interpretations would have been possible, the findings do point to some conclusions. Another limitation of the study is that only class names at the lowest level in the functional classifications were analyzed. Upper-level class names might have represented different attributes. Omitting other levels of class names too from the analysis might have had an effect on the results. Adding context to the class names analyzed might have led to slightly different readings and results. However, the approach chosen enabled us to uncover class names that are prone to varying understandings.

8.0 Conclusion

Facet analysis serves as a practical method for exploring the attributes represented in functional classifications' class names. The results of the study demonstrate the variety in

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forms of expression used in class names within functional classification systems in the Finnish public sector. The study offers a starting point for various conceptual and terminological analyses of functional classifications.

Conceptual structures employed in functional classification systems vary. Therefore, that systems appear function-based says little about their content. Ambiguous and varying labeling in the lowest-level class names used in functional classifications might frustrate users, acting counter to smooth use of the system and understanding of a logic suitable for representing the organization's functions. Because of the variation, shared systems of function-based classification can hardly come about through combining existing functional classifications.

Future research is warranted for rigorous analysis of the relevant concepts, understanding of them, and their influence on functional classifications' use. Carrying out more studies focusing on users' perceptions of the titles used and how those titles are understood is important.

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