**Lessons from misclassification in international accounting**

Christopher Nobes, *Royal Holloway (University of London) and University of Sydney\**

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**ABSTRACT**

Classification is a central activity in many sciences, such as chemistry. In social sciences, we cannot achieve the high precision and usefulness of the Mendeleev table of elements, but we can try to avoid poor classification. This paper sets out a method for identifying *mis*-classification in any field, drawing on the qualitative characteristics for useful information set out in the conceptual framework for financial reporting, particularly faithful representation and relevance. The method is applied first to various scientific fields and then to many classifications in international accounting and to other classifications used by accounting researchers. The causes of poor classification are examined; for example, some classifications are untrue, some are unfair and some are unlikely to be relevant for any important purpose. The implications for researchers are proposed.

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1. **Introduction**

Classification is a central activity in science. It is the corner-stone of chemistry (Aldersley-Williams, 2011), biology (Stearn, 1959, p.4) and medicine (Bowker and Star, 2000). Perhaps the most impressive example of its power is the Mendeleev table of chemical elements. Not only does this organise facts in an elegant way, it predicts the behaviour of elements and it even foresaw elements to be discovered and what their characteristics would be. The table is so neat because the measurement of the attributes of an element (e.g. its atomic weight) is precise and because what constitutes a particular element remains stable across time and space.

There is less precision when classifying species of animal or disease, partly because it is not clear which attributes to measure or how to measure them. Furthermore, mutations occur continuously. The problems intensify when grouping languages, legal systems or accounting systems because there is not only mutation but also mutual influence. I suggest therefore that, rather than striving for the perfection of the Mendeleev table, accounting researchers should focus on how to avoid various types of misclassification.

 The accountant’s vital everyday tasks of classifying transactions into the double-entry system and then preparing classified financial statements are not my topic. Instead, the accounting classifications which I discuss are those which put countries or “accounting systems”[[1]](#footnote-1) into groups by similarities. Nobes and Stadler (2013) show that such classifications have been part of the motivation for hundreds of research papers and that they have been much used as independent variables in the study of international differences in such matters as value relevance, adoption of International Financial Reporting Standards (IFRS), policy choice and lobbying of standard-setters. I also examine classifications in the areas of law, tax, culture and languages which have been used as independent variables by accounting researchers. Given the extensive use of these various classifications, misclassification could have important consequences for international research in accounting.

 The paper proceeds as follows. In Section 2, I propose a method of characterising misclassification of various sorts, drawing on the characteristics used to assess the quality and usefulness of accounting information. This includes using the concepts of faithful representation and relevance. In Section 3, I examine examples of poor classification in various non-accounting fields, applying the method of Section 2 in order to clarify why they are poor.

The central part of the paper is Section 4, which assembles a catalogue of misclassifications and implausible results in international accounting. Some of these have already been exposed in the literature (sometimes in obscure publications), others are mentioned as footnotes in papers, and some have not been recorded before. In each case, I analyse the nature of the misclassification, using the method of Section 2. I bring these examples together in order to draw lessons for accounting researchers. Section 5 contains conclusions, including the causes of misclassification and the implications of all this for researchers and for the editors and reviewers of journals.

These endeavours could be expressed in terms of three research questions: Which features of misclassification can be identified in a cross-disciplinary way in order to construct a method for identifying poor classification? When applying this method to assess the quality of classifications produced by and used in accounting research, how well do they stand up? What lessons for accounting researchers can be gleaned?

1. **A method for identifying poor classification**

Mendeleev’s classification is good because of the features outlined in the first paragraph of this paper: it represents how phenomena are related; and it organises data, reveals structure and enables predictions. Unlike Mendeleev, alchemists had instead divided elements into three classes: solids, liquids and gases. However, this is unhelpful when trying to understand the nature of ice, mercury, molten lead or liquid nitrogen. Ancient classifications have also been rejected in other scientific fields. As discussed below, these include classing the Sun as a planet and classing man[[2]](#footnote-2) with birds as a “featherless biped”. What is it about these classifications which makes them flawed? What causes them to be less than useful? This section seeks to establish a generalisable method for identifying and discussing poor classification.

A committee of the American Accounting Association (1977, p. 77) summarised guidance from scientific fields about the features of good classification: the differentiating attributes used should be the same throughout a classification, subsets should be mutually exclusive, a hierarchy should be maintained throughout the system, and the classification should cover all objects under consideration. Similar desiderata can be found relating to medical classification (e.g. Bowker and Star, 2000, p.10). However, these sources admit that few classifications in any field comply fully with these principles, and Roberts (1995, p. 653) questions them, noting that they do not help with the central issue of which attributes to measure. Foucault (1970, p. 140), using Linnaeus as an exemplar, had also warned that identifying the “structure” of things is only the first stage of classification; because it then becomes necessary to decide on which parts of structure to ignore, in order to concentrate on “character”. For plants, Linnaeus (1751, section 164) ignored everything but reproductive structure.

The difficulty of classification increases from chemical elements (objects which are stable over time) to biology (objects which diverge, except that there can be hybrids) to languages or accounting systems (objects which can diverge or be hybrids[[3]](#footnote-3) or can converge). Roberts (1995, p. 661) and Bowker and Star (2000, p. 324) conclude that classification in most fields inevitably involves subjectivity and ambiguity. Roberts proposes a teleological approach: focusing on the purpose of a classification and its usefulness in that context. Based on the above, Roberts (pp. 646, 652) issues warnings against particular classification methods: the statistical “overall similarity” approach which does not identify the essence of objects, and the diachronic “family tree” approach for such fields as languages and accounting systems because convergence is a major contributor to development, unlike in biology (for which divergence is key).

We may be dazzled by the brilliance and usefulness of Mendeleev’s periodic table. However, from many other fields, there are warnings (discussed above) about the difficulties of classification, and there is little by way of convincing guidance about how to do it well. As a final alarming point, I note that, although chemists have a clear definition of “element”, biological classifiers have not agreed upon a definition of “species”[[4]](#footnote-4) and cosmologists have been changing the definition of “planet” (see below). Thus, I conclude that, in international accounting, we cannot reasonably aspire to a classification as good a Mendeleev’s but should try to avoid various forms of poor classification.

In seeking to create a method for identifying the features of misclassification, an analogy from financial reporting is useful, as follows. When accountants have prepared a company’s financial statements, having ensured that the statements comply with all the details in the applicable laws and standards, the accountants in many countries[[5]](#footnote-5) (and later the auditors) must do something entirely different: step back and ask “Do the statements give a true and fair view?”. The existence of two adjectives in this requirement reminds us that the accounting information should be both in accordance with the facts (i.e. true) and not misleading (i.e. fair); and it is possible for information to be true but misleading.[[6]](#footnote-6) These ideas now form part of the concept of “faithful representation” (FR) (IASB, 2010, paras. QC12 and BC3.44), which includes assessing the substance of arrangements if this is different from their superficial form (IASB, 2015, para. 2.14).

The other key qualitative characteristic of information, according to the International Accounting Standards Board (IASB), is relevance (2010, para. QC6). This can be interpreted as meaning potential usefulness for making decisions, which chimes with Roberts’ teleological approach. I will use the relevance criterion (in addition to the FR test), noting that some classifications can exhibit FR but are not very useful because they concentrate on regulations rather than on practices.

Thus, I suggest (and I intend to demonstrate, below) that some classifications are poor because they are based on untrue data, and this will mean that the classification itself is untrue and therefore will not be able to give a FR. Furthermore, even some classifications which are true are nevertheless unable to give a FR because they are unfair or misleading. Lastly, even some classifications which give a FR can lack relevance or usefulness.

To encourage us to apply this method repeatedly to the work of ourselves and others, another idea from the practical world of accounting is helpful: auditors are enjoined to use “professional scepticism” (FRC, 2012). Of course, scepticism has a very long history in philosophy (Hankinson, 1995). It was central in the development of modernity in science; see, for example, “*The Sceptical Chymist”* (Boyle, 1661). It can be expressed as “*The Will to Doubt*” (Russell, 1958, e.g. see p. 22).

The academic literature on auditing discusses two versions of scepticism: “neutrality” or “presumptive doubt”; and it asks which should be applied and which is found in practice (Quadackers *et al.*, 2014). The latter version implies that auditors should be disposed against believing assertions, in particular those of company management. It is “presumptive doubt” which I suggest should be a state of mind of classifiers and users of classifications. This includes assuming that one’s data source might be wrong, and subjecting both it and one’s conclusions to a robust test for FR.

Although I have expressed the proposed method of this section in terms used by accountants (such as “substance over form”), I will first use the method to assess classifications in several other fields. Academics interested in classification in general might wish to assess whether the proposal is indeed useful outside of accounting, perhaps replacing “substance over form” with “structural rather than superficial” and so on.

1. **Poor classifications in various disciplines other than accounting**

Nobes and Stadler (2013) examined several non-accounting classifications as a prelude to asking whether accounting classification can be other than arbitrary. These classifications, and some others, are reviewed here for the purpose of identifying and articulating their flaws in terms of the method proposed in Section 2.

We can start with the alchemical solid/liquid/gas classification. The fact that mercury, molten lead and liquid nitrogen are liquids is not a convincing point because anything can be liquid, depending on temperature and pressure. So the latter two variables need to be kept constant before a FR can be given. Even then, the relevance of the three-way chemical classification (e.g. even on Earth, at sea level and at 15ᵒ Celsius) can now be seen as doubtful because it concentrates on form rather than on substance, such as atomic weight and the number of electrons in the outer shell.

Socrates and Plato classified man as a “featherless biped”, which was criticised at the time[[7]](#footnote-7) and is not now regarded as insightful. Figure 1 proposes a fuller[[8]](#footnote-8) zoological classification based on counting the visible number of feet. There are four types of mammal in Figure 1, spread around the pedal classes. Instead of this, a classification showing all mammals together would better fit the skeletal and DNA evidence, and it would provide better predictions about a large number of the characteristics of the animals. Ironically, biologists still classify a bird and *homo sapiens* in the same super-class called tetrapoda, even though neither animal ostensibly has four feet. Tetrapoda obviously also include four-footed mammals, reptiles and dinosaurs. Furthermore, the super-class includes dolphins and snakes which apparently have no feet. However, skeletal evidence reveals that these animals have vestigial feet,[[9]](#footnote-9) and (more recently) DNA evidence backs up the family relationships previously inferred by biologists.

 The classification shown as Figure 1 is true in a narrow sense. However, it fails the FR test because it relies upon form (the outwardly visible number of feet) rather than substance (such as skeletal arrangement, reproductive system, descent and DNA). Its grouping of dolphin, anaconda, shark and worm is not relevant for any apparent purpose, such as explaining the origins of particular animals or predicting their behaviours.

Somewhat later than the pedal classification, Aristotle set out a “great chain of being” comprising six classes: God, angels, man, animals, plants, minerals (Lovejoy, 1964). This classification made *homo sapiens* feel superior for millennia but it is not true because it excludes *homo sapiens* from the animals; and, for a further reason, it fails the FR test for scientific purposes because it contains imaginary beings such as angels as well as the corporeal. Nevertheless, the last three of the six classes in the chain were later accepted by Linnaeus (1751, e.g. s. 164) and were still providing a practical way of sorting objects in the BBC television programme called *Animal, Vegetable or Mineral?,* as screened from 1952 to 1959.

Cosmologists originally[[10]](#footnote-10) classed the Sun as a planet but not the Earth. Much later Pluto was classed as a planet.[[11]](#footnote-11) These three classifications created different problems, and none is now scientific orthodoxy. The classifications of the Sun and the Earth were not true: the Sun fails the definition of “planet” because it does not “wander”, unlike the Earth.[[12]](#footnote-12) The retention of Pluto as a planet would have destabilised the class because there are other orbiting objects, further from the Sun, which are larger than Pluto. Thus, classing Pluto as a planet imperils the usefulness of the classification because a large number of comparatively small objects would be called planets.

As one further non-accounting example, Perec (1985, p.39) discusses how books can be classified. In addition to alphabetical order by author or title, Perec lists classification by country of author or publication, by date of publication or acquisition, by priority for reading, by language and by colour. A classification of books by colour could be both true and fair but is unlikely to be relevant, except perhaps for interior decorators who buy books by the metre. However, it is important to note that two completely different classifications can pass the FR test and can also be useful for different purposes. It is even possible for very different classifications to be useful for a similar purpose; for example, for library books, the Dewey Decimal system and the Library of Congress system.

1. **Misclassifications related to accounting**
	1. *Introduction*

In this main section of the paper, I assess a number of accounting-related classifications using the method set out above, in order to articulate the ways in which the classifications are poor. All the classifications treat countries as the objects to be classified. I concentrate on poor classifications, but refer to a few good ones where they are useful contrasts.

The following sub-sections examine accounting-related classifications in seven fields. Sub-sections 4.2 and 4.3 look at classification by accounting similarities and differences. Sub-section 4.4 discusses classification of countries by their degree of acceptance of IFRS. Sub-sections 4.5 to 4.7, respectively, examine classifications based on legal systems, tax systems and culture. These factors are often seen by accounting researchers as independent variables (or extrinsic factors) which influence how accounting works. Lastly, sub-section 4.8 deals with classification of languages, where this has been used by accounting researchers.

* 1. *Classifications of countries by accounting similarities*

I begin with one of my own misclassifications. When drafting the introductory chapter of a book for Deloitte[[13]](#footnote-13) on international accounting differences (Nobes, 1990), I classified Denmark with Germany and Sweden. On arrival in Denmark, I was rebuked by Danes who had for decades been modelling their accounting on Anglo-American practices and international standards. I had fallen into the geographical trap: Denmark is physically between Germany and Sweden, so it must have similar accounting. This hopeless logic concentrates on an irrelevant aspect of form. It does not explain why the country furthest from the UK (i.e. New Zealand) had rather British accounting. My own theory about the causes and effects of international differences in accounting (Nobes, 1998) would have helped me. In brief, the importance of equity financing drives accounting. Such matters as the age and size of accountancy bodies are symptomatic results. The simple data in Tables 1 and 2, showing Denmark with a large equity market and an old profession, would have warned me. Professional scepticism should have been in operation. Fortunately, it was only my *draft* which was wrong, and I had already learned one major lesson: do not write about a foreign country without getting locals to check the facts.

 Long before this, many researchers had used data from Price Waterhouse (PW) (1973, 1975 and 1979) to produce classifications of countries by similarities of accounting practices. Nobes (1981) suggested that the data source contained some errors (i.e. was not completely true) and, more importantly, was not suitable for the use to which the researchers put it. I now examine whether the resulting classifications pass the FR test.

 Table 3 shows the main findings of da Costa *et al.* (1978), based on 1973 PW data.[[14]](#footnote-14) The table shows the countries in the researchers’ Group 1 (which contained most of the non-communist world), ranked according to difference from a so-called British model of accounting (Group 2, which included such countries as Australia, Ireland, New Zealand and South Africa). The first row of Table 3 suggests that the accounting system *least* like this British model was US accounting. German and Mexican accounting were apparently a lot more like British accounting than American accounting was. When interpreting this result, one might have hoped that professional scepticism would have injected caution concerning data and methodology. However, the researchers concluded that Group 1 (e.g. including France, India and Trinidad) “follows the lead of the United States in dissociating themselves from practices common to the British model”. This does not seem like a FR of, for example, French rule-making in accounting (Colasse and Standish, 1998; Hoarau, 2009).

 Goodrich (1982) uses similar methodology applied to similar but later data of PW (1979).[[15]](#footnote-15) Goodrich discerns five groups of countries instead of two, but with the US and the UK still heading different groups. More interestingly, one of the five groups (see Table 4 in this paper) is headed by Jersey. Goodrich does not record any scepticism about this, but surely a Jersey-led group does not pass the FR test: Jersey had (and has) no accounting law or standards of its own but uses those of the UK.[[16]](#footnote-16) It is also hard to see how such a diverse group could be relevant for any purpose. I note that Goodrich used a statistical method called Spang’s Co-efficient of Factor Fit, which was abbreviated to SCOFF.

 Other researchers (e.g. Nair and Frank, 1980) used the same inappropriate data[[17]](#footnote-17) but arrived at more plausible groupings (e.g. one containing northern continental European countries).[[18]](#footnote-18) However, they still show the US and the UK in two unrelated groups, which inexorably follows from the original purpose of the data, as will now be explained.

Given that several researchers arrived at implausible classifications using the PW data source, we should look further into it. To take the example of the 1973 data, the list of 233 attributes was initially constructed in order to record all the differences (large or small) between US accounting and UK accounting. Consequently, important attributes were swamped by unimportant ones, such as the exact method for capitalising self-constructed assets, whether receivables from company directors were shown separately and how self-insurance provisions were set up.[[19]](#footnote-19) The same list of attributes was then used to assess all other countries. This suggests that, even if data are true and even if they represent what they purport to represent, they can still produce a misleading result when used for an unintended purpose. In terms of the earlier discussion of Linnaeus or Foucault, the data did not concentrate on character or essence.

A further implausible classification (based on different data) is shown in Figure 2, which suggests that 1990’s Australian accounting was almost as far as it could be from UK accounting. The researcher (d’Arcy, 2001) uses careful methods but apparently did not exercise professional scepticism about her result when she concluded that “the Australian system enforces its outsider position by certain requirements and prohibitions”. Nobes (2004) explains the many errors in the data (i.e. the data were not true) that contribute to this misclassification.

Even if the classification by d’Arcy (2001) had been revised using true data, it might have been questioned on the grounds of relevance. That is, the classification was based on accounting *rules* rather than on accounting practices. Holthausen (2009) stresses that researchers should distinguish between outputs (e.g. financial reporting quality) and inputs (e.g. accounting standards). Major differences in financial reporting can exist among companies which are all apparently applying the same or similar rules (Ball *et al*., 2003; Mahoney, 2009). I agree that rules are of limited relevance, as I will now explain with two examples: (i) IAS 38 (para. 72), unlike US generally accepted accounting principles (GAAP), allows intangible assets to be measured on a fair value basis but the option is never used,[[20]](#footnote-20) and (ii) both Spanish and UK national rules allow the cost of inventories to be determined on the basis of either first in, first out (FIFO) or weighted average, but Spanish companies hardly use FIFO whereas the British hardly use weighted average (and this national difference survives under IFRS practice; Kvaal and Nobes, 2010, Table 3). In the first example, the rules are different but the practices are the same. In the second, the rules are the same but the practices are different. Data that measure rules would show the US and IFRS as different on topic (i) and Spain and the UK as the same on topic (ii), but surely the opposite conclusions would give a more useful representation. That is, for many purposes, such as for international users of financial statements or for tax authorities, the accounting rules (the inputs) are surely of little relevance compared to the practices (the outputs).

 Before leaving classifications of countries by accounting, I return to the point that data can be misleading when used for an unintended purpose. Ding *et al.* (2005) and Ding *et al.* (2007) used some of the data in *GAAP* (2001) in order to score the accounting systems of 30 countries on their distance from international standards. The objective was to assess the determinants and effects of such distances. However, Nobes (2009) explains that the data have some of the same disadvantages as the PW data: they were not designed for international comparisons[[21]](#footnote-21) and that the data points for each country were not intended to be additive. It is unclear whether this compromised the results, but Ding *et al.* (2009) respond by making some robustness checks on their previous results. Nevertheless, in one important aspect, the *GAAP 2001* data are worse than the PW data: they measure rules not practices,[[22]](#footnote-22) which has been discussed above as a flaw. Surprisingly, an overlapping research team re-used the same data set later, without mentioning any caveats (Chen *et al.*, 2014). Other researchers (e.g. Bae *et al.*, 2008) have also drawn on the *GAAP 2001* data as a way of measuring international accounting differences, apparently unaware of the shortcomings.

*4.3 It takes two to tango, and even more are needed to classify*

The process of classification cannot function successfully when researchers consider only two objects. I could produce a list of one hundred differences between my brother and myself without disproving that we are closely related. However, Shoenthal (1989, p.562) concludes that his catalogue of differences in the competencies of US and UK accountants is further evidence that the US and UK accounting systems should not be classified together. This surely cannot be safely taken as a FR without considering whether the US and UK are nevertheless alike in a world context.[[23]](#footnote-23) Similarly, Alexander and Archer (2000) provide a convincing discussion of US/UK differences in law and standard-setting but this does not prove their contention that the notion of Anglo-American financial reporting “is indeed a myth” (p.541) because they do not consider other countries.[[24]](#footnote-24)

A general point is that classification is a process of putting similar objects together. Therefore, it is unlikely to give a FR if it is created by examining only the *differences* between two objects. A less obvious version of the same problem is caused when a classifier knows two members of a population well but others much less well. This probably contributed to the three-group accounting classification by Hatfield (1911), which can be summarised as: US, England [*sic*] and other.

*4.4 Adoptions of IFRS*

Elad (2015) applies the classification ideas of Nobes (1998) to explain how, in Africa, French-influenced countries have not adopted IFRS but UK-influenced countries have.Several researchers (e.g. Sellhorn and Gornik-Tomaszewski, 2006; Nobes, 2010) have used classifications of law or tax systems (discussed in sub-sections 4.5 and 4.6 below) in order to predict or explain whether jurisdictions require, allow or ban IFRS for *unconsolidated* statements. The issue is related to law because Roman law jurisdictions have greater philosophical difficulty with the concept of accountants writing regulations. However, the key point may be that jurisdictions cannot easily adopt IFRS for unconsolidated statements if tax numbers are based closely on financial reporting. Elad’s findings about IFRS adoption in Africa fit the background knowledge.

 However, let us examine Table 5 which is extracted from a table in Francis *et al.* (2008) which purports to show the percentages of private firms adopting IAS[[25]](#footnote-25) in 1999/2000 in EU countries. Those researchers examined “voluntary IAS adoptions” by “small to medium-sized private firms from 56 countries” (p. 356). My Table 5 concentrates on countries that were members of the EU in 2000 because it is easy to be sure about the legal position: *IAS was not allowed* for statutory reporting[[26]](#footnote-26) by private companies, and this continued to be the case until the EU Regulation 1606 of 2002 which was in force in most EU countries from 2005. Thus, the apparent high level of IAS adoption in Table 5 does not pass the FR test.A partial explanation is that the source data did not refer to IAS adoption but to IAS “use” which could include using some content of IAS for the marginal purpose of filling gaps in national regulations.[[27]](#footnote-27)

 Another misclassification relates to Switzerland, which is often untruly[[28]](#footnote-28) included among the class of countries which have mandatorily adopted IFRS. Zeff (2016) points out that this is the case in Daske *et al.* (2008). It also applies in Ahmed *et al.* (2013, Table 2), Byard *et al.* (2011, Table 1), Christensen *et al.* (2013, Table 1) and Chen *et al.* (2015, Table 2).[[29]](#footnote-29) This misclassification is important because the empirical literature concludes that there are major distinctions between voluntary and mandatory adopters (e.g. Soderstrom and Sun, 2007; Byard *et al.*, 2011; Horton *et al.*, 2013).

*4.5 Legal systems*

 Classifications of legal systems have been produced by law academics (e.g. Kagan, 1955; David and Brierley, 1985). These have been picked up by researchers in accounting and finance. In general, this involves simplifying the world into two types of legal system: Roman codified law and English common law. The use of a legal-system independent variable is very widespread; an oft-cited source being papers by La Porta *et al.* (1997 and 1998).

Nobes (1998) complained that this two-way classification did not work very well in its own terms or for accounting studies. For example:

 (a) Québec, Scotland and Louisiana have Roman law inside Canada, the UK and the US, respectively (see Filip *et al.* (2015) for empirics on Canada). South Africa has both Roman-Dutch and British traditions.

 (b) The Netherlands has Roman law but that does not seem relevant for accounting. It has the world’s oldest stock market, an old accountancy body (see Table 2), a long tradition of private-sector standard-setting, and a separation of tax and financial reporting (see 4.6 below).

 (c) The legal system might not be relevant for such issues as whether a country adopts IFRS. For example, German companies were early adopters, despite being in a Roman law country. Adoption was achieved by applying IFRS to consolidated statements only, which are not relevant for such legal matters as calculating taxable income or distributable income.

Lindahl and Schadéwitz (2013) also make persuasive criticisms of the use of the legal families for research in financial reporting. They suggest that the common/code distinction was more important historically than now, and that large within-family differences (e.g. between India, the UK and the US) make the distinction too simple.

There is sometimes a more basic problem than oversimplification: researchers just get the data wrong. For example, Shima and Gordon (2011, Table 3) classify Argentina as having common law (unlike all of the rest of Central and South America).[[30]](#footnote-30) This may be simply a typographical error. More interestingly, Liao (2014, Table 7.1) classifies Malta as having Roman law. This is tempting because of Malta’s proximity to Italy, and because the roots of its legal system are Roman. However, it does not take account of two centuries of British rule which determined its *company* law (Malta Chamber of Advocates, 2015). This reminds us that, in some jurisdictions, it is better to focus on company law rather than to consider law in general. Such a focus resolves the hybrid nature of Scottish and South African law, by concentrating on the “English” company law in both countries.

Other legal data also fail the FR test but in a way that is less easy to detect. Lindahl and Schadéwitz (2013) point us to detailed studies which cast doubt on the truth of the scores in La Porta *et al.* (1998). For example, Spamann (2010) re-calculates the “antidirector rights index”, leading to corrections for 33 of the 46 countries, resulting in scores which have a correlation co-efficient of only 0.53 with the originals.

Shima and Gordon (2011) use a “public enforcement” (PE) independent variable as part of their research into whether US investors put more money into those foreign countries which require IFRS. They study 44 countries, and take their PE scores from La Porta *et al.* (2006) who had used a questionnaire survey of one lawyer in each country in 2000.[[31]](#footnote-31) The questionnaire asked about the characteristics and powers of each country’s stock market regulator in the context of initial public offerings (IPOs). An extract from the PE scores is shown as Table 6. This suggests, for example, that the famously nepotistic Zimbabwe (where much of the capital city has no water supply and only sporadic electricity) is far better at enforcement than Japan, which allegedly scored 0.00 even though it has a Financial Services Authority modelled on the Securities and Exchange Commission (SEC) of the United States.[[32]](#footnote-32) Could the difference in PE scores be something to do with language difficulties or with cultural differences in the way in which questionnaires are answered?

Table 6 also suggests that certain developing countries have higher enforcement than the UK, which has well-regarded enforcement (Hines *et al.*, 2000) although via a type of regulator[[33]](#footnote-33) which is very different from the SEC so might not fit a US-based questionnaire on PE. Surely the data in Table 6 do not pass the FR test? The original authors should have exercised scepticism, and the subsequent researchers should also have been sceptical about borrowing implausible data. Furthermore, there is a distance between regulation of IPOs and regulation of financial reporting, so the data would be of doubtful relevance even if they had given an FR.

 In further papers, this same problem is still present but obscured in other ways. For example, Hail and Leuz (2006, Table 1) use the doubtful data of Table 6 as part of creating a composite legal variable which involves two other variables from La Porta *et al.* (2006). By contrast, the quite different ‘enforcement’ scores of Brown *et al.* (2014) pass the FR test in my opinion.

*4.6 Tax connections*

 One of the key variables used in research in international accounting is the closeness of financial reporting to tax. The classic description of a close connection is that by Haller (1992) relating to Germany. Typically, writers see France, Germany and Spain as having close connection (e.g. Hoogendoorn, 1996; Lamb *et al.*, 1998; Oliveras and Puig, 2005) but Australia, the US and the UK as having many disconnections. Linkage can decrease over time (e.g. in Norway, as charted by Nobes and Schwencke, 2006) or as IFRS arrives (e.g. in Germany, as charted by Gee *et al.*, 2010).

These detailed studies generally relate to one country only, with four as a maximum. Empirical cross-country accounting research has therefore relied instead on even more subjective book-tax conformity (BTC) measures published in a handful of studies. One of these is by Alford *et al.* (1993) who present “alignment of financial and tax accounting” as a high/low variable for 16 countries, though without explanation except by reference to various technical publications which do not contain any such scores. Another BTC indicator, provided by Hung (2001), consists of some facts about the content of financial reporting rules[[34]](#footnote-34) (given an aggregate weight of 40 percent) plus an “average consensus estimate of the book-tax relationship” (weighted 60 percent). By ranking the scores, 21 countries are classified as either high or low BTC, as shown here in Table 7. Despite the subjectivity in selection of topics/weights and the unspecified “consensus estimate”, the information in Table 7 corresponds almost exactly[[35]](#footnote-35) with the conclusions of the detailed BTC studies mentioned in the previous paragraph. Table 7 shows which other studies corroborate the scores. So, although it is largely a “black box”, the classification passes the FR test. I discuss it here in order to provide a benchmark for the next paragraph.

All the above studies relate (explicitly or implicitly) to unconsolidated statements in the home country only. An attempt at a quantitative approach using data from consolidated statements of a large sample of firms from several countries was made by Atwood *et al.* (2010). Their measurement of BTC is based on the amount of variation in taxable income (*TI*) that cannot be explained by the variation in profit before tax (*PBT*). Since *TI* cannot be observed, current tax expense *(CTE)* is used to create a proxy for it. The researchers apply their model to 33 countries for the period 1992 to 2005. They calculate, for each country, the average for the whole period of the standard error[[36]](#footnote-36) from annual regressions of *CTE* on *PBT*. A high standard error indicates low BTC. As shown in Table 8 in this paper, Atwood *et al.* (2010) place Canada, Germany and the USA at the top end (low BTC), and Japan, China and Chile at the bottom (high BTC).

 This position for Germany does not fit with the discussion above or with Table 7. Atwood *et al*. (2010, footnote 22) notice the “striking difference” and explain it in terms of their use of consolidated data which are not relevant for tax. However, that fact applies equally well to all the countries with strong BTC in their table (e.g. France, Spain and the five countries at the bottom of Table 8). The real answer is probably that Germany was most unusual in the period studied by Atwood *et al*. (i.e. 1992 – 2005) in that many of its large companies had volunteered to adopt international standards (Tarca *et al.*, 2013, p. 82), thereby abandoning German GAAP and reducing BTC. On investigating the data sources, we[[37]](#footnote-37) conclude that many of the companies that were still using German GAAP were excluded because of missing data. Thus, Atwood *et al*. were not measuring the BTC of German GAAP but the BTC of IFRS (as applied by German groups). Incidentally, their inclusion of data for 2005 was unfortunate as this introduced IFRS data for many countries for just one year of their long period of study.

 In terms of this paper’s method, Atwood *et al*.’s results might have been true (low BTC in the consolidated statements of the German companies in their sample) but the results were misleading because they were not a faithful representation of German GAAP.

*4.7 Culture*

Hofstede’s (1980) attempt to measure international differences in culture was used by Gray (1988) to build a theory about the causes of accounting differences. In turn, researchers have tried, with limited success, to use this to produce classifications of countries by accounting similarities (Doupnik and Tsakoumis, 2004). There have been many criticisms of Hofstede’s data and even of his very idea (McSweeney, 2002; Baskerville, 2003). Nobes (1998) took a different tack by suggesting that culture is too vague to be used as an independent variable, and that researchers might better concentrate on specific fields of culture which might plausibly influence accounting, such as a country’s predominant approach to corporate financing.

Even if one were to accept a cultural variable as valid, its *measurement* can be vague. For example, Hofstede (1984, p.81) tells us wisely that “speaking of an ‘Asian’ or ‘Middle-Eastern’ type of management is not justified” because a range of cultures exists in those areas. However, Hofstede then does almost exactly that (p.85) by treating “Arab countries” as a bloc and “East Africa” as a bloc even though the latter includes some countries with UK influence and some without. By contrast, as mentioned above, Elad (2015) shows that most of the countries of Africa fall into two groups for accounting purposes, based on French and UK colonial influence. Thus, an “East Africa” bloc does not give a FR; it is based on geographical form, like the error relating to Denmark in Section 4.2.

*4.8 Languages*

 Language classification can provide some insights into how to classify accounting systems. This is because, unlike chemical elements but like accounting systems, languages are constantly developing and influencing each other. In the first instance, languages are split into major families such as Indo-European and Turco-Tatar (e.g. Bloomfield, 1935).

 In general, accounting researchers have not suggested that language differences are a *cause* of accounting differences. However, lack of familiarity with English might hinder the spread of US GAAP or international standards to certain countries. This type of factor was used to help to explain the set of companies which choose to have their annual reports translated into English (Jeanjean *et al.*, 2010). The researchers hypothesised that language distance from English increases the cost and difficulty of translation, and thereby reduces the tendency to translate. As the independent variable for this, the researchers used a measure of language distance (from English), as reproduced here in Table 9.

If the researchers had exercised professional scepticism, they would have realised that the information in the table fails the FR test. The particular researchers have a good command of French and English and could not reasonably have concluded that French is further from English than Turkish is, or that French and Mandarin are at equal distances from English. However, in pursuit of the virtue of objectivity, the researchers relied on experts in another field. Unfortunately, experts can be wrong, printers can make mistakes and computer programs can mangle data or mis-align text.

In the case of Table 9, the problem stems from a typographical error in a non-accounting paper (Dow and Karunaratna, 2006, Appendix B) which caused Germanic languages (e.g. English) to appear in the Altaic family (which includes Turkish and Mongolian) rather than in the Indo-European family (which includes Germanic and Italic). So, the scores of ‘2’ and ‘3’ in Table 9 are appropriate, but the four Italic/Romance languages should score ‘4’ not ‘5’, and Turkish should score ‘5’ not ‘4’.

Even after correcting the data (see the numbers in square brackets in Table 9), we should exercise a second round of professional scepticism: is English twice as expensive to translate for a Bolognese than for a Frankfurter, and is English only 25% more difficult for a Mandarin than for a Florentine?

**5. Conclusions and implications for researchers**

*5.1 Causes of misclassification*

Accounting classifiers cannot reasonably aspire to the clarity and usefulness achieved by Mendeleev for chemistry. However, we should be alert to poor classification. One way of analysing the quality of classifications (and perhaps any type of information) is to apply the characteristics proposed for good accounting information in the IASB’s conceptual framework. First, the data (and the resulting classification) should be true by being in accordance with the facts and being without material error. However, that is only the start; the data and classification should also not be misleading, which includes that they should concentrate on substance rather than form. If all these qualities exist, a classification can give a faithful representation. Even then, it might not be relevant for its purpose or for any likely purpose.

Using this method, Section 3 analysed several imperfect classifications in non-accounting fields. Classifications that were not true included showing man as not an animal, and showing the Sun as a planet but the Earth as not one. In Section 4, untrue accounting classifications included depicting Australian accounting as unrelated to accounting in the UK or the US, depicting Portuguese private firms as great adopters of IAS by 2000, and classing Switzerland as mandatorily adopting IFRS. The main cause of these untrue classifications was bad data.

Section 4 also discussed the use, by accounting researchers, of classifications dealing with law, tax, culture or languages as independent variables for examining various issues. Examples were given of classifications containing simple errors made by the researchers (e.g. Argentina shown as having common law) or made by prior authors upon whom the accounting researchers relied for data (e.g. the English language shown as more difficult for French persons than for Turks). There were also more complicated cases of implausibility, such as enforcement in Zimbabwe being infinitely better than that in Japan.

Table 10 summarises this, showing the untrue classifications in its left-hand column. The next column in the table records the classifications which do not give a FR because they rely on data which are unfair or misleading even if true in a limited sense. These include classing *homo sapiens* as a featherless biped and grouping chemicals based on whether they are liquids. These classifications concentrate on superficial form rather than on substance. Perhaps it could be argued that, in a very narrow sense, the classifications represent what they purport to represent, but they are misleading, and they would also fail at the next level: relevance.

Turning to *accounting* classifications based on unfair data, classifying Denmark’s accounting by referring to geography was based on form over substance. The same applies to treating East Africa as a single bloc when using culture as an independent variable. The US/England/other accounting classification did not give a FR, and nor did the two-country classifications showing the US and UK as different. This was because they focused on UK/US differences rather than on similarities. I suggest that all the classifications based on PW data are also misleading, including the one showing the US and the UK as the two most different countries in the world, and that showing Jersey as the leader of a group. The cause of the misclassifications in these PW cases is subtle: although the data were untrue to some extent, the main problem was that the relatively few important issues that were included were swamped by trivial ones. In all the cases in this paragraph, the data did not concentrate on substance; they were inappropriate even where they were accurate.

It would be possible to look at this another way: because the classifications in the previous paragraph are based on data which are misleading even though arguably true, the resulting classifications have become not just misleading but also untrue. Either way, they fail the FR test. Similarly, German accounting shown as having great disconnection from tax in 1992 to 2005 is flawed in a complex way. It might be said to be untrue as a statement about accounting under German GAAP. As part of a classification of group accounting by listed companies, Germany’s position in Table 8 is, at best, misleading.

Some classifications are, for various reasons, not useful. These are shown on the right of Table 10. Continuing to class Pluto as a planet would have implied the inclusion of a large number of other rocks. Arranging library books by colour may give a faithful representation but is of little relevance for practical purposes. If the classification by d’Arcy (2001) had not been untrue because it was based on poor data, it could have been listed here instead. That is, the classification was not based on accounting practices but on accounting *rules*, which are of limited relevance for many purposes. The same caveat applies to work based on the GAAP (2001) data.

Many classifiers of accounting systems have started their work even further away from accounting practices: they have used extrinsic variables (e.g. legal system) rather than directly measuring the attributes of the objects being classified. One motivation for doing this is to try to explain the causes of international similarities and differences in accounting. However, some of the extrinsic variables have not been close enough to accounting. Law is closer to accounting than culture is; and company law is closer than law in general. The classification of Malta as code law is true but is not the relevant point for accounting. As a final example of the doubtful relevance of some classification data, even when the language-distance data have been corrected, do they really tell us that it is twice as expensive to translate from French to English as from German to English?

*5.2 Implications*

For accounting researchers, the implications of the above are several. First, we need to apply professional scepticism to *data*. This includes asking whether the data are true and whether they reflect substance. It is important to try to put some distance between ourselves and the objects of research. However, objectivity cannot be reliably achieved by trusting a previous researcher’s subjectivity. Furthermore, the data of others might simply be wrong. This paper has provided further evidence of the dangers referred to by Zeff (2016), who takes researchers to task for abrogating responsibility by relying uncritically on the data used in previous papers.

We must also apply scepticism to our *results*, by asking whether they are plausible and give a faithful representation. Again, a contributory factor to misclassification is that the researchers are too close to their material to be objective. This would have contributed to the “Sun as a planet” and “Man above the animals” classifications and to the two-country, two-group or three-group accounting classifications which put the US and UK in different groups. We should also clarify for what purpose the results are relevant. To help us to achieve these desiderata, we should seek advice from experienced and merciless colleagues.[[38]](#footnote-38)

Other lessons apply particularly to research in *international* accounting. First, for classification, if researchers purport to be studying accounting differences, then the attributes of accounting *practices* are probably more relevant than those of accounting rules and much better than the style of accounting rule-making. Similarly, when choosing an independent variable in accounting studies, it is probably more productive to focus on one that is proximate to financial reporting. Law is closer than culture; and, if a law variable is used, one relating to *corporate* law or to enforcement of financial reporting regulations may be appropriate. Second, one must apply scepticism to one’s own knowledge. When writing about a foreign country, there is a strong chance that the researcher will get something wrong. It is important to establish an international network of colleagues who can check the facts.

 There are also lessons here for the editors and reviewers of journals, given that the errors of Section 4 survived their scrutiny. Perhaps, on some occasions, the focus of review has been limited to certain aspects of papers, such as the construction of hypotheses or the use of statistical methods. For example, if an editor of an American journal receives a paper about IFRS adoption in Europe from American authors, the editor would be unwise to confine the reviewers to American quantitative experts. Someone in the review process should be knowledgeable about accounting and about Europe. This returns us to a theme of this paper. In common with researchers, the editors and reviewers of journals should exercise professional scepticism and should be resolute in applying the FR test to data and to findings. Of course, the same applies to readers of research.

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**Table 1**

Number of listed companies in a country scaled by millions of population

|  |  |
| --- | --- |
| Denmark | 47.1 |
| UK | 29.5 |
| France | 7.5 |
| Germany | 5.1 |
| Italy | 3.8 |

*Source*: Fédération Internationale des Bourses de Valeurs, *Statistiques*, 1990.

**Table 2**

Dates of founding of earliest private-sector accountancy body

|  |  |
| --- | --- |
| UK |  1854 |
| Netherlands |  1894 |
| Denmark |  1912 |
| Germany |  1932 |
| FranceBelgiumPortugal |  1945 1953 1974 |

*Source*: Prepared by the author from the annual reports of the accountancy bodies.

**Table 3**

Group 1 countries ranked by their dissociation from the British model of Group 2

|  |  |
| --- | --- |
| *Country* | *Correlation with Group 2* |
| United States | .05 |
| Japan | .28 |
| Philippines | .28 |
| Argentina | .32 |
| Mexico | .32 |
| Chile | .41 |
| Germany | .42 |
| Bolivia | .43 |
| Peru | .43 |
| Italy | .43 |
| Panama | .45 |
| Venezuela | .46 |
| Paraguay | .48 |
| Spain | .49 |
| Pakistan | .49 |
| Colombia | .50 |
| Brazil | .51 |
| Uruguay | .52 |
| France | .53 |
| Switzerland | .53 |
| India | .57 |
| Ethiopia | .57 |
| Sweden | .59 |
| Belgium | .60 |
| Trinidad and Tobago | .65 |
| Bahamas | .65 |

*Source:* This table lists the 26 countries classified by da Costa *et al.* (1998, Exhibit 2)as belonging toa group led by the US. They are shown in order of distance from the ‘British model’.

**Table 4**

Goodrich’s “Group V”

|  |  |
| --- | --- |
|  | *Factor Load* |
| Jersey | -.65 |
| Guatemala | -.63 |
| Denmark | -.60 |
| Panama | -.57 |
| Ecuador | -.57 |
| Zaire | -.53 |
| Ivory Coast | -.52 |
| Senegal | -.52 |
| Germany, W. | -.48 |
| Honduras | -.47 |
| Italy | -.42 |
| Netherlands | -.35 |

*Source:* This table is extracted fromGoodrich (1982, Table 8). Of the 64 countries in the PW 1979 data, it shows the 12 countries classified as Group V by Goodrich.

**Table 5**

EU private firms voluntarily “adopting” IAS, 1999/2000

|  |  |
| --- | --- |
| *Country* | *% of firms adopting IAS* |
| France |  47 |
| Germany |  44 |
| Italy |  59 |
| Portugal |  87 |
| Spain |  33 |
| Sweden |  76 |

*Source*: Extracted from Francis *et al*. (2008, Table 1). The original table contains scores for 56 countries. This table shows only those relating to EU members in 1999/2000.

**Table 6**

Public enforcement scores

|  |  |
| --- | --- |
| Philippines | 0.83 |
| Peru | 0.78 |
| Malaysia | 0.77 |
| Thailand | 0.72 |
| UK | 0.68 |
| Zimbabwe | 0.42 |
| Germany | 0.22 |
| Japan | 0.00 |

*Source*: Extracted from La Porta *et al*. (2006, Table II), as reproduced in Shima and Gordon (2011, Table 3). The table shows scores for a selection of 8 of the 44 countries in the latter paper. The author has put them in decreasing order of level of “public enforcement”, which was measured on a scale of 1.00 to 0.00.

**Table 7**

Hung’s Index of Book-tax Conformity

|  |  |
| --- | --- |
| *Low BTC* | *High BTC* |
| Australia (A) | Belgium (A, Ho) |
| Canada (A) | Finland (Ho) |
| Denmark (A, Ho) | France (A, Ho, L) |
| Hong Kong (A) | Germany (A, Ha, Ho, L) |
| Ireland (A, Ho) | Italy (Ho, G) |
| Netherlands (A, Ho) | Japan (A, S) |
| New Zealand | Spain (N, A, O&P) |
| Norway (Ho, N&S) | Sweden (A, Ho) |
| Singapore (A) | Switzerland (A) |
| South Africa  |  |
| UK (A, Ho, L) |  |
| US (A, L) |  |

*Source*: Adapted from Hung (2001, Table 2). The author has added the bracketed information showing which papers support Hung, for which the key is below.

*Key*: Ha = Haller (1992), A = Alford *et al.* (1993), Ho = Hoogendoorn (1996), L = Lamb *et al.* (1998), S = Sawa (2003), O&P = Oliveras and Puig (2005), N&S = Nobes and Schwencke (2006), G = Gavana *et al.* (2013).

**Table 8**

Book-tax conformity measures of Atwood *et al.* (lowest five and highest five), 1992-2005

|  |  |
| --- | --- |
|  | *Average standard error*  |
| Canada | 0.017 |
| South Africa | 0.016 |
| Germany | 0.016 |
| United States | 0.015 |
| India.. | 0.014.. |
|  |  |
| Japan | 0.007 |
| South Korea | 0.007 |
| China | 0.007 |
| Hong Kong | 0.007 |
| Chile | 0.006 |

*Source*: Extracted from Atwood *et al*. (2010, Table 1). As explained in the text, a high standard error suggests a low BTC. The table shows the countries with the lowest five and the highest five BTC scores of the 33 countries studied.

**Table 9**

Misclassified language distances

|  |  |
| --- | --- |
| *Distance from English* | *Language* |
|  2 |  Dutch |
|  2 |  German |
|  |  |
|  3 |  Danish |
|  3 |  Norwegian |
|  3 |  Swedish |
|  |  |
|  4 |  Greek |
|  4 |  Turkish [5] |
|  |  |
|  5 |  Finnish [4] |
|  5 |  French [4] |
|  5 |  Hebrew |
|  5 |  Indonesian |
|  5 |  Italian [4] |
|  5 |  Japanese |
|  5 |  Mandarin |
|  5 |  Portuguese [4] |
|  5 |  Spanish [4] |

*Source:* Prepared from Jeanjean *et al.* (2010, Table 4, Panel B). The left-hand column shows the purported distance of a language from English (on a scale of 1 to 5). In square brackets on the right, the author has corrected the scores, based on an analysis of the source used by Jeanjean *et al.*

**Table 10**

Classes of flaw in classifications

|  |  |  |  |
| --- | --- | --- | --- |
|  ***Flaw******Domain*** | *Data not true* | *Data not fair* | *Result not relevant/useful* |
| *Non-accounting* | Man as not animal.Sun as planet.Earth as not planet. | Man as featherless biped.Elements by liquidness. | Pluto as planet.Books by colour. |
| *Accounting systems* | Australia unlike UK/US. | Denmark by geography.UK and US leading opposing groups.Group headed by Jersey.US/England/other classification.US and UK in separate groups by competencies of accountants.US and UK in separate groups by regulation. | Classification based on KPMG data about rules.Classification based on GAAP (2001) data. |
| *Adoption of IFRS* | Portugal as a major adopter of IFRS in 2000.Switzerland as IFRS adopter. |  |  |
| *Independent variables* | Argentina as common law.Antidirector rights index.Public enforcement scores.French more distant than Turkish from English. | Germany with low BTC.East Africa as a cultural bloc. | Malta as code law.Language distance as a proxy for cost. |

**Figure 1**

Proposed partial zoological classification based on a superficial foot count

Animals

Note: The author prepared this chart. The objects classified vary in domain (e.g. some are species and others are genera) but this does not affect the point being made.

Key: \* = tetrapod; † = mammal

*Two feet*

Ostrich\*

Man\*†

Bat\*†

*Four feet*

Dog\*†

Tyrannosaur\*

Turtle\*

*No feet*

Dolphin\*†

Anaconda\*

Shark

Worm

*Six feet*

Bee

Ant

*Five feet*

Starfish

*Eight feet*

Spider

Octopus

**Figure 2**

*Five feet*

Starfish

The d’Arcy classification

*Source*: d’Arcy (2001, Figure 2), except that, for clarity, the author has deleted Switzerland because it overlapped the UK.

1. By “accounting system”, I mean a set of financial reporting practices used in common by a population of entities. For example, US listed companies use US generally accepted accounting principles (US GAAP). That system is also used by some Canadian, Japanese and Swiss companies (Nobes and Zeff, 2016). Other companies in those countries use other accounting systems, e.g. Japanese GAAP. [↑](#footnote-ref-1)
2. I use the term “man” when discussing authors who used the term (i.e. those until the late twentieth century). [↑](#footnote-ref-2)
3. For a discussion on hybrids or transitions in language, see Komatsu and Harris (1993, p. 30a). [↑](#footnote-ref-3)
4. See, for example, Mishler (2009, p. 65). [↑](#footnote-ref-4)
5. Strictly speaking, the requirement applies to the directors rather than to the accountants. The requirement derives from the UK’s Companies Act 1947, and is now found in S.396 of the Companies Act 2006. It can be found in the EU’s Fourth Directive on company law (Article 2; now Article 4 of the 2013 Directive) and therefore in EU laws (Nobes, 1993). It can also be found in the laws of many Commonwealth countries. The equivalent in IFRS is in IAS 1, paras. 15 and 19. [↑](#footnote-ref-5)
6. There is a large literature on “true and fair”, including comments on this particular point. See, for example, Rutherford (1985) and other papers reprinted in Parker *et al.* (1996). [↑](#footnote-ref-6)
7. The criticism is said to have come from Diogenes (Diogenes Laertius, 1925, IV: 40). [↑](#footnote-ref-7)
8. This is still partial, of course. It only includes a few animals and it omits classes for centipedes and millipedes. [↑](#footnote-ref-8)
9. For a note on the vestigial legs of some snakes, see the website of the American Museum of Natural History: <http://www.amnh.org/exhibitions/darwin/evolution-today/how-do-we-know-living-things-are-related/vestigial-organs> (accessed 3.1.2016). [↑](#footnote-ref-9)
10. As discussed below the Inquisition was still attempting to enforce this view in the 17th century. [↑](#footnote-ref-10)
11. See Basri and Brown (2006) for a discussion of Pluto. [↑](#footnote-ref-11)
12. The word “planet” derives from the Greek: “(asteres) planetai”, meaning “wandering (stars)”. Of course, the Sun wanders compared, for example, to the centre of the galaxy. Galileo is reported to have said “*Eppur si muove*” (“and yet it moves”) about the Earth, presumably *sotto voce*, after the Inquisition had forced him to affirm heliocentrism. [↑](#footnote-ref-12)
13. That is the UK firm of Deloitte, Haskins & Sells, which became part of the UK firm temporarily called Coopers & Lybrand Deloitte, which was part of Coopers & Lybrand and eventually of PwC. [↑](#footnote-ref-13)
14. Da Costa *et al*. used 100 of the attributes scored by PW (1973). [↑](#footnote-ref-14)
15. Goodrich used 29 of the 264 attributes scored in PW (1979). [↑](#footnote-ref-15)
16. The Channel Islands are not part of the United Kingdom, nor were they ever part of the European Union. In practice, companies tend to follow UK practice. In the 1970s and 1980s, the author presented several seminars on UK company law and accounting standards in the Channel Islands for the Association of Chartered Certified Accountants. [↑](#footnote-ref-16)
17. Nair and Frank used all 233 and 264 attributes of the 1973 and 1975 data, respectively. [↑](#footnote-ref-17)
18. Scandinavian countries, Belgium, France, Germany and Switzerland plus Zaire, a former Belgian colony (p.433). [↑](#footnote-ref-18)
19. Items 79-81, 124 and 217 of PW (1973). [↑](#footnote-ref-19)
20. For example , see ICAEW (2007, pp. 88, 123) and Kvaal and Nobes (2010, Table 3). I have examined hundreds of further IFRS financial statements from many countries and never seen “subsequent measurement” of intangibles at fair value. [↑](#footnote-ref-20)
21. They were designed to show that the financial reporting rules of many countries fell well short of the requirements of international standards, so that rule-makers rather than auditors would be blamed for accounting failures. [↑](#footnote-ref-21)
22. At first sight, the PW data are a mixture of rules and practices. However, they can be interpreted as an attempt to measure practices if the score “Not permitted” is treated as “0%” use and the score “Required” as “100%” use. [↑](#footnote-ref-22)
23. See the debate in Nobes (1992) and Shoenthal (1992). [↑](#footnote-ref-23)
24. See the debate in Nobes (2003) and Alexander and Archer (2003). [↑](#footnote-ref-24)
25. “International Accounting Standards” was the correct description at that date. [↑](#footnote-ref-25)
26. Laws in EU countries were based instead on the Fourth and Seventh Directives on company law. These were incompatible with IAS (see: <http://www.iasplus.com/en/binary/resource/feepaper.pdf>; accessed 20.3.2016). In principle, voluntary additional IAS statements could have been published, but this seems highly unlikely for the great majority of private companies. For example, Sellhorn and Gornik-Tomaszewski (2006, p. 208) report that a survey of 600 German unlisted firms showed only 8% usage of IFRS (which itself was only achieved by dual reporting) even by 2004. [↑](#footnote-ref-26)
27. Nobes (2010) examines the issue in greater detail. [↑](#footnote-ref-27)
28. Switzerland has never mandatorily adopted IFRS (IFRS Foundation, 2015). About 65% of all Swiss listed companies volunteer to use IFRS. The number is slowly falling (Deloitte, 2014). [↑](#footnote-ref-28)
29. I am grateful to Stephen Zeff for discovering this as part of our work on Nobes and Zeff (2016). [↑](#footnote-ref-29)
30. I am grateful to Brian Singleton-Green for pointing this out, and for drawing my attention to the issue concerning “public enforcement” below. [↑](#footnote-ref-30)
31. La Porta *et al.* (2006, p. 5) refer to 49 respondents to questionnaires sent to 49 countries. [↑](#footnote-ref-31)
32. The Financial Supervisory Authority was set up in 1998 (Briault, 1999, p. 12), to be replaced by the Financial Services Agency in 2000 (Hoshi and Ito, 2004, p. 230). [↑](#footnote-ref-32)
33. A private-sector Financial Reporting Review Panel, set up in 1990, which can take companies to court for ‘defective accounts’. [↑](#footnote-ref-33)
34. The items considered are: the existence of deferred taxes and substance over form, the non-existence of accelerated depreciation, and the independence from tax laws of amortization periods and lease capitalisation. [↑](#footnote-ref-34)
35. The only exception is that Alford *et al.* classify Norway as having high BTC. However, difference might be explained by Hoogendoorn (1996) and Nobes and Schwencke’s (2006) study which shows a gradual change in Norway, but particularly from a tax reform of 1992. [↑](#footnote-ref-35)
36. The authors refer to this as the root mean squared error. [↑](#footnote-ref-36)
37. I am most grateful to Erlend Kvaal (Norwegian Business School) for assistance with this sub-section of the paper. [↑](#footnote-ref-37)
38. I acknowledge here the continuing help of many colleagues and co-authors. My longest-serving helpers have been the late Bob Parker and Steve Zeff whose criticism has been both fearless and merciless, which is a priceless combination. [↑](#footnote-ref-38)