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The Unspeakable Truth of Accounting: On the genesis and consequences of the first "non-glottographic" statement form

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Abstract

Purpose: To investigate accounting as the first visible-sign statement form, but also as the first writing, and analyse its systematic differences, syntactic and semantic, from subsequent speech-following ("glottographic") writing forms: to consider how accounting as non-glottographic (and so "unspeakable") writing form renders "glottography" a "subsystem of writing" (Hyman, 2006), while initiating a mode of veridiction which always and only names and counts, silently and synoptically: and how the translation of this statement form into the graphs, charts, equations, etc, integral to the truth claims of modern physical and human sciences reinforces accounting's significance as transformative statement form, remaking the boundaries of "languaging" and translatability.

Design: As a historical-theoretical study, this draws on work reconceptualising writing versus speech (e.g. Harris, 1986; 2000), the statement versus the word (e.g. Foucault, 2002), and the parameters of translation (e.g. Littau, 2016) to re-think the conceptual significance of accounting as non-glottographic/unspeakable statement form, and of its effects on our thinking, acting and "languaging in general".

Findings: Specific reflections are offered on how the first accounting statements already articulate a mathematically regularised naming of what "ought" to be counted which is then evaluated against what "is" counted, thus generating a discourse of the norm along with a first accounting-based apparatus for governing the state: on how, as unspeakable statements they are constructed to be read silently, synoptically and simultaneously, as in a "simulacrum", i.e. a simulation of the world that also dissimulates: leading to considerations of how to think this statement form"s general and practical translatability, given its irreducibility to the temporal linear form of speech and glottographic writing or to what such statements can articulate.

Originality: The paper pioneers in approaching accounting as statement-form in a way that analyzes the differences that flow from its non-glottographic status.

1. Introduction: Before writing? The Accounting Statement as first visible-sign statement

"Writing in the strict sense of the word, the technology which has shaped and powered the intellectual activity of modern man, was a very late development in human history. …The first script, or true writing that we know was developed among the Sumerians in Mesopotamia only around the year 3500BCE. Human beings had been drawing pictures for countless millennia…and various recording devices or *aides-mémoire* had been used by various societies: a notched stick, rows of pebbles, other tallying devices such as the quipu of the Incas…and so on. …However….the critical and unique breakthrough… was achieved within human consciousness not when simple semiotic marking was devised but when a coded system of visible marks was invented where a writer could determine the exact words that the reader would generate from the text. With writing or script in this full sense, encoded visible markings engage words fully so that exquisitely intricate structures and references evolved in sound can be visibly recorded exactly …and can implement production of still more exquisite structures and references, far surpassing the potentials of oral utterance." (Ong, 1982, pp. 83-85).

Thus does Walter Ong in his still germane *Orality and Literacy* summarize the significance of "the critical and unique breakthrough" which is "writing": a writing that is unlike older supplements to orality, such as pictures and tally-sticks: a writing which engineers an internal transformation in how we think, which for him is at the level of "human consciousness": such that we must posit a fundamental "contrast between orality and literacy" whose study is "largely unfinished business" (Ong, 1984, p. 156).

In this paper we take up one aspect of this unfinished business by engaging with the question of when and how writing was invented, and treating it as a fundamental transition point in the history of human thought, language and action: but we do so from the slightly unfamiliar and oblique perspectives of critical accounting and translation studies. Our reason is that the invention of what Ong calls the "first script, or true writing" is an issue in which each of these fields has a central conceptual as well as historical interest in differing yet reciprocal ways. The nature of these interests and the reciprocal insights that they may yield is what we seek to explore, in an initial way, here.

This has become feasible because in more recent decades a number of revisions which are as much conceptual as historical have begun to clarify both the nature and significance of accounting as the possible answer to what Roy Harris, in *The Origin of Writing* (Harris, 1986), describes as "the issue of what basic *conceptual* advance underlay the first attempts to produce written records" (Harris, 1986, p. 74, emphasis added). Harris himself proposes that the first accounting statements which go beyond the basic "1 + 1 + 1" counting of the earliest token-accounting, namely those made in clay-tablet format, achieve this conceptual breakthrough, constituting both the first "scriptorial" rather than "pictorial" form of "graphic expression" and so launching "graphic communication (as) a mode of communication *sui generis*", through differing systematically from oral communication.

More detailed work undertaken largely by a cross-disciplinary network of scholars, centred round the Max Planck Institute for the History of Science in Berlin, has been responsible for cracking the code of the statements made in the earliest clay tablets so far

discovered, excavated for the most part in and around the ancient Mesopotamian city of Uruk (southwest of modern Baghdad and growing over the period in question from an estimated population of c 20,000 to c 50,000 inhabitants).[1]

The work of this network has established the case for these tablets meeting Ong's criterion as the first "coded systems of visible marks" (Ong, 1982, p. 84), working on a series of finds dated to the era from around 3300 to near 3000 BCE, along with a second series of finds from the period known as Ur III, about a millennium later (c. 2100 – 2000 BCE). Their major findings are the result of working as an interdisciplinary group, which has included Assyriologists, archaeologists and historians and theorists of writing, mathematics and language, and who have published a range of pathbreaking works from the 1970s to 1990s and beyond (e.g. Friberg, 1978-9; 1994, 1999; Damerow & Englund, 1987; Nissen, Damerow & Englund, 1993; Damerow, 1999, 2011; Englund, 2006, 2011; Hyman, 2006).

This work has also established more securely two major insights. First it has clarified the connections to, but also differences from, the earlier form of clay *token* accounting whose earliest finds date to before 8000 BCE, and which spread over the following millennia as far east as India and as far west as the Mediterranean and Egypt. The most widely-read (but also much challenged) interpretation of the development of the clay token system is the work of Schmandt-Besserat (e.g. 1978; 1992), which we do not go into in detail here.[2] At the same time, there has been general acceptance that the clay tokens form the basis on which the clay tablet accounting is built. Thus even critics such as Michalowski acknowledge, in part because of the intersection of her analyses with those of the Max Planck Institute network, that "there can be no doubt that both the known envelopes and the impressed tablets for the most part precede the first evidence of [cuneiform] writing" (Michalowski, 1993, p.997).

Here one particular achievement has been to specify the extent of the links between the *later* and more complex token systems (dating to c. 3500 BCE) and the clay tablet system, not least through the work on the clay envelopes and the complex tokens they enclosed by of one of the pioneers in deciphering the number or "metrological" systems used in the clay *tablet* texts, Joran Friberg. Friberg has established plausible links between the signs used in these later metrological systems and some of the tokens used for counting in the late token system, both at the level of appearance and the calculations made (Friberg, 1994, pp. 485-487); on that basis Friberg concludes that it is highly probable that first versions of what would become the clay tablet metrological systems had already been developed in the late forms of clay token accounting developed by around 3500 BCE. So he concludes: "There can no longer be any doubt that the tokens found all over the Middle East mark the beginning of civilization, and that they gradually evolved over several millennia and led to the invention of both counting, accounting and ultimately writing" (Friberg, 1994, p.498).

The second great insight arising from the Max Planck group's work in our view is that the kind of progression implicit in both Michalowski's and Friberg's turn of phrase here – that there is a progression through counting and accounting *to* what is only then what Jack Goody also at one point calls "fully-fledged" writing (Goody, 1987, p. 66) is thrown in radical question. For through their close study of these clay tablets, the question implicitly raised by Harris receives the possible answer that this accounting already constitutes writing as such, rather than a preliminary stage of "proto-writing" where it is only a precursor to writing, so to speak.

There is a historical dimension to this, in that the first known clay-tablet texts date from around 3300 to near 3000 BCE, and precede by almost half a millennium the first known

cuneiform texts (from c. 2600 BCE) that contain the kind of linear narrative writing that follows whether to a lesser or greater extent the necessarily temporally linear flow of speech. They are made up of two kinds of text: texts made up overwhelmingly (c. 85%) of sets of accounts or accounting statements, plus a secondary set of so-called "lexical lists" (c. 15%), pedagogic texts which enabled a selected few from successive generations to become the readers and writers of the accounting texts, through transmitting the key terms and conventions required for learning to produce such texts and statements, and also perhaps to think beyond what had already been written through making new forms of writerly statement.

Considering the format of these tablet texts more closely, first we note that the tablets are small, and, in the case of the 85% that are accounting texts, the entries impressed or incised in the clay before it hardens are typically made in separate boxes or "cases", each separated from all other sets of entries by lines scored in the clay. Some of the tablets contain more complex statements, and these may have whole series of entries separated by lines into "cases" impressed on one side of the tablet, definable as the "obverse", with sub-totals and totals on the "reverse".

These are therefore not statements that are readable in terms of a temporally linear flow. First each statement must be understood in itself, in its own "case", then it must be read alongside the statements in other "cases", and then in the more complex tablets, there must be a summing of sub-totals to reach the final "statement of account". The 15% of "lexical lists" are also not readable in a linear narrative format, but are also not just simple vocabulary lists; for, as described by Hyman, constitute "thematically arranged enumerations of designations for such categories as professions, places, animals, plants and manufactured items" (Hyman, 2006: 232).[3] Thus they are, we would argue, set up to help the "apprentice accountant" learn all the key features required to maintain and reproduce the system for making accounting statements.

What the work of the Max Planck group has then established is that there were three sets of such signs deployed in these new graphic spaces: first "naming signs" specifying the objects being accounted for, second "counting signs", formed into different metrological systems (13 in all), specifying the actual amounts of such objects recorded at a given moment of accounting, and finally a separate form of "naming signs", impressed into the clay using cylinder seals, and specifying the key *subjects* for and by whom the accounting was undertaken—the "principals" and the "agents" or stewards who were "accountable" to them (always noting, however, that "principals" at one level might then be "agents" at another, accountable to still higher "principals"). The metrological lists, and the particular form of the counting signs used in each list, were seemingly learned separately. But the lexical lists, in setting out "professions, places, animals, plants and manufactured items", provided an initiation into both learning the "naming signs" for key objects accounted for (such as animals, plants and manufactured items), and the naming signs" needed to operate in the principal/agent world of significant *subjects*, where discriminating between different professional designations would be crucial to getting status designations correct and knowledge of key locations (the places of work and those of administration) would be essential in locating a given account within what we might describe as the "spaces of power".

Therefore, we suggest, what got learned through these "lexical" lists was not just the names of categories but such other vital aspects of making well-formed accounting statements as (a) what particular metrological system each category of object to be accounted for must be counted in (b) what position in the hierarchy of 'principals' a particular professional level corresponds to, and (c) what the significance of a given location is as either

a central or peripheral accounting site. So what at first sight might appear, from a modern frame of thought, to be simple lists, are both far from simple and essential to the maintenance and expansion of the accounting system as a whole, from bottom to top.

Finally, what is particularly distinctive about these texts is that they have a syntax, in the sense of rules for connecting the entries within a given "case" and for then constructing accounting statements comprising the contents of two or more "cases", but this is not a speech-like linear narrative syntax. It follows, in other words, the dictates of the "tablet format" (Nissen et al, 1993, p. 30) and in this respect, they go on to say, the tablets "bear a closer resemblance to such modern documents as punched cards, dockets, clearing checks, balance sheets, or many other formalized data carriers".

2. The Accounting Statement as Object of Analysis for Critical Accounting and Translation Studies

We propose to consider the working of the system in more detail below. But we do so seeing this as a significant issue for "critical accounting" to consider, insofar as here we have a first historical instance of how accounting as *statement*, and not just as *practice*, can be constitutive of ways of thinking and acting, and of ways of coordinating the world. In that respect we draw on, but also begin to think beyond, an earlier definition of accounting's key attributes as set out in Ezzamel and Hoskin (2002), in a study that also begins from the study of this early accounting, but also seeks on that basis to develop a more general "base-line understanding of accounting":

> "First, that accounting is a practice of entering in a visible format a record (an account) of items and activities. Secondly, that any account involves a particular kind of *signs* which both name and count the items and activities recorded. Thirdly, that the practice of producing an account is always a form of *valuing*: (i) extrinsically as a means of capturing and representing values derived from outside for external purposes, and defined as valuable by some other agent, and (ii) intrinsically, in so far as this practice of naming, counting, and recording in visible format in itself constructs the possibility of precise valuing" (Ezzamel & Hoskin, 2002, p. 335).

Here all we would add is that the practice of producing a form of valuing through constructing any account depends crucially on the fact just noted, namely that the accounting statement is, from its inception, a statement form that does not conform to the temporal linearity of either speech or of that linear narrative form of writing that appears subsequently to this accounting. It is that difference in *form*, and then also in *content*, of the accounting statement that now needs to become a more prominent focus of analysis in critical accounting, if we are to begin to appreciate the full extent to which accounting operates as constitutive factor in our thinking, acting and ways of coordinating and perhaps controlling the world, both human and natural.

In this respect, while the phenomenon of early accounting has now become analysed and discussed in a variety of ways in the accounting history field (e.g. Mattesich, 1989, 2000; Ezzamel and Hoskin, 2002; Mouck, 2004; Ezzamel, 2009, 2012), we propose here that it has particular significance for the field of *critical* accounting since, insofar as Harris and the Max Planck History of Science network are correct, then accounting can begin to be understood, as the *first* writing, as what has engineered those profound transformative effects in human thinking and consciousness that Ong spells out in our opening quotation.

But insofar as that is the case, then this first accounting equally becomes of major potential interest to Translation Studies. For writing has long been recognised as perhaps the greatest "translation event" or moment, after the initial event of speaking as such, in what we might call the history of human "languaging in general"—a term we adopt here as an equivalent to the French *langage* which since the work of Saussure has been widely used in this wide kind of way, in order to differentiate it from the term "*langue*", which has become used instead to refer to a specific language.[4] For then translation studies can no longer unquestioningly accept that this "translation event" takes place when writing moves beyond the formats of clay tablet accounting and begins to follow, so to speak, the "template" of speech, as it does in both Mesopotamia and ancient Egypt (Baines, 2004) by 2500 BCE at the latest.

That stage has now, following a usage suggested by Pulgram (1976), become designated by the historians of writing systems have now, designated as "glottography", i.e. the kind of writing/graphism that follows the "flow" of statements made with the tongue (in Greek, *glotta*). So long as the "glottographic" transition continues to be accepted as the real or authentic moment of writing's invention then Translation Studies does not necessarily need to have any engagement with this clay-tablet accounting phenomenon. But that is what now comes into question. For beginning from "glottographic" writing as Goody's "fully-fledged writing" by definition renders the earlier clay tablets into a "proto-writing"—a recourse that Postgate (2005, p. 276), reflecting on the possible competing definitions of writing, describes as "clumsy"; not least because labelling accounting as a "precursor" leaves it somewhere on the way to the new "invention" but stopping just short of success.

In Harris's analysis of the problems raised here, there is an "evolutionist" assumption at work, wherein there is an assumed progression from speech to writing which shuts down on the alternative possibility that there is a radical discontinuity in "languaging"/*langage*, where things begin to be thought and articulated that were never feasible in speech (Harris, 1986, ch. 3, "The Evolutionary Fallacy", esp. pp. 56-66).[5]

Now we recognise that the evolutionist view comes in various forms and from influential sources. For instance Daniels in *The World's Writing Systems* defines writing as "a system of more or less permanent marks used to represent an *utterance* in such a way that it can be recovered more or less exactly without the intervention of the utterer" (Daniels, 1996, p.3, emphasis added). Meanwhile Ignaz Gelb's magisterial *A Study of Writing* first defines writing as any "system of human intercommunication by means of conventional visible marks" (Gelb, 1962, p. 12), a definition which could recognise this early accounting as writing. However he then differentiates writing into two major stages, the first of which is named as "semasiographic"—"expressing meanings and notions loosely connected with speech"; that is the stage at which accounting must therefore be located; but it is only the second stage which for Gelb is full writing, which again occurs with the advent of "the phonographic stage (expressing speech)" (Gelb, 1962, p. 11). So again accounting, through failing to be glottographic, fails to be "writing as such".

However, members of the Max Planck network have in various ways suggested that these approaches put the definitional line in the wrong, if different, places by not focussing sufficiently on what constitutes the *specific* difference that produces accounting-as-writing as something other than both the "visible marks" of a talley-stick on the one side and writing as extension of spoken language on the other. First Damerow (1999) proposes that the origins of writing should be treated as a "problem of historical epistemology" rather than one informed by an implicit "philological" perspective (Damerow, 1999, pp. 1-2) in which "a writing

system is essentially conceived of as a representation of a particular language" (i.e. a *spoken* language), so that the "language" continues as what underlies both. For this philological approach is then "an interpretation of writing...… as a written representation of the representation of knowledge in oral language" (Damerow, 1999, p. 3).

What therefore gets overlooked or occluded is the possibility that there may be a writing that is *other* than such a representation, which breaks with what has been "said" previously by making written statements that have no existence prior to the invention of writing, and in this instance prior to the invention of accounting-as-writing. The nature of this difference is well captured by the historian Jerrold Cooper who has observed that the domains in which accounting-as-writing was used were co-constituted *with* accounting-as-writing. "Livestock or ration accounts, land management records, lexical texts, labels identifying funerary offerings, offering lists, divination records, and commemorative *stelai* have no oral counterparts. Rather they represent *the extension of language use into areas where spoken language cannot do the job*" (Cooper, 2004, p. 83, emphasis added).

It is precisely to address this issue that Damerow proposes an *epistemological* perspective which specifically focuses as a "historical epistemology" on when and how new types of knowledge statement get made in the new medium, thus approaching written statements in terms of how far they are "a successful means of representing knowledge and transmitting it from one individual to another" (Damerow, 1999, p. 3). Damerow then makes the point noted above, that in their structure the cuneiform statements "are far from matching the syntax of a language" and so "phonetic coding plays only a minor role if any" (Damerow, 1999, p. 4). But this does not mean that there is no syntax, it is just that the system operates with a syntax that is not seeking to reproduce the linearity of speech where statements entail action terms or verbs.

So the historical-epistemological approach needs to focus specifically on how the tablet statements are such a "successful means of representing knowledge" by recognizing that it is "necessary to pay attention to the non-linguistic structures of syntax" in this system (1999: 16). Here he notes the syntactic importance of the spatial-visual linearity through which each "case" is differentiated, as a syntactic device that displaces the temporal linearity found in the flow of speech.

The second point that follows from this, as noted above, is that this syntactic way of making statements operates without verb forms, since within each case (again as noted above) there are only two kinds of "naming" signs (for naming objects and for naming key subjects) and "counting signs". Given this different syntax, what we encounter is a very different form of "languaging act" from any form of oral "speech act". What is required is a disjointed decoding first of what is encoded in each box or case, and then a conjoining of the statements made across cases, resulting in a form of "synoptic" comprehending of both parts and whole.

In any event, what follows, so Damerow concludes, from taking this historical-epistemological rather than philological approach is the importance of cultivating a focus on how meaning is set up to be conveyed at the level of "the *semantic fields* of early writing systems" and by studying "the nature…..of the *various techniques* used to represent meanings" (1999, p. 15, emphasis added), without presupposing that the linearity of speech is in play.

Fuller implications are then developed in an analysis by another of the Max Planck network, Malcolm Hyman, in his article "Of Glyphs and Glottography" (Hyman, 2006). Here

the limitations of the "glottographic" assumption are addressed in a complementary way, through beginning with a consideration of how these early accounting statements were made through the incision and impression of "glyphs" (marks make by a stylus) into the wet clay of the tablets, but then broadening out to consider how far there is therefore a more general category of statements that are other-than-glottographic, and so, in his formulation, "non-glottographic", but nevertheless writing.

In this respect accounting is treated by Hyman as the archetype of a form of writing which has since proliferated in multiple forms, particularly in recent times in the world of knowledge disciplines. As he says: "For at least a century graphs, charts, figures and tables (none of which is a spoken-language form) have increased in books and papers"; and so while glottographic artefacts—he references Plato's dialogues, the Qu'ran, Gibbon's *Decline and Fall*—may be ranked as "the most valuable written products of a culture", nevertheless "calendars, tables of sines and cosines, architectural plans….coins and bank-notes…computer programs—reflect highly sophisticated intellectual activity" (Hyman, 2006, p. 245).

One feature that he then sees as differentiating these two forms is their degree of "speakability", seeing the glottographic statement as what can be read both silently and aloud, while the non-glottographic can only be read for meaning in silence: in reading them aloud one is only "verbalizing" (2006, p. 231). He gives as an example of the latter the issue of how one is to read (aloud) the notation $E = hv$ (Planck's equation), and says:

> "How do I read this? Perhaps 'ee equals aitch nu'? Or 'ee equals Planck's constant times nu?' Or 'the energy of a quantum is equal to Planck's constant multiplied by the frequency of the radiation?'. Here it seems not to be the case that the equation represents a natural language utterance, but rather that we can *translate* the equation into spoken language—in a word *verbalize* it" (2006, p. 244).

It is largely thanks to this insight of Hyman's that we have designated, in our title, accounting as what utters an "unspeakable truth".

But it is Hyman's conclusion concerning how we should think writing-in-general that is of particular significance to us here. For the conclusion his analysis leads to is that the glottographic and non-glottographic are two distinct forms of writing. so that consequently "glottography is best viewed as a single *subsystem* of written language" (2006, p. 231): and so that, more generally "we may conceive of writing as a *system of systems*" (Hyman, 2006, p. 245, author's emphasis).

The significance of this for translation studies, we suggest, is that, once this differentiation is put in play, it appears that to date the field has framed "language in general"/*langage* in a philological rather than epistemological frame, so that the major focus of analysis for translation has been speech and glottographic forms of writing.

Even such foundational works on translation as Steiner's *After Babel: Aspects of Language and Translation* (Steiner, 1975), or Roman Jakobson's "On Linguistic Aspects of Translation" (Jakobson, 1959), operate with the term "language" as a relatively non-problematic "hinge term" which for the most part allows issues of translation to be posed and answered in terms of either speech or glottographic writing.

So for instance Steiner articulates, as Karin Littau has recently put it, "a thesis about language and the multiplicity of languages" (Littau, 2016, p. 85) such that in his book, while "interlingual translation is the main concern" he is also developing "an inquiry into language

itself" in which translation "is a special case of the arc of communication which every *successful speech-act* closes within a given language" (Steiner, 1975, p. 47, emphasis added): which leads to the claim that "*inside and between languages, human communication equals translation*" (1975, p. 47, emphasis in original). This concern with language and languages can therefore be posed on the one hand at the level of "human communication", but on the other it specifies its object as "speech acts" and so within a "language" frame where there is no space for analysis of the "non-glottographic act" in the way that there is for "glottographic acts".[6]

In Jakobson's case, what is perhaps a more widely-followed conceptualisation of translation's scope also begins from a focus on the level of "language" in his famous tripartite distinction of forms of translation into: "(i) intralingual translation or *rewording…*. (ii) interlingual translation or *translation proper…* and (iii) intersemiotic translation or *transmutation* (an interpretation of verbal signs by means of signs of nonverbal sign systems)" (Jakobson, 1959, p. 233). Here the first two categories signal that translation may take place within the conceptual frame defined by language as *langue* i.e. between signs within one language, as a "rewording" procedure, or between the signs of a source language (SL) and a target language (TL), the process of "translation proper". But in both cases non-glottographic statements such as the chart, the graph, and the equation appear overlooked. But this is equally the case with Jakobson"s third category of the "intersemiotic" since this must embrace both purely pictorial and non-glottographic but "scriptorial" statements such as the account or the graph, since the category of the semiotic necessarily comprehends all "visualisms" whether glottographic or not.

This is not to discount the significant contributions made to translation studies through the traditional focus on speech and glottography, for instance through the study of the fact that translatability appears to operate across all languages (spoken and written), even though the number of languages that humans speak (and here the reference is to languages not dialects) is in the thousands, with the 2017 edition of the reference work Ethnologue listing around 7,100 languages extant: and furthermore this total is, as Steiner observes "the remnant of a much larger number spoken in the past" (Steiner, 1975, p. 51).[7] As Paul Ricoeur has said, following on from Steiner"s observation, "this fact is at the same time an enigma": but at the same time "this uncountable multiplicity of languages is not only needless, it is a problem" (Ricoeur: 2009, p. 215). For how then can there be a "*logos*", or an underlying "generative grammar" or "generative semantics"?

But there is, we suggest, a reciprocal problem to confront once the category of non-glottographic writing is admitted to consideration. For once one posits the possibility of accounting as the first writing, then there is no longer a simple "translation moment" to writing that is synonymous and synchronised with "glottographic" writing. This, we suggest, is where the new conceptual possibility opens up for translation analysis: of moving beyond that kind of "philological" level of analysis where writing is taken as *extension* of speech, and so fundamentally aligned with it.

Instead, in the non-glottographic writing that is the first accounting-as-writing we confront a writing that constitutes a *radical difference* from speech: which irrupts into human thinking acting as a *discontinuity*: and so fundamentally reframes the question of what we mean by "languaging in general", and the question of what "*langage*" therefore is. We have to move beyond the vision that Ong paints in the final sentence in our opening quote, where "structures and references recorded in *sound* can be visibly recorded exactly…and can implement production of still more exquisite structures and references", passing over how

writing also enables the making of new statements of kinds that are simply not *makeable* in speech.

But that is perhaps particularly apposite as a problem to confront given the recent emergence and discussion of the approach to translation studies, championed by Littau (e.g. Littau, 2011; 2016), which links the field to "the materialities of communication", thereby seeking to highlight "the importance that objects, things, media and machines play in the very stakes of civilization", including here the materialities and "medialities" from "the human body to exosomatic medial carriers, from human memory to the memory chip, that house and give shape to the products of spirit, mind, consciousness" (Littau, 2016, pp. 82-3). For the first accounting now can present itself as a passage point in the consideration of the ways in which materialities and the interplay of thinking humans with them construct texts, given how, as first form of non-glottographic statement, it brings into play a new spatial-visual linearity, a different mode of syntax, and a level or type of "unspeakability" in statements not known before. Study of the great "translational event" that is accounting-as-writing therefore may excite a particular interest in this materialist approach.

So in summary, what we propose here is to investigate what a closer focus on accounting-as-writing, as first form of non-glottographic statement, may yield in terms of insights from the perspectives of critical accounting and translation studies. We turn in our next section to the issue of what constitutes the accounting statement as a step beyond the purely counting function residing in calculi and tally-sticks.

In the next section we consider a possible theorising of the concept of the non-glottographic statement, drawing on Foucault's analysis of the statement in *The Archaeology of Knowledge* (Foucault, 2002/1972). We then consider how the statement form may enable the development of ways of exercising power through constituting a new form of "space/time/value apparatus" or in Foucault's chosen French term, *dispositif*. We finally consider how the statement form constitutes a mode of veridiction, and suggest that it does so through operating as "simulacrum" in its spatial-visual embodiment, before returning to the issue of how such statements may inform, going forward, our thinking on the scope and specificity of translation.

3. From clay-token and clay-tablet accounting practice to the construction of the first "naming and counting" statement

We have suggested above that the distinctive aspect of the accounting statement in both its clay tablet and earlier clay token form is that it names and counts, but also that it names not only the objects that are then counted but also the subjects implicated in the naming and counting process. We have also noted that there is a progression in token accounting beyond the kind of counting found in tally-sticks (which count without naming via their visible marks what object is being counted) since now the shaping of clay into different forms and then having multiple numbers of each form meant that, through the differential shaping of the forms, different items or objects could be variously both named *and* counted. Thus clay tokens were able to make new kinds of valuing statement, since they "always functioned as linguistic-numerical signs, i.e. each token both named and counted a specific quantity of a particular designated item (e.g. "one jar of oil")" (Ezzamel & Hoskin, 2002, p. 341). Or as the historian of mathematics Jens Høyrup puts it, the tokens "had to represent both the *kind* of thing they stood for and the quantity involved" (2009, p. 24, author's emphasis).

But the significant transformation that ensues in clay-tablet accounting is the objects named came to represent not real "physical" objects, but objects that were beginning to be named and counted in regularized amounts, and in regularities that soon took different forms of mathematical expression. We therefore draw here on a review of the work on clay tablets undertaken by Høyrup, since in his capacity as historian of early mathematics he draws out successive stages in this process, and the fact that across it the naming of objects becomes a *mathematically regularised* form of naming.

He notes initially that such regularisation is visible by 3500 BCE at the latest, as objects to be accounted for are expressed in terms of amounts of such objects as grain or oil contained within what are known as "customary containers" (Høyrup, 2009, p. 18). These were being manufactured to more or less regular specifications in terms of dimensions and volume from before 4000 BCE. Therefore it is in the context of this already regularised form of accounting that the clay-tablet accounting develops; and it is as it does, that the naming and counting functions, in a break from the older practice, become undertaken through the *separate* naming and counting signs. (These were initially impressed into the wet clay of the tablets using two types of reed stylus through which different types of naming signs and counting signs could be made visible through impression into the clay when wet, so forming a permanent record once it dried; and here a pointed stylus produced the signs *naming* objects to be counted, while a blunt-ended one produced the *number* signs through which were counted the *actual* numbers of each mathematically regularised category of named objects. The latter, being larger at one end than the other, could either be impressed vertically to produce large and small circles, or at an oblique angle to produce "wedge-shaped" characters again in either small or large size—in Latin, "*cuneus*" is a wedge, whence the name of this writing as cuneiform).

The next significant step was that the kind of *contextualized* regularization of what was counted enacted by "customary containers" began to be supplemented by what Høyrup characterizes as a more formally mathematical and *decontextualised* form of "arithmetically" or "numerically" regularized counting. This approach enabled the specification of arithmetically defined "bundling units" for use in metrological systems, some of which were used to count discrete objects, while others were used to count amounts of goods such as grain and liquids. As this happened, the customary container measures were displaced with explicitly mathematical and regularized measures of volume, or "capacity measures", which were used to account for amounts of grain and liquids. From these, further "capacity measures" could be constructed for products generated from the raw materials: so for instance a ratio of what was expected as output in terms of the "finished goods capacity measures" was derivable, and derived, from the raw material input capacity measures. Later, the same could be done with labour-days so that there was a "capacity measure" of how much work could be done on a given activity (e.g. sieving corn, or digging ditches) by one labourer on a given working day (defined as from sunrise to sunset). From this the amount of labour required on a given project was calculable, measured in total number of labour days required, and so the number of labourers required to work those labour-days could be specified.

In these ways, by around 3200 BCE, a series of *numerical* metrological sequences had been developed, with different sequences of "bundling units" or "capacity measures" for counting different object categories. The system as finally deciphered by joint work between Friberg and the team of Nissen, Damerow and Englund was found to comprise 13 different counting systems for 13 categories of "things countable", drawing on 64 variant counting signs put together with similar but distinct internal progressions up through the "bundling units"; (for detail on the full set of numerical signs and systems, see Nissen et al, 1993, pp.

26, 28-9, Figures 27 & 28; but also for examples see Figure 1 in this paper). Of these 13 systems, 6 were used in accounting for items measured via capacity measures, 4 were for counting discrete objects, and 3 were for noting arithmetically regularized measures of space (in terms of area), time (in a regularized calendar made up of twelve 30-day months for a working year), and perhaps for noting weight measures (Nissen et al, 1993, pp. 28-29).

All 13 of these systems were either "sexagesimal" (i.e. they proceeded upwards and downwards through the number 60 as a form of "base") or "bisexagesimal" (proceeding upwards and downwards through "120" as base). But each proceeded in a different, arithmetically regularized way, utilising its particular selection of signs to enable the one set of subjects not named as such in most accounts, those "invisible subjects" doing the accounting, to maintain both consistency of counting within a given system and consistent differentiation of metrological systems, so that the right set of "mathematically regularised objects" was accounted for using the right set of naming and counting signs.

We give two examples along with Høyrup"s description/interpretation of each as Figure 1: the modern stylizing of the notation system is due to Friberg, and reflects the generic size and shape of each number sign, and is set out following the usual direction used in counting numbers of objects in a given "case", i.e. from right to left, starting from the sign for 1 in a given system.[8]

[Insert Figure 1 around here. For Figure 1, see separate file 'Figure 1'.]

The first (Figure 1a) is the sexagesimal system used to count "capacity measures of grain, in particular barley" (Nissen et al, 1993, p. 29, ŠE System Š). Starting from the right, the basic unit is a small cone designating the number "1", 6 of these become a small circle, which is the picture of a small sphere impressed in the clay that designates "6"; the small spheres count in "6"s" until 10 small spheres become 1 large sphere, designating "60", three large spheres are then bundled as a large cone, designating "180", and finally 10 large cones become the final number in the system, "1,800", a representation of a cone with a sphere impressed into it. Høyrup observes that this final number sign "is possibly a representing of a punched large cone (an existing token)" (2009, p. 21); if the speculation is correct, then it is *possible* that a form of *arithmetical* regularization was already grasped at a late stage of the token system, in that a lower-value "unit" sign already in use, the small sphere, was superimposed on a higher-value unit sign, the large cone, indicating a multiplication of the larger value by the smaller one.

Whether that is the case or not, the second system that he discusses has, for him, gone a stage further to where it "may be regarded as a "number sequence"". This is the "Sexagesimal system S" (Figure 1b), which was used to count discrete objects including "animals, fish, dairy and textile products, wooden and stone implements and containers" (Nissen et al, 1993, p. 28). This now starts from a small cone, standing for "1" again, and again progresses to the small sphere, which now has the value "10" not "6"; but it then progresses to the large *cone*, which is 10 of the small spheres, value "60" in this system, and moves next to a large cone with the small sphere impressed inside, which the evidence shows has a value of "600", i.e. 60 x 10. Only then does the large sphere enter the system, with a value 6 times the cone-plus- sphere sign, "3,600", and the final sign is the large sphere with small sphere impressed inside, to give 3,600 x 10 or "36,000".

Høyrup"s interpretation is that the first system, being for grain measured in capacity measures, already had a form of regularization captured in the measuring containers mass-

manufactured to a regularized volume. So "the grain sequence is likely to continue an old system in a new medium (though now with *arithmetical* bundling)" (2009, p. 21, our emphasis). However in the second system, "the number sequence can be supposed to be new—the representation of pure numbers (that is, numbers abstracted from the quantity they count)", as evidenced in the progression first from small cone through small sphere to large cone (1 x 6 x 10), and then through the introduction at that point of a first double sign, large-cone-plus-small-sphere, getting the combination of signs to articulate what is now an arithmetically multiplicative principle that is expressed through the combination (60 x 6) thus to produce the large sphere as the number (in this system) with the value of "3,600", and then getting a second double sign, large-sphere-plus-small sphere, to articulate, through its combination (3,600 x 10), the system"s highest number-value of "36,000". This final highest "sign" in the metrological system could, like the highest value "sign" in all the systems, then be replicated to express the larger numbers still that would be required in a world or state now becoming capable of a mass production and coordination of objects such as dairy and textile products.

Høyrup concludes: "this sequence, in contrast to the preceding one, is highly systematic, and therefore almost certainly represents the deliberate transformation of the grain sequence"; if the latter was made to fit an older regime (and perhaps as he suggests "an existing oral number system"), this new system was perhaps extending the old system "beyond existing spoken numerals", where the shift in the sequencing of the initial 3 simple signs perhaps indicates, in the return of the small cone as the large cone, that "60 must in some way have been understood as a "return of the unit"" (2009, p. 21).

So by this point in this conceptual "mathematizing" progression there is a clear principle of arithmetical regularization in the counting of objects. At the same time, what is increasingly counted is, as noted, metaphysical or conceptualized object categories not "real objects". The use made of one further system makes this dramatically clear; this is a system that uses variant forms of the 1, 10 and 60 units only, but is used to count "for example, dead animals from herds and jars of certain types of liquids" (Nissen et al, 1993, p. 28). This indicates a way of thinking that, as Høyrup puts it, reflects "in Luria"s terminology…. "categorical classification" and not "situational thinking"" (Høyrup, 2009, p. 24), while also requiring an internalizing by both accountants and the relevant "principals" and "agents" or stewards involved of a complex array of different numerically regularized metrological systems, and the categories of objects pertaining to each.

This internalization process was then systematically reinforced for those other subjects working and living under this regularized naming and counting regime, because of how time and space were subject to the same regularisation. For time had by now become measured via a metrological system where there are just five counting signs (significantly different in format although based still around wedge shapes). The basic unit sign measured days as 1"s; when 10 days were reached a new sign representing a new "bundling unit" measured what we might call "10 day-weeks"; after 3 such weeks a further sign represented 30-day "months", and the two final signs in the sequence measured either a 10-month and a 12-month total time period (the latter being a "calendar year", the former perhaps something like a "from sowing to harvesting year"). In any event, the making of mathematically regularised naming and counting statements brought with it for those working and living under its aegis a necessary acceptance of a regularized "accounting" time which abandoned the variability of both lunar and solar calendar time. Life for workforces and families as well as rulers had become periodised in terms of arithmetically regularized weeks, months and years (with the 5 or 6 remainder days in the year given over to festival/holiday activity).[9] A similar dynamic

applies to space, through the development of a normalized system of area measurement (based on the unit "*nindan*" or "rod" of c 6 metres) which was used to measure both the areas of fields and the dimensions of buildings (Høyrup, 2009, p. 22).

Høyrup recognizes the sophistication in all this, describing Uruk therefore as a "mathematical state" (2009, p. 25), in which the mathematization embedded in the naming and counting function becomes the means that shapes "the end itself (the Mesopotamian state") in terms of a system of justice where regularized amounts of provisions and materials are disbursed on a priority basis to those who serve the state, out of the also regularized (and larger) amounts taken in by the state. The evidence of the clay finds shows that "taxation and allocation of resources – be it the fields apportioned to high-ranking temple officials, be it the rations of grain distributed to workers –were made according to mathematically determined rules" (Høyrup, 2009, p. 26).

All we would add is that this was also an "accounting state", where rulers governed through the mathematised regularisation and coordination of action made possible only after and through the invention of this new form of non-glottographic accounting statement.

We now turn to the issue of how to approach this episode as a discontinuity within "languaging in general", and so as an issue of concern both to accounting and to translation.

4.   Defining new problematics: or conceptualizing the accounting statement as "non-glottographic" and "naming and counting" statement form

We wish now to bring alongside the radical observations of Harris, Damerow and Hyman concerning the inadequacy of thinking languaging in terms of a progression or evolution from speech to (glottographic) writing, the observations of one other conceptualisation of the problematic of *langage* which "thinks" the statement in a comparable manner. This is the analysis developed by Foucault in *The Archaeology of Knowledge* at a point where he is posing the general question of "Defining the Statement" (2002, pp. 89-98), given that he has already posited the statement as the most appropriate starting point in seeking to understand "languaging-in-general".

In that section he begins by considering each of the great "language arts" of the alphabetic or western knowledge tradition—logic, grammar and rhetoric—and the extent to which any of them provides an adequate basis for a general definition of the statement. So he first considers whether "the proposition", the basic unit of Aristotelian logic, can do so; then whether "the sentence", the basic unit of traditional surface grammar, can; and finally whether the "speech act"—which he also in the French original writes as "*acte de langage*" (Foucault, 1969, p. 112, twice)—can. The particular passage of interest here is where he is considering the sentence, and he rejects its candidacy on the following basis:

> "…it is relatively easy to cite statements that do not correspond to the linguistic structure of sentences….: a classificatory table of the botanical species is made up of statements, not sentences (Linnaeus" *Genera Plantarum* is a whole book of statements, in which one can recognize only a small number of sentences); a genealogical tree, an accounts book, the calculations of a trade balance are statements; where are the sentences? One can go further: an equation of the nth degree, or the algebraic formula of the law of refraction must be regarded as statements." (Foucault, 2002, pp. 92-3).

Here, we suggest, Foucault presents a precise analogue of the kind of analysis that Damerow and Hyman generate some three decades later. All the statement forms he lists, including of course "the accounts book", are what we may now call non-glottographic in their form, but they are all for him nevertheless "statements". Furthermore he then proceeds to specify their differences from both spoken and "written speech" statements in analogous ways to those we have encountered above: first through their possessing a different but no less rigorous "grammaticality" than those statement forms, and second for being irreducible in terms of what they say and how they say it *to* such forms. So he continues, all such statements

"…possess a *highly rigorous grammaticality* (since they are all made up of symbols whose meaning is determined by rules of usage, and whose succession is governed by laws of construction), [but] this grammaticality cannot be judged by the same criteria that, in a natural language (*langue*), make it possible to define an acceptable, or interpretable sentence. Lastly, a graph, a growth curve, an age pyramid, a distribution, form statements; any sentences that accompany them are merely their interpretation or commentary; they are in no way an equivalent: this is proved by the fact that, in a great many cases, *only an infinite number of sentences* could equal all the elements that are explicitly formulated in this sort of statement. It would not appear to be possible, therefore, to define a statement by the grammatical characteristics of the sentence." (Foucault, 2002, p. 93, emphases added)

One particular observation we see of special relevance in relation to this first accounting: that relating to the roles of interpretation and commentary. Here we would argue that these are integral and essential to the constitution of the accounting statement, precisely because the statement is non-glottographic and unprecedented, so far as we know, in human experience. But of course the only way in which they can be undertaken is via speech, since there is as yet no form of glottographic statement. Yet at the same time, that way would be essential since otherwise "apprentice accountants" could not even begin to decode the specificities within and differences between the naming and counting sign sets or the correct grammatical/syntactic deployment of each and all. So there is necessarily always an interplay of non-glottographic statement forms with some form of linear-narrative statement making in order for its distinctive mode of making truth claims—its form of "veridiction" as Foucault puts it (e.g. Foucault, 2000b, p. 460), to come into existence.

We bring in Foucault's analysis here for two reasons: first to show that one does not have to engage in a Foucauldian analysis to put to work the concept of the non-glottographic statement; but second to draw on its insights in developing the rest of our analysis here, seeking to extend what may be said about statements such as this which "name and count".

In this respect, we hope this may open up a new way of drawing on Foucault's general analysis of the statement in the context of theorizing accounting: we say that recognising that Grahame Thompson (1991; 1998) did raise the possibility of using Foucault's *general* approach to the statement in addressing the issue of how and how far accounting is rhetorical from the 16th century on (1991, pp. 579ff); also that he then draws on Foucault's discourse-based analysis of the emergence of an episteme of representation to analyse how, from the 17th century, and increasingly from the 19th, the table becomes a device for imposing a new kind of "coherence" on knowledge statements (Thompson, 1998, p. 283, citing Foucault, *The Order of Things*, p. xix); as he then concludes, this leads by the early 19th century towards a marked emphasis on what Tufte has explored as "envisioning information" (Tufte, 1990).

Thompson's interventions remain an important contribution to the development of "critical accounting" analyses. At the same time, the conceptual distance from the way we may now approach accounting as statement is apparent in the way that in the recent accounting and management research literatures, the graph, table and chart are seen as distinct from accounting through not being analysed as statements, so much as "visualisations" *of* accounting, or more generally "visualisms", rather than as alternative forms of 'statement' as they are here.[10]

If we now collapse this distinction, it may become more feasible to at least put into question the widespread acceptance of a conceptual opposition between the visual and the graphic, or the pictorial and the textual. This may then enable us to pursue the roles of multiple non-glottographic statement forms in a more integrated way in, for instance, enabling a certain form of relation of knowledge (*savoir*) to power (*pouvoir*). Just as there is a system of "justice" enacted within the "mathematical state", as Høyrup rightly observes, we may also, drawing on Foucault"s analyses of govermentality, explore the possible emergence of a first discourse of the norm, and the circulation of a first form of apparatus, or *dispositif*, of governmentality in the Mesopotamian state as well. In particular, given how there is an arithmetical regularizing of space and time alongside a new arithmetically regularised mode of constituting value through the deployment of naming and counting, we propose that there is here a first form of regularized "space-time-value" *dispositif* (cf. Frandsen, 2009).

In pursuing that possibility, we should perhaps look more closely at the non-glottographic form of "grammaticality" which operates across series of accounting statements, and ask how far the mathematical regularisation incorporated within its naming signs invokes a first but particularly powerful form of "ought/is" verbal interplay, which follows from the grammatical fact that, within any statement that only has "naming" and "counting" signs, there can be no verbs. In that case, this non-linear statement form does not "tell us", *imperatively*, or "advise" us, *subjunctively*, or "question" us, *interrogatively*, as to what it says. It has no verb forms within the statement as such through which to undertake those functions.

Instead it simply declares, *indicatively*, that this is how things are: except that "how things are" entails an "ought" as well as an "is": the "ought" that is captured in the mathematically regularised naming which prescribes what "*is to be*" counted in any given accounting event by what we might call the "passive" or (in the Aristotelian formulation) "numbered" numbers that make up the "is" that is then counted. Thus can ensue what emerges as a constant and continuous interplay of "ought" and "is": first within each "case" or box within a given account, and then across all the cases making up the accounting statement that constitutes a particular accounting text or "accounts book", and then across the accumulation of accounting statements/texts which form a series of past accounting statement events leading through this present or current one to a series of such events still to come stretching potentially to eternity/infinity. Hence, we suggest, there may emerge in this setting of the Mesopotamian state a first form of managing or governing the large-scale entity via accounting, and with it a first discourse of the "norm": so that in sum we may discern, in what is a new kind of governing of time, space, and subjects, a first form of the "governmentality" that Foucault would go on to study in more modern eras.

5   From new "form of veridiction" to first mode of "managing via accounting"? The constitution of the first "space/time/value *dispositif*"

Ought/is or is/ought statements potentially promote a discourse of norms; and in the Mesopotamian records there is already some evidence that there were forms of accounting for labour which had norming such effects on workers and their family units. For instance, Englund refers to accounts where groups of labourers appear to be counted and differentiated, as number terms are combined with sign combinations designating "labourer" and other signs designating personal names and also giving gender and ages. He also notes that pigs and cattle are assorted in similar accounts, with pigs differentiated by age and cattle by gender. Then labour rations for the young are allocated via a counting sign, N_8 "which usually qualifies a half …of some unit counted in the sexagesimal or bisexagesimal systems". He suggests that this may relate to "an apportioning of rations to children of productive age of approximately half that of adults, as was administrative labour practice in later periods" (2011, pp. 46-7).

But more significant, we suggest, is the extent to which the accountants and those who operated as agents or stewards responsible for managing such workforces and the projects they were allotted to came to internalise the mathematically regularised way of thinking and acting we outlined through immersion in lexical lists and training exercises, and of course in developing associated skills in linear narrative but oral commentary and interpretation.

Thus we should perhaps focus primarily on how protocuneiform accounting statements operated on the "agent and steward" class both to render them accountable but also have them think and act as wielders and disseminators of an arithmetically regularised accounting truth form. This is where the pedagogic function of the lexical list texts came particularly into play, through their construction as what Englund (2011, pp. 40-41) describes "artificial texts", which confronted the learner with multiple decoding problems not all of which were practical or "real life" problems—one of which therefore served the modern decoders of the cuneiform clay tablets as the elusive key—"something of a Rosetta stone" Englund says (2011, p. 41)—to deciphering both the clay tablet naming and counting signs and the indexical signs designating the key subjects involved in the accounting regime.[11]

Only a few in any given locality would become literate in decoding and encoding the full range of accounting statements, although the number across localities would therefore be substantial. However, one did not have to be literate to appreciate and internalise whatever were the norms of performance that directly shaped and appraised the quantity and/or quality of your work. Few of those immersed in a world where there circulated so many non-narrative is/ought statements, each declaring a prospective or actual performance truth, were likely to escape a shaping of conduct that for the first time in human existence was "pre-scribed". What we therefore suggest should be explored is how far this constant circulation of "is/ought" accounting statements enacted a form of managing via accounting through constituting what Foucault described as a *dispositif* (usually translated into English as an "apparatus") of governing, through in this instance bringing space, time and value together into a nexus of mathematically regularised statements, and thus enabling a regularized running of the state. This we see as facilitated, as suggested above, through the regularisation of time and space enacted through the relevant metrological systems, but also through the emergence of an accounting-grounded valuing measured through the concept of "value equivalences". This, Englund has suggested, initially takes shape in the form of "grain product equivalences", but later manifests itself in "general value equivalences best attested in the Ur III period (c. 2100 BCE) for silver, but then still generally applicable for other commodities such as grain or fish, including finally also labour time" (Englund, 2011, p. 44).

As Frandsen has argued (Frandsen, 2009, pp. 103, 105-7), a focus on accounting as constituting space/time/value connections has made sense through a growing recognition—across fieldwork, archival study and teaching settings—that "accounting numbers [are] always "named numbers", and… accounting"s translating practice never deviate[s] from producing its references to things through naming and counting, and in this way designating them as "having a value" or "being valuable", and [so] assembling "named numbers" in texts as the means to getting streams of "named numbers" to circulate" (2009, p. 107). Here we discern the same dynamics already operating more than five millennia ago. [12] Such an ancestral *dispositif* is not modern; it does not involve a normalizing of subjects who constitute a population of accountable yet desiring selves, for instance (Hoskin, 2017). But it still can have systematic effects within and across subjects, for instance through a form of what Foucault suggests at one point in *Security, Territory, Population* might be described as "normation" (Foucault: 2007, pp. 56-7).

Here Foucault moves away from his earlier view, expressed in *Discipline and Punish* (Foucault, 1977, pp. 170-192), that the modern subject and modern state are shaped through "means of correct training" instilled in artificial spaces. He argues instead that modern governmental management operates through forms of cost-benefit analysis (Foucault, 2007, pp. 3-5) to optimise outcomes for a population which now has "one mainspring of action….desire" (Foucault, 2007, p. 72). So being or becoming "normal" can become one potential object of desire. But for the emergence of such modern dynamics of normalisation to become possible, he suggests that first "the principle of the norm must be articulated": at which point he suggests that if there is a "primacy of the norm in relation to the normal, I would rather say that what is involved in disciplinary techniques is a normation (*normation*) rather than normalization" (2007, p. 57).

But there is no *a priori* reason why "normation" as conceptual category should emerge only with the development of early modern techniques of discipline, particularly if *discourses* of the norm pre-date that era, as we now argue they do here. So we suggest that a first form of "normation" is precisely what gets initiated, through the invention of the accounting statement as enacter and evoker of a discourse of statements that articulate a constant series of arithmetically regularised "oughts" and then measure how far any given "is" deviates from what it "ought" to be.

This might then help us also think, in a more sustained way, the issue of accounting"s relation to the law in this early state, and so to that (less than just) "justice" that Høyrup sees operating in Uruk as "mathematical state", given that Foucault has already in the passage just cited argued that it is incumbent "to mark out how techniques of normalization develop from and below a system of law, in its margins and maybe even against it" (Foucault, 2007, p. 56). The "ought/is" dynamic of the accounting statement is precisely what makes thinkable the less-than-just justice principle that Høyrup perceives, while also working extensively and insistently below the law and in its margins, as it shapes the parameters of how humans think and act in ways that diverge radically from those experienced in cultures before accounting, but become increasingly "normal" in its wake.

Thus accounting may perhaps be more clearly perceived, even at this earliest juncture of the state, as not just contributing to and enabling the activity that Nissen et al (1993) describe, in the subtitle to *Archaic Bookkeeping*, as "economic administration", but also as constituting a means to a first form of what we might, after Foucault, also characterise as the "governmentality" of the state. But to pursue that possibility also entails an engagement with what for Foucault is a necessary precondition for being able to exercise power through forms

of knowledge, including for him accounting (Hoskin, 2017): the status of any given statement form through which powerful knowledge is articulated as mode of "veridiction", and the nature of the "truth claims" that statement form is therefore able to make.

So what precise form of veridiction is articulated by the accounting statement, and also perhaps by the non-glottographic statement form more generally: what form of "truth games" get played, with what forms of error, misinformation and disinformation? Here we propose, drawing on a much earlier reflection of Foucault's on the stories and novels of Pierre Klossowski (Foucault, 2000a), that we should at least entertain the idea of the accounting statement as "simulacrum".

6.   The accounting statement as "simulacrum"

Our point of departure here is not Baudrillard's version of the simulacrum as modern extension of and move away from the real, but what Foucault has to say on a modern literary development: this is Klossowski's articulation, in Foucault's analysis, of a simulacral form of narrative writing in his books.

In the essay, "The Prose of Actaeon" (Foucault, 2000a, pp. 123-135), Foucault describes how, for him, Klossowski's writing subverts the rule of linear narrative through becoming simulacral, which it does through ensuring that "the reign of simulacra obeys precise rules" (2000a, p. 128). So for instance "the reversal of situations occurs in a moment…(the good become wicked, the dead come back to life, rivals reveal themselves to be accomplices)….", and also "the speaking subject scatters into voices that prompt one another, suggest one another, extinguish one another, replace one another—dispersing the act of writing and the writer into the distance of the simulacrum where it loses itself" (2000a, p. 134). So what Klossowski writes is nonlinear, delineated fragments, each allowing "reversal in a moment", and where the author or "author function" becomes different in each different fragment.

But we suggest that what Foucault's reading makes visible is the translation by Klossowski into linear narrative form of the form of statement which began with accounting and which had hitherto resisted translation into the linear narrative frames of commentary and interpretation. But that is because, with Klossowski, the temporal linear flow of narrative is translated into a series of boxes, in a version of the film-maker"s storyboard; each box or case is a potential reversal, the author is regularly deauthored, and the speaking subject "loses itself". And perhaps most evocative of all, each such reversal of situations "occurs in a moment".

This, Foucault recognises, is the articulation of a simulacral truth game, in which the simulacrum itself leads the way by constantly reversing how it appears to us. Typically today we "see" it first as visual and spatial, the visible double of "the real". But in its etymology the term is temporal: for "*simul*" is the Latin for "at the same time as", and "*simul ac*" the Latin for "as soon as". But then it is spatio-temporal, a term concerned with the *Augenblick*, with what happens in the "blink of an eye": blink and you miss it: but catch it, in a moment caught even in the corner of your eye, and you see what you did not before: which is precisely what the synoptic form of reading, generated by the first accounting-as-writing statements and all their successors, enacts.

Foucault proposes that we therefore need an expanded sense of the simulacrum: specifically "we need to understand this word in the resonance we can now give to it": which

is as part of a "constellation" of etymologically linked terms made up as follows: "simulacrum, similitude, simultaneity, simulation, and dissimulation" (2000: 127).[13] So we may read the accounting statement and its successors as manifestations of this constellation as follows:

Its first simulacral move is to constitute the *similitude* between the virtual reality world of the "ought" and the lived reality world of the "is", and to remake the latter in the image and terms of the former. Its second move is to constitute a play of simultaneity which does not end with the moment of comprehension of any immediately given accounting statement since any present is then simultaneously readable alongside and against both actual past and projected future accounting statements, as the means to then projecting strategic options, "real" options, and as many more or less likely scenarios as simultaneity and desire can entertain.

From this derives the simulacrum's third move: simulation. Herein lies the great governmental and managerial attraction of accounting and of its many other non-glottographic companion statements. For it is through the conjunction they make possible between the residue of events now past and the possibilities of events yet to come, and through the synoptic and simultaneous reading of simulacral statements both past and future, that simulation is made possible in the form of models and projections of imagined futures: at which point the sentence-form narratives of interpretation and commentary begin to raise their voices, supplementing but never supplanting the simulacral forms of truth claim: which appears to remain the case even though the range of possible futures that simulation forecasts continues so often to disappoint.

Finally there is dissimulation, simulation's constant companion: precisely because the accounting statement must be well-formed in terms of format, then so long as its naming and counting signs make coherent truth claims within the parameters of the format, the accounting statement can present a perfect set of dissimulating entries as the public face of the privately held and secret "true" set of books; and even where the "lie direct" is not invoked, dissimulation enables the artful construction of "good news" both from inferiors to superiors and vice versa.

7.   Conclusion: the accounting statement as problem of and for translation

The accounting statement as non-glottographic form of naming and counting (and perhaps also as simulacrum) cannot be treated simply as a problem in or of glottographic translation. The constraints (and so strengths) of the naming and counting format—and in particular its constant articulation of ought/is dynamics—pose a serious practical but also conceptual problem of translation: namely, how to translate a translation practice that has had a traditional focus on speech and glottographic statement forms to engage with a statement form which has, conceptually, remained invisible and unnamed.

But there is a related problem identified by Peter Damerow, in one of his reflections on what ensued once distinct systems of writing and mathematics developed, so that accounting could disappear from view as transformative moment in human languaging (Damerow, 2011). He notes how writing and arithmetical notation systems and their ways of making statements have followed increasingly divergent paths. So on the one hand: "In the case of arithmetic, the final outcome is a relatively unified system of arithmetical notation and calculation methods". So as regards the counting aspect of accounting, the translational

"problem" or challenge is one of reproducing "the same" (Damerow, 2011, p. 155), typically through using the arabic numeral system, and whether the object is an *inter*lingual translation between one source and one target language text) or a more *trans*lingual translation across multiple target languages and texts.

But the situation for the translation of naming signs is completely the reverse. For as Damerow goes on: "(W)riting is used all over the world, but neither the languages nor the writing systems have been unified by these processes" (2011, p. 155). Thus the translational problem, as regards the naming signs, is not just one of seeking to capture or reflect the *conceptual* complexity of the naming signs (including their wonderfully dissimulative self-presentation as statements purely of "what is") but also one where the challenge is also to stay alert to the "otherness" that necessarily attends naming signs as they migrate across disparate and different languages *and* writing systems.

These are, we suggest, both practical and conceptual translational problems that are not resolvable by translation strategies that somehow seek to render the naming signs as homologous or analogous to the counting signs: i.e. as instances where what has to reproduced is also "the same", particularly as understood through some alphabet-centric word-for-word way of thinking, so that the problems of migration simultaneously across languages and writing systems simply (supposedly) dissolve.

More seemingly intractable, but therefore perhaps more interesting still, are the issues that surface round the possibility that the accounting statement is *the* great translational event in the history of human thinking and acting. We refer in particular to the fact that all the resources of the scholarship devoted to the clay tablet accounting in Uruk have been unable to say with certainty what was the spoken language, or in an older turn of phrase the "Ur-language", in which this new statement form was first articulated. Precisely because writing was pure difference from speech, in the form of the unspeakable non-glottographic statement, there are no narrative texts with all the cues that come with verb forms and multiple modifier and linking terms which might connect the accounting statements to one or other known spoken language. So the problem is, currently at least, recognised as insoluble.

In particular the tempting or obvious "solution", that the "spoken language" operating alongside these non-glottographic statements was Sumerian is no longer seen as obvious. Certainly Sumerian has become, by around 2,600 BCE, the *lingua franca* of this Mesopotamian world.[14] But the situation is such that Englund chooses to refer to the people inhabiting the area in which Uruk is located as ""Babylonians"…in avoidance of a charged term like "Sumerians" or "Euphratians", since the linguistic affiliation of 4th millennium inhabitants of this area is not known" (Englund, 2006, p. 2). Meanwhile Hoyrup (2009, pp. 27-28) goes further to suggest that Sumerian may well have developed *out of* the success of the Uruk state, in the sense that one outcome of the new governmental regime of the "mathematical state" was its ability to enslave people from many different language backgrounds to serve the state; furthermore "many features of Sumerian look like those of languages that over some centuries have developed from pidgins and creoles". In consequence he sees Sumerian emerging from the interplay of slaves and masters first through a pidgin developed to enable communication across multiple groups with no language in common, then through the dissemination of a creole as a new first language across the subject population, and then through its transmission to ruling class members "influenced as children by lower-class nurses and servants" (Høyrup, 2009, pp. 27-8).

While this remains a hypothesis, it does throw light on the interplay of accounting and translation in a way that brings out the way in which a knowledge-based technology of power gains purchase through being able to migrate (and translate) interlingually in a way that reconstitutes the whole linguistic field of a region or in this instance a state.

What is also striking, from the point of view of this heuristic study, is how, across these encounters with the non-glottographic statement form, translation as field concerned with linguistic difference discovers new frames of reference within which to explore, reframe and redefine the limits of such difference. Here in particular we note the possibility of developing a materialist analysis of this translational event, in the manner that Littau (2016) sets out where the facticity of the new medium, the materials, the stylus, the embodied positioning of the scribe and the reader so different from those of speaker and listener, all require analysis in seeking to understand how the "translational event" of writing became possible. At the same time, we note Coldiron's (2016) observation on undertaking such an approach, that the material always implicates the immaterial, noting that while "physical forms…not only make possible the uptake of meaning, but also shape and construct that meaning and *mean in themselves*", still at the same time "such meaning derives from the affordances of human-created material forms, the features of which are….conceived, planned and executed, and signifying inside cultural matrices" (2016: 97). The significance in this respect of framing the material within the cultural is also of importance (cf. Bassnett, 2016: esp. 110-111).

In conclusion, through this heuristic exercise we have been able to "find" things jointly that we would otherwise, separately, not have stumbled upon. In particular we have begun to discern conceptual connections whose existence previously remained below the horizon of visibility.

We recognise that this is not least because accounting and translation studies are both knowledge fields which have established distinctive disciplinary identities only relatively recently, arguably from the 1970s, and which have followed similar disciplinary trajectories since.

The term "translation studies" was for instance only coined in the early 1970s by James Holmes (Bassnett, 2014: 2) and then picked up in 1978 by André Lefevère, one of the field"s foundational scholars, as the proposed name for the discipline that concerns itself with "the problems raised by the production and description of translations" (Lefevère, 1978: 234-5). By the early 1980s there was a growing number of scholars, coming from a range of disciplinary backgrounds, primarily but not exclusively in literature and linguistics, who came together into new research and publishing networks, and in the process launched new journals (e.g. *New Horizons,* and *Perspectives: Studies in Translatology*), explicitly committed to defining and researching the parameters and concepts of a "disciplinary knowledge field". By the 1990s there was a self-confidence about engaging with a growing range of theoretical approaches and empirical agendas, leading over the past two decades to signs of "institutional maturity" insofar as there are now established "paradigms" for doing translation studies work, which tyro scholars embarking on PhD's increasingly find themselves either choosing between or seeking to extend (Bassnett, 2014: 83-87).

The trajectory of accounting as "discipline" is very similar. Again it was the 1970s where the idea of accounting as a distinctive knowledge field rather than a secondary and inferior version of economics began to be articulated, with a crystallizing event being the founding by Anthony Hopwood of *Accounting, Organizations and Society* as a vehicle for saying the previously unsaid and again facilitating the development of new research and publishing

networks and identity-reinforcing journals (e.g. *Accounting, Auditing and Accountability Journal*, *Critical Perspectives on Accounting*).

Again a new grouping of scholars, from a range of disciplinary backgrounds beyond accounting, particularly at first in sociology, history, neo-institutionalism and structuralist or post-structuralist theory, developed a range of theoretical and empirical agendas, thus constituting a range of increasingly autonomous "paradigms" for doing accounting research work, which again tyro scholars now frequently either choose between or seek to extend.

They remain supposedly "secondary" fields to many. What Klamer & McKloskey said a quarter of a century ago concerning accounting's status and visibility in the world of economists not only still holds true, but now has an edge of concern perhaps lacking back then:

> "To outsiders the economist and the accountant look similar… . Yet most economists …have not read an article on accounting. In fact most are startled to learn of the existence of academic articles on accounting. Academic accounting? One might as well have academic plumbing." (Klamer & McCloskey, 1992: 145)

Much the same applies to the view of translation (not yet then "translation studies") expressed in Hilaire Belloc's 1931 lecture *On Translation*, which observes: "The art of translation is a subsidiary art and derivative. On this account it has never been granted the dignity of original work…". Certainly Belloc does go on to characterise this view as a "natural underestimation of its (sc. translation's) value" and to argue that "neither its importance nor its difficulty has been grasped". However, the sentiment survives, and with it, of course "a restricted concept of translation" (Bassnett, 2014: 15).

We always of course are limited in our conceptualisations; but it is precisely in order to think beyond continuing versions of potentially "restricted concepts" that we have embarked on this heuristic odyssey. In the process, we have, we hope, revealed, as our title puts it, "the unspeakable truth of accounting": unspeakable first because, as Hyman observes, non-glottographic statements are never speakable, but only verbalisable: unspeakable second, because in the case of the accounting before glottographic writing, when it was the only writing, it must have depended on speech to enable its learning and transmission: but it cannot "say" to us what that spoken language was; and finally unspeakable, because as with translation studies, it is one of those unspeakably common knowledge fields….

References

Baines, J. (2004), "The earliest Egyptian writing: development, context, purpose", in S. Houston (Ed), *The First Writing: Script Invention as History and Process,* Cambridge University Press, Cambridge, pp. 150-189.

Bassnett, S. (2014), *Translation Studies: Fourth edition*, Routledge, Abingdon.

Bassnett, S. (2016), "Response by Bassnett to "Translation and the Materialities of Communication"", *Translation Studies* Vol. 9, No. 1, pp. 109-113.

Bell, E., Warren, S and Schoeder, J. (Eds) (2013), *The Routledge Companion to Visual Organization*, Routledge, Abingdon.

Belloc, H. (1931), *On Translation*, The Clarendon Press, Oxford.

Benoit, P., Chemla, K. and Ritter, J. (1992). *Histoire de Fractions, Fractions d"Histoire*, Birkhauser Verlag, Basel.

Coldiron, A. (2016), "Response by Coldiron to "Translation and the Materialities of Communication"", *Translation Studies* Vol. 9, No. 1, pp. 96-102.

Cooper, J. (2004), "Babylonian Beginnings: The Origin of the Cuneiform Writing System in Comparative Perspective", in S. Houston, *The First Writing: Script Invention as History and Process*, Cambridge University Press, Cambridge, pp. 71-99.

Damerow, P. and Englund, R. (1987), "Die Zahlzeichensysteme der Archaischen Texte aus Uruk", in M. Green & H. Nissen (Eds), *Zeichenliste der Archaischen Texte aus Uruk*, Max Planck Institute, Berlin, pp. 117-166.

Damerow, P. (1999), "The Origins of Writing as a Problem of Historical Epistemology", Preprint 114, Max Planck Institute for the History of Science, Berlin, pp.1-18.

Damerow P. (2011), "The Origins of Writing and Arithmetic", in Renn, J. (Ed), *The Globalization of Knowledge in History*, Max Planck Institute for the History of Science, Berlin, pp. 153-173.

Daniels, P. (1996), "Introduction", in P. Daniels & W. Bright (Eds), *The Worlds Writing Systems*, Oxford University Press, Oxford, pp. 1-15.

Davison, J. (2009), "Icon, iconography, iconology: Visual branding, banking and the case of the bowler hat", *Accounting, Auditing and Accountability Journal*, Vol. 22, No. 6, pp. 883-906.

Davison, J., McLean, C. and Warren, S. (2015), "Looking Back: 10 years of visualization research", *Qualitative Research in Organizations and Management*, Vol. 10, No. 4, pp. 355-359.

Driver, G. (1948), *Semitic Writing: From Pictograph to Alphabet*, Oxford University Press, Oxford.

Englund, R. (1996), *The Proto-Cuneiform Texts from Diverse Collections, Vol. 4,* (Materialien zu den frühen Schriftzeugnissen des Vorderen Orients/MSVO), Mann: Berlin.

Englund, R. (2006), "An Examination of the "Textual" Witnesses to Late Uruk World Systems", in Y. Gong and Y. Chen (Eds), *A Collection of Papers on Ancient Civilizations of Western Asia, Asia Minor and North Africa*, University of Beijing Press, Beijing, pp: 1-38.

Englund, R. (2011), "Accounting in Proto-Cuneiform", in K. Radner and E. Robson (Eds), *The Oxford Handbook of Cuneiform Culture*, Oxford University Press, Oxford, pp. 32-50.

Ezzamel, M. and Hoskin, K. (2002), "Retheorizing Accounting, Writing and Money, with Evidence from Mesopotamia and Ancient Egypt", *Critical Perspectives in Accounting* Vol. 13, No. 3, pp. 333-367.

Ezzamel, M. (2009), "Order and accounting as performative ritual: Evidence from Ancient Egypt", *Accounting, Organizations and Society*, Vol. 34, pp. 348-380.

Ezzamel, M. (2012), *Accounting and Order*, Routledge Studies in Accounting, Abingdon.

Foucault, M. (1969), *L'Archéologie du Savoir*, Gallimard, Paris.

Foucault, M. (1994), *Dits et Écrits, vol. I, 1954-1969*, Gallimard, Paris.

Foucault, M. (2000a), "The Prose of Acteon", in J. Faubion (Ed), *Aesthetics, method, and epistemology (Essential Works of Foucault, 1954-1984, vol II)*, Penguin, London, pp. 123-135.

Foucault, M. (2000b), "Foucault, by Maurice Florence", in J. Faubion (Ed), *Aesthetics, method, and epistemology (Essential Works of Foucault, 1954-1984, vol II)*, Penguin, London, pp. 459-463.

Foucault, M. (2002), *The Archaeology of Knowledge*, Routledge, London.

Foucault, M. (2007), *Security, Territory, Population: Lectures at the Collège de France, 1977-1978*, Palgrave Macmillan, London.

Frandsen, A-C. (2009), "From psoriasis to a number and back", *Information and Organization*, Vol. 19, No. 2, pp. 103-128.

Friberg, J. (1978-79), *The Early Roots of Babylonian Mathematics, I-II*. Gothenburg: Chalmers University, Department of Mathematics.

Friberg, J. (1994), "Preliterate counting and accounting in the Middle East: A constructively critical review of Schmandt-Besserat"s *Before Writing*", *Orientalistische Literaturzeitung*, Vol. 89, No. 5, pp. 477-489.

Friberg, J. (1999), "Counting and Accounting in the Proto-Literate Middle East: Examples from Two New Volumes of Proto-Cuneiform Texts", *Journal of Cuneiform Studies*, Vol. 51, pp.107-137.

Gelb, I. (1962), *A Study of Writing, 2nd Edition*, University of Chicago Press, Chicago.

Goody, J. (1987), *The Interface between the Written and the Oral*, Cambridge University Press, Cambridge.

Harris, R. (1986), *The Origin of Writing*, Duckworth, London.

Harris, R. (2000), *Rethinking Writing*, The Athlone Press, London.

Hoskin, K. (2017), "Getting to the Surface of Things: Foucault as Theorist and Historian of Management and Accounting", in A. McKinlay and E. Pezet (Eds), *Foucault and Managerial Governmentality: Rethinking the Management of Populations, Organizations and Individuals*, Routledge, Abingdon, pp. 33-53.

Hoskin, K. and Macve, R. (1986), "Accounting and the Examination: A Genealogy of Disciplinary Power", *Accounting, Organizations and Society*, Vol. 11, No. 2, pp. 105-136.

Høyrup, J. (2009), "State, "Justice", Scribal Culture and Mathematics in Ancient Mesopotamia", *Sartoniana* 22: 13-45.

Hyman, M. (2006), "Of Glyphs and Glottography", *Language and Communication* Vol. 26, pp. 231-249.

Jakobson, R. (1959), "On Linguistic Aspects of Translation", in R. Bower (Ed), *On Translation*, Harvard University Press, Cambridge MA, pp 232-9.

Klamer, A and McCloskey, D. (1992), "Accounting as the master metaphor of economics", *European Accounting Review,* Vol. 1, No. 1, pp. 145-160.

Latour, B. (1986), "Visualization and cognition: thinking with eyes and hands", in E. Long & H. Kuklick (Eds), *Knowledge and Society: Studies in the Sociology of Culture past and present,* 6. Greenwich, Conn: Jai Press, pp. 1-40.

Lieberman, S. (1980), "Of Clay Pebbles, Hollow Clay Tablets and Writing: a Sumerian View", *American Journal of Archaeology*, Vol. 184, No. 3, pp. 339-358.

Littau, K. (2011), "First steps towards a media history of translation", *Translation Studies* Vol.4, No. 3, pp. 261-281.

Littau, K. (2016), "Translation and the materialities of communication", *Translation Studies* Vol. 9, No. 1, pp. 82-96.

Mattesich, R. (1989), "Accounting and the input-output principle in the Prehistoric and Ancient world", *Abacus* Vol. 25, No. 2, pp. 74-84.

Mattesich, R. (2000), *The Beginnings of Accounting and Accounting Thought*. Garland, New York.

Mouck, T. (2004), "Ancient Mesopotamian Accounting and Human Cognitive Evolution", *Accounting Historians Journal* Vol. 31, No. 2, pp. 97-124.

Meyer, R., Hollerer, M., Jancsary, D & Van Leeuwen, T. (2013), "The Visual Dimension in Organizing, Organization and Organization Research", *The Academy of Management Annals*, Vol. 7, No. 1, pp. 489-555.

Nissen H., Damerow P. and Englund R. (1993), *Archaic bookkeeping: early writing and techniques of economic administration in the ancient Near East*. University of Chicago Press, Chicago.

Ong, W. (1982), *Orality and Literacy - The Technologizing of the Word*, Routledge, London.

Postgate, N. (2005), "New Angles on Writing", *Cambridge Journal of Archaeology*, Vol. 15, No. 2, pp. 275-80.

Pulgram, E. (1976), "The typologies of writing systems", in Haas, J. (Ed), *Writing without Letters: Mont Follick series, vol. 4,* Manchester University Press, Manchester, pp. 1-28.

Ricoeur, P. (2009), "The Paradigm of Translation", in M. Baker (Ed), *Translation Studies: Critical Concepts in Linguistics*, Routledge,Abingdon, pp. 215-226.

Sampson, G. (1985), *Writing Systems: A Linguistic Introduction*, Stanford University Press, Stanford, CA.

Schmandt-Besserat, D. (1978), "The Earliest Precursor of Writing", *Scientific American*, Vol. 238, No. 6, pp. 38-47.

Schmandt-Besserat, D. (1992), *Before Writing: From Counting to Cuneiform*, University of Texas Press, Austin, TX.

Steiner G. (1975), *After Babel: Aspects of Language and Translation*, Oxford University Press, Oxford.

Thompson, G. (1991), "Is accounting rhetorical? Methodology, Luca Pacioli and printing", *Accounting, Organizations and Society*, Vol. 16, Nos. 5/6, pp. 572–599.

Thompson, G. (1998), "Encountering economics and accounting: Some skirmishes and engagements", *Accounting, Organizations and Society*, Vol. 23, No. 3, pp. 283–323.

Tufte, E. (1990), *Envisioning Information*, Graphics Press, Cheshire, CT.

Warren, S. (2017). "Visual Methodologies for Accounting and Accountability", in Hoque, Z., Covaleski, M. and Haynes, K. (Eds), *The Routledge Companion to Qualitative Accounting Research Methods*, Routledge, Abingdon.

Figure 1:   2 Proto-cuneiform numerical sign systems as illustrated in Høyrup (2009, p. 21) and Nissen et al (1993, p. 28-9)
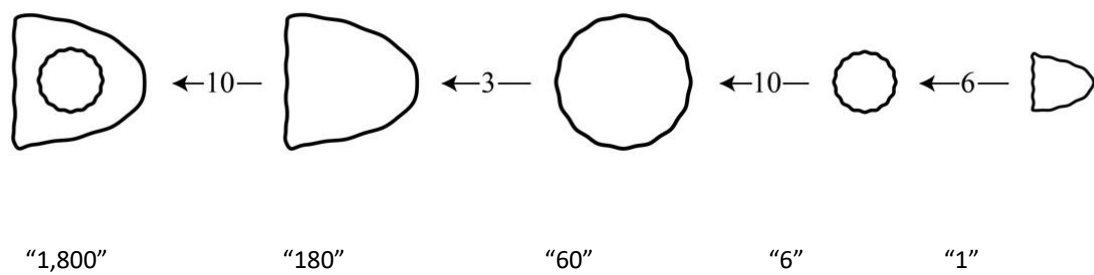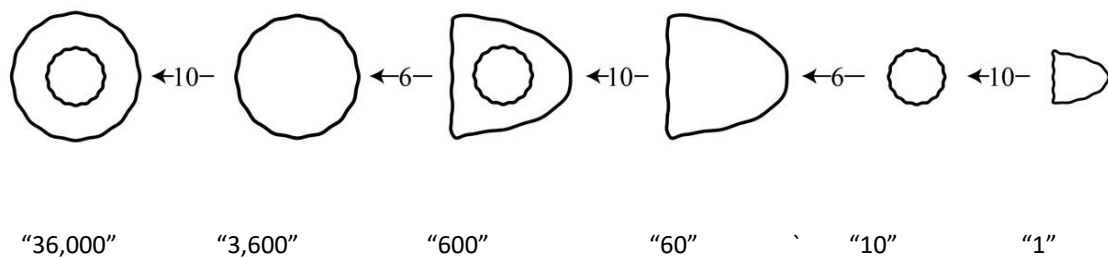
Figure 1 (a), The ŠE System Š

"1,800"   "180"   "60"   "6"   "1"

Figure 1 (b): The Sexagesimal System S

"36,000"   "3,600"   "600"   "60"   `   "10"   "1"

Notes

1. The Uruk finds constitute over 5000 tablets, and are supplemented with finds of over 1000 tablets in the urban centre of Elam, written not in cuneiform but in a script known as proto-Elamite.
2. Many of the challenges are justified, in the sense that Schmandt-Besserat often claimed more than the evidence she collected warranted, or failed to draw sufficiently upon evidence that would have buttressed her case (e.g. Lieberman, 1980; Michalowski, 1993; Zimansky, 1993; Friberg, 1994). Friberg at the same time is very positive about the underlying argument, thus appropriately sub-titling his critique of her 1992 book as a "constructively critical review".
3. Englund (2011: 35) notes that in the finds from the earliest period, known as Uruk IV (c. 3350 to 3200 BCE), the lists form less than 1% of the total, whereas in the later Uruk III period (also called Jemdet Nasr), where finds come from sites beyond Uruk, the percentage is nearer 20%, thus suggesting a growing recognition of the importance of this system, usually understood as a pedagogic device for training accountants, but also presumably those involved in being accounted for or to.
4. This distinction is not replicable in the one English term "language", but can be an important distinction to draw on in translation issues such as this. More formally within Saussurean linguistics "*langue*" is the main formal object of Saussurean analysis, in the form of the total set of signs making up a particular language in a given synchronic present; at the same time Saussure acknowledges how "*langage*" has a function as a form of "languaging in general".
5. Harris observes (1986, p. 57) that "evolutionist historians" all propose some first stage of a writing that is not quite writing, e.g. a "protowriting" (Cohen), "a transition from "synthetic" to "analytic" writing" (Février), a distinction "between "full writing" and primitive "semasiography"" (Gelb); but "they disagree where to place it" ((Harris, 1986, p. 74). His conclusion is that "none of these evolutionary accounts can satisfactorily identify the transition from pre-writing to writing, because they do not squarely face the issue of what basic conceptual advance underlay the first attempts to produce written records" (Harris, 1986, p. 74). His own explanation is to refuse the evolutionist attempts to find some transition from pictures to words as the "origin of writing", and instead to focus on the process by which humans discover number systems beyond finger counting or $1 + 1 + 1$ counting: in other words "the human race had to become numerate to become literate" (1986, p. 133), a transition that took place when forms of accounting began making statements via distinct naming and counting signs, with the latter signs being constituted into metrological systems.
6. As one little aside, we note that Steiner does, near the start of *After Babel*, introduce a non-glottographic statement in the form of a formula used in "glottochronology" to calculate "the time t that has elapsed since related languages have split away from a common ancestral stem" (1975: 18, note 1); but the formula is not approached as an object for translational analysis, even though it is an everyday, if sophisticated, form of "human communication".
7. The number of *known* extant languages has steadily increased across the last century: the 1911 Encycopaedia Britannica estimated around 1000, Steiner estimated four to five thousand, and the reference work Ethnologue (www.ethnologue.com) lists around 7,100 in its 2017 edition.
8. We note that the tablet finds also show that at least 6 of the systems also have signs progressing downwards, into fractions of a unit: each system uses conventionalized variations on the cone-shaped basic sign for "1", some then being unique to a given system, while others are used across systems to designate a particular fraction. The discoveries establish signs for 1/2 , 1/3, 1/4, 1/5, 1/6 and 1/10; also in a couple of systems, including the second one we illustrate (Sexagesimal System S), there is just one fraction sign used, but it is unclear as to whether it designates 1/2 or 1/10 (see Nissen et al, 1993: 28-29).
9. There is of course one concession to the physical variability of time. The length of the work day comes to run from sunrise to sunset, divided it seems sexagesimally into twelve hours; so the winter "labour days" or "hours" are shorter than the summer ones. The accounts show that already this was used to calculate the amount of fodder to be allocated to herds tended for the state, and possibly (but certainly in the system developed a millennium in the Ur III period) in the system for

the determining of number of work-days and workers required for a given task. So the system then determined "the work which overseers were to press out of their crew each month irrespective of its length" (Hoyrup, 2009: 23).

10. There is much valuable work into the relation of "visualization and cognition", (Latour, 1986: 1), which has led, particularly over the past decade, to a burgeoning field of "visualization studies" in both accounting and organization studies (e.g. Bell, Warren & Schoeder, 2013; Davison, McLean & Warren, 2015; Warren, 2017).

11. Englund discusses one particular tablet, labelled as MSCO 4: 66 (see Englund, 1996, p. 66) where the learner must learn to decode and then encode notations representing grain products actually produced, which constitute the entries in one lined box or "case", along with the notations to be found in the reciprocal "case" which represent measures of unprocessed grain "equivalent to the amount necessary to produce the individually recorded products". He also notes how solving this kind of problem and grasping the relation between product outputs and the labour inputs that "ought" to be required should make it possible to extrapolate from this text norms of workforce performance required (in terms of both time worked and quality of work) as so further internalise the relational differences between "ought" and "is" (Englund, 2011, pp. 41-42, 46-49).

12. The problem with seeing a *dispositif* as an "apparatus" is to endow it with machine-like qualities or more generally to see it as an externally imposed means of arranging and managing subjects as objects of forms of indirection such as the disciplining of time, space and conduct. But when Foucault, in *Security, Territory, Population* (Foucault, 2007, pp. 99-100), discusses the idea of reasoned governing as "a right way of arranging (*disposer*) things", he sees this as a matter of governing having "a series of specific finalities" and of "arranging (*disposer*) things to achieve these" (2007, p. 99): which then requires that those who govern "must possess wisdom, patience and diligence": a wisdom concerning "the objectives that can and must be attained" and the "disposition (*disposition*) one must deploy in order to attain them". Thus a successful *dispositif* entails the ruler as subject having a good "disposition" and seeking to promote a similar disposition to good conduct in all the subjects of rule as well.

13. Note that the English translation begins the list with "simulation" which therefore appears twice (and makes no sense). The French original (Foucault, 1994: I, 329) confirms that the constellation begins with "*simulacre*" not "*simulation*".

14. So for instance Goody (1987: 28), in making the case that the "earliest elaborated writing is the cuneiform (wedge-shaped) orthography which appeared at the end of the fourth millennium BCE", then goes on: "This script was used to *write down* the language of the Sumerian people who inhabited the lower part of Mesopotamia" (emphasis added). That imputes to proto-cuneiform a glottographic intent and facility which is now precisely what is acknowledged as unproven and currently unproveable.