Elementary education at Nippur. The lists of trees and wooden objects
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Document Version
Publisher's PDF, also known as Version of record

Publication date:
1997

Link to publication in University of Groningen/UMCG research database

Citation for published version (APA):

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Chapter 3  The Organization of the Nippur List of Trees and Wooden Objects

In the preceding chapter we characterized the scholastic exercises in use in the Nippur eduba. Now we will focus on one such exercise, the list of trees and wooden objects. This list is the first division of the thematic series urs-ra. In Sumerian writing trees and wooden objects are introduced by the determinative GIŠ. Therefore, every entry in this list begins with this sign. For this reason we will often use the short name giš list. The divisions of urs-ra are organized along semantic principles. The wooden objects are not listed haphazardly; there is a section chariots, a section doors, and another section for the plough and its parts. As we will see presently, other principles are active as well. The question that this chapter seeks to answer is: which principles are at work in the organization of the giš list, and how do these principles interact?

In the discussion I will occasionally refer to other urs-ra divisions, in order to test the extent to which the results may be generalized. Due attention will be paid to historical descendants of the giš list. Between the middle Old Babylonian period, the period in which the Nippur tablets were written, and the early 'canonical' texts of the Kassite period the lexical texts were subject to all kinds of changes. If the organizational principles identified here had some objective existence, we may expect them to operate on the development of the list.

3.1 The Main Sections of the Nippur Giš List

In some divisions of Nippur urs-ra sections are more easily identifiable than in others. In the list of animals the change to another animal is indicated by a horizontal line. Such lines are absent in the giš list. The transition from one animal to another usually coincides with a change of initial sign, or the sign indicating the main word. In the section snakes each line begins with the sign MUŠ. It is followed by a section where each line begins with UR (dogs and related animals). Throughout urs-ra a horizontal line indicating a section is employed where such a graphemic criterion is present. The boundaries between the various parts of division 4: stones, plants, fish, birds, and clothing, are generally indicated by such lines. Each of these parts is graphemically distinguished by its own determinative. In the giš list, however, every single line begins with the sign GIŠ. The division of this list into sections is nowhere indicated in the layout of the ancient texts. The following summary is based upon a semantic interpretation of its contents. In a few cases the boundaries of a section cannot be determined with certainty.

1-141  trees
142-159  miscellaneous wooden objects
160-260  furniture and household utensils
261-320  boats
321-325  staffs

1 Determinatives do not belong to the word, they belong to the written system only. Determinatives are transcribed in superscript, for instance giš-apin (plough). If the actual word begins with giš- (for instance giš-nimbar: date palm), no determinative is used. Even though giš-nimbar denotes a tree, you will never find the writing giš-nimbar. In some cases we do not know whether the GIŠ is a determinative or constitutes a part of the word.
326-373 chariots and wagons
374-406 doors and locks
407-425 tools for weaving and spinning
426-435a repetitive items: giš LAGAB and giš BU
436-441 balances
442-495 agricultural tools
496-507 maces
508-514 boards
515-526 measuring vessels
527-561 traps and throwing weapons
562-570 axes
571-579 miscellaneous, including wooden wheel parts
580-591 shovels
592-594 'old wood' (three times giš sumun)
595-596 knob on a saddle
597-620 musical instruments
621-629 racks for vessels
630-633 unclear, includes 'slaughter bench' and 'straw chopper'
634-644 siege engines
645-706 varia; including repetitive items giš Kur, giš Kal, giš Nim and figurines.
707 subscript: praise be Nisaba

Until the beginning of the section treating doors (giš ig) this sequence of sections agrees with the late version. After the wagons (giš mar-gid-da) the first millennium recension continues with agricultural implements (giš apin, etc.). The boundary between wagons and doors in the Old Babylonian version coincides with a physical dividing point: those type I tablets which have only half of the list usually divide the composition exactly there (see §2.4.1.2). The second half of the Old Babylonian list (374-end) is less organized than the first half. The first half has a roughly hierarchical arrangement. The sections are themselves subdivided into smaller sections. Thus the section vehicles consists of the subsections chariots (giš gigir), and wagons (giš mar-gid-da). Between these subsections smaller passages are inserted which treat related words: other types of wagons, whips, etc. (see §3.2). The looser organization of the second half may be exemplified by the treatment of the weapons. There are several sections devoted to different kinds of weapons: maces (giš tukul etc.), throwing/shooting weapons (giš illar and giš pan), and siege engines (giš gud-sidili, etc.). They are not brought together under a more abstract heading. One might argue that these different types of weapons, which could be easily brought together as one category in our semantic system, may have seemed to be much further apart to the Old Babylonian scribes. Still, it remains difficult to see how measuring vessels could be inserted between weapon categories if this were a thoroughly systematized list of words.

An anomalous passage in the first half of the list is the section miscellaneous wooden objects, immediately following the trees. The position of this section is unexpected because, as we have

² In Middle Babylonian Western versions (Ugarit, Emar) the list of trees and wooden objects is always divided over two tablets with the same point of demarcation (see §2.5.1.2).
argued above, the first half of the list seems to be well organized. The presence of a varia section immediately after the trees calls for an explanation. My hypothesis is that this section bears witness to the earlier history of the list. To demonstrate this point it is necessary first to discuss the section trees.

The section trees is divided into three subsections:

1-120 trees³
121-134 pharmacopoeia
135-141 parts of a tree

The pharmacopoeia section is the only part of the tree list that is not ordered by natural family, but by use. Most items appear in the late list of drugs called Uruanna⁴. It contains such items as gištušin (licorice) and gišši-iq-dum (almond). The latter item is a loan from Akkadian (šíqdum). The Sumerian word for almond, written gišLAM, is found in an earlier part of the list in lines 23-24 of the subsection trees⁵. The Akkadian loan gišši-iq-dum in this section was perhaps considered as the specialized word for almond or almond wood in a pharmacological context. The word was not ordered with its natural kind, which proves that putting the pharmacopoeia together was a conscious decision. The pharmacopoeia is followed by words for the parts of a tree, including roots and branches. The two subsections are semantically related since roots and branches are the parts often used in medical prescriptions.

The overall organization of the trees, into natural kinds, pharmacopoeia, and parts of a tree is not unlike the organization of other main sections. The part treating boats, for instance, is divided into the subsections kinds of boats, parts of a boat, and shipping accessories (see the discussion in §3.2). The subsections pharmacopoeia and the parts of a tree are followed by a section that runs as follows in the standardized Nippur version⁶:

<table>
<thead>
<tr>
<th></th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>142</td>
<td>giš as₄-lum</td>
</tr>
<tr>
<td>143</td>
<td>giš SUG-da</td>
</tr>
<tr>
<td>144</td>
<td>giš dib-dib</td>
</tr>
<tr>
<td>145</td>
<td>giš u₅</td>
</tr>
<tr>
<td>146</td>
<td>giš ḫa-ia₃</td>
</tr>
<tr>
<td>147</td>
<td>giš dub-dim₂</td>
</tr>
<tr>
<td>148</td>
<td>giš šumun-gi</td>
</tr>
<tr>
<td>149</td>
<td>giš ti-bal</td>
</tr>
</tbody>
</table>

³ The trees themselves are further divided over a number of subsections for natural kinds. See Powell 1987 for the first millennium version.

⁴ This list is still unedited. It is known from numerous first millennium sources, including KADP, 1-32 and CTN IV 192-193.

⁵ For the reading of gišLAM see the commentary to lines 23-24 in §5.3.

⁶ A number of words from this section (or rather its first millennium counterpart) are discussed by Lieberman 1980, pp.347-351.
150. giš SID-ma wooden object used for accounting
151. giš tun3 case
152. giš ba a tool (?)
153. giš ba-amar ? for a calf
154. giš ba-še ? for grain
155. giš bašab a tool for cutting
156. giš hub3 (unexplained)
157. giš na-ru2-a stele?
158. giš esgiri-šu-du7 neck stock
159. giš nig2-na-UD (unexplained)

(Followed by the section furniture, beginning with giš gu-za: chair).

Most of the items which can be understood are somehow related to the school. The water clock is known from Old Babylonian mathematical problem texts. The yardstick could be used for metrological exercises. It is often found in passages in royal hymns where the achievements of the king in the eduba are praised. The object giš da-ia3 is unknown, but Ha-ia3 is the spouse of Nisaba, the patroness of the eduba. The line giš û6 (145) is in some texts replaced by giš le-û5 (writing board). This reading is retained in later versions. Other Nippur texts, however, replace the same item with giš GAN (unexplained). The reading giš le-û5 may well be an attempt to make more sense out of a section that has little unity in itself. A similar explanation may be used for line 143 (giš SUG-da) which is replaced in two texts by giš maš-da. This may be equivalent to later giš maš-dar3, a loan from the Akkadian mašaru = inscription, text (see MSL 5, p.151, 3). The tool giš ba is not known to be of specific use in education. A neck stock (line 158) might possibly have functioned as a punishment, but even then the connection with tablet-making or accounting is more contextual than strictly semantic. Perhaps the interpretation of this section as a collection of words for objects in the eduba turns out to be the right one after all. Nevertheless, the section is still anomalous. None of the other sections, as far as I can tell, is organized by such a local or contextual principle. The confusing number of variants, especially in the first few lines, rather indicates a collection of little used words or varia, which were not all well understood.

It is possible that this 'miscellaneous wooden objects' section originally concluded an independent tree list. We can find early forebears of this hypothetical list in the archaic Wood list. This list mainly consisted of names of trees, but had in its final and least standardized section a

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7 The common spelling is "na-ru,-a, with the determinative for stone object. Na-ru,-a is either a wooden stele, or some wooden part of a stele.
8 Which does not necessarily imply, however, that a water clock belonged to the standard inventory of a school. The mathematical exercises were meant to be solved by computation, not by experiment.
10 Hattuša: KBo 26, 5 (+) 6 IV06; 6li-um; Ugarit: Thureau-Dangin 1931 pl. 46-47: no.3+no.4 IV40: 6li-um-[ ] (see photograph of the tablet in RSO V, p.24 figure 6a); Emar: Emar 6/2, p.415 Msk 74163b IV 19: 6li-um-[ ]. For the first millennium version see MSL 5, p.151: 2.
11 See Englund and Nissen 1993, pp.23-25.
number of wooden objects. Between the archaic and the Old Babylonian period the Wood list is known only from a few scattered fragments\textsuperscript{12}. Somewhere, however, it must have survived since all Old Babylonian versions have retained the opening lines of their most ancient ancestor. In the redaction of the thematic lists in the Old Babylonian period the tree list took on an entirely new character. The short section wooden objects at the end was expanded at great length and given a somewhat systematic organization. Those items from the old section wooden objects that did not find a place in this organization may have been retained as a coda to the tree list.

The second half of the giš list (374-end), beginning with the section doors, shows much more diachronic instability and local variation in its overall organization than the first half. The Middle Babylonian Emar version\textsuperscript{13} generally follows the Nippur tradition but has some interesting deviations. The section $giš$tušul (maces) has been moved to a later place in the list. A rough comparison of this part of the list provides the following picture:

<table>
<thead>
<tr>
<th>Nippur</th>
<th>Emar</th>
</tr>
</thead>
<tbody>
<tr>
<td>agricultural tools</td>
<td>agricultural tools</td>
</tr>
<tr>
<td>maces</td>
<td>boards</td>
</tr>
<tr>
<td>boards</td>
<td>measuring vessels</td>
</tr>
</tbody>
</table>

By consequence in Emar the section agricultural implements is directly followed by boards (such as the bottom board of a basket) and measuring vessels. These objects may be understood as having at least some relation with agriculture. Thus, in a way, the list becomes better organized than it was before, even though the weapons are still distributed over several sections. The late redaction, as edited in *MSL* 6, has a completely different version of the second part of the giš list. Some items are moved from the varia sections to a place in the list with semantically related words. For instance the $giš$gisal entries (oar; lines 645-647) are found in the Nippur text after the siege engines. In the late version they are connected with the section boats, after $giš$gi-muš (rudder; *MSL* 5, p.184: 410ff.). Similarly the sections $giš$ligima (shoot; 554-556) and $giš$dih\textsubscript{3} (camel thorn; 676-679) are moved to the section trees (*MSL* 5, p.115: 268-272; and p.136: 476ff.). However, the late version is so different from the Nippur tradition that the two are difficult to compare. The semantic organization is stronger in the first millennium version than it was in the Old Babylonian period. The development of the list made for a more coherent organization. This is not to say that the late version is strictly organized along unequivocal principles. Plough and harrow are found in tablet 5, but hoe and shovel in 7A and 7B. Here the late version follows a tradition exemplified in Old Babylonian Ur\textsuperscript{14}. The Old Babylonian Nippur tradition at least had the hoe with the other agricultural implements. The shovel ($giš$mar), however, had a separate section.

\textsuperscript{12} IAS 18-20; TM 75.5197 (see Archi 1992, p.9); SF 68 and 74; OSP I, 8.

\textsuperscript{13} The Ugarit version is probably very similar but only a few fragments have been published so far: PRU III, Plate X (RS 13.53; see Veldhuis 1996); and RSO 7, no. 49.

\textsuperscript{14} In general the order of the sections in ur,-ra 5-7B is more in agreement with the Old Babylonian version from Ur than with that from Nippur (see §5.6.2).
To what extent is the overall organization of the Nippur list of trees and wooden objects representative for other parts of Old Babylonian urš-ra? A unique feature of the giš list is that a whole division is filled by only one subject. In the other divisions we find reed combined with hides, ceramics, and metals; or stones with fish, birds, and other subjects. The giš list is the only one that has one and the same determinative all the way through. The list of reed and reed objects (first part of division 2) is formally comparable in that it first lists kinds of reeds, and then continues with reed objects, organized in a way not unlike the wooden objects. However, only a few kinds of reed were distinguished. Therefore, this section is not much more than a short introduction, quite different from the quasi-independent status of the list of trees. In the list of stones (see MSL 10) stone objects are generally listed with the kind of stone they are made from. There are a few sections which consist of two parts: first, varieties of a certain stone, then objects made of that stone. An example is the short section na₄ gug (carnelian) in MSL 10, p.56.

44 na₄ gug carnelian
45 na₄ gug-gazi veined\textsuperscript{15} carnelian
46 na₄ gug-me-luh-ha Meluhha carnelian
47 na₄ gug-gid₂-da long carnelian
48 na₄ gug-lugud₂-da short carnelian
49 na₄ gug-bur₃-bur₃-da perforated carnelian
50 na₄ kišib-gug seal of carnelian
51 na₄ lagab-gug block of carnelian
52 na₄ ellag₂-gug bead of carnelian
(The list continues with na₄ nir₂).

The objects in 50-52 constitute a set that is listed for almost every kind of stone. Further on there is a special section with single entries (71-102) containing, for instance, na₅₃-tu, the stone of birth-giving, used in the magico-medical treatment of women in labour, and na₅₁ igi-muš, the snake-eye stone. For these stones no varieties are listed, nor any objects made of them. The section includes a subsection with colour terms: white stone, black stone, red stone, green stone, and speckled stone\textsuperscript{16}. The list of stones concludes with a number of objects without specification of the kind of stone. Here are found, for instance, na₅₁ na-ru₂-a (stele) and a large number of stone weights, listed in descending order from 1 gu₂ to 1 grain. The stone list, therefore, is best regarded as organized into sections, each section representing a natural kind. The sections may contain both varieties and objects made from this kind of stone. The exceptions discussed could not be made to fit the scheme. This scheme is rather different from the overall organization of the giš list. In the first place the wooden objects are kept separate from the trees. In the second place the kind of wood is almost never indicated for the objects\textsuperscript{17}.

\textsuperscript{15} Gazi (Akkadian kasû) is a plant used as a spice, and as an ingredient in brewing beer. Its identification was discussed most recently by Stol (1994a, pp.175-179), who argues for the old identification dodder (\textit{cuscuta}). The appearance of the dodder suggests the interpretation 'veined' in the present context.

\textsuperscript{16} For this set of colour terms see §3.5.3.

\textsuperscript{17} There are a few exceptions in the section furniture. See lines 189-194 and 198 of the Nippur version.
The manner of overall organization, therefore, differs in the various parts of Old Babylonian ur-s-ra. This variation is partly due to the nature of the objects listed, and partly to the graphemic organization of the list. The products of trees are listed with the trees since they share the same determinative. The same holds true for stones and stone products. The products of animals and plants, however, do not immediately follow the animals or plants, but are listed with foodstuffs or with clothing. Cows are found in division 3, but milk and milk products in division 6:\(^{18}\):

<table>
<thead>
<tr>
<th>Sumerian</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>ga</td>
<td>milk</td>
</tr>
<tr>
<td>gara₂</td>
<td>cream</td>
</tr>
<tr>
<td>ga-uz₂-da</td>
<td>goat's milk</td>
</tr>
<tr>
<td>ga-še₇(SIG₇)-a</td>
<td>sour milk</td>
</tr>
<tr>
<td>ga-ur₁-a</td>
<td>milk product?</td>
</tr>
<tr>
<td>ga-tak₁-a</td>
<td>milk product?</td>
</tr>
<tr>
<td>ga-kin-gal₂-la</td>
<td>milk product?</td>
</tr>
<tr>
<td>etc.</td>
<td></td>
</tr>
</tbody>
</table>

The products of cows and goats are not listed with the respective animals; unlike wooden objects, they do not graphemically show their origin.

3.2 The Organization of a Section: Two Examples

The sections of the giš list as discussed in §3.1. may be subdivided into subsections, and such subsections often contain even smaller units. The question that interests us here is that of semantic hierarchy. The division of ur-s-ra over tablets is the most general level of the semantic organization of Sumerian nouns. All trees and wooden objects have found their way into the first division. The analysis of the giš list demonstrates at least some degree of hierarchical organization. For instance:

```
ur-s-ra (Sumerian nouns)
```

```
trees and wooden objects
```

```
trees
```

```
boats
```

```
wagons chariots
```

```
reed
```

```
fish
```

```
etc.
```

\(^{18}\) There is no fixed order of items in this part of ur-s-ra. See Civil in MSL 11, p.109. The entries are cited here in the order of source B (MSL 11, p.122 section 8).

\(^{19}\) For the reading and translation of ga-SIG₇-a see Englund 1995, pp.418-419, with earlier literature.

The question is: how deep did the hierarchical organization go, and how consistently has it been applied?

We will discuss two examples. The first covers lines 261-373. This is a long passage, with subdivisions for specific kinds of vehicles. The second is the passage 442-514 which contains the well-organized section agricultural tools, followed by two short sections: maces and boards.

3.2.1 Boats and Wagons

The section furniture and household utensils ends with words for mortar and pestle. Then follows a passage with boats and wagons. This section has 3 main subsections: boats (giš ma₂), chariots (giš gigir), and wagons (giš mar-gid₂-da). Inserted between them we find some smaller sections.

<table>
<thead>
<tr>
<th>Boat (giš má)</th>
<th>261-320</th>
</tr>
</thead>
<tbody>
<tr>
<td>construction material</td>
<td>261-264</td>
</tr>
<tr>
<td>types of boats</td>
<td>265-296</td>
</tr>
<tr>
<td>parts of a boat</td>
<td>297-311</td>
</tr>
<tr>
<td>accessories for shipping</td>
<td>312-320</td>
</tr>
</tbody>
</table>

| Various words for standard and staff | 321-325 |

| Chariot (giš gigir) | 326-346 |
| parts of a chariot | 326-346 |

| Related words | 347-356 |
| giš usan₃ (whip) | 347-350 |
| giš gag-sal₄ (chariot or wagon) | 351-353 |
| giš sid-du₃ (pole pin?) | 354-356 |

| Wagon (giš mar-gid₂-da) | 357-373 |
| parts of a wagon | 357-373 |

The section boats differs in structure from the sections treating chariots and wagons. It is much more complete, covering a wider field of terms somehow related to boats and shipping. It not only includes entries for types of boats and parts of a boat but also for construction material and accessories. The section has some rather strange anomalies in its organization. Strangest of all is that the ferry (giš ma₂-addir; line 307) is listed among the parts of a boat. Also unusual is the placement of the geographical types (giš ma₂-ma₂-ri₂: Mari boat; giš ma₂-dilmun-na: Dilmun boat). They are not placed together (lines 274 and 296 respectively). The Dilmun boat is found at the very end of the list of types, after procession boats.

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21 For “naga, and “gan-na see Steinkeller 1989, pp.36-38.

22 For the ferry see Selz 1995 with previous literature.
The sections giš gigir (chariot) and giš mar-gid2-da (wagon) do not list any specific types. Giš gigir and giš mar-gid2-da are in themselves two types of wheeled vehicles. The first is used for warfare and ceremonial occasions. The second is intended for the transportation of goods. Still, we would expect geographically distinguished kinds here, or wagons of different capacities such as are found for the boats. The small passages between chariot and wagon are somehow related to both. The giš usan3 (whip) may be interpreted as an accessory. The giš gag-sal4 is another word for chariot (or a different kind?). The meaning of giš sid-du3 is still uncertain but it probably belongs to the same semantic field.

In a truly hierarchically organized vocabulary, the proximity of the sections boats and chariots/wagons could be interpreted as an indication for the existence on a higher level of abstraction of a super-section vehicles. This, however, does not seem to be the case. The short passage standard/staff between boat and chariot has no overt relation with the subject vehicles. This location of the standard/staff passage survived over the centuries. In the late version the sections boats and standard/staff conclude tablet 4, chariot and wagon begin tablet 5. This caesura in the late version again suggests that the abstract idea of vehicles was not recognized in the organization of the list. The proximity of boats to wheeled vehicles in the list is probably due to chance.

The unusual characteristics discussed in the previous paragraphs all disappear in the first millennium version of ur3-ra. The Dilmun boat is listed with other geographical varieties (MSL 5, 174: 281); the ferry (giš mar2-addir) is found with other kinds of boats (MSL 5, 180: 352-353). The subsections on chariots and wagons now both have a passage listing types (MSL 6, p.5: 7-14: chariots of various gods; p.12: 74-79: kinds of wagons). One of the effects of the transmission over the centuries appears to be the levelling out of such anomalies.

We will now narrow our focus to see how the subsection chariots is organized in detail.

<table>
<thead>
<tr>
<th>No.</th>
<th>Giš</th>
<th>English</th>
</tr>
</thead>
<tbody>
<tr>
<td>326</td>
<td>giš gigir</td>
<td>chariot</td>
</tr>
<tr>
<td>327</td>
<td>giš-e2-gigir</td>
<td>cabin of the chariot</td>
</tr>
<tr>
<td>328</td>
<td>giš-e2-usan3-gigir</td>
<td>box for the whip of the chariot</td>
</tr>
<tr>
<td>329</td>
<td>giš-SUM-KI-A-gigir</td>
<td>(unidentified)</td>
</tr>
<tr>
<td>330</td>
<td>giš kun-gigir</td>
<td>rear part of the chariot</td>
</tr>
<tr>
<td>331</td>
<td>giš GUL-gigir</td>
<td>(part of) the yoke of the chariot?</td>
</tr>
<tr>
<td>332</td>
<td>giš sahar-gi-gigir</td>
<td>'dustguard' of the chariot</td>
</tr>
<tr>
<td>333</td>
<td>giš su-din-gigir</td>
<td>part of the pole of the chariot?</td>
</tr>
<tr>
<td>334</td>
<td>giš su-lum-mar-gigir</td>
<td>tethering ropes of the chariot</td>
</tr>
<tr>
<td>335</td>
<td>giš sag-kul-gigir</td>
<td>side poles? of the chariot</td>
</tr>
<tr>
<td>336</td>
<td>giš sag-dur2-gigir</td>
<td>seat of a chariot</td>
</tr>
<tr>
<td>337</td>
<td>giš gir3-gub-gigir</td>
<td>footboard of the chariot</td>
</tr>
<tr>
<td>338</td>
<td>giš mud-gigir</td>
<td>handle of the chariot</td>
</tr>
</tbody>
</table>

---

23 See Civil 1968, p.8; and Steinkeller 1990, p.23.

24 For the terminology of the parts of a chariot see Civil 1968, Klein 1989, and the older study by Salonen 1951.
339  giš gag-mud-gigir   peg of the handle of the chariot
340  giš  šudul-gigir   yoke of the chariot
341  giš gag-šudul-gigir   peg of the yoke of the chariot
342  giš  umbin-gigir   wheel of the chariot
343  giš gag-umbin-gigir   peg of the wheel of the chariot
344  giš   si-gigir   horn of the chariot
345  giš  gaba-gigir   front guard of the chariot
346  giš  gaba-gal₂-gigir   front guard of the chariot

The meaning of some of these terms is still uncertain or only understood in a very general sense. Such uncertainties hinder the semantic analysis of this passage. From what is understood, however, there is no clear relation between the structure of a chariot and the sequence of the list. The giš su-lum-mar, the tethering ropes (or some wooden part attached to the tethering ropes?), belong to the front part of the chariot. Other items belonging to the front part are listed further on: giš gaba-gigir and giš gaba-gal₂-gigir. The giš e₂-gigir and the giš sahar-gi-gigir probably refer to the same superstructure on the chariot. The second item (dustguard) may be the canopy or a special kind of canopy. If an ordering derived from the structure of the chariot is absent (or at least not strong enough to be recognized as such), there is another principle that is clearly at work here. Items sharing the initial sign are paired:

| giš e₂-gigir | giš su-din-gigir | giš sag-kul-gigir | giš  gaba-gigir |
| giš e₂-usan₃-gigir | giš su-lum-mar-gigir | giš sag-dur₂-gigir | giš  gaba-gal₂-gigir |

There is no evident semantic proximity that explains the pairing of giš su-din-gigir with giš su-lum-mar-gigir. The reason for putting them together is that they share the initial sign SU. The giš su-lum-mar-gigir entry is attested in a variant spelling giš su-lu-mar-gigir. Well known outside the lexical corpus is the spelling giš zu₂-lum-mar (see Civil 1968, p.8f.). This spelling, however, would break the graphemic alliteration with giš su-din-gigir and is conspicuously absent in the extant copies of the giš list. Similarly, all items which have or can have a peg (gag) are put together (lines 338-343). 'Having a peg' is a semantic principle, though only in a very weak sense. Visually this ordering has a strong effect. The word gag is written with the sign KAK, a simple and easily recognizable sign consisting of two main strokes crossing each other, with one small vertical through the lower stroke. In this sequence every other line begins with a KAK sign, a pattern which can hardly escape the eye. The same pattern is used at other places in the giš list as well, for instance in the section giš apin (plough). In some exercises the order of the giš umbin and the giš sudul items is inverted. Others move giš GUL-gigir (331) to appear before giš gir₃-gub-gigir (337). Both variants are found in CBS 6068 (SLT 170):

| 334  rI01'    giš su-l[um-mar-gigir] |
| 335  rI01'    giš KA-[kul-gigir] |
| 336  rI03'    giš KA-[dur₂-gigir] |

26 Ni I-01.
27 In this and the next item KA must be an error for SAG; the two signs have the same general shape.
331  rI04'  gišGU[L-gigir]
337  rI05'  giš[r3-gub-gigir]
338  rI06'  gišmud-[gigir]
339  rI07'  gišgag-mud-[gigir]
342  rI08'  gišumbin-[gigir]
343  rI09'  gišgag-um[bin-gigir]
340  rI10'  giššudul-gigir]
341  rI11'  gišgag-[šudul-gigir]
344  rI12'  gišs[i?-gigir]

This variant order does not affect the pattern of putting together all items which have or can have a peg. Such variants as there are in sequence and spelling (in this passage the 'standard text' is only one choice among various possibilities) never violate the patterns described above28.

Items commonly found outside the lists, such as gišda-gigir (side-board) and gišma-gid (pole), are missing29. This passage, therefore, is not an exhaustive description of the parts of a chariot. Nor is it generated by walking around a chariot and listing its parts.

3.2.2 Agricultural Tools, Maces, and Boards (442-514)

The passage 442-514 is divided here into three units of unequal length. The first and largest unit is the section agricultural tools. The other two treat maces and boards. As we will see presently, the boards have a strong relation with the agricultural tools, but the maces are inserted in between in the Nippur text.

3.2.2.1 Agricultural tools

Following a short passage on scales (giš-rin2) the section agricultural tools begins with gišapin (plough). The section is interesting for the present discussion because its organization is relatively complex.

---

28 There is one exception: in N 2210 + N 6202 + HS 1845 (= Ni II-175) line 328 reads "šusan,-gigir instead of "še,-usan,-gigir. Now the graphemic relation with the item "še,-gigir is lost. This, however, is clearly an error. The item occurs on the obverse of a type II tablet. The teacher's model (N 2210 + N 6202) contains the error, which is faithfully copied by his pupil (HS 1845). The teacher's model contains another error: "šu-mar-gigir, instead of "šu-lum-mar-gigir (line 334). This line is not preserved in the pupil's text.

29 References for "šda and "šma-gid, are collected in Civil 1968.
Agricultural Tools 442-495

Plough (giš apin) 442-467
  kinds of ploughs 442-448
  parts of the plough 449-466
  accessory 467

Harrow (giš gan₂-ur₃) 468-473
  kinds of harrows 468-470
  parts of the harrow 471-473

Objects related to draught animals 474-476
  (part of) the harness? 474
  goads 475-476

Hoe (giš al) 477-482
  kinds of hoes 477-482

Brick mould (giš u₃-šub) 483-486
  kinds of brick moulds 483-486

Stick (giš gag) for uprooting 487-490
  kinds of sticks 487-490

Irrigation device (giš zi-ri₂-qum; etc.) 491-495
  irrigation device 491
  part of an irrigation device 492
  irrigation device 493
  parts or accessories 494-495

The organization of the subsection giš apin (plough) is almost equivalent to the organization of the section boats (giš ma₂), except that the latter includes an introductory passage for construction materials. However, boats appear to be a unit on their own, whereas plough is but the first of a number of subsections under the heading agricultural implements. Moreover, plough and the next subsection harrow belong together in being tools drawn by animals. That this is a relevant feature in the organization is shown by the short passage (474-476) that follows harrow containing words for harness(?) and goad. The hierarchy that organizes the agricultural tools is, therefore, as follows:

30 According to Hruška 1995, p.36 the giš gag is used for sowing. One of the items here is giš gag-sum-ba-al-la₂, which rather indicates a use for uprooting onions at the harvest. See Stol 1987, p.65.
Agricultural tools

- tools drawn by animals
  - plough
  - harrow
  - accessories

- kinds of hoes
  - kinds
  - parts

- kinds of brick moulds, ...
  - kinds
  - parts

The left half of the scheme is more complex and has more depth than the right half. The plough is the most complex and prestigious of the implements listed. This is probably the reason why the agricultural tools begin with ḡišappen, and why plough has the longest and most elaborate subsection. There is no inherent reason why, for instance, the tooth of the hoe (ḡišzu2-al) should not be listed. It is apparently due to the lower status of the tool. Interestingly, the difference in prestige between the complicated plough and the simple hoe is also used, and subverted, in the literary text 'The Debate between the Hoe and the Plough' (see Vanstiphout 1984). In this text the complexity of the plough is reason to accuse it of conceit as well as clumsiness. Whenever some small part is broken the whole thing is useless, and a bunch of craftsmen is needed to get it back into working order (see also Hruška 1995, pp.32-33). In the final verdict precedence is given to the simpler and humbler of the two: the hoe.

The last subsection of the agricultural implements is the least organized. It lists various words for irrigation machine (dāliya or shādūr31) and its parts:

<table>
<thead>
<tr>
<th>Code</th>
<th>Word</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>491</td>
<td>ḡišzi-ri2-qum</td>
<td>irrigation device</td>
</tr>
<tr>
<td>492</td>
<td>ḡišgu2-zi-ri2-qum</td>
<td>'neck' of the irrigation device</td>
</tr>
<tr>
<td>493</td>
<td>ḡišnam-nu-tar-re</td>
<td>irrigation device</td>
</tr>
<tr>
<td>494</td>
<td>ḡišI-LU</td>
<td>irrigation device?</td>
</tr>
<tr>
<td>495</td>
<td>ḡišI-DIB</td>
<td>part of an irrigation device?</td>
</tr>
</tbody>
</table>

The word ḡišzi-ri2-qum is a loan from Akkadian zuruqqum or ziriqqum. The ḡišnam-nu-tar-re (extant in only one manuscript) is found in peripheral Middle Babylonian versions as ḡišnam-lú-da-ri-a32, and in late ur₃-ra as ḡišnam-tar-(ra) (MSL 6, p.65; ur₃-ra 6, 153-154). In the late version ḡišnam-tar is rendered zuruqqum. The Emar version has dil tu (another word for dāliya, or a similar device) for ḡišnam-lú-da-ri-a. In other lexical lists dil tu is the rendering of ḡiša₂-la₂ (see PSD a-la₂, lexical section), the common Sumerian term for this device. In the Ebla Vocabulary

31 The Iraqī word dāliya is probably related to diliitu, one of the Akkadian terms for this machine.
giš₂-lₐ₂ is translated as šu-ri₂-gum₂, which is again the same word as zuruqqum/ziriqqum (Civil 1994, p.69).

Surprisingly, the word giš₂-lₐ₂ does not appear in the Old Babylonian lists. The items giš₁-LU and giš₁-DIB (494-495) are poorly understood. The Nippur evidence is not abundant here as there are only two texts. The signs LU and DIB are not always distinguished. In careful writing DIB has two horizontals, LU only one. One of the two Nippur texts (a teacher's model) makes a clear distinction between giš₁-LU and giš₁-DIB, the other does not. The late version (MSL 6, p.65:156-158) has:

156 giš₂-lₐ₂ diliṯum irrigation machine
157 giš₁-LU MIN idem
158 gišk₄(I-LU) askuppu threshold

The sequence in the late version seems to imply that 'threshold' (giš₄=k₄ = askuppu) is used in Sumerian as a metaphor for an irrigation machine (one can imagine that the water has to cross a 'threshold'). The two Akkadian translations in 157-158, then, are of a different kind. The first (157) resolves the metaphor and gives the common word for irrigation machine in Akkadian; the second (158) retains the metaphor and translates the Sumerian literally. We will see another example of this treatment of metaphors in our discussion of giš₃-dih₃ (camel thorn) in §3.3.2. The metaphorical explanation, however, cannot account for the distinction between giš₁-LU and giš₁-DIB in one of the Nippur sources.

Whatever the correct solution turns out to be, this subsection is poorly organized and may already have been poorly understood in ancient times. This is suggested in particular by the subsequent reinterpretations of the word giš nam-nu-tar-re. Translated literally, this wooden object is called an 'undecided fate'. The Middle Babylonian variant giš nam-lₐ-da-ri-a could be interpreted as 'the human-for-ever device'. The late giš nam-tar is homophonous with the Namtar demon. With the vital importance of water and irrigation for the production of food, the connection between an irrigation device and fate is itself understandable as a source for metaphors. The variants indicate that the metaphor was easily misunderstood. Alternatively, the original item was not a metaphor at all but an attempt to render a foreign word.

The organization of the section agricultural tools is, therefore, not only based upon referential semantics but also on prestige (plough first) and on internal, textual features. The longer and better organized subsections of the agricultural tools are treated first. The most unorganized passage, treating irrigation machines, concludes the section. Not all agricultural tools are

33 There is an item giš₂-lₐ₂ among the musical instruments but not among the irrigation machines.

34 giš₁-LU and giš₁-DIB may both be read giš₄=k₄. Common Akkadian renderings are askuppu (threshold) and simmilitu (ladder). The Sumerian giš₄=k₄ is treated elsewhere in the giš list (O.B. Nippur 246-251), where it is to be rendered simmilitu (ladder), as is demonstrated by the late version (ur₄-r₄ 4: 225-232; MSL 5, p.169f.). Ladder and threshold are represented by the same word in Sumerian, but not in Akkadian.

35 One might entertain the possibility of reading giš₁-lu as a deviant spelling for giš₂-lₐ₂. For this word see Civil 1994, p.100 n.9. Known variant spellings are a-la₂, and perhaps u₅-la₂.
3.2.2.2 Maces

The agricultural implements are followed by several words for mace. This section is treated here particularly for its variants. It is a good example of what may be lost in a score edition. The composite text runs as follows:

496  giš tukul     weapon / mace
497  giš tukul-šu    hand weapon
498  giš tukul-ur2-ra  weapon carried in the belt?
499  giš tukul-kun    weapon with a tail?
500  giš TUKUL-DINGIR  divine weapon
501  giš tukul-gaz    shattering weapon
502  giš sag-tukul    front part of a weapon
503  giš a-ga-tukul    rear end of a weapon
504  giš mi-tum    mace
505  giš mi-tum-sag-50  fifty-headed mace
506  giš utug2    mace
507  giš utug2-sag-50  fifty-headed mace
(continues with giš dur2 items)

This sequence is found in CBS 14143 (= SLT 126), a teacher's model text. One of the points here is the reading of line 500. The combination of signs GIŠ-TUKUL-DINGIR may be read gišmiddu₂, meaning mace, or gištukul-dingir: weapon/mace of a god. Middu₂ is a complex sign that still makes sense when the signs are read separately. gišmiddu₂ is a loan from Akkadian; it may also be written giš mi-tum, this spelling is found in 504-505. The Akkadian word probably corresponds to the genuinely Sumerian gišutug₂ (506-507). The identity of the two is visible here because both have a fifty-headed variety. The presence of the giš mi-tum items and the placement of giš TUKUL-DINGIR between other giš tukul items suggests that the intention was to read line 500 as giš tukul-dingir = mace of a god. But another tablet reads:

N 5223:
496  rII02' giš tuk[ul]  
497  rII03' giš tukul-šu  
498  rII04' giš tukul-ur2-ra  
499  rII05' giš tukul-kun  
501  rII06' giš tukul-gaz

---

36 See Civil 1994, p.95.
37 Ni II-127.
39 Ni I-06.
The line .gs-TUKUL-DINGIR follows .gs-utug₂ (mace) and the .gs-mi-tum items are absent. Here the reading .gs-middu₂ seems to be the most appropriate. The fifty-headed varieties are omitted in this tablet. A third text (HS 1745+) has:

496  rI019  gs-tukul
497  rI020  gs-tukul-šu
498  rI021  gs-tukul-ur₃-ra
499  rI022  gs-tukul-kun
500  rI023  gs-TUKUL-DINGIR
504  rI024  [ ] mi-tum
505  rI025  [ ] m[i-tu]m-s-[ag-5]₀

Here the .gs-utug₂ items are missing. Probably, .gs-TUKUL-DINGIR is intended here to be read gs-middu₂, giving two alternative spellings in sequence (gs-middu₂, gs-mi-tum). CBS 6514⁴¹ is badly damaged. The order of the items under discussion, however, is not in doubt:

502  rI03'  gs-sag?-tukulʔ-[""
501a  rI04'  gs-tukul-ma[h]
500  rI05'  gs-TUKUL-DIN[GIR]
504  rI06'  gs-mi-tum
505  rI07'  gs-mi-tum-sag-50
508  rI08'  gs {traces}
507  rI09'  [ ut]ug₂-[""

What appears from all these variants is, firstly, that gs-mi-tum and gs-utug₂ were considered to be essentially the same thing. The one is the Akkadian loanword, the other the genuine Sumerian designation. Secondly, gs-middu₂ and gs-mi-tum, where both are given, are spelling variants. However, there is nothing to prevent a scribe from reading gs'TUKUL-DINGIR as gs'tukul-dingir: 'divine weapon', as seems to have happened in Ni II-127 (= SLT 126), cited as the 'standard text'. This reading found its way to Ugarit (RSO VII, p.107: 20), where it is glossed de₃-gi-ra (for dingir-ra). As expected, the late version (ur₃-ra 7A) has collected all possibilities (MSL 6, 84f.):

9  gs-tukul-dingir-ra  MIN (=kakku ili)  divine weapon
10  gs-middu₂ (TUKUL-DINGIR)  MIN ša ilānī  weapon of the gods
11  gs-middu (TUKUL.BAD)  MIN ša tāhāzi  combat weapon
3.2.2.3 Boards

The section 'maces' is followed by a section $\text{giš}$ $\text{dur}_2$. This word is rendered $\text{kiskirru}$ in bilingual texts and is understood as a board, or the wooden bottom of something. The peculiarity of this passage is that it almost duplicates the section $\text{giš}$ $\text{u}_3$-$\text{šub}$ (brick mould).

483 $\text{giš}$ $\text{u}_3$-$\text{šub}$  508 $\text{giš}$ $\text{dur}_2$
484 $\text{giš}$ $\text{u}_3$-$\text{šub}$-$\text{ab}$-$\text{ba}$  509 $\text{giš}$ $\text{dur}_2$-$\text{pisan}$
485 $\text{giš}$ $\text{u}_3$-$\text{šub}$-$\text{sig}_4$  510 $\text{giš}$ $\text{dur}_2$-$\text{ab}$-$\text{ba}$
486 $\text{giš}$ $\text{u}_3$-$\text{šub}$-$\text{sig}_4$-$\text{al}$-$\text{u}_3$-$\text{ra}$  511 $\text{giš}$ $\text{dur}_2$-$\text{sig}_4$
487 $\text{giš}$ $\text{dur}_2$-$\text{pisan}$ (509) is probably the bottom board of a basket. The words $\text{sig}_4$, and $\text{sig}_4$-$\text{al}$-$\text{u}_3$-$\text{ra}$ mean brick and kiln-fired brick respectively. It appears from mathematical problem texts that the two brick types not only differ in their production process but also in size $^{42}$. Lines 485-486 refer to brick moulds of different sizes. The corresponding boards (511-512) must designate the bottom boards of these brick moulds. Less clear is the $\text{giš}$ $\text{u}_3$-$\text{šub}$-$\text{ab}$-$\text{ba}$, which is translated as $\text{nalbatti apti}$, or mould for a window, in the late tradition $^{43}$. Whatever this mould is, there is a corresponding board listed in line 510. There is no semantic reason why the section $\text{giš}$ $\text{tukul}$ ('mace') should be inserted between $\text{giš}$ $\text{u}_3$-$\text{šub}$ and $\text{giš}$ $\text{dur}_2$. In the first millennium versions this inconsistency is repaired and the section $\text{giš}$ $\text{u}_3$-$\text{šub}$ is immediately followed by $\text{giš}$ $\text{dur}_2$. On the graphemic level the connection between $\text{giš}$ $\text{tukul}$ and $\text{giš}$ $\text{dur}_2$ is clear enough: both are written by the same sign (KU). What is demonstrated here is a conflict between two associative principles, and different solutions of that conflict in the different versions of the $\text{giš}$ list.

3.2.3 The Organization of Sections in Other Parts of Ur$_3$-ra

In other parts of Old Babylonian ur$_5$-ra some degree of hierarchical organization is not uncommon. The depth of hierarchy such as was found in the section agricultural tools is rare, however. The Nippur list of domestic animals ($\text{MSL}$ 8/1, pp.83-88) has a transparent structure, listing male animals, female animals, and their young, classified into ovine and bovine species. Interestingly, a large tablet from the Yale collection (YBC 4679) has an alternative organization using the same categories. The Yale tablet, which is almost completely preserved, is of unknown origin. The order of the sections in both lists may be summarized as follows:

$^{42}$ See Neugebauer and Sachs 1945, p.92; and Friberg 1996, p.10.

$^{43}$ $\text{MSL}$ 6, p.98: 173; similar for $\text{u}_3$-$\text{šub}$-$\text{ab}$-$\text{ba}$ in line 178. See further Emar 6/4 p.71: 189; p.73: 270. In mathematical problem texts (see previous note) we find $\text{sig}_3$-$\text{ab}$, which is translated as $\text{arhu}$: half-brick (literally: cow-brick). There does not seem to be a relation with $\text{u}_3$-$\text{šub}$-$\text{ab}$-$\text{ba}$. In mur-gud both $\text{u}_3$-$\text{šub}$-$\text{ab}$-$\text{ab}$ and $\text{dur}_2$-$\text{ab}$-$\text{ba}$ are explained as the $\text{birru}$ or lattice of the opening of a window ($\text{MSL}$ 6, p.111: 96-97).
The sequences are interesting, because both exhibit some kind of system. In the following scheme the plain numbers indicate the ordinal number of the section in the Nippur version, whereas the numbers between brackets refer to the sections in the Yale version.

<table>
<thead>
<tr>
<th>Ovine</th>
<th>Bovine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sheep</td>
<td>Goat</td>
</tr>
<tr>
<td></td>
<td>Male</td>
</tr>
</tbody>
</table>

In the Nippur version the grown ovine animals are listed first, followed by their young. Then the bovine animals are listed, again followed by their young. The Yale text has the sequence female - young - male. The only exception is udu (sheep). This is probably due to the fact that udu is the incipit after which this list was named. The Nippur version also has an exception: nanny goat precedes billy goat, whereas in the other categories the male is in first position. The word for the female of the species coincides with the general word for 'goat'. Linguistically speaking, uz3 is unmarked, maš₂ is marked as male. In Nippur the opposition used for sequencing in this section is not male-female, but unmarked-marked.

In the reconstruction in MSL the Old Babylonian list of domestic animals has 269 lines. The section udu (sheep), with 106 lines, is by far the longest. Within the udu section several subsections may be distinguished, so that this list has a fairly deep hierarchy.

In §3.1 we saw that the overall organization of the list of stones differs from the giš list. The giš list has a clear distinction between natural kinds and wooden objects. Among the wooden objects the usual order is: first the object and its types, then its parts. In the list of stones the stone objects are usually listed directly after the varieties of the stone they are made from. On the level of a single section, however, the result is rather similar. In both lists we have first a section main
word + secondary word, and then a section secondary word + main word:

<table>
<thead>
<tr>
<th>Main word + Secondary word:</th>
<th>types of ploughs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>na'gug</td>
<td>442</td>
</tr>
<tr>
<td>na'gug-gazi</td>
<td>443</td>
</tr>
<tr>
<td>na'gug-me-luh-ha</td>
<td>444</td>
</tr>
<tr>
<td>na'gug-gidz-da</td>
<td>445</td>
</tr>
<tr>
<td>na'gug-lugudz-da</td>
<td>446</td>
</tr>
<tr>
<td>na'gug-bur3-bur3-da</td>
<td>447</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Secondary word+Main word:</th>
<th>parts of a plough:</th>
</tr>
</thead>
<tbody>
<tr>
<td>na'kišib-gug</td>
<td>449</td>
</tr>
<tr>
<td>na'lagab-gug</td>
<td>450</td>
</tr>
<tr>
<td>na'ellag2-gug</td>
<td>451</td>
</tr>
<tr>
<td>na'Su-sag-apin</td>
<td>452</td>
</tr>
<tr>
<td>na'Su-sag-apin</td>
<td>453</td>
</tr>
</tbody>
</table>

Similar sections may be found in the list of metals (MSL 7, p.231ff). Each of the sections zabar (bronze), ku3-babbar (silver) and ku3-sig17 (gold) begin with qualities (written as metal + quality) and continue with objects made of that metal (written object + metal).

3.3 The Role of Akkadian

Unlike the first millennium 'canonical' version, Old Babylonian ur5-ra is a unilingual list of Sumerian words. However, it is assumed with good reason that in class the Sumerian words were orally translated into Akkadian (see §2.4.1.2). Without translation the Sumerian words would probably make little sense to the beginning pupil. There are various ways in which Akkadian influences the organization of the giš list.

3.3.1 Akkadian Loan Words in Ur5-ra

Loans from Akkadian, apart from their Akkadian etymology, have two characteristics. In the first place they usually retain the Akkadian nominative ending -um. In the second place their spelling, as Akkadian spelling in general, is more liable to variation than that of genuinely Sumerian words. Thus gatsby-an-nu-um (a wooden rack for vessels) is sometimes spelled gatsby-ga-nu-um in Nippur (624-627). Other spellings are gatsby-gan-nu-um (Old Babylonian Sippar; MSL 6, p.155) and gatsby-ka-an-nu-um (LTBA I, 78 column ix). The late version has gatsby-gan-nu (MSL 6, p.93f). Similarly, gatsby-ziri-qum (an irrigation machine; Nippur 491-492) is spelled in late versions gatsby-zu-ruq-qum.
(MSL 6, p.64f.), in accordance with the contemporary form of the word in Akkadian\textsuperscript{44}. Or, to take an example from another part of ur\textsubscript{3}-ra, \textit{kuš}-hu-lu-lu-um (leather armour; MSL 7, p.219: 103) is found as \textit{kuš}-ul-lu-lu in the late version (MSL 7, p.152: 186).

In Old Babylonian ur\textsubscript{3}-ra we may distinguish between three types of loans from Akkadian: isolated loan words, passages with loan words, and pairs of items where a genuinely Sumerian word is followed by its Akkadian translation or vice versa.

1 Isolated Loan Words

Akkadian words may be encountered in the middle of a sequence of Sumerian entries. An example may be found at the end of the section \textit{giš}-mar-gid\textsubscript{2}-da (wagons)

<table>
<thead>
<tr>
<th>Line</th>
<th>Sumerian</th>
<th>Akkadian</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>370</td>
<td>\textit{giš} u\textsubscript{4}-sakar-mar-gid\textsubscript{2}-da</td>
<td>'crescent' (half a wheel) of a wagon</td>
<td></td>
</tr>
<tr>
<td>371</td>
<td>\textit{giš} gag-u\textsubscript{4}-sakar-mar-gid\textsubscript{2}-da</td>
<td>peg of the 'crescent' of a wagon</td>
<td></td>
</tr>
<tr>
<td>372</td>
<td>\textit{giš} nam-ha-ru-um-mar-gid\textsubscript{2}-da</td>
<td>shaft\textsuperscript{7} of a wagon</td>
<td></td>
</tr>
<tr>
<td>373</td>
<td>\textit{giš} en\textsubscript{3}-dur-mar-gid\textsubscript{2}-da</td>
<td>'umbilical cord' of a wagon</td>
<td></td>
</tr>
</tbody>
</table>

Line 372 is given a more Sumerian look in later versions\textsuperscript{45}: \textit{giš} nam-hara\textsubscript{x}(NUNUZ+AB\textsubscript{2}+BI)-mar-gid\textsubscript{2}-da = \textit{namharû}. In morphology the item \textit{giš} nam-ha-ru-um-mar-gid\textsubscript{2}-da follows the rules of Sumerian grammar, rather than those of Akkadian\textsuperscript{46}. It is, therefore, treated as a real loan in Sumerian, not as an Akkadian intrusion in the list.

Another example, again in the section \textit{giš}-mar-gid\textsubscript{2}-da, may be found in the Old Babylonian version from Ur (see §5.6: Ur I-01 Col I, 32’):

\textit{giš} ma-an-za\textsubscript{3}-ma[r-gid\textsubscript{2}-da]

This line parallels the Nippur line 363; \textit{giš} gir\textsubscript{3}-gub-mar-gid\textsubscript{2}-da. This item is translated \textit{manzāzu} footboard of a wagon in later versions (see MSL 6, p.13: 86).

Some loans have a short passage of their own. An example is the section \textit{giš} zi-ri\textsubscript{2}-qum (irrigation device: 491-492). Their treatment does not differ from that of originally Sumerian words. Akkadian loans are found throughout the ur\textsubscript{3}-ra versions of all periods, and do not require further comment in themselves.

2 Sets of Loan Words

\textsuperscript{44} The Emar version has the form \textit{zi-ri-qu} (Emar 6/4, p.72:262’f. and p.78: 467’f.). NBC 10915 (Kassite unilingual version of early 'canonical' ur\textsubscript{3}-ra 6; unpublished) has \textit{zi-ri-qum}.

\textsuperscript{45} Ur\textsubscript{3}-ra 5, 88; MSL 6, p.13. See the commentary to line 372 in §5.3.

\textsuperscript{46} In Akkadian the genitive construction would require the pre-genitive form ('construct') without case ending (\textit{namhar}).
There are some passages where Akkadian loans are collected. The most important of these is found in the section trees:

054 giš za-ba-lum
055 giš e-la-ma-kum
056 giš gi-ri-zum
057 giš gi-ri
058 giš zi-ir-dum
059 giš ur-nu-um
060 giš ti-a-ru-um
061 giš ri-2-a-num
062 giš ur-zi-num
063 giš mi-ri2-iš-gar-ra

Most items in this section are recognizable as Akkadian loan words by the nominative ending -um. giš Gi-rim (line 57) is a genuinely Sumerian word (olive.) One of the Akkadian translations of giš-gi-rim is girimmu ('a kind of fruit'), a Sumerian loan in Akkadian. In other words, what we have here is a collection of loans, either Akkadian loans in Sumerian, or Sumerian loans in Akkadian. The passage lists entries which are identical or almost identical in the two languages. Seen from this perspective the passage is even longer, since it is preceded by giš-mes (mēsu; 49-51), giš-erin (ceder: erēnu; 52), and giš-su-ur-min2 (cypress: šurmēnu; 53). The section giš-nimbar (date palm) that follows may also belong here (Akkadian gišimmaru; 65-104). The only exception is giš-isī2-mu2, found between giš-mi-ri2-iš-gar-ra and giš-nimbar. This item may have been attracted by its Akkadian-like /u/ ending. This section Akkadian loans, as expected, is more than usually prone to orthographic variants. In the late version the section has been considerably extended (see MSL 5, pp.111-114: 226-264).

Comparable sections may be found in other parts of urs-ra, but I am unaware of any other example of this length. Among the stones, in Nippur division 4, we find (MSL 10, p.59f.)47:

158 na4 zi-ib-tum (kind of stone)
159 na4 šu-hu-um ?
160 na4 ka-pa-5 um shell
161 na4 a-ar-tum kind of shell

The section vessels of Nippur division 2 includes (MSL 7, p.200):

041 dug za-hu-um container48
042 dug la-ha-nu-um bottle

---

47 For parallels from the Middle Babylonian Western periphery see MSL 10, p.49: 331-335 (Ugarit); and Emar 6/4, p.124: 196'-201'.

48 See Grégoire, 1970, p.254 (commentary to no. 206, 1), with previous literature. The word often occurs in Ur III texts with the zabar ('bronze') determinative. See now Sallaberger 1996, p.109 sv 3mu-za-hum with many references.
3 Sumerian/Akkadian Item Pairs

The third type of loan entries are those which are found in connection with the genuinely Sumerian equivalent. One example is found in the sequence of Akkadian loans treated above. The Sumerian word, the second an Akkadian loan for the same (Akkadian *sirdum*). Another example is found among the weapons:

<table>
<thead>
<tr>
<th>Akkadian</th>
<th>Sumerian Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>giš</em> mi-tum</td>
<td>mace</td>
</tr>
<tr>
<td><em>giš</em> mi-tum-sag-50</td>
<td>fifty-headed mace</td>
</tr>
<tr>
<td><em>giš</em> utug₂</td>
<td>mace</td>
</tr>
<tr>
<td><em>giš</em> utug₂-sag-50</td>
<td>fifty-headed mace</td>
</tr>
</tbody>
</table>

This section was treated in more detail in §3.2.2.2. There the passage appeared to have a number of variants, showing that *giš* mi-tum (mace) is a loan from Akkadian, referring to the same weapon as the Sumerian *giš* utug₂.

A third example is the word *giš* ebir, which is the equivalent of Akkadian *kannum* (= wooden rack for vessels). The Nippur list runs as follows:

<table>
<thead>
<tr>
<th>Akkadian</th>
<th>Sumerian Equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>giš</em> ebir</td>
<td>rack for vessels</td>
</tr>
<tr>
<td><em>giš</em> ebir-a</td>
<td>rack for water jars</td>
</tr>
<tr>
<td><em>giš</em> ebir-kaš</td>
<td>rack for beer jars</td>
</tr>
<tr>
<td><em>giš</em> ga-an-nu-um</td>
<td>rack for vessels</td>
</tr>
<tr>
<td><em>giš</em> ga-an-nu-um-a</td>
<td>rack for water jars</td>
</tr>
<tr>
<td><em>giš</em> ga-an-nu-um-ga</td>
<td>rack for milk jars</td>
</tr>
<tr>
<td><em>giš</em> ga-an-nu-um-kaš</td>
<td>rack for beer jars</td>
</tr>
</tbody>
</table>

In two exercise tablets (Ni II-033 and Ni II-087) the *giš* ga-an-nu-um-ga is omitted, so that the *giš* ebir and the *giš* ga-an-nu-um passages are exactly equivalent.

In a few instances the Akkadian equivalent of a Sumerian entry is found as a variant. This is the case in the following lines on the reverse of Ni II-095:

r115  ṛ.gpu1[ni]r?-gigir
r116  *giš* gag-nir-gigir

The lines represent the entries 340-341, which in the standard text have šudul instead of nir. The Sumerian *giš* šudul (yoke) is rendered *nīru* in Akkadian.

---

The word appears as *ŠID*, with reading zadru or zadrī in Ea and other lexical lists. See CAD Z sv zadrū. The translation proposed by CAD (half-tile for a drain) is no more than a guess.
The lentil IM 58046 (= 2N-T730)\(^{50}\) has gis\(^{51}\) zu-ti-a-nu-um for standard gis\(^{52}\) peš-gal (a tree; line 117)\(^{51}\) and gis\(^{53}\) za-ri-a-as-tum, instead of regular gis\(^{54}\) zar-si (another tree; line 123). In both cases the variant represents the Akkadian translation of the Sumerian entry (\(\_u\text{dānum}\) and \(\_zara\text{štum}\) respectively). The tablet in question, however, is anomalous in several respects. It has the shape of a lentil (type IV). Textually, it has a mixed format. The obverse looks like a regular type IV text, with a two-line model text by the teacher, repeated by the pupil. The reverse, however, has a longer abstract in three columns, ending with the passage exercised on the obverse. This is exactly what we would expect on the reverse of a type II tablet. Another anomalous feature of this tablet is that the text on the reverse is abbreviated. Many items of the standard Nippur text are omitted to an extent not found in any other example. The whole gis-nimbar section, lines 65-104 in the composite text, is reduced to two entries. Since the tablet cannot be related properly to the main corpus, its evidence is difficult to evaluate.

4 Loans in Late Ur\(_3\)-ra

In the late version of ur\(_3\)-ra loan words are a very important element in the fabric of the text. A good example comes from the section vine in ur\(_3\)-ra 3 (MSL 5, p.94)\(^{52}\):

20 gis\(^{i}\) KIN-geštin
21 gis\(^{i}\) KA-geštin
22 gis\(^{i}\) ka-ra-an-geštin
23 gis\(^{i}\) ka-ra-an-geštin
24 gis\(^{i}\) til-la-geštin
25 gis\(^{i}\) pa-pa-al-geštin
26 gis\(^{i}\) pa-pa-al-geštin
27 gis\(^{i}\) pa-pa-al-tur-geštin

In the late version of url\(_3\)-ra loan words are a very important element in the fabric of the text. A good example comes from the section vine in ur\(_3\)-ra 3 (MSL 5, p.94)\(^{52}\):

20 gis\(^{i}\) KIN-geštin
21 gis\(^{i}\) KA-geštin
22 gis\(^{i}\) ka-ra-an-geštin
23 gis\(^{i}\) ka-ra-an-geštin
24 gis\(^{i}\) til-la-geštin
25 gis\(^{i}\) pa-pa-al-geštin
26 gis\(^{i}\) pa-pa-al-geštin
27 gis\(^{i}\) pa-pa-al-tur-geštin

Very probably, gis\(^{i}\) KA-geštin (21) is an abbreviation for gis\(^{i}\) ka-ra-an-geštin. The Assur texts contain the variants gis\(^{i}\) GA-geštin and gis\(^{i}\) ga-ra-an-geštin respectively. Such abbreviations are common in late ur\(_3\)-ra. Another example is ur\(_3\)-ra 4: 449-451; MSL 5, p.134:

449 gis\(^{i}\) gal
450 gis\(^{i}\) peš-gal
451 gis\(^{i}\) u-da-num

Very probably, gis\(^{i}\) KA-geštin (21) is an abbreviation for gis\(^{i}\) ka-ra-an-geštin. The Assur texts contain the variants gis\(^{i}\) GA-geštin and gis\(^{i}\) ga-ra-an-geštin respectively. Such abbreviations are common in late ur\(_3\)-ra. Another example is ur\(_3\)-ra 4: 449-451; MSL 5, p.134:

449 gis\(^{i}\) gal
450 gis\(^{i}\) peš-gal
451 gis\(^{i}\) u-da-num

\(^{50}\) Edited as Ni IV-12 in §5.5. The obverse was published as TIM X/1, 130. The reverse was partly edited by Landsberger in MSL 5, p.132f.

\(^{51}\) See also the Tell Harmal lentil TIM X/1, 86 line 2: gis\(^{i}\) u-di-a[n\(^{i}\)-num]. Furthermore, the word is found as a loan from Akkadian in Sumerian economic texts of the Ur III period (see Steinkeller 1991). For the passage in late ur\(_3\)-ra (ur\(_3\)-ra 4:449-451) see below.

\(^{52}\) Text B (Nineveh) and Kish 38. Two other texts used in MSL are from Assur (A and M). Their variants are taken into consideration in the discussion below.
From earlier versions it is clear that giš peš-gal is the full spelling of the Sumerian word. In the geštin passage, the giš ka-ra-an-geštin item is repeated in the Sumerian column, and used for the transition to tillatum items in the Akkadian column. There may or may not be some use of Sumerian ga-ra-an that justifies the equation with tillatum, but its presence is more easily explained by the vertical connection that it provides between the ishunnatum and the tillatum entries. There are three Sumerian words rendered tillatum in the Akkadian column. The first (giš ka-ra-an-geštin), as explained above, is used to make the connection with the preceding section. The next item is the Akkadian word, copied to the Sumerian column (giš til-la-geštin). Only the third is the common Sumerian word: giš pa-pa-al-geštin. This word is again copied to the Akkadian column to produce a Sumerian loan word in Akkadian: giš pa-pa-al-geštin = papallum. The most plausible reconstruction of the basic linguistic data may be summarized as follows:

\[
\begin{align*}
\text{giš ka-ra-an-geštin} & = \text{ishunnatum} \quad \text{bunch of grapes} \\
\text{giš pa-pa-al-geštin} & = \text{tillatum} \quad \text{young plant}
\end{align*}
\]

The other items are constructed by abbreviations, by loans either way, or are invented to provide vertical connections.

3.3.2 Multiple Translations of the Same Entry

The Akkadian loan words in the Sumerian column of Old Babylonian ur3-ra are an overt influence of Akkadian on the unilingual lexical text. A covert way in which Akkadian interferes with the lists is found in repeated entries. Such entries are of two kinds. An item may be repeated to cover various Sumerian readings of the same sign. This is the case with giš BU, repeated four times (to be read giš mudla; giš madla; giš malla; and giš gazinbu). Examples will be treated in §3.5.2. By comparison with other lists, such as sign lists, and later versions of ur3-ra, it is clear that in other cases repetitions signal different Akkadian translations.

The section giš NIM runs as follows in the Old Babylonian Nippur version:

676 giš NIM
677 giš NIM
678 giš NIM
679 giš NIM-kur

The passage is found almost at the end of the list, in a section of varia. In Middle Babylonian Emar the lines have a comparable context. The Emar version is very important, because it

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53 Text M uses the same technique, but here the Sumerian giš til-la-geštin does the job: [giš til-la-geštin = MIN (ishunnatum), giš til-la-geštin = tillatum.

54 Note that this word was considered 'ursprachlich' (not Sumerian) by Landsberger (1967a, p. 19 n.59). This makes no difference to the present argument since the word entered Akkadian by way of Sumerian. From an Akkadian point of view papallum is a loan from Sumerian.
provides glosses to the Sumerian column and Akkadian translations. Here the passage reads:

527' ti-hi NIM baltum camel thorn
528' [n]i-eš-še NIM asâtu chaos, turmoil
529' [t]i-hi NIM ašâgu acacia
530' [t]i-hi NIM išu hannapširu?
531' [N]IM-kur-ra balti šadi mountain camel thorn

The glosses point at a reading giš dih₃ for most lines. A problem, however, is the gloss ni-eš-še for the second line. Ni-še is the common gloss for giš in the Emar text. It is possible that this is an assimilated rendering of giš-nim (compare the Akkadian rendering of giš-nimbar as gišimmaru, where the /n/ is regressively assimilated).

The corresponding passage in late ur₃-ra tablet 3 is now broken. No giš NIM passage is found in Proto-Diri. In first millennium Dirí II 245-249 we find:

te-hi GIŠ.NIM baltu camel thorn
hištú ?
sahmaštu chaos, turmoil
za'tu ?
handašpiri (var. handaštu) ?

Comparison of the passages in Emar ur₃-ra and Dirí II yields interesting results. Baltu (camel thorn) is the usual rendering of giš dih₃(NIM)⁵⁹. Išu hannapširu is related to the late form handašpiru⁶⁰ in Dirí II. The variants in Dirí II show that the late scholars were not certain about the correct form either. Asâtu (ešâtu) means chaos, turmoil. In Dirí II we find the synonym sahmaštu. In CAD it is assumed that both Akkadian words for chaos have lent their names to some kind of shrub (either the same kind or two different kinds). An easier interpretation works the other way round. A Sumerian word for shrub, giš dih₃, is used metaphorically for chaos or turmoil. The Akkadian translations interpret the metaphor.⁶¹ Ašâgu (kind of acacia) is generally

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⁵⁵ Emar 6/4, p.79.
⁵⁶ A variant text has ud-du-tu in the Akkadian column. The gloss for the Sumerian entry is not preserved. The Akkadian is probably a writing for eddettu. Eddettu and ašâgu (line 529') share the sumerogram ḫU₂-GIR₃, which may have something to do with the confusion here.
⁵⁷ See MSL 5, p.136: 476f. The evidence from Emar and the parallel in Dirí II suggests that the giš NIM passage should take up more lines than the two reconstructed in MSL.
⁵⁸ Similar equations are found in Aa (see MSL 14, p.506).
⁵⁹ For giš dih, see Civil 1987a, p.41.
⁶⁰ Hištú, za'tu, and handašpiru are translated as 'plant of the brier group' in CAD. These words hardly appear outside the lexical corpus.
⁶¹ The Akkadian word baltu may have been used metaphorically for chaos in a procession omen in Šumma
equated with Sumerian \( ^{\text{giš}}_{\text{U2-GIR}} \) \( (\text{kiš}_{16}) \) and often associated with \textit{baltu}.

Though some questions remain unanswered as to the interpretation of the Nippur \( ^{\text{giš}}_{\text{NIM}} \) passage, the following points seem to be clear. In all or most lines we have to read \( ^{\text{giš}}_{\text{dih}} \). The repetition of the item is justified by different Akkadian translations. These Akkadian words denote various kinds of prickly shrub. One of the entries may denote thorny bush in Sumerian, but was interpreted metaphorically as turmoil. In the late version of \( \text{ur}_{5}-\text{ra} \) the passage is transferred to the section trees, where it properly belongs semantically.

Another example of a repeated entry is the item \( ^{\text{giš}}_{\text{IGI-TUR-TUR}} \) \( (544-546) \). In the lexical tradition this word has three Akkadian equivalents, all meaning offshoot, sapling, etc.: \textit{ligimû}, \textit{ziqpu}, \textit{niplu}. Because of its relevance for the relation between \( \text{ur}_{5}-\text{ra} \) and Diri this passage will be treated in more detail in \( \S \text{3.5.2} \).

Further examples are 426-428: \( ^{\text{giš}}_{\text{ellag}} \) (LAGAB); 592-694: \( ^{\text{giš}}_{\text{sumun}} \) (BAD); 663-665: \( ^{\text{giš}}_{\text{kur}} \); and 666-668: \( ^{\text{giš}}_{\text{esi}} \) (KAL). All these passages repeat the same Sumerian entry three times. In first millennium \( \text{ur}_{5}-\text{ra} \) 6 they are collected and expanded into a section entirely devoted to repetitive passages (see \textit{MSL 6}, pp.54-59). The Old Babylonian KUR and KAL(esı) entries may be compared with the Emar version:

Nippur:
663 \( ^{\text{giš}}_{\text{kur}} \)
664 \( ^{\text{giš}}_{\text{kur}} \)
665 \( ^{\text{giš}}_{\text{kur}} \)
666 \( ^{\text{giš}}_{\text{esi}} \)
667 \( ^{\text{giš}}_{\text{esi}} \)
668 \( ^{\text{giš}}_{\text{esi}} \)
(followed by a break; the missing lines may include \( ^{\text{giš}}_{\text{URI}} \) and/or \( ^{\text{giš}}_{\text{gibil}} \) items).

Emar\(^{62}\):
498\(^{1}\) \( \text{kù-ri-ni-še} \) KUR \( \text{kùri} \) \( \text{log} \)
499\(^{2}\) \( \text{kù-ri} \) KUR \( \text{ki-it-Ifa-} \) \( ? \)
500\(^{3}\) \( \text{kù-ri} \) KUR \( \text{kiškibirru} \) \( \text{kindling wood} \)

\( \text{503'} \) \( \text{e-ša} \) KAL \( \text{ešù} \) \( \text{ebony} \)
\( \text{504'} \) \( \text{gi-iš-kal-la} \) KAL \( \text{martú} \) \( \text{stick?} \)
\( \text{505'} \) \( \text{re-i-es} \) KAL \( \text{nappa}_\mu \) \( \text{pole or stick?} \) (lexical only)

This Emar passage is followed by similar sections for URI.KI and probably GIBIL.

Repeating passages with different Akkadian translations are known in other parts of Old

\( \text{lu} \): ‘if the procession boat capsizes into the river, \textit{baltu} will be set’. (Pongratz-Leisten 1994, p.259: 38).
Pongratz-Leisten, in her commentary (p.265), rightly argues that the interpretation of \textit{baltu} as a spelling for \textit{baštu} (vital force) is implausible here. A negative apodosis is expected. ‘Chaos’ would fit this context.

\(^{62}\) \textit{Emar 6/4}, p78f. There is no gap between 500\(^{3}\) and 503\(^{1}\). On this passage see Civil 1989, pp.13-14.
Babylonian ur₃-ra as well. From the section GI we may cite gi-gur-da (MSL 7, p.183: 27-28) with three different Akkadian translations (all referring to a kind of reed basket) in the late version (MSL 7, p.39: 43-45):

<table>
<thead>
<tr>
<th>Sumerian</th>
<th>Akkadian</th>
</tr>
</thead>
<tbody>
<tr>
<td>gi-gur-da</td>
<td>gurdû</td>
</tr>
<tr>
<td>gi-gur-da</td>
<td>maššû</td>
</tr>
<tr>
<td>gi-gur-da</td>
<td>mangarum</td>
</tr>
</tbody>
</table>

In the late version of the list of wild animals in ur₃-ra 14 we find the item uh repeated four times. It is rendered in Akkadian by four different words for louse or parasite (MSL 8/2, p.28: 250-253):

<table>
<thead>
<tr>
<th>Sumerian</th>
<th>Akkadian</th>
</tr>
</thead>
<tbody>
<tr>
<td>uh</td>
<td>uplu</td>
</tr>
<tr>
<td>uh</td>
<td>nābu</td>
</tr>
<tr>
<td>uh</td>
<td>kalmatum</td>
</tr>
<tr>
<td>uh</td>
<td>puršu’u</td>
</tr>
</tbody>
</table>

The Old Babylonian version contains the same fourfold repetition, though of course without the Akkadian translations.⁶³

In the late version of ur₃-ra repetitions of the same Sumerian item are very common. In §3.3.1 a passage from the section giš-geštin (vine) was treated, where it was shown how a chain of items is constructed by giving either multiple translations to one Sumerian entry, or the same translation to various Sumerian entries, or by transferring the Sumerian to the Akkadian column and vice versa (‘loan words’). Such passages are frequent and could be cited from almost every page in MSL. The following example is taken from ur₃-ra 7A (MSL 6, p.87):

<table>
<thead>
<tr>
<th>Sumerian</th>
<th>Akkadian</th>
</tr>
</thead>
<tbody>
<tr>
<td>giš-nig₂-ur₂-gaz</td>
<td>nahpu</td>
</tr>
<tr>
<td>giš-ur₂-gaz</td>
<td>MIN idem</td>
</tr>
<tr>
<td>giš-ur₂-gaz</td>
<td>mēktiku</td>
</tr>
<tr>
<td>giš-ur₂-gaz-ku₆</td>
<td>MIN nūni</td>
</tr>
<tr>
<td>giš-šu-nir</td>
<td>šurinmu</td>
</tr>
<tr>
<td>giš-šu-nir</td>
<td>kakku</td>
</tr>
<tr>
<td>giš-šu-nir</td>
<td>maḥraḥu</td>
</tr>
<tr>
<td>giš-ru₃-a</td>
<td>MIN idem</td>
</tr>
<tr>
<td>giš-ru₃-a</td>
<td>nappašu</td>
</tr>
<tr>
<td>giš-mud</td>
<td>MIN idem</td>
</tr>
<tr>
<td>giš-mud</td>
<td>šulbu</td>
</tr>
<tr>
<td>giš-mud</td>
<td>uppu</td>
</tr>
</tbody>
</table>

In this passage almost every Sumerian entry has been repeated two or three times. The last giš-šu-

---

⁶³ The Old Babylonian list of wild animals is unedited. The passage appears in UM 29-16-31 rev. col. IV, 22-25. The same passage may be reconstructed in the traces preserved in the last few lines of SLT 56 rev. col. III. The uh items are preceded by a-za-lu-lu (2x) and nig₂-zī-gal₂,-edin-na.
nir item has the same Akkadian rendering as the first \textit{gil} ru3-a item. Similarly, \textit{nappa}_u is used to connect \textit{gil} ru3-a with \textit{gil} mud.

3.4 Graphemic Principles

From our general treatment of the corpus of Old Babylonian lists in §2.4.1 it appeared that texts such as Proto-Ea, Proto-Diri, and the acrographic lists (Proto-Izi, Proto-Kagal, Nigga) are primarily ordered by graphemic principles, whereas \textit{ur}5-ra is ordered by semantics. In practice, however, this distinction is far from absolute. Graphemic organization is very important in \textit{ur}5-ra as well. This is for the simple reason that in Sumerian writing semantics and graphemics cannot be divorced from each other. One example of this is the determinative, which graphemically indicates a semantic class\textsuperscript{64}.

Determinatives are a fundamental aspect of the general organization of \textit{ur}5-ra. \textit{Ur}5-ra never disrupts the graphemic classification of the determinatives. There is, for instance, no section agricultural objects where objects made of wood, reed, or metal are mixed. The geographical list is subdivided into lists of field names, names of places, names of water courses, etc. Alternative organizational principles are easily conceivable: a list of cities each with its field names and canals would make perfect sense. The organization chosen in \textit{ur}5-ra means that the place names, indicated by the determinative KI, appear together. The connection of trees with wooden objects in one list, therefore, is not made by any decision of the compiler of \textit{ur}5-ra. It is inherent to the cuneiform writing system.

The interweaving of graphemics and semantics goes further than determinatives only. The thematic organization of the \textit{giš} list has a counterpart in the writing system. All items in the section plough contain the sign APIN. The graphemic organization is not usually operative on its own. The sections \textit{gil} mar (shovel) and \textit{gil} mar-gid_2-da (wagon) share MAR as their initial sign, but they are not adjacent in the list. Occasionally, however, a graphemic principle becomes dominant. One example is found in the section boats, discussed in §3.2.1. There are two subsections \textit{gil}MA_2-DU_3 (308-313); the first to be read \textit{gil}ma_2-du_3, the second \textit{gil}durgul\textsuperscript{65}:

\begin{verbatim}
308 \textit{gil}ma_2-du_3
309 \textit{gil}BAL-ma_2-du_3
310 \textit{gil}gir_2-ma_2-du_3
311 \textit{gil}uš_2-ma_2-du_3
312 \textit{gil}durgul (MA_2-DU_3)
313 \textit{gil}an-ta-durgul (MA_2-DU_3)
\end{verbatim}

The \textit{gil}ma_2-du_3 is a part of a ship; \textit{gil}durgul is the mooring pole. Both words belong to the

\textsuperscript{64} For the system of determinatives see the introduction to Chapter 3.

\textsuperscript{65} In Old Babylonian orthography, durgul (mooring pole) may be written MA_2-DU_3 (later always MA_2-MUG). See §5.3, commentary to the lines 308-313.
semantic field of boats, and therefore the treatment of these sections together still has a semantic justification.

An example treated above (§3.2.2.2) is the position of the section $\text{giš}$ tukul (mace). It is placed before $\text{giš}$ dur$_2$ (board), apparently because tukul and dur$_2$ are readings of the same sign KU. The position of the section $\text{giš}$ tukul breaks the semantic coherence of the sections $\text{giš}$ u$_3$-šub (brick mould) and $\text{giš}$ dur$_2$ (board).

Graphemic principles operate on the placement and arrangement of sections and subsections, as demonstrated above, but also influence the sequencing of entries within a single section. This was demonstrated for the section $\text{giš}$ gigir (chariot) in §3.2.1. Those items that begin with the same sign are put together. Similarly, in the section trees there is a brief passage with words beginning with ŠU:

118 $\text{giš}$ ŠU.KAL
119 $\text{giš}$ šu-dib-ba
120 $\text{giš}$ ŠU.KAL

These trees have not been identified; the odds are that they are put together primarily because of their first sign. In the section $\text{giš}$ apin (plough) we find the following passage:

449 $\text{giš}$ sag-apin  'head' of the plough
450 $\text{giš}$ eme-apin  ploughshare
451 $\text{giš}$ ka-šu-apin  (part of the plough)
452 $\text{giš}$ šu-sag-apin  (part of the seeder funnel?)

The signs SAG, EME, and KA belong to the same sign family, with great similarity in their general appearance.

In later versions of the $\text{giš}$ list graphemic principles may be demonstrated as well. An example is the section Akkadian loans in the list of trees in first millennium ur$_5$-ra 3. The Akkadian column is for the greater part reconstructed. Where extant it has ŠU, meaning: 'the same' (as in the Sumerian column). A few lines from this section will suffice to illustrate the role of graphemic organization here (MSL 5, p.114):

254 $\text{giš}$ ur$_2$-nu  [ŠU]
255 $\text{giš}$ ur$_2$-zi-nu  [ŠU]
256 $\text{giš}$ si-lum  [ŠU]
257 $\text{giš}$ si-li-lum  [ŠU]
258 $\text{giš}$ ta-a-lum  [ŠU]
259 $\text{giš}$ ta-li-lum  [ŠU]

In 254-259 the lines are grouped in three pairs in such a way that the entries of each pair share both the initial and the final sign. Throughout the 'Akkadian loans' section (ur$_5$-ra 4, 241-264) entries sharing one or more signs are grouped.

In other parts of Old Babylonian ur$_5$-ra the same interweaving of semantic and graphemic
organization is attested. Putting together all kinds of sheep (division 3) is a semantic principle. The effect is a long series of entries, each beginning with the same sign UDU. Another example is found in the section stones (Nippur division 4):

<table>
<thead>
<tr>
<th>Number</th>
<th>Entry</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>146</td>
<td><em>na</em> (<em>na</em>)</td>
<td>pestle</td>
</tr>
<tr>
<td>147</td>
<td>*na-*ru₂-<em>a</em></td>
<td>stele</td>
</tr>
<tr>
<td>148</td>
<td>*na-*za₃-*hi-<em>li</em></td>
<td>mortar (for herbs)</td>
</tr>
<tr>
<td>149</td>
<td>*šu-*za₃-*hi-<em>li</em></td>
<td>pestle</td>
</tr>
<tr>
<td>150</td>
<td>*na-*dub-*ba-<em>an</em></td>
<td>stone plaque</td>
</tr>
<tr>
<td>151</td>
<td>*na-*gu₂-*bi-*₂-<em>na</em></td>
<td>small bowl</td>
</tr>
</tbody>
</table>

The word *na* may refer to a kind of stone but it also means pestle. Some of the entries belong to this semantic field and are derived from the basic word *na*. This is not the case, however, for *na*-ru₂-*a* (stele), and probably not for *na-*dub-*ba-*an. In later versions the section is expanded with other words beginning with NA, some of them clearly unrelated to *na* = pestle. An example is the entry *na*-pa-*um* in the Ugarit version (MSL 10, p.46, 245). This is a loan word from Akkadian for a kind of stone.

3.5 Relations to Other Lexical Lists and Literary Texts

Each of the Nippur lexical compositions exemplifies and teaches another aspect of Sumerian and the Sumerian writing system (see §2.6). The main focus of ur₅-ra is Sumerian vocabulary, Proto-Ea deals with polyvalent signs, Proto-Diri with complex signs, and so on. In teaching the Sumerian writing system, however, one cannot easily isolate one single feature. The polyvalent or complex signs in Proto-Ea and Proto-Diri can hardly be taught apart from semantics. Therefore the idea of teaching the Sumerian writing system by using various compositions, each focusing on one specific aspect of the whole, necessarily produces overlap. Moreover, within the semantic organization of ur₅-ra not every word will fit neatly into one and only one section of the series. There are passages in the giš list which are duplicated in the list of copper objects, the main difference being the determinative urud instead of giš. Another kind of relation between the lists is found in standard patterns, or paradigmatic sets. The existence of such sets has long been recognized for the colour terms (Landsberger 1967). The colour terms, in a fixed order, are used to qualify all kinds of nouns throughout ur₅-ra. But the same set is also found in other text types, such as literary texts and omen collections.

3.5.1 Correspondences with Other Parts of Old Babylonian Ur₅-ra.

There are a number of objects which appear in ur₅-ra both under 'wooden objects' and in some

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66 MSL 10, p.59.
67 The stone is attested in Lugal-e XI. Van Dijk 1983, Vol I, p.113: 483.
other division. An example is the whip (usan₃). In context this word normally carries the
determinative kuš for leather objects. In Nippur ur₅-ra it appears twice: among the leather objects
and in the section chariots and wagons of the list of wooden objects (see §3.2.1 for this section).

Nippur giš:
347 giš usan₃
348 giš usan₃
349 giš eme-usan₃
350 giš ama-usan₃
347 giš usan₃
111 kuš usan₃
112 kuš usan₃-lá
113 kuš KA-usan₃
114 kuš ama-usan₃

Though the two passages show some differences they are clearly related. The inclusion of these
items in the giš list is probably justified by the fact that a whip has a wooden part. The item
giš usan₃ still appears in the Middle Babylonian ur₅-ra versions from Emar and Ugarit
but is abandoned in the first millennium text.

A lengthier example is a passage listing kinds of hoes (lub-bi-da; gin₂-sal) and axes (aga), shared
by the giš list and the list of copper objects (urud; Nippur ur₅-ra division 2). Some of these
instruments are used both as weapons and as agricultural implements. In the giš list this section
is found immediately after a passage treating spear, javelin, bow, and arrow.

Wooden objects:
562 giš lib-bi-da
563 giš ha-bu-da
564 giš igi-gal₂
565 giš gin₂
566 giš gin₂-sal
567 giš aga
568 giš aga-GIN₂-ma
569 giš aga-šilig-ga
569a giš aga-AS-GAR
570 giš aga-e-da?
571 giš U₂-e-[
572 giš KID-a₂-gar
573 giš KID-tukul-mah

Copper objects (MSL 7, p.224f.):
168 urud lib-bi-da
169 urud ha-bu-da
170 urud igi-mar
171 urud gin₂
172 urud gin₂-sal
173 urud aga
174 urud aga-X-ma
175 urud aga-šilig-ga
176 urud aga-AS-GAR
177 urud U₂-e-GIM

Sources in the University Museum were collated (V1: CBS 11392; V12: CBS 14159+; V15: CBS 11335;
V16: UM 29-16-391+; V18: CBS 9868; and V21: CBS 9876). In line 113 EME is expected rather than
KA. Only one manuscript has the sign undamaged where it is a clear KA (V12). See MSL 7, p.133: 224: us-em-e-usan₃ = tamšaru.

Emar 6/4 p.67: 37'-42'. An Ugarit source is cited in MSL 6, p.11 (V1).

See Civil 1994, p.149.

The reading of this item is uncertain. It appears on only one tablet in an almost illegible line. Another
source (a teacher's model on the obverse of a type II tablet) has the variant us-gin₂-MIN. This variant may
indicate a reading mi₃ for SAL, but that is rather improbable in this context. The reading us-gin₂-sal is
preferred because this word is well attested for a light kind of hoe (see Civil 1994, p.57 and 70f.).
The similarities between the two passages are even more striking when the variants are taken into account. For гиш ha-bu₂-da (169) there is a variant ур₁ ha-bu-da. At least one text has гиш igi-mar instead of гиш igi-gal₂ (564). The enigmatic lines ур₁ U₂-e-gim and гиш ага-e-da; гиш U₂-e-[ (571-572) probably represent the same words in both lists. The entry in the copper list has the variants ур₁ U₂-TUN₃ and ур₁ AGA-e-GI[M]. The reconstruction of the lines 571-572 in the гиш list is very uncertain because all sources are damaged at this point.

The duplication of this set of words for axes and hoes in the two lists is probably to be explained in the same way as the гиш усan₃ (whip) section discussed above: the objects have both wooden and copper parts.

In the first millennium version the section under discussion was changed considerably. Notwithstanding these changes the passages in the гиш list and the list of copper objects still duplicate each other. In the гиш list it runs as follows (ур₅-ra 6 227-239; MSL 6, p.73):

<table>
<thead>
<tr>
<th>Line</th>
<th>Text</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>227</td>
<td>гиш ага</td>
<td>agú</td>
</tr>
<tr>
<td>228</td>
<td>гиш ага-gin₂</td>
<td>MIN pāši</td>
</tr>
<tr>
<td>229</td>
<td>гиш ага-šilīg</td>
<td>agašilikkum</td>
</tr>
<tr>
<td>230</td>
<td>гиш ага-šilīg</td>
<td>kalmakru</td>
</tr>
<tr>
<td>231</td>
<td>гиш gin₂</td>
<td>pāšu</td>
</tr>
<tr>
<td>232</td>
<td>гиш tun₃(GIN₂)</td>
<td>quddu</td>
</tr>
<tr>
<td>233</td>
<td>гиш gin₂-sal</td>
<td>ahzę</td>
</tr>
<tr>
<td>234</td>
<td>гиш dalla₂(IGI.KAK)</td>
<td>ģillu</td>
</tr>
<tr>
<td>235</td>
<td>гиш šukur(IGI.KAK)</td>
<td>šukurru</td>
</tr>
<tr>
<td>236</td>
<td>гиш šukur-gal</td>
<td>šukurgallum</td>
</tr>
<tr>
<td>237</td>
<td>гиш ša₃-rī₂-du</td>
<td>azmaru</td>
</tr>
<tr>
<td>238</td>
<td>гиш-i-mit-tum</td>
<td>imittu</td>
</tr>
<tr>
<td>239</td>
<td>гиш nig₂-gid₂-da</td>
<td>ariktum</td>
</tr>
</tbody>
</table>

In ur₅-ra 11 we find the same passage with the determinative for copper object (MSL 7, p.143f., 371-383). Compared to the Old Babylonian version the KID items and the items beginning with U₂ are omitted. The word ha-bu₃-da apparently became obsolete and is found nowhere in the first

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73 That igit-mar and igit-gal are orthographic variants of the same word is demonstrated by corresponding passages in Middle Babylonian texts from Nuzi (SMN 2559: 2-3; see Civil 1976, p.94) and Emār (Emār VI/4 545, 318b'-318c'; see Civil, 1989, p.13); and from late ur₅-ra 6: 27-28 (MSL 5, p.152). The syllabic Sumerian of the Nuzi text has i-ki-mar. The Emār text reads igit-i-kal. The late version has igit-gal. The Akkadian column of the Emār text is lost, but Nuzi and the late version agree (addu). See also MSL 6, p.92: 105-106 (same Sumerian items, with alternative translations).

74 The text in the Sumerian column was partly reconstructed from the ur₅-ra 11 passage in MSL 6. It is confirmed by NBC 10915 rev. col. 3 (unilingual; probably Kassite). Variants in NBC 10915: line 229 igit-asi; line 230 missing; line 237 igit-ra-ri-tum. For the reading of line 237 see the commentary to line 549 in §5.3.
millennium lexical tradition. The lib-bi-da entry was moved to another place in the list (ur₃-ra 7A, 242ff.). The IGI.KAK items (234-236) are inserted. They are not new in themselves. In the Old Babylonian giš list they are found in lines 547-548, just before the section under discussion. Now that the IGI.KAK items are inserted into this passage of the giš list, they are also inserted into the corresponding passage in the copper list.

Duplicating passages are also found between other sections of Old Babylonian ur₃-ra. A good example is the list of hides, when compared to the list of wild animals. The order of the sections in the two lists differs. The list of hides, for instance, has the aurochs (am) and elephant (am-si) immediately after the domestic animals (MSL 7, p.213f.). In the animal list the domestic animals are followed by snakes, dogs, gazelle and related animals (maš-da₃; šeg₃; dara₃), and only then the aurochs (am) and elephant (am-si). The individual sections, however, are closely related. By way of example I will present the section ur (large canines and felines):

<table>
<thead>
<tr>
<th>Hides (MSL 7, 214f.)</th>
<th>Animals</th>
</tr>
</thead>
<tbody>
<tr>
<td>38 kuš ur-mah</td>
<td>ur-mah</td>
</tr>
<tr>
<td>39 kuš ur-nig</td>
<td>ur-nig</td>
</tr>
<tr>
<td>40 kuš ur-bar-ra</td>
<td>ur-bar-ra</td>
</tr>
<tr>
<td>41 kuš ur-gi₇</td>
<td>ur-gi₇</td>
</tr>
<tr>
<td>42 kuš ur-ki</td>
<td>ur-ki</td>
</tr>
<tr>
<td>42a kuš ur-dib</td>
<td>ur-dib³⁷⁷</td>
</tr>
<tr>
<td>43 kuš ur-tur</td>
<td>ur-tur</td>
</tr>
<tr>
<td>44 kuš ur-šub₅</td>
<td>ur-šub₅</td>
</tr>
<tr>
<td>45 kuš ur-šub₅-kud-da</td>
<td>ur-šub₅-kud-da</td>
</tr>
</tbody>
</table>

In first millennium ur₃-ra the idea of duplicating a section in another part of the series was further exploited. In the Old Babylonian Nippur version there is a section giš bugin (wooden bucket) and another section giš bugin (reed bucket). The giš passage has only three lines:

252 giš bugin
253 giš bugin-tur
254 giš bugin-ZU-bar-ra

The GI counterpart is much longer. It is badly preserved (MSL 7, pp.189-190) but what is left bears little resemblance to the giš bugin passage. In late ur₃-ra the two sections are almost identical.

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75 The IGLKAK items are found in the Middle Babylonian versions of the copper list from Emar and Alalakh (MSL 7, p.158 and Emar VI/4, p.95). Šukur is spelled šu-gur in the Alalakh text (see also šu-gur in Emar VI/4, p.74; and below §3.5.2).

76 Wild animals are listed in Nippur ur₃-ra Division 3, between domestic animals (edited in MSL 8/1, pp.79-88) and meat cuts (edited in MSL 9, pp.41-48). No edition of the wild animals exists. A provisional reconstruction was made from SLT 37 (now joined to SLT 46 + N 5491); SLT 52, 56; and 57; and UM 29-16-31 (photograph). SLT 45 is probably post-Old Babylonian; it has a variant recension.

77 This item is omitted in some sources.

78 For the reading šub₅ (NUMUN) see the references in the lexical section of the CAD lemma mindinu.
3.5.2 Kagal and Diri

In addition to urṣ-ra, there are two other Old Babylonian lexical lists with a giš section: Proto-Kagal and Proto-Diri.\(^{79}\) Proto-Kagal belongs to the acrographic lists (sequenced by first sign). The section giš is the final section of this list.\(^{80}\) There is no clear relation between the giš list in urṣ-ra and the section in Proto-Kagal in Old Babylonian Nippur. The Proto-Kagal section seems to be intended for words beginning with the GIŠ sign which do not denote trees or wooden objects.\(^{81}\) There are, however, a few wooden objects listed (giš-bal, giš-ba-an). Both words are also found in urṣ-ra, but these are isolated agreements which do not imply duplicate sections or similarities in patterns.

The relation between Diri and urṣ-ra is more complicated.\(^{82}\) Lines 166-234 of Old Babylonian Nippur Diri all begin with GIŠ. A considerable number of these items denote trees and wooden objects.\(^{83}\) Such items are usually found in both lists. As an example I will discuss Proto-Diri 214-217, which has the items beginning with GIŠ.ŠU:

<table>
<thead>
<tr>
<th>gloss:</th>
<th>complex sign:</th>
<th>Akkadian equivalent:</th>
</tr>
</thead>
<tbody>
<tr>
<td>su₂-hu-ub</td>
<td>GIŠ.ŠU.DI.EŠ</td>
<td>mēdelum</td>
</tr>
<tr>
<td>su₂-hu-ub</td>
<td>GIŠ.ŠU.GA</td>
<td>naprakum</td>
</tr>
<tr>
<td>gi-ra-ah</td>
<td>GIŠ.ŠU.DIM₂</td>
<td>suppin itinnim</td>
</tr>
<tr>
<td>giš-gi-ri</td>
<td>GIŠ.ŠU.LU₂</td>
<td>nēmetum ša avīlim</td>
</tr>
</tbody>
</table>

Mēdelum and naprakum both mean bolt. The standard Nippur version of the giš list has the item gišŠU.DI.EŠ-ig (bolt of the door, line 394). A few tablets include the variants gišŠU.DI (394a) and gišŠU.GA (394b). The meaning of the next item in the Proto-Diri passage is unclear. The Akkadian rendering suppin itinnim seems to point at some tool for a construction worker. In Ur III texts the word gišŠU-DIM₂ appears among building materials for the construction of a boat. In that context the item is found in Old Babylonian urṣ-ra (line 261). The item GIŠ.ŠU.LU₂ is attested in the last part of the giš chapter of Nippur urṣ-ra (line 681). It follows gišrab (stock).

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\(^{79}\) Both lexical compositions are discussed in §2.4.1.3.

\(^{80}\) Proto-Kagal 509-542 (MSL 13, p.81f.) and Proto-Kagal Bilingual Section E 44-80 (MSL 13, p.87f.).

\(^{81}\) See the discussion of Proto-Kagal by Civil in MSL 13, pp.63-64.

\(^{82}\) I was able to study Diri through the HyperText version which M. Civil kindly placed at my disposal. I am happy to be able to express my gratitude for his generosity here.

\(^{83}\) In many cases our understanding of the writing system interprets the graphemic complexes in the GIŠ section of Proto-Diri as consisting of a determinative and a simple sign (for instance: GIŠ.TUG₂ = giš-taskarin), rather than as one complex sign. Apparently, our understanding of the system is not always identical with theirs. Here we will discuss the history of the relations between urṣ-ra and Diri without going into these questions.
Nēmettum is a kind of staff. In conclusion, most of the Proto-Diri items in this passage have a parallel in ur5-ra, but the section is not duplicated as such.

There are, however, two passages where a more substantial agreement between Proto-Diri and the Nippur giš list may be detected.

Nippur ur5-ra:
543 giš igi-gal₂
544 giš IGI-TUR-TUR
545 giš IGI-TUR-TUR
546 giš IGI-TUR-TUR
547 giš IGI-NI
548 giš IGI-KAK

The items have little in common in meaning. giš IGI-TUR-TUR is read giš ligima (see presently) and means shoot or bud. giš IGI-KAK is read giš dalla₂ (needle or arrow) or giš šukur (spear). The section is brought together because of the initial sign (IGI) of the items.

The giš igi-gal₂ (ṣaddu = sign or signal⁸⁴) line has no parallel in Proto-Diri. The IGI-TUR-TUR items are paralleled by three lines in Proto-Diri (150-152):

<table>
<thead>
<tr>
<th>Line</th>
<th>Proto-Diri</th>
<th>Akkadian</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>150</td>
<td>li-gi-ma</td>
<td>GIŠ-IGI-TUR-TUR</td>
<td>ligimûm shoot</td>
</tr>
<tr>
<td>151</td>
<td></td>
<td>GIŠ-IGI-TUR-TUR</td>
<td>ziqpu shoot</td>
</tr>
<tr>
<td>152</td>
<td></td>
<td>GIŠ-IGI-TUR-TUR</td>
<td>niplum shoot</td>
</tr>
</tbody>
</table>

Even though the entries begin with GIŠ they are found in the IGI section of Proto-Diri (the GIŠ is treated as determinative). The gloss li-gi-ma in line 150 is intended for all three lines. Only the Akkadian translation differs. The Akkadian words ligimû, ziqpu, and niplu mean offshoot, sapling, etc. Since the item is repeated three times both in ur5-ra⁸⁵ and in Proto-Diri we may safely assume that the sections duplicate. The words for sapling are rather misplaced in this part of ur5-ra. We are in the midst of words for nets, traps, and several kinds of weapons. The Nippur version, in fact, is the only version known so far that puts the giš IGI-TUR-TUR items in this particular place. In Middle Babylonian and later versions of ur5-ra the items are located immediately before the date palms in the section trees (MSL 5, pp.114-116)⁸⁶. They there join various other words for offshoot which are also found at that place in the Old Babylonian Nippur version (giš isi₂-mu₂, and in some sources giš bil₂)⁸⁷.

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⁸⁴ For the translation ṣaddu in this context see SMN 2559 (Civil 1976, p.94; and Civil 1987, p.187).

⁸⁵ In CBS 4827 rev. (Ni II-033) the item is found only once. This is probably also the case in N 5589 (Ni I-04). Similarly, in Proto-Diri source P1 (UM 55-21-354 = 3N-T601) omits line 151.

⁸⁶ This sequence is also found in the Old Babylonian type II text of unknown origin BRM IV, 31 (edited in §5.6.4 as NP II-01).

⁸⁷ In the Isin version giš isi₂-mu₂ is followed by other words for shoot: giš u₂-luh, and giš nunuz, but not giš ligima (Is I-02 Obv. III19-21; edited in §5.6.1). Isin may have had the giš ligima items in the same place as the Nippur text but the passage is not preserved.
The urs-ra items gišIGI-NI and gišIGI-KAK (547-548) are paralleled by Proto-Diri 142-145, again in the IGI section.

142 [ -b]u? IGL.KAK hebburum stalk
143 [da]-la IGL.KAK ṣillum arrow
144 šu-ku-ur IGL.KAK šukurrum spear
145 IGL.KAK halwûm ?

The first item is probably identical to henbur₂(ŠE.KAK) = habburu: shoot or stalk (see CAD habburu for references). I am not able to identify the word halwûm in the last entry. The two remaining words are dalla₂ = illum and šukur = šukurrum. These words are also found in the bilingual Middle Babylonian urs-ra version from Emar (Emar 6/4, p.74, 322'-325'):

322’ dalla₂(IGI-KAK) ṣil[lu]
323’ šu-gur šukurruru
324’ šu-gur-gal šukurgal[lu]

These lines appear in approximately the same context as the corresponding lines in Nippur urs-ra. Both passages are found in a section preceding gišillar = throwing stick⁸⁹. The three lists, Nippur Proto-Diri, Nippur urs-ra, and Emar urs-ra, differ in the spelling of the Sumerian:

<table>
<thead>
<tr>
<th></th>
<th>Proto-Diri</th>
<th>Nippur urs-ra</th>
<th>Emar urs-ra</th>
</tr>
</thead>
<tbody>
<tr>
<td>dalla₂</td>
<td>IGI-KAK</td>
<td>gišIGI-NI</td>
<td>IGI-KAK</td>
</tr>
<tr>
<td>šukur</td>
<td>IGI-KAK</td>
<td>gišIGI-KAK</td>
<td>šu-gur</td>
</tr>
</tbody>
</table>

Both urs-ra versions graphemically distinguish between dalla₂ and šukur. The Emar text uses a syllabic writing of šukur. In Nippur urs-ra a secondary differentiation⁹⁰ is introduced. The sign NI is distinguished from KAK by one small vertical only. The spelling IGI-NI for dalla₂ is, as far as I know, not attested outside this particular context.

The relation between Nippur urs-ra and Proto-Diri in this IGI section is admittedly not very strong. A single section in urs-ra (544-548) corresponds to two separate passages in Proto-Diri (142-145 and 150-152), and the spelling of gišdalla₂ differs in the two texts. Still, there is reason

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⁸⁸ See Civil 1989, p.13. For a Nuzi parallel see Civil 1976, p.94ff.; and Civil 1987, p.187ff. See also the Alalakh forerunner of urs-ra 11, MSL 7, p. 158: 14-16 (determinative urud) and Emar 6/4 p.95 247'-249' (urud; version does not agree with Alalakh).

⁸⁹ In general the Emar text follows the order of the Nippur version rather closely.

⁹⁰ There is little reason to suspect an error here since the IGI-NI item is found in a variety of sources, including a teacher's model on the obverse of a type II tablet (UM 55-21-409 = 3N-T911r; edited as Ni II-126).
to believe that the two compositions have influenced each other here. Semantically, the gišligima(IGI.TUR.TUR) items do not belong in this section of urs-ra. They belong with the trees where they are found in all other urs-ra versions. The gišligima items are associated with gišdalla and gišsukur for reasons of spelling. All are written with a complex sign beginning with IGI. The urs-ra passage has apparently collected together those relevant items which appear in the IGI section of Diri.

Another passage where we find agreement between Proto-Diri and Nippur urs-ra is more complex than the one discussed above. It is the section gišBU. In Nippur urs-ra the passage runs as follows:

429 gišBU
430 gišBU
431 gišBU
432 gišBU
433 gišsahar-BU
434 giš-bu
435 giš-bu ma-an-sim

The passage corresponds to first millennium urs-ra 6, lines 81-92 (MSL 6, p.58f.):

81 giš mu-ad-laBU muttû pole (lexical only)
82 giš ma-ad-laBU mākkû pole (lexical only)
83 giš ma-al-laBU malallû a container
84 giš ga-zi-in-buBU gaššu pole

---------------------------------------
85 giš MINBU maššû basket
86 giš MINBU ma'dû pole (lexical only)
87 giš MINBU mandû pole (lexical only)
88 giš MINBU nappa[u] stick (lexical only)

----------------------------------------
89 giš ga-zi-in-buBU gazimûnu pole (lexical only)
90 giš giš-lâ-dû-kûBU giššaškû pole (lexical only)
91 giš diBU alallû irrigation device
92 giš sahar-tî MINBU argugu agricultural implement (lexical only)

The glosses mudla, madla, and malla probably represent variants of one and the same Sumerian word. The Akkadian translations create an artificial differentiation. Most of the Akkadian equivalents are, in fact, only preserved in the lexical tradition, and their meaning is established primarily by the lexical contexts in which they appear. Sections comparable to urs-ra 6, 80-88 may be found in Emar Diri (Emar 6/4, p.37), Diri II (first millennium), and Emar urs-ra (Emar

91 For the reading and interpretation of this line and the next see the commentary to 434-435 in §5.3.
92 For a variant recension of lines 81-88 see MSL 6, p.57f. (lines 80a-80h).
Notwithstanding many minor variants in reading and translation, the tradition agrees in providing four Sumerian readings for \textit{giš}BU \textit{(mudla, madla, malla, and gazinbu)} and in the approximate ranges of meaning. These four readings are represented by the lines 429-432 in Nippur urs-ra.

The line \textit{giš} sahar-BU of the Nippur version is related to the lines \textit{urs}-ra 6, 91-92 cited above. The gloss in 91 represents the reading \textit{gidim} for BU. The line is known from first millennium Diri (Diri II 337): \textit{gi-di-im GIŠ.BU} \textit{alallû}. In \textit{MSL} 6 line 92 was read \textit{giš} \textit{MIN\textit{=gi-di}}BU \textit{= argugu}. The reading of this line is based upon one manuscript only (source A, Sippar). The copy by Zimmern shows that the sign read GI4 is damaged. A new source for \textit{urs}-ra 6 (NBC 10915, unilingual) has:

\begin{center}
\begin{tabular}{ll}
90 & \textit{giš} BU  \\
91 & \textit{giš} sahar-BU
\end{tabular}
\end{center}

Very probably these lines are related to the lines immediately following the \textit{giš}BU section in Emar \textit{urs}-ra (\textit{Emar 6/4} p.68):

\begin{center}
\begin{tabular}{ll}
95' & \textit{gi-TUR} \textit{ma-al-lu-u}  \\
96' & suhur-\textit{gi-TUR} \textit{ma-an-ki-gu}
\end{tabular}
\end{center}

The sign TUR is to be read di4 to form a syllabic spelling of \textit{gidim} (BU). The SUHUR in line 96' demonstrates the reading sahar for IŠ. \textit{Mā-al-lu-u} and \textit{ma-an-ki-gu} must be garbled spellings of \textit{alallû} and \textit{argugu} respectively. On the basis of these parallels, the reading GI4 in late \textit{urs}-ra 6 line 92 is very improbable. Zimmern's copy does not allow reading a SAHAR or SUHUR sign with any degree of certainty, though the latter would fit the traces better than the former. The reading sahar, as proposed above, is based upon the new source.

The \textit{giš}BU section in Old Babylonian Nippur \textit{urs}-ra still leaves a number of questions unanswered. There can be little doubt, however, that it is paralleled by Proto-Diri 179-184.

\begin{references}
93 The gloss ki-ši-mu (line 94') is a variant of gazinbu. Note that KI is used for standard GA in the Akkadian translation: ki-ši-šu (= gaššu).
94 See also the Emešal vocabulary in Veldhuis 1996a, p.233 rl02²: [m]u-\textit{ga-šim-bi} = \textit{giš}BU, with the z/š shift characteristic for Emešal; and Herrero and Glassner 1996, p.79 no.281 (Haft-Tepe; Middle Babylonian). In the latter text \textit{BU} is rendered \textit{ši-id-\textit{di}š-\textit{u}} (2x); \textit{ma-la-lu-u}; \textit{ga-zi-im-bi}; and \textit{ga-ši-šu}. The ŠU under \textit{ga-zi-im-bi} may indicate that this is a gloss rather than a translation (all other words in the Akkadian column have the nominative ending \textit{-u}), to be rendered gazimbû or gazimânu (as in \textit{urs}-ra 6: 89).
95 Both words have a shift /u/ -> /ma/. The shift /g/ -> /k/, in \textit{mankigu} for \textit{argugu} is often found in the Akkadian of the Emar lexical texts. For instance \textit{ki-ši-šu} for gaššu (Emar 6/4, p.68: 94').
96 A variant version of this passage is found in Herrero and Glassner 1996, p.79, 282 10-11: \textit{giš-gi-im hi-le-pu}; \textit{\textit{sa}har \textit{ar}š-[gu-gu]}. Line 10 parallels Diri II: 242: \textit{giš-ki-im GIŠ.BU} \textit{hilēpu}. In line 11 SAHAR is apparently not followed by a BU.
97 For this passage of Proto-Diri no text with glosses is available.
\end{references}
The relation between the Nippur giš list and Proto-Diri, as demonstrated above, is relatively weak when compared to the number of mutual entries and passages in the late versions. The beginning of the giš section in first millennium Diri II is a duplicate of the beginning of the list of trees in ur₅-ra 3. Existing relations are expanded and systematized. The Nippur giš list has a number of sections where the same item is repeated several times. Above we discussed the section giš BU; other examples were treated in §3.3. In the late version of ur₅-ra, in tablet 6, such sections are collected and augmented with comparable ones (giš GIBIL₂, giš KUD, etc.).

Nearly all these sections, except for the giš KUD entries, have their counterparts in Diri (see MSL 6, p.54). It is impossible to say which text has been adapted to which. On the one hand, the section giš gibil is found in Proto-Diri, but not in this form in Old Babylonian ur₅-ra. Here first millennium ur₅-ra is apparently adapted to Diri. On the other hand, Proto-Diri has only one entry giš ellag(LAGAB) whereas Nippur ur₅-ra agrees with the late tradition in having three lines. In the development of Diri and ur₅-ra the shared entries and passages became more numerous. This development is to be interpreted as an exponent of a more general development towards systematization in the lexical corpus. There is no need to theorize about the direction of the influence.

### 3.5.3 Paradigmatic Sets
A paradigmatic set is a special kind of relation between texts. The best example of a paradigmatic set in Mesopotamian texts is found in the set of colour terms. Landsberger (1967) showed that these terms recur in the same order in a wide variety of lexical lists, literary texts, and omen compendia. The set is found, for instance, in several places in the Nippur list of domestic animals (MSL 8/1, pp. 83-88):

sheep: goat: bull: calf:
udu-babbar maš₂-babbar gud-babbar amar-babbar white
udu-gi₆ maš₂-gi₆ gud-gi₆ amar-gi₆ black
udu-su₄-a maš₂-su₄-a gud-su₄-a amar-su₄-a red/brown
udu-sig₇-sig₇ gud-sig₇-sig₇ amar-sig₇-sig₇ yellow/green
udu-gun₃-a gud-gun₃-a amar-gun₃-a speckled

For some reason the colour terms are only listed for the male species. The repetition of the same set of colour terms throughout the list of domestic animals is not surprising. This list is very systematic in nature, using almost the same attributes for various animals. For instance, all female species (ewe, cow, female donkey) are listed with the following set:

u₃-tu having given birth
nu-u₃-tu not having given birth
gi₃-zu-zu having mated
gi₃-nu-zu not having mated

The set of colours is also found in the Nippur list of stones (MSL 10, p. 57, 80-84). Surprisingly, it is almost absent from the Nippur giš list. There is only one place where a variant recension has the opposition babbar -- gi₆ (white -- black):

006 gi₅₂ kiškanû₉⁹ tree
006a gi₅₂-babbar white kiškanû₉ tree
006b gi₅₂-gi₆ black kiškanû₉ tree
007 gi₅ gi₆ black tree

There are in the present reconstruction 42 Nippur manuscripts which preserve line 6. Eight of these have the items 6a and 6b. There is no tablet which demonstrably has only 6a or only 6b. Old Babylonian versions from outside Nippur (Isin and texts from unknown places) always have gi₅₂-babbar and gi₅₂-gi₆. The Ugarit version uses an almost complete set of colours.

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⁹⁹ This was already the case in the Archaic Cattle list. See Englund and Nissen 1993, p. 22; and Veldhuis 1995, p. 438f.

⁹⁹ Kiškanû is the Akkadian rendering of gi₅₂.

¹⁰⁰ Sources: Thureau-Dangin 1931, pl. XLVI-XLVII (no. 3 + no. 4); Thureau-Dangin 1932, p. 235, no. 10; Arnaud and Kennedy 1979, pl. VIII/2 (bilingual); and RSO V/1, p. 281 (photograph of RS 21.005). See also Emar 6/4, p. 55, 12-17.
006 $^\text{giš}_2$kin\textsubscript{2} \textit{kiškanû} tree
007 $^\text{giš}_2$kin\textsubscript{2}-babbar white \textit{kiškanû} tree
008 $^\text{giš}_2$kin\textsubscript{2}-gi\textsubscript{6} black \textit{kiškanû} tree
009 $^\text{giš}_3$kin\textsubscript{2}-su\textsubscript{4} red \textit{kiškanû} tree
010 $^\text{giš}_3$kin\textsubscript{2}-gun\textsubscript{3}-a speckled \textit{kiškanû} tree

The only colour term missing from the traditional set in this passage is $^\text{sig}_7$-sig\textsubscript{7}: green/yellow. In the late version some sources add the $^\text{giš}_2$-sig\textsubscript{7}-sig\textsubscript{7}, apparently to fill the open slot (MSL 5, p.92, 6-9b). In this version the set of colours further appears in the section giš-nimbar-u\textsubscript{4}-hi-in: date palm carrying fresh/unripe dates. The word u\textsubscript{4}-hi-in may refer to unripe dates, or to dates which have not yet been dried.

Ur\textsubscript{5}-ra 3, 335-340 (MSL 5, p.121)\textsuperscript{101}:

\begin{align*}
giš-nimbar-MIN(=u\textsubscript{4}-hi-in)-babbar & \quad pe\textsubscript{8}̄û \quad \text{date palm carrying white fresh dates} \\
giš-nimbar-MIN-gi\textsubscript{6} & \quad ̄gūalmu \quad \text{date palm carrying black fresh dates} \\
giš-nimbar-MIN-su\textsubscript{4} & \quad ̄šāmu \quad \text{date palm carrying red fresh dates} \\
giš-nimbar-MIN-gun\textsubscript{3}-nu & \quad ̄burrumu \quad \text{date palm carrying speckled fresh dates} \\
giš-nimbar-MIN-sig\textsubscript{7}-sig\textsubscript{7} & \quad arqu \quad \text{date palm carrying green fresh dates} \\
giš-nimbar-MIN-sig\textsubscript{7}-sig\textsubscript{7}-ga & \quad aruq bašil \quad \text{date palm carrying green fresh ripe dates}
\end{align*}

This passage is interesting because it shows the generative power of the set. There is little hope of finding date palms carrying \textit{uhinnu} dates in all these colours. The \textit{uhinnu} items are not attested in the Old Babylonian Nippur version, but the last item, line 340, probably corresponds to Nippur line 80: giš-nimbar-sig\textsubscript{7}-sig\textsubscript{7}-al-šeg\textsubscript{6}. It is the adjective sig\textsubscript{7}-sig\textsubscript{7} (green) that has triggered the whole set of colour terms.

The colour terms show that paradigmatic sets grow considerably in importance after the Old Babylonian period. Another set that is attested throughout late ur\textsubscript{5}-ra is the geographical set\textsuperscript{102} Dilmun - Magan - Meluhha: date-palms (ur\textsubscript{5}-ra 3, 284-287), tables (ur\textsubscript{5}-ra 4, 194-195; without Dilmun), ships (ur\textsubscript{5}-ra 4, 281-283), bronze (ur\textsubscript{5}-ra 11, 340-343), and carnelian ($^{na}gug = sāmtu$; ur\textsubscript{5}-ra 16, 127-128; without Magan). The correspondence between the pertinent passages for date palms and bronze is revealing:

\textbf{ur\textsubscript{5}-ra 3, 284-287 (MSL 5, p.117)} \quad \textbf{ur\textsubscript{5}-ra 11, 340-343 (MSL 7, p.142)}

\begin{align*}
giš-nimbar-dilmun & \quad tilmunû \quad \text{unud} dilmun \quad tilmunû \\
giš-nimbar-dilmun & \quad asnû \quad \text{unud} dilmun \quad asnû \\
giš-nimbar-ma\textsubscript{2}-gan-na & \quad makkânu \quad \text{unud} ma\textsubscript{2}-gan-na \quad makkânu \\
giš-nimbar-me-luh-ha & \quad meluhhû \quad \text{unud} me-luh-ha \quad meluhhû
\end{align*}

\textsuperscript{101} This passage is also found in Middle Babylonian texts from Ugarit, though without the speckled variant.

\textsuperscript{102} Geographical terms in ur\textsubscript{5}-ra are discussed by Pettinato 1972.
The Akkadian *asnû* is a well-known word for Dilmun date palm or Dilmun date. The rendering *tilmunû* for *giš-nimbar-dilmun* is more or less forced by the systematics of *urs-ra: -dilmun*, designating a variety of something, is always translated *tilmunû*. It is worth noting that the Dilmun date palm is the only variety listed here that is actually known outside lexical lists. It is also the only one that is found in the Old Babylonian Nippur version (line 68). The Magan and Meluhha varieties are probably included because the set Dilmun - Magan - Meluhha was triggered by the first item. For copper the situation is the other way around. The translation *asnû* for *timudd-dilmun* is simply wrong. The Akkadian word is not known as a designation for copper. It is copied from the *giš-nimbar-dilmun* entry. The *giš-nimbar* section is adapted to the general patterns of Sumerian-Akkadian translation. The copper section is adapted to the *giš-nimbar* section.

By contrast, in the Old Babylonian Nippur *giš* list the set Magan - Meluhha is found only a few times:

<table>
<thead>
<tr>
<th>Line</th>
<th>Giš</th>
<th>Translation</th>
</tr>
</thead>
<tbody>
<tr>
<td>050</td>
<td>giš mes-ma₂-gan-na</td>
<td>Magan mes-tree</td>
</tr>
<tr>
<td>051</td>
<td>giš mes-me-luh-ha</td>
<td>Meluhha mes-tree</td>
</tr>
<tr>
<td>179</td>
<td>giš gu-za-ma₂-gan-na</td>
<td>Magan chair</td>
</tr>
<tr>
<td>180</td>
<td>giš gu-za-me-luh-ha</td>
<td>Meluhha chair</td>
</tr>
<tr>
<td>181</td>
<td>giš gu-za-ma₂-lah₄</td>
<td>boatman's chair</td>
</tr>
<tr>
<td>182</td>
<td>giš gu-za-aratta</td>
<td>Aratta chair</td>
</tr>
<tr>
<td>193</td>
<td>giš gu-za-giš mes-ma₂-gan.ki</td>
<td>chair made of Magan mes-wood</td>
</tr>
<tr>
<td>194</td>
<td>giš gu-za-giš mes-me-[luh-ha]</td>
<td>chair made of Meluhha mes-wood</td>
</tr>
</tbody>
</table>

The mes-trees (lines 50-51) recur in the chairs made of mes-wood (193-194). The Magan chair and the Meluhha chair (179-180) are followed by the boatman's chair (181) and the Aratta chair (another geographical name). The boatman item is attracted by the phonemic similarity between *me-luh-ha* and *ma₂-lah₄*. Meluhha appears alone (without a corresponding Magan item) in line 40 of the list: *giš ab-ba-me-luh-ha = Meluhha abba-tree*.

Magan and Meluhha are also found together in the Nippur list of geographical names (*MSL* 11, p.104, 253-254). Otherwise, geographical names hardly function as a set in the Old Babylonian Nippur version.

### 3.5.4 Relations between Lexical and Literary Texts

There are few direct relations between literary texts and the lexical corpus in Old Babylonian Nippur. In a well-known passage in 'Enmerkar and the Lord of Aratta' the lord of Aratta gives Enmerkar three impossible tasks, which, of course, Enmerkar manages to fulfil anyway. One of these involves a dog (or hero?, Sumerian: *ur*), which is neither black, nor white, nor red, nor green, nor speckled (see most recently Vanshpihout 1995, pp.12-14). It has been noted in commentaries on this passage that the same set of dogs is found in the list of wild animals in *urs-ra* (*MSL* 8/2, p.13f., 89-93). This link, however, is not as clear as it might seem. The *urs-ra*
passage referred to is the first millennium version. The standard Old Babylonian Nippur list of wild animals, which belongs to Nippur ur₅-ra division 3, does not include the coloured dogs. It is possible, however, that they are found in one of the variant recensions of this list. At least one Old Babylonian list of dogs (of unknown provenance) included all the coloured varieties. The coloured dogs are not only found in the Enmerkar story. In a first millennium apotropaic ritual for the protection of a house, figurines of dogs in all colours are to be made (Wiggermann 1992, p.15, 191-205). The same set of dogs probably appears in an Old Babylonian Akkadian incantation from Ishchali. The coloured dogs may have had an independent existence in folklore. 'Enmerkar and the Lord of Aratta' appears to use many folklore elements (see Vanstiphout 1995). There is no reason, therefore, to assume that the inclusion in ur₅-ra of the coloured dogs is a direct influence from the Enmerkar story or vice versa. The impetus to include the white, black, red, speckled, and green dogs in ur₅-ra may well come from the existence of these dogs at various places in the Stream of Tradition.

More important is a functional relation between literary and lexical texts. Quite a few of the Sumerian literary texts used in the Nippur eduba contain passages that may be regarded as exercises in the vocabulary of one specific semantic field. Miguel Civil has edited a text in which all kinds of plants are enumerated (Civil 1987a) in a list-like formulaic fashion. The hymn 'Išme-Dagan and Enlil's Chariot' (Civil 1968; Klein 1989) is a very important source for the names of parts of the chariot. The praises of Enlil's chariot are sung by mentioning a part and describing it in a poetic metaphor. Several hymns go to considerable lengths in the detailed description of a cultic boat (see Klein 1990, pp.88-96). The composition 'Home of the Fish' mentions all kinds of fish (Civil 1961 and Vanstiphout 1982). Lugal-e has a lengthy section on stones (Van Dijk 1983). By way of example I will treat a short passage from the Nungal hymn. In this hymn, a song to 'lady prison', the terminology for doors, locks, and bolts is treated briefly. The text begins with a poetic address to the house (that is, the prison), each line beginning with the invocation 'House, ...' (e₂). Lines 13-24 metaphorically describe various parts of the gate. At line 25 a new passage starts. This is formally indicated by the resumption of the address 'House, ...' (e₂) with which this line begins. Lines 13-24 are all constructed in a similar way: Its (= the prison's) X is a Y that Z. The first half (13-18) describes the (larger) architectural elements of the gate. Lines 19-24 concentrate on the door and its parts.

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103 The reconstruction of the Old Babylonian list of wild animals, or the 'forerunners' of ur₅-ra 14, was promised for MSL 8/3, which never appeared. The Nippur version of the section ur has been edited above, §3.5.1. Variant Nippur recensions of the list of wild animals include: SLT 45 (probably post-Old Babylonian) and HS 1765 (square prism). SLT 51 does not preserve the ur section but is highly idiosyncratic in the section snakes (muš).

104 YBC 11118 (unpublished) obverse 9-13. Line 11 reads ur-BU-a. The writing su₄(BU) for su₄ is also found in a lexical prism from Kisurra (domestic animals) FAOS 2, 215 fr. §376/e iii10' (uz₄), and Seite B iii27' (ab)₄; and in the animal sections of the Diyala region cylinders A 7895 and A 7896, kept in the Oriental Institute, Chicago. For these cylinders see above §2.2.3.

105 Greengus 1979, no.302; see Farber 1981, p.57.

106 See also Ludwig 1990, pp.10-11 (Išme-Dagan I).

107 Edition by Sjöberg (1973); additional texts in Sjöberg (1977). Subsequently identified sources were collected by Attinger (1993, p.51). See further Civil (1993) with previous literature. Sjöberg's sources C (UM 29-16-49) and K (CBS 13931 = SÉM 51) were joined by the present writer.
Its pivot is an urin-bird, catching prey with its claws. Its door is a huge mountain that does not let out the wicked, but the righteous - he is not carried in by force - it does let out.

Its bar: raging lions, embracing in their power.
Its latch?: a sag-kal snake, who sticks out its tongue and hisses.
Its bolt: a womb-snake, entering a hole in fear.

The parts of the door described here may be compared to the section doors and locks in Nippur urṣ-ṛa. This section may be subdivided as follows:

<table>
<thead>
<tr>
<th>urṣ-ṛa</th>
<th>Nungal</th>
</tr>
</thead>
<tbody>
<tr>
<td>374-393</td>
<td>giš ig</td>
</tr>
<tr>
<td>394</td>
<td>giš suhub₄ latch?</td>
</tr>
<tr>
<td>395-397</td>
<td>giš nu-kuš₂-u₃ pivot</td>
</tr>
<tr>
<td>398-401</td>
<td>giš sag-kul bar</td>
</tr>
<tr>
<td>402-404</td>
<td>giš si-gar bolt</td>
</tr>
<tr>
<td>405-406</td>
<td>giš mud handle</td>
</tr>
</tbody>
</table>

The word giš suhub₄ (latch?) is found in some sources of Nippur urṣ-ṛa as the last item in the section doors (giš suhub₄-ig), but also appears without ig, as an independent item. The sections in urṣ-ṛa, therefore, correspond fairly closely to the parts of a door described in Nungal. The only part that is not found in the hymn is the giš mud (handle). The same or similar set of terms is also found in other literary texts, for instance in the 'Lamentation over Sumer and Ur' (see [108]).

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108 Gal, -- tak,(-tak,) = petû 'to open'. Context, and the infix -ta-, suggest the possibility that 'to open' is meant in the specific meaning of 'to allow someone to leave'. See Frymer 1977, p.80. The phrase šu-ba la-ba-ni-in-ku₄,ku₄ is interpreted here as 'he is not brought in through its (= the prison's) power'. In other words the lu₂-zi, if he happens to be in the prison, is there of his own free will, and the door allows him to leave.

109 'Embracing' (gu₂-da la₂-a) refers to fighting animals (perhaps nam-šul may refer to a fight). Probably, #sag-kul is the wooden beam used to close a door. It needs to be a larger element of the door since it can be mentioned separately in house-selling contracts (see also Potts 1990, p.191, who prefers the translation 'bolt'). The same word is used for a pole of a chariot or wagon (#sag-kul-gigir and #sag-kul-mar-gid₂-da; Nippur giš list 335 and 361). The embracing in this line may refer to the beam lying in the wooden structure that secures the beam to the door. For 22-24 see Michalowski 1989, p.102.

110 The meaning of e-ne-PAR, si-il(-si-il) is unclear. It is used with a snake as subject. See Heimpel 1968, p.467 (81.4); and p.501 (92.1) for two other examples.

111 See Civil 1994, p.78.
Michalowski 1989, pp.62-65, 428-433). One may regard such passages in Nungal and other texts as poetic elaborations of the vocabulary treated in the list. Or, alternatively, the list may be considered as an introduction to the language of the literary texts. Again it is not necessary to decide upon a dependence in either direction. The similarities are due to the educational context and purpose shared by lexical and literary texts.

Pursuing the relations between the literary and lexical corpus along this line would require another book at least. For my present purposes it is enough to have indicated the existence of such relations. One possible line of future research that suggests itself would be to study the literary texts from an educational point of view. The scholastic function of these texts is not exhausted by teaching Sumerian vocabulary, but that may well be one of the aims in treating them.

3.6 The Place of urs-ra in the Stream of Tradition

Just as it is impossible to describe one phoneme without referring to the phonemic system as a whole at a given stage in the development of a language, so is a composition not only characterized by its internal organization, but also by the place it occupies among other contemporary compositions. Compositions differ in use and in prestige. Use and prestige, moreover, may change over time no less than the inner organization of the composition itself. Further, these two lines of evolution may well be interrelated. To get a clear idea of the character of Nippur urs-ra, therefore, it must be contrasted to other contemporaneous compositions and to later versions of itself. In preceding sections we have practised this combination of diachronic and synchronic contrast by comparing features of the Nippur giš list to other Old Babylonian lexical lists, to contemporaneous literary texts, and to later versions of the composition. In this section I will do the same from a more remote point of view. The question will be: what is the place and function of urs-ra within the Nippur Stream of Tradition, and how does this place compare to that of first millennium urs-ra? This will take up the questions treated in the preceding pages on a higher level of abstraction.

The concept 'Stream of Tradition' was introduced by Oppenheim (1977, p.13) to distinguish the learned tradition of the scribes, handed down from one generation to the next, from daily texts such as letters and administrative records. The Nippur Stream of Tradition may be roughly divided into two parts: the lexical tradition and the literary tradition. These two parts correspond to the two stages of scribal education discussed in §2.4. Most of the compositions in both 'currents' are found in numerous duplicates. These are exercise tablets, written by pupils to master the cuneiform script and the Sumerian language, and to achieve the cultural level deemed necessary for a scribe. In addition to the well-attested compositions, there are a number of texts found in only one or a few copies. For the lexical corpus we have at least two examples: Short Ea and Syllable Alphabet A.

'Short Ea'\textsuperscript{112} is a list of signs indicating the main paragraphs of Proto-Ea. Each group or family of

\textsuperscript{112} The composition has not been described before. The following sources have been identified (all unpublished): CBS 2336; CBS 10468; CBS 15418; and Ni 137. A handcopy of Ni 137 by Hilprecht is
signs in Proto-Ea is represented by one line\textsuperscript{113}. As in Proto-Ea each line is introduced by a single vertical. The list begins as follows:

\begin{verbatim}
01 ¶ A
02 ¶ KU
03 ¶ ME
04 ¶ PAP
05 ¶ BAR
06 ¶ DU\textsubscript{3}
07 ¶ NI
etc.
\end{verbatim}

Short Ea is found on a few characteristically square tablets which do not conform to the common tablet typology (see §2.3.3). These square tablets have three columns on both sides, and seem to cover the whole list. They do not agree, however, in the length of the composition. One of the sources is an exercise on the reverse of a regular type II tablet. The column preserved has the beginning of Short Ea in a very bad hand. The obverse has an extract from the giš list (CBS 15418)\textsuperscript{114}.

Syllable Alphabet A (SA A) is a list of syllable combinations, apparently without meaning, used as an elementary exercise outside Nippur. It is a variant version of the Nippur exercise Syllable Alphabet B (see §2.4.1.1). Two pieces of SA A, clearly not belonging to the same tablet, have been found among the Nippur tablets in Philadelphia\textsuperscript{115}. Both are well written. They were not used as elementary exercises. Further, there is a fragment of a Syllable Vocabulary A from Nippur (SLT 243). Each syllable combination of SA A is explained by an Akkadian word, as in a bilingual word list\textsuperscript{116}.

Short Ea and SA A fall outside the common Nippur scribal curriculum, and outside the known tablet typology. Their existence as such, however, does not call for a specific explanation. Short Ea is generated by the (Proto)-Ea family. SA A is a text that must have been known in Nippur, if kept in Philadelphia. It was intended for a PBS volume which was never published,

\textsuperscript{113} One could defend the view that Short Ea is the Nippur version of S\	extsuperscript{a}.

\textsuperscript{114} The obverse is edited as Ni II-220.

\textsuperscript{115} CBS 14150 and UM 29-15-460. According to Falkowitz (1984, p.19) the lentil CBS 13706 has an extract from SA A, and this was reason for him to doubt the Nippurian origin of the piece. The lines extracted are SA A 1-2: me-me; pap-pap. However, SA B 5-8 reads me-me; me-a; me-me-a; pap-pap. Rather than assigning this piece to SA A, it is more reasonable to assume that either the final A of line 7 was forgotten, or that the exercise has lines 5 and 8 of SA B.

\textsuperscript{116} The traditional label 'Syllable Vocabulary A' is somewhat misleading. There are four Old Babylonian examples, all from different places. These four tablets share no other similarity than being explanatory works to SA A. They are independent as to the contents of the explanation. In the post-Old Babylonian period a standard Syllable Vocabulary A came into being. See Nougayrol 1965, and Emar 6/4, pp.194-198.
only because it was known everywhere. What these compositions show is that the body of lexical texts available to a Nippur scribe or schoolmaster was larger than the well-known set. It demonstrates how much we depend on pupils' exercises for our knowledge of this corpus. What falls outside the standard set is known to us by mere chance.

Within the Nippur Stream of Tradition we may thus distinguish between two groups of lexical compositions. First there are those which are regularly used for writing exercises. This group includes the well-known texts, such as SA B, ur5-ra, Proto-Ea, and so on. In the second place there are compositions which were used in a different way and have left no traces (or only very few) for us. Compositions of the first group are found in large numbers on tablets of regular types. Compositions of the second group are found in small numbers, and usually on tablets that fall outside the common tablet typology. Some of these texts may be completely unknown to us, having left no traces in the archaeological record.

The probability of this reconstruction is supported by a few lexical compositions which are to be located somewhere between the two groups. The first is the Nippur God list. This text is found in relatively few exemplars, and is not transmitted as such to later periods. Another example is Proto-ki-ulutin-bi-še₃, a list of business terminology (see §2.4.1.3). This list is also found in relatively small numbers, though more than the God list. The prime difference with the God list is that ki-ulutin-bi-še₃ is transmitted to the first century. Both lists are usually found on regular tablet types. These are examples of lists that were occasionally used for writing exercises but did not belong to the standard set. Alternatively, one might explain the relative paucity of Proto-ki-ulutin-bi-še₃ and Nippur God-list tablets by differences between individual teachers. We have seen in our discussion of TU-TA-TI in §2.4.1.1 that there are reasons to believe that such differences existed.

The situation for literary texts is comparable to that for the lexical lists. Little has been done so far towards counting and classifying duplicates of literary texts. There are a number of literary singletons among the Nippur literary compositions. At least three of these have representations elsewhere. The 'Marriage of Martu,' known from a single Nippur exemplar, is found on a literary catalogue text from Ur¹¹⁷. 'Enki and Ninhursag', unique in Nippur, is represented in Ur and at an unknown place (Attinger 1984). The Sumerian Sargon story¹¹⁸ is known from one Nippur exercise, and one piece from Uruk. A short exercise from Babylon (VS 24, 75)¹¹⁹ has three lines of a bilingual version of the same or a related story. The piece is late Old Babylonian or early Middle Babylonian, showing that the composition survived, notwithstanding the scarcity of written sources. These three examples show that the body of literary texts available for school exercises was not identical with a standard curriculum. There was a pool of texts which were rarely used for writing exercises but could be used for that purpose if a teacher wished to do so.

¹¹⁷ For the 'Marriage of Martu' see most recently Klein 1993, with previous literature. The catalogue is UET 5, 86; see Hallo 1966, p.90.

¹¹⁸ Cooper and Heimpel 1983. The Nippur piece and the Uruk piece do not overlap but there is little doubt that they represent the same story about Sargon and Urzababa. They may, of course, belong to different versions or recensions.

¹¹⁹ The piece was recently studied by Joan Goodnick-Westenholz (1997, pp.52-55 and p.382). The tablet format agrees with the Kassite exercise type discussed in §2.5.2.1.
The argument may be summarized into two related points. First, the corpus of school texts in Nippur was probably larger than the corpus we have. Second, writing an exercise tablet was no more than one possible performance of a lexical or literary composition. Only those texts which were performed that way are known to us. The second point implies that there must have been other types of use. For literary texts this may have included musical or dramatic performance \textsuperscript{120}. The most likely alternative use for a lexical text is recitation and rote learning. In fact, some of the compositions well-attested in writing bear witness to such another type of performance. The unilingual urs-ra exercises were orally provided with Akkadian translations. In many cases Proto-Ea and Proto-Diri exercises omit the glosses that were no doubt an essential part of the text. These texts, therefore, preserve in writing only part of the text as it was used in class.

We may take this point one step further and argue that the main mode of existence of Old Babylonian urs-ra was in the mind, not in writing. Our analysis of the giš list in the preceding sections has shown that variation is not confined to accidental omissions or additions. Such variants could have been regarded as errors, if necessary. The exercises include variant applications of a number of basic rules which govern the list. Writing or dictating a lexical exercise implies creating one particular realization of a composition that existed in memory, rather than making a duplicate of a text fixed in writing. David Rubin (1995), in his study of the cognitive-psychological aspects of memory in the oral transmission of epics, ballads, and counting-out rhymes, argues that oral texts are not stored verbatim in the memory. The memory actively employs the rules and expectations that belong to the genre in a way that resembles so-called schemas or scripts (see Rubin 1995, Chapter 2)\textsuperscript{121}. An example of a schema is 'going to the dentist'. This involves a sequence of events (making an appointment, reading magazines in the waiting room, etc.) which are taken for granted by anyone who is culturally competent. The oral genres investigated by Rubin employ numerous such schematic features. The story line need not be recalled in detail for every single composition. The schemas provide constraints on what happens and how it happens, and thus help the memory in recalling for example the continuation of a song \textsuperscript{122}. The kinds of variants that occur in recall are related to these constraints. From his evaluation of schema theories Rubin derives five predictions for verbal recall (Rubin 1995, p.36):

1. A piece matching a schema will be recalled more accurately in order and in content.
2. Changes will make the recall more like the schema.
3. Schema-based inferences will be drawn about omitted material.
4. Portions of variants that play the same role in a story will tend to be confused and substituted for each other, even if they bear no obvious resemblance.
5. Aspects of pieces that the schema determines are more important will be better recalled.

\textsuperscript{120} For the musical performance of the hymn Lipit-Eštar B (Vanstiphout 1978) see Kilmer and Civil 1986 and Kilmer 1992.

\textsuperscript{121} Strictly speaking in Rubin's terminology a script is a specific kind of schema, but the two terms will be used as synonyms here.

\textsuperscript{122} Rubin discusses a number of other constraints, such as the use of rhythm, music, and rhyme, that are less relevant for lexical texts.
We can see such schemas at work in the colour paradigms discussed in §3.5.3. Prediction 2, in particular, explains the gradual growth of the importance of such features in the tradition. The variants in order that we found in the section 68 gigir (chariot; §3.2.1) prove to represent different applications of the same set of rules. In other words: the schema does not decide for one or other variant, and the various sequences are equivalent. Rubin’s prediction 3 is very important. It implies that when one or two items are inadvertently forgotten by one teacher, this does not necessarily imply a break in the tradition. As long as such items are somehow related to the rules governing the list, they may be recovered by a pupil without this pupil even being aware of adding something to what he was taught. The theories reviewed by Rubin allow for a 'flexibility that maintains stability' (Rubin 1995, p.37). This is a most appropriate description of what we find empirically in the Old Babylonian lexical tradition. Lexical compositions existed primarily in memory, not only from rote learning but also by acquiring the generic principles behind them. The lexical tablet as written had no extra authority over the text as it was recited or stored in memory. For the great majority of lexical tablets we may say that the main raison d'être of the written text was the act of writing itself. Beyond that the tablet was of little use.

This situation is in sharp contrast with the Stream of Tradition as it is found in the post-Old Babylonian period. Two important changes occurred to the lexical texts themselves. In the Old Babylonian period every city had its own tradition. The lexical traditions of neighbouring cities like Nippur and Isin differed only slightly. Much greater differences are found with those of the far south (Ur) or in Northern Babylonia. In the first millennium the lexical compositions were standardized and we find virtually the same texts all over Mesopotamia through several centuries (see §2.5.2.2). In the second place a number of organizational principles that could already be identified for the Nippur lists are used in a more systematic way. Relations between ur5-ra and Diri existed in Old Babylonian Nippur but are more fully exploited in the late period. Repeating an entry to allow for various Akkadian translations is a technique that is greatly expanded in the first millennium, though it was already used in the earlier versions. Other examples have been discussed in the preceding sections. Both changes are related to an underlying change in uses of literacy. In the Stream of Tradition of the first millennium the written text has become authoritative. It is not enough anymore to learn the Akkadian renderings by heart. They must be included in the written text. The bilingual nature of ur5-ra is not new in itself. The novelty is that it is represented in the written format, in the layout, with one column for the Sumerian words and another for the Akkadian translations. The written text must cover every possibility, even implausible ones. In the Old Babylonian period the rules generating items and governing their sequence had some independence. They were still productive, generating variants in almost every duplicate. In the late texts the primacy is not with the rules but with the written text. This is why rules had to be applied in a more systematic way, even to produce unlikely results. The new status of written lexical texts is apparent from the existence of library copies and from quotations in commentary texts. Lexical texts have become authoritative texts, reference to which has the status of an argument.

The Stream of Tradition as it is known from first millennium libraries consisted not only and not primarily of literary and lexical texts. The majority of traditional texts contained omen

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123 Exceptions are prisms and perhaps lentils. These tablet types were not regularly recycled. They may have been produced as tokens of the pupil's competence or progress.
collections. These omen collections are important for understanding the lexical compositions of the first millennium. An omen has the format 'if ... then ...'. The 'if' sentence (protasis) describes an ominous phenomenon (an event in a dream, a miscarriage, or the behaviour of an animal). The 'then' sentence (apodosis) gives the interpretation of the meaning of the event described in the protasis. There are several series of omen collections, each specializing in specific kinds of omen. The series Šumma Ālu (over 100 tablets) is a collection of terrestrial omens, such as animal behaviour or the flight of the falcon. Astronomical omens were collected in the series Enūma Anu Enlil. Other series collected dream omens, physiognomic omens, diagnostic omens (based on the symptoms of a sick person), and so on. An important series is devoted to the interpretation of the entrails of sacrificial sheep, which were slaughtered for this purpose. The omen collections make up a vast corpus. By far the largest group of texts in Assurbanipal's celebrated library belonged to one or other omen series.

Omen collections are organized by systematic variation of protasis and apodosis. The following example is found in tablet 27 of Šumma Ālu, devoted to the behaviour of cats:

(CT 39, 48 BM 64295, ll.5-9):
If a white cat is seen in the house of a man, hardship will seize that land.
If a black cat is seen in the house of a man, this land will see prosperity.
If a red cat is seen in the house of a man, this land will be rich.
If a speckled cat is seen in the house of a man, this country will not be all right.
If a green cat is seen in the house of a man, this country will have a good reputation.

Underlying this variation is the same set of colours used at various places in the lexical corpus (see §3.5.3). We may assume that the same mechanism is active. One colour term tended to attract the whole set and produced a number of new items (in a lexical text) or omens (in Šumma Ālu). However, there are more fundamental similarities between the two corpora. Mesopotamian culture has no textual modes for abstract reasoning nor, in other terms, any meta-discourse. Abstract notions such as morpheme, polyvalency of graphemes, square, and square root are demonstrated by listing. First millennium lexical lists are to be read in two dimensions. The horizontal dimension is represented by the single item that clarifies the reading of one sign or the translation of one Sumerian word. The vertical dimension clarifies the abstract principles through the sequentiality of the items. This same two-dimensional format is found in the omen collections. The horizontal dimension is the connection of one protasis with one apodosis. The vertical dimension is the collection of omens and the system behind the collection. The set of colours, illustrated above, is a relatively simple example of such a vertical reading. Ann Guinan has shown in various articles how the vertical reading of an omen collection may disclose information that remains hidden when reading individual lines. She demonstrates how moral knowledge, or perhaps one should say common sense, is implied in the first few tablets of Šumma Ālu. The message is: inside and outside may not match, the proud and mighty may fall, the humble may rise to power. Similarly, in another article she demonstrates how the sexual

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124 See Cryer 1994 for an overview of the omen corpus.

125 See Michalowski 1994.

126 Guinan 1989.
Omina in Šumma Ālu convey the picture of what it is to be male in ancient Mesopotamia\textsuperscript{127}. To be a male in sexual relations means to be in control. Whenever the female takes the initiative, the apodosis is negative. The description of the mechanics and semantics of omen collections, therefore, is not exhausted by the definition of an omen as fortune-telling based on observation. From this perspective one may understand why and how impossible protases are found in omen collections. They may be understood not so much, or not only, in their horizontal aspect (an apodosis connected to a protasis), but in the vertical aspect of patterns which emerge from listing protasis-apodosis connections in their systematic variation. This is not a case of being consistent \textit{ad absurdum}. Rather it is a way of expressing an abstract principle. Omina and lexical entries, therefore, do not exist as single lines or entries. They exist as systematic collections.

The list-like format of omen collections is a formal feature matched by the systematic character of their contents. These two features make omen collections similar to lexical lists. The body of texts in list format and with systematic variation is even larger than the two genres discussed so far. It includes, with the omen collections, all the \textit{šumma} (if ... then...) texts: law codes, medical texts, glass-making texts, and so on\textsuperscript{128}. These text types are not all of one kind, each has particular distinctive characteristics. What unites them is their sharing of a feature of form: the list-like format, and a feature of content: the systematic variation. These two features establish the basic characteristics of a knowledge-conveying text, prototypically represented by the lexical list.

First millennium lexical texts therefore belonged to a large body of scholarly texts which existed primarily in a written form. Omen collections, especially on extispicy, already existed in a comparable format in the Old Babylonian period\textsuperscript{129}. Unique pieces such as the Old Babylonian Šumma Ālu text from Ur (Weisberg 1970) show again that much more was in existence than what is preserved. The shift towards written texts may have affected the extispicy collections first of all. Old Babylonian omen collections, however, do not seem to share background and use with contemporary lexical compositions. They are not attested on exercise tablets. The context of Old Babylonian lexical texts differs radically from the context of their first millennium counterparts.

Between the Old Babylonian period and the first millennium the mode of existence of lexical compositions had shifted towards a written form. The written form had become authoritative and subject to interpretation. The compositions are inscribed on large and beautiful library exemplars, where they are stored for consulting.

The first millennium uses of literacy are more similar to what is familiar to us: texts which are authoritative, fixed in wording, and which are consulted for reference. The contrast with the Old Babylonian period and the similarity with our own notion of writing should not be taken in an

\textsuperscript{127} Guinan 1979 and 1990.

\textsuperscript{128} The ancients had a word for this class of texts: \textit{šummu}. See Michalowski 1984, p.91.

absolute sense. Few texts were fixed in a way comparable to, for instance, the Hebrew bible. Consulting a clay tablet is no doubt more complicated, and thus probably more restricted, than consulting a scroll or codex. The modern dichotomy between knowledge stored in a reference book and knowledge stored in memory is not applicable to first millennium texts, and probably not to any pre-modern text. The contrast between Old Babylonian and first millennium literacy is nonetheless of prime importance. In the Old Babylonian period there was probably no concept of a library. The copying of texts from the Stream of Tradition was not primarily directed at storage, let alone at preservation. Literacy was not, or only marginally, used for cultic purposes (see Michalowski 1993a, pp.159-160). The 'forerunners' of the knowledge-conveying texts of the first millennium are for the greater part school texts, their existence is due to their use in writing exercises.

The giš list as edited in this study is not identical to the one known in Old Babylonian Nippur. No edition can simulate the flexibility and the open character of a text stored in memory. Within the body of school compositions urs-ra was specialized in Sumerian vocabulary, as opposed to other lists which specialized in other aspects of writing. The educational character of the list precluded a strict and rigid application of this specialization. We have demonstrated in this chapter how much of the organization of the giš list falls outside the scope of semantics. The Sumerian writing system may be approached from various angles but these approaches cannot be made mutually exclusive. For an educational purpose it is more useful to exploit such overlap than to avoid it. Moreover, the semantic organization of urs-ra is not based upon a theoretical analysis of Sumerian vocabulary. Such an analysis might have been useful if urs-ra were a real encyclopedia, designed to understand the language or the world. Even though such wider purposes may not be completely absent, the first purpose was the writing system and no such artificial sequentiality is needed for that. At the same time, the result of all this is not a matter of straightforward utility. The list does not merely exercise the words and signs that a pupil will need most in his later career. Urs-ra covers much more than that. Education is hardly ever a purely utilitarian business. Education connects the educated with a tradition. The connection with this tradition, no less than the technical requirements of writing, belonged to the necessary qualifications for the bureaucratic jobs of Old Babylonian society.

For this point see Michalowski 1987a; Høyrup 1995, pp.3-13; and Chapter 4 of the present study.