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Grassmann's contribution to lexicography and the living-on of his ideas in the Salzburg Dictionary to the Rig-Veda

Thomas Krisch, Christina Katsikadeli,
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Introduction

The Rig-Veda is one of the most important religious texts of India; actually it is supposed to be the most important one. (In the year 2007 manuscripts of the Rig-Veda were added to the UNESCO Memory of the World Register.) As the oldest text of Vedic Sanskrit it is of invaluable significance for various fields of research as it is also the oldest attested text of Indo-Iranian and one of the oldest texts of all the Indo-European languages.

Some 134 years ago, Hermann Grassmann [Grassmann 1875¹, 1976⁵, 1996⁶ revised by Maria Kozianka] published his monumental dictionary to this important text. It still is a very useful work and one can consider it an innovative and revolutionary concept of a dictionary even from today's point of view.

The main part of this paper intends to show how Grassmann's dictionary has inspired us to compile a new one, which we have abbreviated as RIVELEX¹ and which adapts Grassmann's central ideas and combines them with the present state-of-the-art in Indology and Indo-European Studies.

Comparing Grassmann and RIVELEX from a modern lexicographical point of view

As modern research in lexicography underlines [Atkins 2008, *passim*], the compilation of a dictionary consists of three phases: (1) pre-lexicography, (2) elaboration of a macrostructure and (3) working out a microstructure. We will deal with these three stages, comparing Grassmann's concept with our own approach.

Pre-Lexicography

In the pre-lexicographical phase, one of the main points is the *motivation* for making a dictionary. Grassmann's motivation can be reconstructed from the situation of indological studies and linguistics of his time and from the hints he gives us in the preface of his monumental dictionary. Sanskrit and Indo-European studies were young but booming fields of research at that time and the study of the Rig-Veda played a central role in both of them. In the preface and the epilogue to his dictionary, Grassmann mentions another motivation: he wanted to create a dictionary as a tool for his own translation of the Rig-Veda. Our motivation at the beginning of the twenty-first century is manifold: Indo-European and indological research has flourished enormously, especially in recent years and decades. A great number of dissertations, monographs and articles have been published on Vedic Sanskrit, especially on the language of the Rig-Veda, and on Indo-European etymology and grammar, which also includes important research on the Vedic language. The bibliography of the published first volume of

¹ RIVELEX is a bundle of projects funded by the Austrian Science Fund (FWF = Fonds zur Förderung der wissenschaftlichen Forschung; Austrian Science Fund; FWF projects P14411-SPR (October 2000 – September 2002), P15833-G03 (December 2002 – November 2004), P17799-G03 (December 2004 – November 2006, prolonged to December 2007) and the still running Projects P20311-G02 (January 2008–December 2009), P 20310-G02 (November 2007 – October 2010) and P 20615-G12 (May 2008–April 2010). The editor and supervisor of RIVELEX is Thomas Krisch, contributors to the project are: Christina Katsikadeli, Stefan Niederreiter, Sabine Ziegler, Konstantinos Sampanis, Thomas Kaltenbacher (English translations).

[RIVELEX] cites a large amount of them. Another motivation is equally important for us, namely the compilation of a “multiple user dictionary” of this important text. We try to compile a dictionary which covers the interests of comparative philologists, linguists, Indologists, theologians and other philologists and classical scholars interested in the Vedic Sanskrit language and culture. In the ideal case, our dictionary should enable someone with intermediate linguistic background knowledge to access the Rig-Veda.

The second aspect to be accounted for in the pre-lexicographical phase is the definition of the *sources of evidence*. As H. Grassmann writes in his preface, his word list was taken from the great Petersburg dictionary by Otto Böhtlingk and Rudolph Roth [Böhtlingk and Roth 1855–1875] and from the glossary of Theodor Benfey's *Die Hymnen des Sâma-Veda* [Benfey 1848]. The text version of the Rig-Veda his dictionary was based on was Theodor Aufrecht's transcription [Aufrecht 1861–1863] with corrections by Max Müller. As far as we know, Grassmann did not have a complete translation of the Rig-Veda at his disposal. RIVELEX is based on the new *Rig-Vedic Word Concordance* by Alexander Lubotsky [Lubotsky 1997]. The text version of the Rig-Veda which we use is the metrically restored text by [van Nooten and Holland 1994], which also exists in an electronic version and is based on Aufrecht's edition, as in Grassmann's text. The translations we consult at present are: [Elizarenkova 1999; Witzel and Gotō 2007; Geldner 1951; Renou 1955–1969; Grassmann RV1; RV2].

Elaboration of a macrostructure

After this pre-lexicographical phase, the lexicographer has to make decisions about the macrostructure of the lexical entries, also called “lemmata”. The macrostructure of a lexical entry is mainly its lay-out. As an example of Grassmann's layout cf. Sample 1.

(á-pūrvya), á-pūrvia, a., der nichts vorhergehendes oder vorzüglicheres [pūrvia] hat, 1) der erste, 2) der vorzüglichste, unvergleichliche, daneben oft purutāma (410,5; 473,1; 849,6).	
-a 2) (indra) 641,1;	-am [n.] 2) sumnām 638,1.
698,5.	
-as 1) (vāyus) 134,6	-ā [n.] 2) vācānsi 473,1;
[parallel prathamās].	brāhmāni 675,11.
-am [m.] 2) agnīm 247,	-ā [f.] 1) usās 46,1.
5; sárgam 410,5; stómam 849,6.	

Sample 1.

Grassmann starts with the “headword” of the entry *á-pūrvya-* with some morphological information. After that he offers a set of translations, which is followed by a block of morphological information about the attested forms. The translations and the attested forms are combined by using numbers. These are called “section marker” and “subsection markers” in lexicography. This type of arrangement is already an important innovation for Grassmann’s time. The RIVELEX entry follows the same macrostructure as Grassmann in general, cf. Sample 2.

ápūrv_iya- (adj.), m. f.(- ā-), n. „NICHT FRÜHER DAGEWESEN“¹ – “NOT HAVING BEEN THERE EARLIER”¹

adj. Verwendung – adj. use

1a attr.

1b präd. – pred.

subst. Verwendung – nom. use

2 m. der Vorzüglichste, der Erste

• the most excellent, the first

Nom.Sg.m. *ápūrvyas* **1b** 1,134,6

Vok.Sg.m. *apūrvya* **2** 8,21,1; 8,89,5

Akk.Sg.m. *ápūrvyam* **2** 3,13,5 (oder **1b**); 5,56,5 (oder **1a**)²; 10,23,6

Nom.Sg.f. *ápūrvyā* **1b** 1,46,1

Akk.Sg.n. *ápūrvyam* **2** 8,18,1

Akk.Pl.n. *ápūrvyā* **1a** 8,66,11 (oder **2**); **2** 6,32,1

Determinativkompositum aus *a-* (Privativpartikel) + *pūrvyā-* „vormalig, früher dagewesen, frühest“ (s.d.) mit der Bedeutung „nicht früher dagewesen“.

(C.K.)

¹ Auch im Sinn der implikativen Bedeutung „hervorragend“ gebraucht.

• Also used in the sense of the implicative meaning “excellent/outstanding”.

²Falls man *sārgam* als apokoinu zu *gāvām* und zu *maritām* gehörig interpretiert.

Sample 2.

The lemma starts with the headword (*ápūrv_iya-*) containing basic morphological information and a general translation. If there are more meanings than the one covered by the general translation, this headword is followed by a set of translations (as in Grassmann’s dictionary). We chose the form of highlighting this set with grey colour. Such a type of marking is a late-comer in lexicography in the 1990s. The third section is a morphological block.

But there are also differences in the macrostructure between Grassmann and RIVELEX. The most obvious one is that we have a fourth section in addition to Grassmann. The fourth section (written in smaller characters) contains information about the linguistic structure of the lexical entry and its etymology. One can find such information also in Grassmann, but not systematically offered within each lexical entry. He puts this information into his headword section.

There is another feature in the macrostructure of RIVELEX which has no counterpart in Grassmann's dictionary. We offer endnotes below the respective lexical item which deal with the philological interpretation of difficult passages, linguistic analysis and other remarks which we consider important to the user. Finally, every lexical item is signed by the respective main contributor.

In general, we try to follow a more rigid "style guide" than Grassmann. This is in accordance with modern dictionary making. Applied to the information about the linguistic structure of the lexical entry and its etymology, this means that we include this feature in every entry, also in cases where the facts may be completely clear to specialists. RIVELEX also provides negative information in the etymological section, i.e. it is stated explicitly when an etymology is still unclear. Another difference occurs within the morphological section: RIVELEX offers all attestations of every entry in the text, while Grassmann reduces the number of attestations in extensive entries. In short entries, as here in *ápūrv,ya-*, he lists all the attestations like RIVELEX. Nevertheless Grassmann offers a large number of attestations also for extensive entries, like pronouns or proper names, for example names for gods. This also has to be considered an innovation in Grassmann's times. Furthermore, inside the morphological section Grassmann abbreviates the forms by putting a hyphen plus word-ending, while he mentions the word stem as a headword, cf. Sample 1. RIVELEX, on the other hand, cites the full form of the words including a morphological analysis of every attestation, cf. Sample 2.

Working out a microstructure

After the pre-lexicographical phase and the macrostructure, the lexicographer has to make decisions about the *microstructure* of the lexical entries. Since the microstructure fills up the macrostructure, we will discuss it according to the sections of the macrostructure.

Inside the headword, cf. Sample 1, Grassmann obeys the following order: lexical entry in the form of a stem followed by grammatical information, here "adjective". In the case of *ápūrv,ya-* the headword also contains a short analysis of the word. Grassmann does not offer such information for every lexical entry. RIVELEX has a strict order inside the headword: the lexeme is presented in the form of a stem which is indicated by a hyphen.² This lexeme is followed by an indication of the part of speech (here

² In the case of verbs, the lemma is the verbal root as it appears in Mayrhofer's etymological dictionary [EWAia, 1986–2001].

“adjective”) and of the gender – in this case all *three* genders, namely masculine, feminine (including declension type) and neuter. The grammatical information is followed by a general “core meaning” (according to the tradition in semantics, written in capital letters). This accounts for the claim in modern lexicography, that one of the most important tasks for the lexicographer is to “[m]ake sure that TL [target language] words given as direct translations are general enough to suit most contexts” [Atkins and Rundell 2008, 212]. Another important feature of the direct translation in RIVELEX is that it appears in German and in English in order to provide broad usability, ideally for users worldwide. Inside the “grey box” (the so-called “menu” in lexicography) RIVELEX offers semantic and syntactic information in German and in English. In the case of an adjective, we distinguish between adjectival and nominal use. Inside the section of the adjectival use, we distinguish between attributive and predicative use. In Vedic it is not as easy to distinguish between these uses as it is in German and in English. We give our criteria for this distinction in Vedic in the preface to RIVELEX. Grassmann also has a similar section where the headword is divided into senses, but this section is less rigid in structure than ours and less theoretically oriented, for example Grassmann classifies *ápv̄rv̄iya-* as an adjective but translates nominally “der erste” (“the first one”), “der vorzüglichste” (“the eminent one”).

In RIVELEX, the morphological section below the grey box contains paradigmatic and syntagmatic information, cf. Sample 2. The paradigmatic data in RIVELEX consist of all the attestations of the word in the Rig-Veda, ordered by morphological categories like case and number. This information is cross-classified – by numbers and letters – with the classifications contained in the grey box. Thus, the nom.sg.m. *ápv̄rv̄iyas* is classified as 1b (predicative use). The three numbers, separated by commata, indicate the commonly accepted numbering of a passage in the Rig-Veda.

Such a cross-classifying structure of the morphological section was Grassmann’s innovation, cf. Sample 1. RIVELEX has adopted this notable advantage of Grassmann’s concept because it increases the clarity and conciseness of the presentation.

But there is a difference concerning the presentation of the morphological data between Grassmann and RIVELEX: Grassmann, cf. Sample 1, presents morphophonological information first, for example *-a*, *-as*, *-am*, etc., whereas RIVELEX analyses the forms: Nom.Sg.m. etc. Moreover, RIVELEX is also produced in electronic form, and so one can search for grammatical information as well. Hence, in addition to a dictionary one also obtains a minimal grammar of the Rig-Veda. Grassmann sometimes also adds grammatical information, but not systematically, cf. Sample 1: in only four of the six instances Grassmann indicates the gender. He does not add any information about case and number.

Concerning syntagmatic information, there is another fundamental difference between Grassmann and RIVELEX: the latter does not provide explicit microcontexts

of the respective attestations. Grassmann mentions such collocations, but without theoretical background. This information is very useful for the researcher, but it does not spare the scholar from looking up the original text³. In fact we do provide some syntagmatic information about the context, for example in verbal lexical entries, but we do so in a more theoretical way and not inside the morphological section.

Another difference between RIVELEX and Grassmann is due to technical innovations: RIVELEX also provides an electronic version on CD-Rom (Word-Format and PDF file), especially useful for the search of attestations and morphological and syntactic categories.

The section below the morphological component has the following microstructure. First, information about word formation is provided, in difficult cases with more detailed argumentation. Second, the etymology is dealt with tersely; RIVELEX offers a more extensive discussion with additional comparative data in unclear cases only. The lemma in Sample 2, again, can serve as an example: *ápūrvya-* is characterized as a determinative compound formed by the negative particle *a-* "not" plus the adjective *ápūrvya-* "earlier". In this case one obtains no information about etymology, because this may be found inside the lexical entries *a-* and *pūrvyá-* respectively.

The last section of a lexical entry in RIVELEX contains the "endnotes". Their microstructure consists of a discussion of specific philological problems, translation and interpretation of difficult or unclear passages and linguistic remarks. In the case of *ápūrvya-*, cf. Sample 2, endnote 1 deals with semantic information in addition to the translation. Since this endnote is added to the headline, it is also translated into English: "Also used in the sense of the implicative meaning 'excellent/outstanding'". Endnote 2 refers to a specific passage. This type of endnote appears in German, only. In this case, the English endnote reads: "if one interprets *sárgam* as apo koinou to *gávām* and to *marútām*". *Apo koinou* means that one part of speech is shared by two clauses. This is a device normally used in poetry. An English example of this is: "There were three crows sat on the tree" [Webster's 1981, 101]. In Sample 3, the part of speech which is common to both clauses (*sárgam*, the Vedic word for "herd/swarm/flock") is written in italics.

³ If we had included this feature in RIVELEX, this would have stretched the dictionary considerably. The collection and analysis of *rigvedic* collocations are topics of research of other projects, like the on-going project "Family-grammar of the *Rgveda*" at the University of Zürich under supervision of Prof. Dunkel, <http://www.research-projects.uzh.ch/p7734.htm> seen: Nov. 23 2009).

RV 5,56,5 :

[út tiṣṭha nūnām eṣāṃ stómaih sámukṣitānām]

marūtām purutāmam āpūrvaṃ gāvāṃ sárgam iva hvaye ||

[first line: “Now stand up with (songs of) praise for them who grew up together. (the poet speaks to himself)]

Sample 3.

The difficult construction appears in the second line: Without assuming an *apo koinou*-construction the interpretation of the second line would be: “I call the manifold one of the Marut, the excellent one, like a herd (*sárgam*) of cows”. With *apo koinou* the interpretation would be: “I call the very numerous excellent [swarm, *sárgam*], of the Maruts, like a herd (*sárgam*) of cows”.⁴

Adjectives normally are quite unproblematic in comparison to other parts of speech. Verbs especially are very difficult, because there are so many grammatical categories to deal with, cf. Sample 4.

arc- (v.) facientiv-transitiv/intransitiv „SINGEN, PREISEN“ – “SING, PRAISE”; ánu (etw. nachsingen, verkünden – repeating s.th. in speech song, proclaim); abhi, prá, abhi prá (besingen, preisen – sing of, praise); sám (gemeinsam, allgemein besingen – sing of s.th./s.o. in common, in general)
Tiefenkasus-Schemata (semantische Rollen):
* Deep Case Frames (Semantic Roles/Theta Roles):
ACTOR – EXPERIENCER/BENEFACTIVE (- THEME) 1 ACTOR (- THEME); 2 ACTOR – EXPERIENCER / BENEFACTIVE; 3 ACTOR – BENEFACTIVE / EXPERIENCER – THEME
1a ACTOR – THEME „ein (Lob-)Lied singen“ ACTOR = Nom. +bel., -abstr.; THEME = Akk. -bel., -abstr. (Simplex; abhi; prá) Aktiv
= Akk. -bel., -abstr. (Simplex; abhi; prá) active ... etc.
2 ACTOR – EXPERIENCER/BENEFACTIVE „jmdn./etw. besingen, preisen“
= ACTOR – EXPERIENCER/BENEFACTIVE “praise s.o./s.th. in song, praise”
... etc.

Präsensstamm themat. (I. KL.) (arc-s):

**Aktiv

*Indikativ Präs. 1.Sg. *árcāmi* 2aa 1.138,1; 2b 4.4.8¹; 10.12.4; etc. ...

*Imperfekt 3.Sg. *árcat* 1b 5.33.9; 1c 1.120.3 (prá); 3.Pl. *árcan* 1c 1.52.15; 5.45.7; 2aa 5.29.2 (ánu, Tm.)

*Injunktiv 3.Sg. *árcat* 1c 1.173.2; *árcat* 3a 1.165.14; 3a 1.62.1; *árcānu* 2aa 9.97.4 (abhi); etc. ...

*Partizip Nom.Sg.m. *árcan* 1c 3.31.8; 10.149.5; 4 3.31.7; Dat.Sg.m. *árcate* 4 1.87.2; etc. ...

**Medium

*Indikativ Präs. 1.Sg. *arce* 2aa 5.41.8 (abhi, Tm.); 3c 6.22.1 (abhi)

*Prospektiv 1.Sg. *arceat* 2c 10.64.3 (abhi)

Perfektstamm (árcy-):

**Aktiv

*Indikativ Perfekt 3.Pl. *árcē* 1a 1.19.4; 2aa od. 2ag² 5.6.8; etc. ...

Vgl. VIA: 1664; EWALD & MANNHOWER 2005: 13. ff.; vgl. khos. *ajj-* „singen“; idg. **(h)erh-* „singen, preisen“, „strahlen“(T). Der Befund könnte zum Ansatz zweier ursprungsverschiedener Wurzeln (*arc-*, *arc-*) verführen, da sonst Nomina wie *arcē*“-Flamme, Strahl“ schlecht erklärbar wären. Etc. ...

(S.N.)

arc, éc. Erweiterung aus ar. Die Grundbedeutung „in Bewegung setzen, abschießen“ findet sich in AV. 1, 2, 3, wo es vom Abschießen des schwirrenden Pfeiles gebraucht wird, und wol auch AV. 12, 1, 39, wo es mit

mit sám (ganz ähnlich wie ar mit sam 4 u. 5) „feststellen“ (die beiden Welten durch Stützen) bedeutet. Also 1) *abschießen*, AV.; 2) *strahlen, glänzen*; 3) *singen, lobsing*; 4) *singen*, einem Gotte oder göttlichen Wesen [Dat.]; 5) *singen*, ein Lied [Acc.]; 6) *singen*, einem

ánu, jemandem [A.] zu- pra 1) *vorleuchten* (265, jauchzen. 8); 2) *anheben zu* abhi 1) *singen* (ohne *singen*; 3) besonders: Cas.); 2) *singen*, ein einem Gotte [D.];

Stamm *arca*:

-āmi 7) (pūṣānam) 138,	arkám 10,1; 166,7*.
1. – 8) sumatim 300,	– 6) tūbhya arkám
8; āpas 838,4.	384,6*. – 7) tvā 383,
-ati 6) te práçastim	1*; indram 6*; vājī-
538,3.	nam 973,3.
-athas 5) gātúm 151,6*	-at 2) vṛṣā (indras) 173,
(mitra varuṇa).	2*.
-āmasi 7) tuā 462,6.	-āma 5) sāma 173,1. –
-anti 1) çarām anusphu-	6) arkám náre 62,1.

Sample 4. *Left*: RIVELEX, excerpts. *Right*: Grassmann, excerpts.

⁴ Toshifumi Gotō draws our attention to the fact that normally only one word of a constituent is put in front of the particle *iva* and thus one would expect * *gāvām iva sárgam* instead of *gāvām sárgam iva*. This claim accounts for almost all the attestations of *iva* in constructions like that, but there are exceptions where *iva* occurs after two words belonging to the same phrase (e.g. 1,117,18; 1,130,9g; 8,1,17). [Witzel/Gotō 2007] translate the passages 1,117,18 and 1,130,9g differently.

¹ *árcāmi te sumatim* „ich liebe deine Güte“; *te* wird hier als Gen. aufgefasst; Ge. übersetzt dativeisch.

² vgl. RASMUSSEN 1985: 390; vgl. auch GOTO 1987: 98f.

³ „lokaltamige nach den Perfektformen von *aj-* „sählen, vererblichen“; vgl. KRUSCH 1996: 40f.

⁴ zu ergänzen *iva* (Akk.) oder *te* (Dat.).

If one compares Grassmann with RIVELEX one may notice that RIVELEX has adapted Grassmann's idea of cross-classification not only for semantics and morphology but also for the combination of the verbum simplex with preverbs, like *abhí*. A feature in addition to Grassmann is the use of semantic theta-roles (deep cases) utilized by the most prominent linguistic paradigms both in Europe and in America (e.g. Fillmore, Chomsky, Radford). We apply the following roles and assign them to grammatical case-forms.⁵

- **ACTOR**: animate or inanimate performer of an action. The semantic role incorporates the classical role of **AGENT**, who is animate and performs an action deliberately with the metaphorical use of **AGENT** for inanimate forces.
- **THEME**: person or thing that is affected or created by an action or an event/state. If there are two **THEMES** (i.e. with causative verbs or with the verb "to be") then this is described as "THEME 1" and "THEME 2" (in predicative function), which indicate different roles. The verb "to be" links rather than assigns semantic roles. We have refrained from introducing another semantic case frame label for cases like that.
- **EXPERIENCER**: bearer of a state of mind. A semantic role experiencing a psychological state leading to an experience.
- **BENEFACTIVE**: animate beneficiary/"maleficiary" of an event, an action or a state.
- **LOCATIVE**: place of an event/state.
- **SOURCE**: source of a movement/action.
- **GOAL**: goal of a movement/action.
- **PATH**: the way along which a movement takes place.
- **INSTRUMENT**: means for fulfilling an action.

RIVELEX also includes modern insights into the structure of the Vedic language, for example the so-called "prospective" (category introduced by [Rasmussen 1985]), in our Sample 4.

⁵ There are evident semantic distinctions between semantic roles and grammatical case, e.g. the semantic role of **ACTOR** and **EXPERIENCER** both appear in nominative case, cf. the following examples: *the boy* (nom., **ACTOR**) *hits the ball* (Acc., **THEME**) vs. *the boy* (nom., **EXPERIENCER**) *sees the ball* (Acc., **THEME**).

Final remarks

We want to stress how fortunate a lexicographer of Vedic can be to have Grassmann's dictionary as a great example which combines mathematical systematicity with a user-friendly interface. Other philologies of ancient languages do not have this advantage, and therefore dictionaries to ancient texts still follow the traditional style of compilation: they did not have such an innovator as was Grassmann. Grassmann's concept corresponds to concepts discussed in recent lexicographical literature and some of his features gradually find their way into modern bilingual dictionaries and computerized thesauri. Grassmann's merits can be summarized in one sentence: His dictionary combines almost all the features a corpus dictionary can provide in macrostructure and microstructure. Finally, we want to emphasize another practical aspect of his achievements: Grassmann managed to complete his dictionary in an incredibly short time. Sue Atkins, a famous lexicographer of our times, remarks "the scholarly and historical dictionary is [...] a work often with few length constraints, and sometimes little pressure to complete within a specific time period – but also with a tendency to run out of money around letter C, or take 50 years to get there." [Atkins 2008, 31].

We hope that RIVELEX, the Salzburg Dictionary to the Rig-Veda, will prove to be nearer to Grassmann's brilliant example than to the numerous cases of dictionary projects which Sue Atkins describes.