

# Translating the Science of Sciences: European and Japanese Models in the Formation of Modern Chinese Logical Terminology, 1886-1912<sup>1</sup>

Joachim KURTZ

University of Erlangen-Nürnberg

*Whoever knows a discipline, such as logic or any other, well  
and tries to translate it into his mother tongue will discover  
that mother tongue lacking in both substance and words.*

Roger Bacon, *De linguarum cognitio*, 1269<sup>2</sup>

Translation has been a central activity throughout the history of science. Scientific knowledge, be it preserved in texts, institutions, or individual minds, is a highly mobile commodity, and the winding route of its travels and successive refinements indicates that scientific ideas and theories may gain or lose as much from migration as any human being crossing the boundaries of languages and cultures. This is particularly obvious in the case of the “European” science of logic: conceived in the multicultural environment of the Greek *polis*, the logical knowledge gathered in the Aristotelian canon was saved from extinction by partial renderings into Latin, Persian, and, via Syriac, into Arabic. Between the time of the Stoics and the revival of logic in twelfth-century Europe, the most important logical work was arguably done in Arabic.<sup>3</sup> When the discipline was rediscovered in Christian universities, its conceptual repertoire had been reshaped to such an extent that Roger Bacon (1214?-94) was led to his remark quoted above. Within one or two centuries, however, the *ars nova* logic became so thoroughly latinized that Arabian influences tended to be forgotten. In the sixteenth century, works on logic began to be published in modern languages, such as English, German, or French, often in opposition to the worn out scholasticism of Latin textbooks.<sup>4</sup> Finally, from the eighteenth century onwards, logicians proposed multiple ways to translate their findings from the various national languages into formal and symbolic languages, thus hoping to eliminate the need of further rendering once and for all.

Despite these efforts, translation continued to play an important role in the global history of the discipline. The forced or invited transplantation of logic (and other, less esoteric sciences) in the wake of the European expansion spurred a new wave of translation activity, most notably in East Asia where the discipline was recognized as a worthwhile subject of intellectual inquiry during the second half of the nineteenth century, first in Japan and, eventually, in China as well.

In this paper, I will address some aspects of this last turn—the translation of that hybrid science we have come to call “Western logic” into Chinese texts and contexts. More specifically, as a first step to reconstruct this multilayered process, I will trace the Chinese terms and terminologies that were invented to render important logical notions in the decades surrounding the turn of the twentieth century, either by direct phonetic or semantic borrowing from European languages or, more often, by graphic loans from Japanese. Not being a linguist myself, my primary interest is not to supplement the still incomplete lists of lexical creations from that period or to redefine the typologies of loan-words and neologisms in modern Chinese. Rather, I will examine what the history of the invention, adoption, or rejection of certain terminological choices may tell us about the formation of modern Chinese logical language and discourse. Scientific terms, as Scott Montgomery has recently reminded us, “are nearly always the result of some conscious choice, and this choice must often, of necessity, bear the marks of larger influence, above all the era-bound proclivities of the men and women who discovered the need for such choice. A nomenclature is built from thousands of such selections; it leaks history at every pore.”<sup>5</sup> The following notes may be taken, then, as a preliminary attempt to explore how much history there is to squeeze from the pores of successful and obsolete lexical innovations in the realm of one particular scientific discipline.

## Indifference

Before turning to the terms that were introduced in the final decades of the Qing dynasty, it may be useful to recall briefly the history of the reception of European logic prior to the late nineteenth century and, most notably, the striking indifference with which it was initially met in China. As far as we know, European logic was first mentioned in Chinese by Giulio Aleni (1582-1649) in 1623. In his *Xixue fan* 西學凡 (General outline of Western learning) and the more widely read *Zhifang waiji* 職方外記 (Records of the places outside the jurisdiction of the Office of Geography), Aleni introduced “logic” (*luorijia* 落日加 or 絡日伽) as one of the courses taught in the preparatory year at European universities.<sup>6</sup> What this course entailed was first substantiated in the *Mingli tan* 名理探 (*Logica*; lit. “The exploration of names and principles”), a partial rendering, published in 1631, of Aristotle’s *Categories* and Porphyry’s *Eisagoge*.<sup>7</sup> The *Mingli tan* was the outcome of more than five years of painstaking labors by Francisco Furtado (1587-1653) who claimed to have “translated the meaning” (*yiyi* 譯意) and the convert Li Zhizao 李之藻 (1569-1630) who had done his best to put this meaning into “comprehensible words” (*daci* 達辭). Despite the translators’ remarkable versatility in rendering the highly technical text into acceptable Chinese, the work must be regarded

as perhaps the most spectacular failure in the Jesuit enterprise to win over the educated elite by means of scholarship. The book never exerted any influence outside the Christian community and soon fell into almost perfect oblivion.<sup>8</sup>

The indifference that characterized the first erratic appearance of occidental logic in a Chinese context continued to make itself felt when the subject was once again intermittently introduced in the second half of the nineteenth century. In comparison to other sciences, references to logic remained widely scattered throughout the century—probably not least because the Protestant missionaries who were now most active in offering and selling knowledge to China did not nearly attribute so much importance to the discipline as their Jesuit precursors. Neither the subject matter nor the discursive value of logic were discovered until the late 1890s when the waning authority of the traditional canons and institutions drove Chinese scholars to seek new ways to ascertain their beliefs and infer new recipes for action. Against this grim background, several disillusioned officials and educators turned to the study of logic as a possible source of renewed certainty, wealth, and power. The most prominent supporter of the hitherto ignored “science of sciences” (*kexue zhi kexue* 科學之科學), as it soon came to be labelled, was Yan Fu 嚴復 (1853-1921). Mainly due to his activities that were facilitated by the general opening to “new knowledge” in the aftermath of the Sino-Japanese War, interest in logic increased considerably in the early years of the twentieth century.<sup>9</sup> Several widely-circulated journals carried articles on various aspects of the subject,<sup>10</sup> and private publishers struggled to come up with handy introductions in order to meet the growing demand from curious readers.<sup>11</sup> In 1903, the Translation Office at the Imperial University specifically mentioned the task of rendering logic textbooks into Chinese in its statutes, and in the same year the Qing government followed the Japanese example and included compulsory courses in logic in the revised curricula of universities and teachers’ colleges.<sup>12</sup>

## Interest

This belated institutional embrace sparked intense translation activity. Prior to the founding of the Republic, seventeen monographs on logic were published in Chinese, all but two in the decade between 1902 and 1911. Of these seventeen books, four (nos. 1, 2, 5, and 13 in the list below) were translated from English; one (no. 10) was adapted from an unspecified textbook in Latin. The remaining eleven were exclusively or primarily based on Japanese sources, either as translations of individual works or as digests of several texts written by as many as five different authors (no. 14). Bibliographical details of these largely forgotten works are as follows:

1. Joseph Edkins (Ai Yuese 艾約瑟), transl., *Bianxue qimeng* 辨學啟蒙 (Primer of logic), in Robert Hart, ed., *Gezhi qimeng* 格致啟蒙 (Science primers), 16 vols. (Shanghai: Inspectorate General of Customs, 1886; Shanghai: Zhuyitang shuju, 1896; Shanghai: Tushu jicheng yinshuju, 1898). Original: William Stanley Jevons, *Logic*, in T. H. Huxley, H. E. Roscoe, and Steward Balfour, eds., *Science Primer Series* (London, 1872).
2. John Fryer (Fu Lanya 傅蘭雅), transl., *Lixue xuzhi* 理學須知 (Essentials of logic) (n.p., 1898). Original unknown.
3. Lin Zutong 林祖同, transl., *Lunlixue dazhi* 論理學達旨 (A guide to logic) (Shanghai: Wenming shuju, 1902). Original: Kiyono Ben 清野勉, *Ronrigaku en'eki kinō* 論理學演繹歸納 (Logic, deductive and inductive) (Tokyo: Kinkōdō, 1892).
4. Wang Rongbao 汪榮寶, transl., *Lunlixue* 論理學 (Logic) (Tokyo: Yishu huibian she, 1902; Shanghai: Shangwu yinshuguan, 1906; Jiangxi shifan xueyuan, 1907). Original: Takayama Rinjirō 高山林次郎 (Chogyū 樗牛), *Ronrigaku* 論理學 (Logic) (Tokyo: Hakubunkan, 1898).
5. Yan Fu 嚴復, transl., *Mule mingxue* 穆勒名學 (Mill's logic), "Introduction, Part I" (Jinsuzhai, 1902); "Introduction, Parts I-III" (Shanghai: Shangwu yinshuguan, 1905). Original: "Parts I-III" of John Stuart Mill, *A System of Logic, Ratiocinative and Inductive* (London, 1843).
6. Yang Yinhang 楊蔭杭, comp., *Mingxue* 名學 (Logic) (Tokyo: Rixin congbian she, 1902; second ed., 1904). Alternative title: *Mingxue jiaokeshu* 名學教科書 (A textbook of logic) (Shanghai: Wenming shuju, 1902). Original unknown.
7. Tian Wuzhao 田吳炤, transl., *Lunlixue gangyao* 論理學綱要 (Outline of logic) (Shanghai, 1903; fourth ed., 1914). Original: Totoki Hisashi 十時彌, *Ronrigaku kōyō* 論理學綱要 (Tokyo: Dai Nihon tosho, 1900).
8. Fan Diji 范迪吉, transl., *Lunlixue wenda* 論理學問答 (Questions and answers on logic), in *Xinbian putong jiaoyu baike quanshu* 新編普通教育百科全書 (New general encyclopaedia for educational purposes), 102 vols. (Shanghai: Huiwen xueshe, 1903). Original: Hattori Unokichi 服部宇之吉, *Ronrigaku kyōkasho* 論理學教科書 (A textbook of logic) (Tokyo: Fuzanbō, 1899).
9. Hu Maoru 胡茂如, transl., *Lunlixue* 論理學 (Logic) (Shanghai: Taidong tushuju 1906; second ed., 1908; third ed., 1914). Original: Ōnishi Hajime 大西祝, *Ronrigaku* 論理學 (Logic) (Tokyo: Keiseisha, 1903).
10. Li Di 李欽, transl., *Minglixue* 名理學 (Logic) (Shanghai: Tushanwan yin-

- shuguan, 1907). Original unknown.
11. Wang Guowei 王國維, transl., *Bianxue* 辨學 (Logic) (Beijing: Jingshi Wudaomiao shoushuchu, 1908). Original: Toda Kindō 戶田欽堂, transl., *Zebon shi. Ronri shinpen: kan* 惹穩氏. 論理新編：完 (Jevons' Logic. New and complete edition) (Tokyo: Gangyokudō, 1882), a Japanese translation of William Stanley Jevons, *Elementary Lessons in Logic: deductive and inductive, with copious questions and examples, and a vocabulary of logical terms* (London: Macmillan, 1870).
  12. Han Shuzu 韓述組, comp., *Lunlixue* 論理學 (Logic) (n.p., 1908), based on a transcript of lectures on logic delivered by Hattori Unokichi 服部宇之吉 at the Imperial University in Tokyo.
  13. Yan Fu, transl., *Mingxue qianshuo* 名學淺說 (Primer of logic) (Tianjin, 1908; Shanghai: Shangwu yinshuguan, 1909). Original: William Stanley Jevons, *Logic*, in Huxley, Roscoe and Balfour, eds., *Science Primer Series* (London, 1876), cf. above, no. 1.
  14. Lin Kepei 林可培, comp., *Lunlixue tongyi* 論理學通義 (Comprehensive introduction to logic) (Shanghai: Zhongguo tushu gongsi, 1909), “primarily based” on Imafuku Shinobu 今福忍, *Saishin ronrigaku yōgi* 最新論理學要義 (New lectures on logic) (Tokyo: Hōbunkan, 1908), Watanabe Matajirō 渡辺又次郎, *Ronrigaku* 論理學 (Logic) (Tokyo: Tōkyō hōgakuin, 1894), and Kitazawa Sadakichi 北沢定吉, *Ronrigaku kōgi* 論理學講義 (Lectures on logic) (Tokyo: Kōdōkan, 1908); “supplemented” by Ōnishi Hajime 大西祝, *Ronrigaku* 論理學 (Logic) (Tokyo: Keiseisha, 1903), and Totoki Hisashi 十時彌, *Ronrigaku kōyō* 論理學綱要 (Outline of logic) (Tokyo: Dai Nihon tosho, 1900).
  15. Guo Yaogeng 過耀庚, transl., *Zuixin lunlixue gangyao* 最新論理學綱要 (Latest outline of logic), 2 vols. (Shanghai: Zhongguo tushu gongsi, 1909). Original: Kihira Tadayoshi 紀平正美, *Saishin ronrigaku kōyō* 最新論理學綱要 (Latest outline of logic) (Tokyo: Kōdōkan, 1907).
  16. Qian Jiazhi 錢家治, comp. *Mingxue* 名學 (Logic) (n.p., 1910). Original: Unspecified Japanese textbooks.
  17. Chen Wen 陳文, *Mingxue jiangyi* 名學講義 (Lectures on Logic), 3 vols. (Shanghai: Kexue huibian yibu, 1911; second ed. 1913). Alternative titles: *Mingxue* 名學 (Logic) and *Mingxue shili* 名學釋例 (Logic, with explanations and examples).

With the exception of Mill's monumental *System of Logic* (no. 5), a mere third of which Yan Fu managed to render between 1900 and 1905, none of these works of depar-

ture were written with serious theoretical ambition. The tumultuous development from traditional to mathematical or symbolic logic that dominated academic discussions in the West from the 1860s forward was almost completely ignored. Conceived as general introductions to the discipline for a non-specialist audience, the books that were eventually chosen for translation into Chinese taught basic forms of late traditional textbook syllogistics.

The translators who set out to render these texts were nonetheless well aware that they were facing a daunting challenge. None of their “Prefaces” or “Directions to the Reader” fail to mention in one way or another that “coining terms is extremely difficult” because, as some stated, logic was a science that China “had never known” or, as others lamented, because it was a branch of learning that had been “cut off” in antiquity. All agreed, however, that an entirely new terminology had to be established inasmuch as there were no adequate Chinese words to express logical notions.<sup>13</sup> Not even the bilingual dictionaries that had been compiled in the course of the nineteenth century contained entries for more than a few basic terms of the field; and even these were of no great value since most of the “equivalents” listed were not recorded from actual usage, but purposefully created to provide Chinese readers and future translators with rough explanations of unfamiliar notions or, in the case of more ambitious authors such as Wilhelm Lobscheid, in order to offer possible terminological prescriptions. The most pressing task for the pioneer translators was thus to come to terms with logic in a very literal sense; that is, to choose or invent adequate lexical replicas of the models they found in their various texts of departure.

### Translators

In order to reconstruct how this task was approached, let us take a closer look at the labors of five translators: three working from European languages (Joseph Edkins, no. 1; Yan Fu, nos. 5 and 13; and Li Di, no. 10), and two working from Japanese (Lin Zutong, no. 3; and Wang Guowei, no. 11). Each of the “European” translators created his own, unique system of terms. Joseph Edkins (1823-1905), the lonely precursor of all later Chinese efforts, had no choice but to tailor-make his own solutions. Yan Fu could have built on Edkins’s creations or, alternatively, on the earliest graphic loans arriving from Japan; however, as in his other works, he chose to propose his own terms in accordance with his well-known views on the principles of “reliable” (*xin* 信), “comprehensible” (*da* 達), and “elegant” (*ya* 雅) translation and his penchant for the antiquarian Tongcheng-style.<sup>14</sup> Li Di, finally, seems to have shared Yan’s convictions regarding conciseness and style—in fact, one is tempted to say he employed them more rigorously

than Yan himself—as well as the latter’s aversion towards Japanese-derived loan-words, but he apparently felt that the scholastic art he was assigned to teach at the Catholic Université de l’Aurore called for yet another set of novel Chinese replicas, based on the etymologies of their Latin models.

The job of translators from Japanese would, of course, seem much easier. Certainly, the lexical gap between Japanese and Chinese was much narrower, even if uncritical adoption of *kanbun*, as many translators were or became aware, often led to unwarranted trust for *faux amis*. Moreover, Japanese scholars had started to choose and discuss adequate renderings of logical terms already in the 1870s. In the course of these discussions, early suggestions by Nishi Amane 西周 (1829-97) and others were selectively adopted or replaced by seemingly more adequate choices.<sup>15</sup> Nonetheless, in contrast to other sciences, such as astronomy or physics, Japanese logical terminology was still much in flux at the turn of the twentieth century. A cursory comparison of the logical terms listed in the three editions of the (presumably) authoritative *Tetsugaku jii* 哲學字彙 (Dictionary of philosophy), published in 1881, 1884, and 1912 respectively, and the volumes on philosophy of the *Encyclopedia Nipponica* (1909) reveals that even the renditions of such basic notions as “premise” or “conclusion” continued to be contested well into the twentieth century.<sup>16</sup>

The terminological variety of the Japanese texts of departure was more or less faithfully mirrored in their Chinese adaptations. Even though some translators, such as Lin Kepei (no. 14), strove to “bring together [the different terminologies]” (*hui er tong zhi* 會而通之) into one consistent whole, most were so wary of involuntarily producing misunderstandings that they strictly clung to the *kanbun* representations of the technical terms they found in Japanese works, thus further adding to the terminological confusion that worsened in China with every new book. The texts by Lin Zutong and Wang Guowei (1877-1927) which I have chosen for my analysis are no exceptions to this rule. From our point of view, Lin Zutong’s obviously not very informed rendering is of particular interest because it was the only text adapted from Japanese that appeared before Yan Fu’s translations were circulated. Wang Guowei, on the other hand, deserves attention not only as perhaps the most professional translator of his day, but more particularly because his text was completed on behalf of the new Office for Translation and Terminology (Bianyi mingci guan 編譯名詞館) at the Metropolitan Library in Beijing, the first official institution to be founded in China with the explicit purpose of promoting the standardization of scientific terms and neologisms.<sup>17</sup>

In order to acquire a more precise idea of the proclivities of all five translators, as embodied in their choices of certain terms, as well as of the similarities and differences of the terminologies they suggested, I have scanned their texts for intended equivalents

for a set of about 100 notions that seemed indispensable to the type of late traditional logic they advocated. Replicas for eighty-three of these notions were present in at least three texts. In the Appendix, I have listed these replicas in four systematically ordered tables, dedicated respectively to “general scientific terms frequently employed in logic” (table 1); “terms related to terms” (table 2); “terms related to propositions” (table 3); and “terms related to inferences” (table 4). References to specific entries in the tables will be indicated in the following by the number of the table and item: for example, “2.1” would indicate “table 2, item 1.”

## Terms

At the present stage of my research, I am not in a position to attempt any comprehensive account of the formation of modern Chinese logical terminology, even during the early phase culminating in the late Qing. In the following, I shall only sketch a number of possible considerations, always keeping in mind the question of what historians of logic or philosophy may possibly hope to extract from such a collection of semiotic shells as I have collected.

### *From Paraphrase to Literalism*

On a general level, a vertical, column-by-column assessment of the individual choices listed in the four tables below corroborates that graphic loans from Japanese allowed Chinese translators of modern scientific texts to skip the first stage in the process “from paraphrase to literalism and beyond” which has been a recurring feature in interlingual migrations of knowledge.<sup>18</sup> While neither Lin Zutong nor Wang Guowei saw the need to paraphrase any of the technical notions they had to render (for the simple reason that their Japanese sources provided solutions for all of them), Edkins in particular resorted to this inelegant, pre-terminological strategy rather often. Among the more striking examples in his *Bianxue qimeng*, we may cite 2.15: *you tizhi shiwu zhi jieyu* 有體質實物之界語 “a term for a corporeal entity” for “concrete term”; 2.16: *tiefu shiwu jiayi xingrong zhi jieyu* 貼附實物加以形容之界語 “a term attached to an entity for the sake of further description” for “abstract term”; 3.12: *shouguan ru ruo deng zi zhi yuju* 首冠如若等字之語句 “a proposition starting with words like ‘if’ or ‘when’” for “hypothetical proposition”; and 4.20: *san yuju cidu liancheng zhi lunduan yu* 三語句次第連成之論斷語 “a judgment arrived at by sequentially linking three sentences” for “syllogism” (for further examples, see 2.3, 2.4, 3.5, 3.12, 3.15, 3.16, 3.17, 3.18, 4.2, 4.3, 4.4, 4.13, 4.14, 4.15, 4.16, and 4.25). From Li Di’s work, we might cite 2.19: *zicheng yiyi ci* 自成一義詞 “a term meaningful by itself” for “categorematic term”; and 2.20: *he yu ta ci er cheng yiyi ci* 合於他詞而成一義詞 “a term meaningful

only when united with another term” for “syncategorematic term.” Only Yan Fu was able to avoid employing paraphrases in lieu of terms, sometimes, however, by concealing his inability to find adequate semantic renditions—as his rudimentary translation theory required—behind transcriptions or hybrid creations such as 1.1: *luoji* 邏輯 or *luojixue* 邏輯學 for “logic”; 1.7: *xibutixi* 希卜梯西 for “hypothesis”; 3.4: *bulidijie* for 布理狄架 “predicate”; 3.7: *ebujie* 鄂卜捷 for “attribute”; or 2.19: *jiategelima zhi ming* 加特歌勒馬之名 and 2.20: *xinjiategelima zhi ming* 沁加特歌勒馬之名 for “categorematic” and “syncategorematic term.” Edkins also introduced a number of phonetic renderings such as 1.1: *luojige* 羅吉格 for “logic”; 2.1: *de'erma* 得耳馬 for “term”; or 3.5: *gebula* 哥布拉 for “copula,” but never without offering a “more Chinese,” i.e., less obviously foreign-derived semantic translation alongside, for instance, in the case of the above examples, 1.1: *bianxue* 辨學 “the science of disputation”; 2.1: *jieyu* 界語 “limiting word” or *jie* 界 “limit”; and 3.5: *lianluozi* 聯洛字 “connective.”

If it is legitimate to interpret the felt need for paraphrase and transcription on the part of the translators as symptomatic of a particular difficulty—such as a larger distance between the term of departure and the linguistic context to which it was to be adapted—then a catalogue of these instances could serve as a rough guide to the locations where equivalencies were especially hard to find. The above examples clearly point toward a number of such locations, largely in the realm of grammar but also in regard to technical notions of concreteness and abstraction or an explicit conception of hypothetical utterances.

### Consistency

A vertical reading of the tables can also serve to check the consistency of the individual translators’ choices. A look at the designations for the different types of terms (2.9 to 2.20) and propositions (3.11 to 3.22) is particularly helpful in this respect. In the section on terms, we find that Edkins and Li Di used the same word for “term” in all compounds (*yu* 語 and *ci* 詞, respectively). Lin Zutong and Yan Fu employed two different renderings (*yu* 語 and *ci* 詞 or *duan* 端 and *ming* 名, respectively) and Wang Guowei came up with three (the homophones *mingci* 名辭 and 名詞 in addition to *yu* 語). While it seems likely that Lin’s and Yan’s inconsistencies are the result of carelessness, Wang Guowei’s use of *-yu* in 2.19: *ziyongyu* 自用語 “categorematic term” and 2.20: *daiyongyu* 帶用語 “syncategorematic term” was a conscious choice, indicating that he (mis-) understood both terms as belonging to the realm of grammar, rather than that of logic.

In the section on propositions, only Yan Fu wavers between different ways to render the terms “particular” (*pianwei* 偏謂, *pianji* 偏及, or *pianju* 偏舉) and “universal” (*quanwei* 全謂, *puji* 普及, or *tongju* 統舉); the other authors are perfectly consis-

tent in the application of their terminological choices. In fact, with the exception of Yan Fu, the selections of our translators reveal a surprising degree of consistency. Cases in which more than one term is used to render a specific Western notion are rare. Hence, at least in the narrow realm of logic, the view that the terminological confusion in early twentieth-century Chinese was above all the result of the notorious inconsistency of negligent translators cannot be substantiated. Only Yan Fu appears as a valid target of such criticism, and it is therefore somewhat ironic that he was picked to direct the national offices for terminological standardization during the late-Qing and early-Republican periods.

### *Conceptual Interrelations*

Finally, a column-by-column assessment may be employed to consider the degree to which the translators were aware of the conceptual hierarchies (*Begriffsleitern*) and sequences (*Begriffsreihen*) defining the discipline, and to what extent they were able to preserve them in their renderings. Did they realize, for instance, that “subject” and “predicate” have different meanings in the contexts of Occidental logic and grammar,<sup>19</sup> and did they reflect this in their translations, maybe even to the extent of “correcting” or improving upon their Japanese and/or European models? Or, did they confound logical notions by using the same renderings for more than one term of departure? In this respect, results are mixed: the ambiguity of “subject” (3.3) and “predicate” (3.4) that is distinguished in contemporary Chinese, ideally at least, by using *zhuxiang* 主項 (“main term”) and *weixiang* 謂項 (“predicated term”) or *zhuci* 主詞 (“primary word”) and *weici* 謂詞 (“secondary word”) respectively, and which was also marked early on in Japanese terminology, is not yet apparent, even though Li Di and Wang Guowei were aware of it, as we may infer from their translations of other texts. On the other hand, all translators, no matter whether working from Japanese or Western sources, consciously employed pseudo-suffixes (or *formants*) such as *-yu* 語 (*formant* for “syntactical functions”) and *-ci* 詞 (for “parts of speech”) as a means to indicate systematic relations that are concealed in European languages.<sup>20</sup> Li Di’s text even preserves the systematic and semantic connection between “term” (2.1) and “definition” (2.5) by using *jiexian* 界限 and *jieshuo* 界說, respectively—two of the few terms, we should note, that Li adopted from earlier Jesuit sources. Obvious confusion is exceedingly rare: the only unambiguous example in the works of these pioneer translators is Lin Zutong’s use of *shujian* 屬件 for the Aristotelian notions of “predicables” (3.6) and “attributes” (3.7), but this inconsistency is also present in his text of departure.

## Histories

### Competition

Turning the tables and looking at the data horizontally—that is, row-by-row—we may state first of all that among the eighty-three examples, “analysis” (4.5) is the only term rendered by the same Chinese (and *kanbun*) replica, namely *fenxi* 分析, in all the texts in which it was employed. In all other instances, there was a certain degree of competition. For historians, such competition may serve to arouse or focus curiosity. In many cases, the diversity of the proposed choices that becomes apparent in a horizontal reading of the charts below can be taken as an index for the alterity and/or contestedness of individual notions. The prime example in this respect is the term “logic” itself (1.1). As I have shown elsewhere, more than fifty different Chinese renderings of “logic” were coined between the seventeenth and early twentieth centuries.<sup>21</sup> Even our five translators managed to come up with about a dozen different terms, employing along the way nearly all the strategies the Chinese language has to offer for the integration of new notions: phonetic renderings such as Li Di’s *laojike* 牢輯科, Edkins’ *luojige* 羅吉格, Wang Guowei’s *luoqike* 羅奇克 or Yan Fu’s *luoji* 邏輯; hybrid terms such as Yan’s *luojixue* 邏輯學 (“the science of *luoji*”); loan translations such as Edkins’ *bianxue* 辨學 or Lin Zutong’s Japanese-derived *lunlixue* 論理學 (both intended as semantic replicas of “the science of reasoning”); loan creations such as Yan Fu’s *mingxue* 名學 (“the science of names”); and, finally, loan shifts such as Li Di’s *mingli* 名理 (“the patterns of names”), coined by redefinition of a term with a rich history in traditional Chinese thought. Other potentially rewarding instances of terminological competition (or confusion) include 2.1: “term”; 2.5: “definition,” 3.1: “proposition”; 3.3: “subject”; 3.4: “predicate”; 3.5: “copula”; 4.2: “deduction”; 4.3: “induction”; 4.6: “premise”; 4.7: “conclusion”; and 4.20: “syllogism.” The individual stories to be told about the naturalization of these notions in Chinese contexts must certainly go beyond recounting the histories of their various terminological replicas, but, as even a cursory glimpse into these tales reveals, the diversity of the replicas can be taken as a fairly reliable indication of conceptual, philosophical, and/or ideological problems that may well deserve further investigation. For example, Liu Shippei’s 劉師培 (1884-1919) deliberations on the pros and cons of “inductive” and “deductive” (i.e., “centralist” and “regionalist”) political parties or Kang Youwei’s 康有為 (1858-1927) exhortations that political action must be based on proper “definitions” (i.e., “convictions”) can only be understood in light of the terminological and conceptual fluidity of these and other similarly contested notions and the terms by means of which they were circulated in late-Qing discourses. For without such fluidity, their unexpected migration into non-scientific contexts would not have

been possible. If nothing else, this insight should prevent us from passing premature judgment on many authors' "misunderstanding" or "conscious distortion" of the "original" Western and/or Japanese meanings of scientific terms employed in unusual contexts by late-Qing authors.

### *The Problem of Continuity*

Another respect in which a row-by-row reading may further our understanding of intellectual history is the problem of the relationship between "traditional" and "modern"—or rather "native" and "imported"—conceptions of logic in China. Contemporary historians of "Chinese logic"—a notion, we may note in passing, that was invented by the Japanese philosopher Kuwaki Genyoku 桑木巖翼 (1874-1946) in the year 1900<sup>22</sup>—usually insist that a more or less definite set of technical terms was available in Chinese from the third century B.C.E. onward, and that this set entailed equivalents to most of the fundamental notions from which "Western" logic was built.<sup>23</sup> If this was the case, we should have reason to expect that at least some of these terms were employed in the translations of logical notions adapted from the West. However, the data compiled here reveals that none of the "logical" terms of art from the *Mohist Canon* (*Mojing* 墨經), the *Gongsun Longzi* 公孫龍子, or Xunzi's 荀子 treatise on the "Correct Use of Names" ("Zhengming pian" 正名篇) was used for this purpose. Traditional terms with an attested history of usage in meanings close to relevant Western notions, such as *tui* 推 "to push forward" or "deduce," *bian* 辯 or 辨 "to debate," "dispute," or "differentiate," *lun* 論 "to argue," *zhengming* 證明 or *zhengju* 證據 "to put forward evidence," are only applied in a number of compounds for the more general terms of scientific import (cf. 1.2 to 1.6). Similarly, *lei* 類 "class" and *zhong* 種 "kind" were used as obvious choices to render 2.7: "genus" and 2.8: "species," but even here there is some lingering uncertainty as to which of the two notions each word could serve to translate.

Finally, there is also no trace of terms from *yinming* 因明 or *hetūvidyā*-reasoning, the second "Chinese tradition" of logical thinking that could have been used by the translators as a potential source of inspiration. Not even in the realm of "fallacies" (4.24 to 4.30), for which Chinese Buddhist thinkers had indeed developed a highly differentiated lexicon of "transgressions" (*guo* 過),<sup>24</sup> do we find any sign of terminological continuity. Hence, there is apparently no lexical evidence for the claim that early Chinese interpreters of Occidental logic situated the discipline in one of the contexts which are today customarily presented as its "natural" Chinese counterparts.

### **Conclusion**

The considerations in the preceding sections must certainly be expanded and

refined. Nevertheless, I hope that my impressionistic remarks will have shown that studies in the history of terminology may be a worthwhile pursuit for linguists as well as historians of science and thought. Diachronic explorations into the formation of modern Chinese scientific terminology can help to reconstruct not only the translational strategies of individual translators and the consistency of their respective choices, but also their understanding of specific notions or even entire branches of knowledge. In addition, such investigations supply valuable leads regarding the many conceptual dissonances inevitably involved in the nativization of foreign ideas in a new cultural and linguistic environment.

Japanese models provided a welcome short-cut for early Chinese translators of logical texts. Working from European originals was a lonely enterprise that required much greater terminological inventiveness. However, while certainly facilitating and speeding up the process of terminological normalization, borrowing terms from Japanese did not exempt the recipient Chinese audiences from the conceptual effort necessary to integrate the new terms and notions into their academic and discursive practices.

Let me conclude with one final remark that is in a sense intended as a preemptive retort to a possible criticism from linguists concentrating on synchronic studies of terms and terminologies. I certainly agree with their view that in contemporary scientific discourse technical terms are to be understood as proper nouns which are given their meanings through the definitions negotiated by experts in specialized discussion. However, this does not necessarily invalidate historical inquiries into the formation of the lexical items from which these terminologies were built. In the period under consideration here, such a specialist discourse was just about to emerge in China, and in this brief transitional moment terminological choices were far more than a matter of personal taste—they were, to paraphrase an aphorism by Bertold Brecht (1898-1956), “the handles by means of which things [in our context: the new notions from the West] are set in motion.”<sup>25</sup> Tracing the terms in which these notions were given currency—from their Chinese, Japanese, or European sources to their applications in the remotest areas of debate—may supplement our understanding of the specific dynamics of conceptual change in late-Qing and early-Republican China and thus represent a further step towards a much needed historical semantics of modern Chinese discourses.

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## NOTES

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- sions and mistakes, I am alone responsible.
- 2 Cited in Lefevere 1992: 49-50.
  - 3 Rescher 1964.
  - 4 Bochenski 1956.
  - 5 Montgomery 2000: 1.
  - 6 Giulio Aleni, *Xixue fan* (Hangzhou, 1623), repr. in Li Zhizao 1965 (1628), 1: 1-60; see all pp. 31-32. Giulio Aleni, *Zhifang waiji* (Hangzhou, 1623), repr. in Xie Fang 1996: 69.
  - 7 Li Zhizao 李之藻 and Francisco Furtado, *Mingli tan* (Hangzhou, 1631/36; repr. Shanghai: Shangwu yinshuguan, 1935). The Latin text on which the *Mingli tan* was based had been compiled at the University of Coïmbra and printed in Cologne in 1611 (first ed. 1607) under the title *Commentarii Collegii Conimbricenses e Societas Iesu. In Universam Dialecticam Aristotelis Stagiritae*. Cf. Verhaeren 1935: 425-27. See also Wardy 2000.
  - 8 Even for an influence within the Christian community, I have found but one reference claiming that the *Mingli tan* was used as a logical textbook in a Christian school in Hangzhou during the 1640s; see Cao Jiesheng 1982: 294. An expanded version of the *Mingli tan* was included in the *Qionglixue* 窮理學 (*Philosophia*) (1683), a *summa* of European philosophy prepared by Ferdinand Verbiest (1623-88) for the Kangxi emperor but the work was never printed. See Dudink and Standaert 1999.
  - 9 Sakade 1965. See also Takada 1967; Li Kuangwu 1989, 4: 126-80.
  - 10 Zhou 1991: 503-43. See also Sichuan daxue zhexuexi ziliaoshi et al. 1989: 215-22.
  - 11 Wang Yunwu 1973: 16.
  - 12 Cf. “Jingshi daxuetang yishuju zhangcheng” 京師大學堂譯書局章程 (Statutes for the Translation Office at the Imperial University) (1903), repr. in Li Nanqiu 1996: 494.
  - 13 The *Mingli tan* was rarely considered in this context.
  - 14 For a brief account of Yan Fu’s stylistic idiosyncracies and their influence on his translations, cf. Huang 2000: 71-81.
  - 15 Funayama 1968: ch. 1.
  - 16 Inoue Tetsujirō 1881; Nippon hyakka jisho henshūjo 1909.
  - 17 Wang Shuhuai 1969.
  - 18 Montgomery 2000: ch. 4.
  - 19 Strawson 1974.
  - 20 Alleton 2001.
  - 21 Kurtz 2001.
  - 22 Funayama 1968: 242-49.

- 23 Cf., for example, Li Kuangwu 1989, and many similar works.
- 24 Frakenhauser 1996: 68-70.
- 25 *Begriffe sind die Griffe, mit denen wir die Dinge bewegen.*

**Table 1: Some general scientific terms frequently employed in logic<sup>a</sup>**

##	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杅 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
1.1	logic	羅吉格 辨學	論理學* 論理*	名學 邏輯 邏輯學	牢輯科 名理學 名學	辨學 羅奇克	邏輯·邏輯學· 論理學·理則學
1.2	reasoning	辨論	推論*	思籀 思議 思辨	推想	推論*	推理
1.3	argumentation	辯論	辯論*	辨論	辨論	立論* 論證	論證·辨論
1.4	argument	辨論語		辨	證理	議論	論證
1.5	theory	辯論之矩	理論*	說	說	說 理論*	理論
1.6	proof	證明	證據*	証		證明	證明
1.7	hypothesis	懸擬之說	假設*	希卜梯西 設复 臆說	創說	假說	假設
1.8	verification	徵驗		印證 印證法		證明法*	證實
1.9	truth	意真 意真語	真理*	真理	真實	真理*	真理·真實性
1.10	true	是	真是	真是	真	真 真實*	真
1.11	false	非	偽 否	否 非	妄	妄 虛妄*	假

a. An asterisk (\*) behind the terms in columns 4 (Lin Zutong) and 7 (Wang Guowei) indicates that the same characters are used in *Tetsugaku jii*, 1881 and/or 1884.

Table 2: Terms related to terms

##	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杅 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
i)							
2.1	term	得耳馬 界語 界	語 名詞* 詞	端 名	界限	名辭* 項 語	詞項·項·名詞
2.2	concept (idea)		概念* 總念	意	意	概念*	概念 (觀念)
2.3	intension	意之精密	內包*	內涵	容度	內容	內涵
2.4	extension	意之擴大	外延*	外舉	張度	外延*	外延
2.5	definition	定名語	釋義	界說	界說	定義*	定義
2.6	difference	種異處	要差	差 差德	類別	差別	差異
2.7	genus	科	類	類	宗	類	屬·類
2.8	species	種	種	別	類	種	種·種類
ii)							
2.9	singular term	專語	單稱語	單及之端	切一詞	單純名辭	單一詞項
2.10	general term	同語	總稱語	普及之端			普通詞項
2.11	universal term				公意詞	普遍名辭	普遍詞項 全稱名詞
2.12	collective term	渾論語		撮最之端 總名	合群詞	集合名辭*	集合詞項
2.13	positive term	正面語	積極之詞	正名		積極名詞	正詞項·肯定詞項

**Table 2: Terms related to terms**

##	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杕 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
2.14	negative term	反面語	消極之詞	負名		消極名詞	負詞項·否定詞項
2.15	concrete term	有體質實物之界語		察名	實跡詞	具體名辭	具體詞項
2.16	abstract term	貼附實物加以形容 之界語	抽象語	系名	提空詞 懸名	抽象名辭	抽象詞項
2.17	absolute term		絕對之詞	獨立之名	獨立詞	絕對名辭*	絕對詞項
2.18	relative term		相對之詞	對待互觀之名	附傍詞	相對名辭*	相對詞項
2.19	categorematic term		自用之詞	有謂之名 加特歌勒馬之名	自成一義詞	自用語	自用詞項
2.20	syncategorematic term		副用之詞	合謂之名 沁加特歌勒馬之名	合於他詞而成一義 詞	帶用語	依附范疇詞

**Table 3: Terms related to propositions**

#	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杕 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
i)							
3.1	proposition	完全語句	命題*	詞 首 命題	辭	命題*	命題
3.2	judgment	論斷語	斷定*	比擬 判斷	判斷 斷	斷語 判斷	判斷
3.3	subject	專重語	主語	詞主	首詞	主語	主項·主詞
3.4	predicate	申明語	客語	所謂 布理狄架	從詞	賓語 說明語	謂項·賓詞
3.5	copula	聯洛成句之活字 聯洛之活字 聯洛字 哥布拉	聯絡語	綴詞 綴系	連詞	連辭*	連項·系詞
ii)							
3.6	(five) predicables		屬件	五旌	五族	賓性語	五種賓語
3.7	attribute		屬件	鄂卜捷	本資格	屬性*	屬性
3.8	property	情形	情形	德		副性	性質
3.9	quality	情節	性質*	品	優長 從違	性質*	質·質量
3.10	quantity	多寡	分量*	量	幾何 容量	分量*	量·數量

**Table 3: Terms related to propositions**

##	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杕 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
iii)							
3.11	categorical proposition			徑達之詞 定言命題		斷言命題	直言命題
3.12	hypothetical proposition	首冠如若等字之語句 如若字樣之虛擬語	假設之命題 口頭之命題	未定之詞 有待之詞		假言命題	假言命題
3.13	affirmative proposition	正面語句 正面語	肯定命題*	正詞	從辭	肯定命題*	肯定命題
3.14	negative proposition	反面語句 反面語	否定命題*	負詞	違辭	否定命題*	否定命題
3.15	particular proposition	包括未至盡頭處之 語句	特稱命題*	偏謂之詞 偏及之詞	分意辭	單純命題 特別命題	特稱命題
3.16	universal proposition	包括至於盡頭處之 語句	全稱命題*	全謂之詞 統舉之詞	總意辭	普遍命題	全稱命題
3.17	universal affirmative proposition	包括至盡頭處之 正面語	全稱肯定命題*	普及正詞 統舉正詞	總意從辭	普遍肯定命題	全稱肯定命題
3.18	universal negative proposition	包括至盡頭處之 反面語	全稱否定命題*	普及負詞 統舉負詞	總意違辭	普遍否定命題	全稱否定命題
3.19	particular affirmative proposition		特稱肯定命題*	偏謂正詞 偏及正詞	分意從辭	單純肯定命題	特稱肯定命題
3.20	particular negative proposition		特稱否定命題*	偏舉負詞 偏及負詞	分意違辭	單純否定命題	特稱否定命題
3.21	conjunctive proposition				並辭		合取命題
3.22	disjunctive proposition	分歧口頭語句		析取之詞		離言命題 選言命題	析取命題 選言命題

**Table 4: Terms related to inferences**

#	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杕 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
i)							
4.1	inference	推出 推闡	推理 論	推證 推知	推想	推論 推理	推理
4.2	deduction	憑理度物之推闡法 連類推測 推測	演繹法* 演繹*	外籀 外導	順推	演繹推理 演繹法* 演繹*	演繹法 演繹
4.3	induction	即物察理之辦法 即事察理 藉物察理 憑事察理	歸納法* 歸納*	選籀 選導	逆推	歸納推理 歸納法* 歸納*	歸納法 歸納
4.4	generalization	數端推及全局		會通 推概		概括	概括
4.5	analysis		分析*	分析	分析	分析*	分析
ii)							
4.6	premise	先出語 出語	提案* 前提*	原詞 原 前提	前列辭	前提*	前提
4.7	conclusion	結收語 斷定語句 斷定語	斷案* 歸結*	委詞 委 判 斷案	合辭 收辭 束辭	結論	結論
4.8	major premise	首先出語 首出語	大提案*	大原 例	起辭	大前提*	大前提
4.9	minor premise	次先出語 次出語	小提案*	小原 案	轉辭	小前提*	小前提

**Table 4: Terms related to inferences**

#	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杕 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
4.10	major term	大得耳馬 大界語	大語	大端 大語	大詞 大話	大名辭*	大項·大詞
4.11	minor term	小得耳馬 小界語	小語	小端 小語	小詞 小話	小名辭*	小項·小詞
4.12	middle term	中界語	中語 媒介語*	中端 中介 媒語	中詞 中話	中名辭* 中項	中項·中詞
4.13	distributed	包括至於盡頭處	周到	普及 周延 盡物	散屬	分配*	周延
4.14	undistributed	包括未至盡頭處	不周到	不普及 不周延 未嘗盡物	不散屬	不分配*	不周延
iii)							
4.15	antecedent	如若倘苟設等虛擬 首冠字樣 如若等虛擬字樣 先幾 虛擬前句	前節	安梯西登 前事 提設	前語者	前因	前件
4.16	consequent	明告余等所必繼續 情形之字樣 繼續之語 繼續後語	後節	後承		後因	後件
4.17	conversion	轉換	轉換法*	轉詞	改	轉換*	換位
4.18	opposition		反對當*		反	反對*	反對關係
4.19	contradiction		矛盾對當	全反	對反	矛盾*	矛盾關係

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##	Western Term (in English)	Joseph Edkins 艾約瑟(1886)	Lin Zutong 林祖同(1902)	Yan Fu 嚴復 (1902-5/1908)	Li Di 李杕 (1907)	Wang Guowei 王國維(1908)	Modern Standard Chinese Term(s)
iv)							
4.20	syllogism	三語句次第連成之 論斷語 次第連成之論斷語 三語句論斷語 西羅基斯摩	三段論體 三段法 三段論	連珠 聯珠	引徵法推想 三辭	推理式	三段論
4.21	figure (of syllogism)	式	格式	式	像式	圖形	格
4.22	disjunctive syllogism	口頭分歧三語句	分離體三段論	析取連珠		離言的推理式	選言三段論
4.23	sorites		連體三段論		申法推想	渾證	連鎖推理
v)							
4.24	fallacy	差謬 語病 差誤	偽論 謬	發拉屎 詈詞 偽論	謬	謬論 虛妄	謬誤
4.25	begging the question	應有確據不得確據 之理	問題不問之偽論	丐詞 丐問詈詞	求原	循環之證明	竊取論提
4.26	illicit major		大語越權	大端不合法之詈詞		大名辭泛濫之虛妄	大項不當周延的謬誤
4.27	illicit minor		小語越權	小端不合法之詈詞		小名辭泛濫之虛妄	小項不當周延的謬誤
4.28	undistributed middle term	中界語未包括至盡 頭處	中論不周到	中介不盡物之詈詞		中名辭不分配之虛妄	中項不當周延的謬誤
4.29	equivocation		多義之偽論*	歧義之詈詞	含數義詞	名辭混淆之虛妄	混義概念的謬誤
4.30	ambiguity	語意含混	曖昧中語之偽論*			多義之虛妄	語詞歧義的謬誤