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The transfer of mathematical knowledge between Europe and East Asia: case studies from the end of the Ming dynasty (China), to the Taisho era (Japan)

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How Did Chinese scholars treat the Western mathematical procedures and their similar traditional methods: A case Study on the double false position method in the early 17th century

Abstract – In The Nine Chapters on Mathematical Procedures which date from of the first century CE, a chapter titled “Excess and Deficit” (Ying Buzu) containing 20 questions and the detailed procedures for treating them is included. Thereafter many scholars made commentaries, subcommentaries, “detailed drafts” (annotations on procedures and their former commentaries), explanations, etc. to this book. In the Ming Dynasty (1368-1644), the method of “excess and deficit” still existed as a principal subject in mathematical works which was in the framework of The Nine Chapters and was supplemented with vast analogous questions. In the early 17th century, Christopher Clavius’s (1538-1612) *Epitome Arithmeticae Practicae* was introduced into China by Li Zhizao (1565-1630) and Matteo Ricci (1552-1610). Nevertheless, this is not only a simply literal translation, considering Li compiled some questions of other Chinese mathematical works into it. So the question that how Chinese scholars treated the western mathematical methods can be enquired into from this point of view, especially when the introducers were faced with a procedure which has a counterpart in Chinese mathematics context, like the method of double false position. Li considered the traditional method of double false position was somewhat not as ingenious as the western method. He applied the western method to give an alternative solution to the traditional question. However both the two approaches were given in the traditional canon. Did not Li know this or he just ignored the traditional method because he preferred the western one? What real new knowledge concerning this method, which has not been found in the tradition, did Li and Ricci bring into China? Did Li and Ricci use the Jiu Zhang’s classical classification to reconstruct Clavius’s work? And considering the manual calculation with pen was introduced for the first time by the translation of this book, what difference of practice with the traditional counting rod calculation, alongside the continuity the traditional practice remained, were represented in the method of double false position? These are questions I want to investigate in this talk.