



谈谈时间管理

On Time Management

陶哲轩 / 文 谢敏仪 / 译

受到一些网友的鼓励，我最终决定要在此谈谈我对时间管理的看法。其实我曾经想过就这个题目写点什么，不过后来发现自己在时间管理方面仍有待改善（看我堆积了很多论文未写便知）。况且，至今我仍未在这个课题上悟出简单而有效的道理（除非要我谈谈写论文的心得，像我在网上有一篇文章，介绍“快速成型法”——“rapid prototyping”）。因此，我只能跟大家分享一下个人经验，但未必适用于所有人和所有工作状况。当然，欢迎读者留言告知你们的想法、经验或其它建议（不得不承认，有时因为种种原因，就连我自己也不能沿用自己提出的经验与方法，对此我很遗憾）。

也许，我可以先发表一些零碎的意见。首先，我很庆幸，许多优秀的研究伙伴都在我们合作的工作中付出了大量的心血。例如最近在博客上刊登的好些论文，有很大部分都是合著者努力的成果。纵使合著比独撰论文要花上更多时间，却大大减轻了每位作者的工作负担，有助提升写作质量。我可以同时撰写几篇合著论文（因为在撰写过程中，有时论文在合著者手中，有时则尚待某些新进展），但如果是独撰的话，却只可以写一篇而已。

为配合校历安排，很多论文会在夏季完成，而其中不少项目更已构思了好一段时间（例如有篇即将发表的合著论文，

Prodded by several comments, I have finally decided to write up some my thoughts on time management here. I actually have been drafting something about this subject for a while, but I soon realised that my own experience with time management is still very much a work in progress (you should see my backlog of papers that need writing up) and I don't yet have a coherent or definitive philosophy on this topic (other than my advice on writing papers, for instance my page on rapid prototyping). Also, I can only talk about my own personal experiences, which probably do not generalise to all personality types or work situations, though perhaps readers may wish to contribute their own thoughts, experiences, or suggestions in the comments here. [I should also add that I don't always follow my own advice on these matters, often to my own regret.]

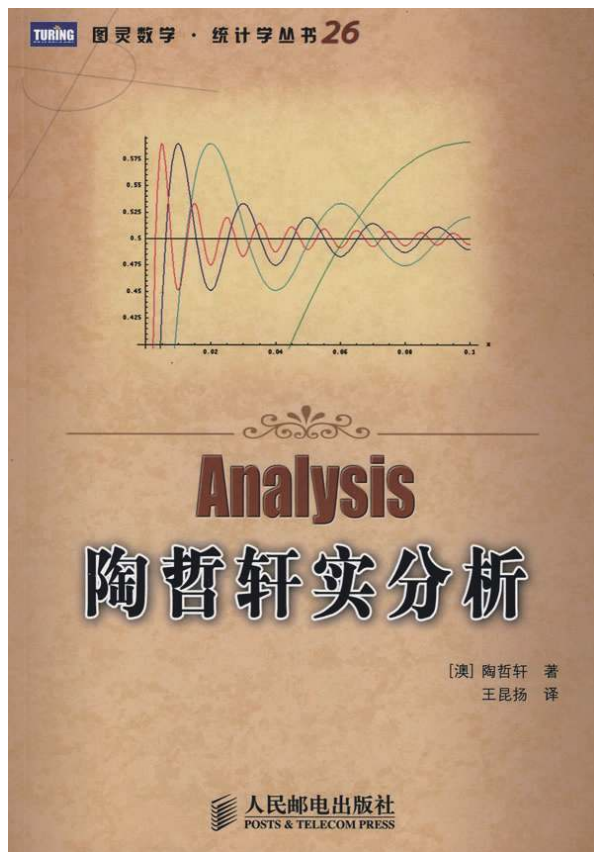
I can maybe make some unorganised comments, though. Firstly, I am very lucky to have some excellent collaborators who put a lot of effort into our joint papers; many of the papers appearing recently on this blog, for instance, were to a large extent handled by co-authors. Generally, I find that papers written in collaboration take longer than singly-authored papers, but the net effort expended per author is significantly less (and the quality of writing higher). Also, I find that I can work on many joint papers in parallel (since the ball is often in another co-author's court, or is pending some other development), but only on one single-authored paper at a time.

我们花了三、四年时间才把它完成；自2000年以来，我一直断断续续地思考——尽管通常都没什么灵感——wave maps的global regularity问题）。因此，每星期可以发表一篇论文并不等于构思和撰写所用的时间就只有短短一个星期，而事实刚好相反，要把论文写好，往往要经历很漫长的时间，这是成功背后鲜为人知的一面。

此外，我处理复杂数学问题的能耐基本上每天都不同：有时可以用整整一个小时费尽心思想某个问题；有时会把我与合著者之前写下的详细手稿整理一下，再打出来；不过有时候我只想回复电邮，做点琐碎事，或到外面走走，甚至去睡午觉。根据自己的精神状态来分配时间是很有效的。比方说，如果我某天下午有空，只要有灵感，便会把办公室的门关起来，让计算机保持离线状态，开始动手写一篇拖了很久也没有写完的论文。有些时候，我会处理一周没看的电邮，审阅一篇论文，再写写网志文章，又或者按照自己当时的精神和心情去做些其它的事。幸好从事数学研究的大部分工作（教学工作除外，不得不配合授课时间来安排工作计划）都是具有弹性的，时间可以按照上述的方式灵活调动（当然，最好在工作还没变成紧急的事之前就要做好，以免扰乱灵活的工作时间）。

能够客观准确地评估自己在某段时间（例如一天中余下的时间）的工作潜能（即身处的地方、精神状况、将要应付的职责和工作、可用资源的情况以及注意力的分散程度等因素的相互关系）对于时间管理是有帮助的。不要高估或低估自己的能力，从而使得工作量过多或太少，这都会影响工作效率（我在这两方面都有过经验和教训）。

即使我有许多复杂程度不同、难度不同、大小不同的事情要做，但如果我面对的某项任务需要极为专注才能完成，我会



陶哲轩著的大学生教科书；由北京师范大学王昆扬教授翻译。他目前已经出版9本书，仅有一本是和别人合作。

[For reasons having to do with the academic calendar, many more of these papers get finished during the summer than any other time of year, but many of these projects have actually been gestating for quite some time. (There should be a joint paper appearing shortly which we have been working on for about three or four years, for instance; and I have been thinking about the global regularity problem for wave maps problem on and off (mostly off) since about 2000.) So a paper being released every week does not actually correspond to a week being the time needed to conceive and then write up a paper; there is in fact quite a long pipeline of development which mostly happens out of public view.]

Another thing is that my ability to do any serious mathematics fluctuates greatly from day to day; sometimes I can think

hard on a problem for an hour, other times I feel ready to type up the full details of a sketch that I or my coauthors already wrote, and other times I only feel qualified to respond to email and do errands, or just to take a walk or even a nap. I find it very helpful to organise my time to match this fluctuation: for instance, if I have a free afternoon, and feel inspired to do so, I might close my office door, shut off the internet, and begin typing on a languishing paper; or if not, I go and work on a week's worth of email, referee a paper, write a blog article, or whatever else seems suited to my current levels of energy and enthusiasm. It is fortunate in mathematics that a large fraction of one's work (with the notable exception of teaching, which one then has to build one's schedule around) can be flexibly moved from one time slot to another in this manner. [A corollary to this is that one should deal with tasks before they become so urgent that they have to be done immediately, thus disrupting one's time flexibility.]

It helps a lot here to be able to honestly and accurately evaluate your work potential (a function of your location, your current level of motivation and energy, your upcoming duties and commitments, availability of resources, and the expected level of

尽量将注意力单单集中于这件事上，把其它事情暂时搁下。我发现，只有做那些无须太专心就能完成的事的时候，才可以同一时间做不同的事（尤其是我没有受到驱使做某事的时候，这个方式似乎是最有效的）。这类工作一般都需要较长时间才能完成，远远超出我所能付出的精神、时间和耐力；在这种情况下，就要找出合适的“工作断点”（比如说，在写论文的过程中给出一个关键命题，或者将对话中、黑板上、草稿纸上出现的某些灵感仔细的记下来）。工作断点可以让你安心地把工作暂时放下，同时也可以使你更容易的把握工作进度，等到继续工作的时候可以马上投入。应避免在没有完成工作断点的情况下停止手头的工作，这样做的结果很可能使工作半途而废，或让人心有旁骛，影响其他的工作，当再次开始这一工作时不得不从之前做过的某一部分开始做起。其实，一次完不成的任务当然有必要分步完成，只要能够找到合适的暂停之处，就不必急于一蹴而就。请允许我举个很俗的例子：每当我写信的时候（一般都是我工作状态不大好，不足以应付复杂的数学问题时），我都会把内容先打好，然后印出来，放进信封，封好口，再把信件放在寄件盘里。不过通常我都不会把信件寄出（也不会整理盘子里的其它文件），除非寄件盘挤太满，而我也没什么别的事可以做，就会把所有存积的文件、信件统一处理一下（趁计算机重新启动或不知何故无法正常操作的时候处理是最好不过的了）。

如果可以的话，尽量把琐碎小事合并处理，而需要大量精力的任务则最好各自独立进行，以免分心。

与“工作断点”相关的一个做法，就是把一项非常大的工作分割成若干个独立的部分，最好每一部分都有实时的“回报”。这样做有很多可取的地方，比如说，如果我早就决定要写一部关于庞加莱猜想 (Poincaré conjecture) 的著作或专论，而不是写十九篇较易完成的关于庞加莱猜想的独立短文，我就会怀疑我自己根本不会尝试写（更不用说写成了）那十九篇讲义（这个做法某程度上也让我“置之死地而后生”，因为事先说好会写讲义，好给自己一点推动力，叫我不能半途而废，撒手不干）。

现代文字编辑器（包括我的博客使用的那个）的好处是在撰写过程中，能够更容易把草稿储存起来，之后再按情况补充一些细节或稍作润色。正如上述的做法，通过把工作细分，有助作者撰写篇幅很长的论文。我非常敬佩那些在计算机应用还未普及以前，就能够写出高质量的论文和著作的数学家。因为即使有优质的文书支援技术，对我来说这也是很难做到的事。

distraction) for a given period of time into the future (e.g. the rest of the day): being either overconfident or underconfident about what you can achieve leads to taking on either more or less than you can properly handle, both of which lead to inefficiencies (I have learned both sides of this from direct experience).

While I have a large number of things on my “to do” list, at various levels of complexity, difficulty, and length, when it comes to any task requiring dedicated thought, I try to focus on it exclusively, postponing or shutting out everything else; I find that multitasking only works for me when none of the tasks requires more than a fraction of my attention (in particular, it seems to work best when I am not inspired to do any one particular task). Quite often, these tasks take longer to complete than I have the energy, time, or patience for, in which case one has to find a natural break point (e.g. proving a key lemma in a paper that one is writing up, or writing down a full sketch of some idea that just came up in conversation or on the blackboard or scratch paper) where one can safely set the task aside and forget about it for a while, and be able to resume later without losing one’s place. The thing to avoid is to drop a task when it is only partially finished, without any good “closure”; it then either gets lost, or weighs on one’s mind and prevents one from fully thinking about something else, or has to be redone from an earlier point when one picks it up again. But one doesn’t have to finish each task off completely as it comes, as long as it can be picked up later. A mundane example: when I get around to writing physical letters (usually a low priority, when I don’t feel ready to do serious mathematics), I type them, print them out, seal them in an envelope, and then deposit them in my “out” tray, but I generally don’t mail them (or process any other paperwork in my out tray) until it piles up and I have nothing better to do, at which point I go out and deal with all of it at once. [I find that a particularly good time for doing this is when my computer needs to reboot or is somehow not easily usable.]

More generally, tasks that require little concentration seem to be best done in batches if possible, while tasks that require a lot of concentration seem to be best done individually, with as few distractions as one can manage.

Related to the point about “closure” is the desirability of being able to chop up an extremely long task into smaller, self-contained ones, ideally each with its own immediate “payoff”. To give one example: I doubt I would ever attempt to write (let alone finish) the equivalent of my 19 or so lectures on the Poincaré conjecture if I had decided to write one enormous article or monograph rather than 19 reasonably manageable and self-supporting shorter pieces. (It helped also to “paint myself into a corner” a little bit here by announcing the lectures in advance, and building up some momentum, to stop myself from



陶哲轩在国际会议上

花一些时间和精力去学习那些将来大概会多次使用的技术是很有意义的。数学方面，LaTeX 是个很好的例子：假如你打算写许多篇论文，你必须把最起码要懂的技术学好，而且还要多学一点，才可以把自己要写的东西轻松自如地写出来，所以我们应该认真地学习怎样用 LaTeX 制作图表、处理图像和数组等。最近我在钻研如何使用录制好的宏，在键盘上按几下，就能打出一组 LaTeX 的公式码（例如：`\begin{theorem} ... \end{theorem} \begin{proof} ... \end{proof}`）。这个做法所节省的时间似乎微不足道，但相信会随时间累积而逐渐增加。不管怎样，这样做看起来是有效率的，有助提升个人士气（个人士气是撰写长篇论文过程中不可或缺的因素）。

很多时候，我们为了做某些事会把工作时间推迟，或延迟完成，有时会请别人去做，甚至刻意拖延工作进度。其实世上每件事都不是一样重要的，如果可以待自己有更好的能力，或者先看看会不会有其它事情发生，令要做的事变得不那么重要，那么工作就会轻松得多。我目前要写的那些论文是关于 wave maps 的，我曾经因受挫折而把论文搁下多年不想写，但回想起来，当时我任由自己把未写完的论文搁下，

abandoning the project half-way.)

[One very nice thing about modern text editors, including the one on this blog, is that it is very easy to save a draft at some intermediate stage and flesh it out or polish it later, which greatly assists the task of writing long papers by chopping up this task into a sequence of much smaller tasks, as discussed above. I am quite impressed by mathematicians from before the computer era who were able to meticulously write out high-quality papers and even books; even with good secretarial support, I would find this extremely difficult to do myself.]

It also makes good sense to invest a serious amount of time and effort into learning any skill that you are likely to use repeatedly in the future. A good example in mathematics is LaTeX: if you plan to write a lot of papers, it makes sense to go beyond the bare minimum of skill needed to jerry-rig whatever you need to write your paper, and go out and seriously learn how to make tables, figures, arrays, etc. Recently I've been playing with using prerecorded macros to type out a standard block of LaTeX code (e.g. `\begin{theorem} ... \end{theorem} \begin{proof} ... \end{proof}`) in a few keystrokes; the actual time saved per instance is probably minimal, but it presumably adds up over time, and in any event feels like you're being efficient, which is good for morale (which becomes important when writing a long paper).

There are also many situations in which it makes tactical sense to defer, delay, delegate, or procrastinate on any given task, and go work on something else instead in the meantime; not everything is equally important, and also a given task may in fact become much easier (and be completed in a much better way) if one waits for one's own skills to get stronger, or for other events to happen that reduce the importance or need for the task in the first place. My current papers on wave maps, for instance, have been delayed for years, much to my own personal frustration, but in retrospect I can see that it was actually a good idea to let those papers sit for a while, as the project as I had originally conceived it was a technical nightmare, and it really was necessary to wait for the technology and understanding in the field to improve before being able to tackle it in a relatively civilised manner. [Perhaps this very article on time management is an example of this, also. There are also a number of other draft articles hidden in this blog that I felt were not quite working at the time, and are awaiting some further inspiration to complete. It seems that not every idea or topic for an article necessarily leads to a viable end product; cf. "use the wastebasket".]

My final suggestion is to pick some sort of organisational system and make a real effort to stick to it; a half-hearted system is probably worse than no system at all. [A corollary to this is not

其实是个不错的想法，因为就当时的技术而言，该研究项目对我来说简直是一场噩梦。要用较合适的方法来对付问题，就必须等候技术成熟，以及对该领域的认识和理解进一步加深（或许在你眼前的这篇文章正好也是关于时间管理的例子。其实我的博客中还有些隐藏文稿，暂时还未思考成熟，需要更多的灵感去完成。这样看来，大概不是每个想法或文章的主题都可以茁壮成长，开花结果。对此题目有兴趣的朋友，请参阅我另一篇文章《善用你的废纸篓》——Use the paperbasket）。

最后，我还有一个建议，就是要挑选某些合用的个人电子管理系统，然后贯彻使用；如果对其“不冷不热”，那倒不如不用（不要好高骛远，不要一味追求新产品，因为自己未必可以好好掌握其应用，所以最好还是让其随时间自然发展下去）。我的个人电子管理器材包括一个与手提电脑同步的个人数字助理（PDA）、一个电邮账户、一些收件盘和寄件盘、在办公室里的特定位置还有一块“专用”的黑板。那块黑板上写的东西只有我才看得懂，但我不认为我可以在此好好解释一番。我现在已经习惯使用它了，而且效果也不错（不过我可不希望有人会把黑板擦得一干二净）。毕竟选择是很个人的事，除自己以外，没有人能告诉你什么东西最适合你。我发现合适的系统确实可以帮助我腾出很多记忆空间，因为不必记挂星期二下午三时有甚么事要做，也不用记住因A,B,C的缘故，要在星期X,Y,Z做些甚么事。我可以更专注地理解某个数学论证的内容，给出一个有点难度的命题，或是做些其它事。另外我还发现，能够从自己的电子管理系统中删除已完成的项目，内心是何等的满足。这份满足感是工作乏力时的最佳良药。

啊，最后一则免责声明：我们有时要放下惯常的做事方法，让自己在不可预计的情况下，看见机会，运用智慧，将机会化为实力。我曾经有好几次打算要在午膳时间做些事（随便吃点东西就行），然而有同事或来客突然造访，邀请我外出吃饭，结果（不论在数学上或是其它方面）都令我获益良多。尽管事情并不如我所想般发生，却是充满乐趣的（同样道理，如果在会议上的演讲中缺席或索性不参加会议，把时间用来写自己的论文，也可能有相似的结果）。

to try to make an overly ambitious system ab nihilo that one is unlikely to follow faithfully; it is probably better to let such systems evolve over time.] I have my own system involving a PDA synchronised to my laptop, my email account, some in trays, out trays, and other designated spots in my office, and a “reserved” blackboard, that probably only I can understand completely, and I don’t think I can even explain it properly here, but I’m used to it now and it seems to work well enough (though I sure hope nobody ever erases that blackboard!). The choice of system though is presumably a very personal matter and I wouldn’t be able to advise on what would work best for anyone other than myself. But I do find that such systems free up a lot of memory; if I don’t have to worry about what I’m supposed to be doing at 3pm on Tuesday, or what work needs to be done on X, Y, and Z for purposes A, B, and C, I can devote more of my attention to trying to understand a mathematical argument, or proving a tricky lemma, or whatever else I need to work on. [I also find it psychologically satisfying to be able to physically cross off an item from my organisational system, which can be a useful motivation when one feels otherwise uninspired to deal with something.]

Oh, and one final disclaimer: sometimes one should abandon one’s own rules and allow for serendipity. There have been many times, for instance, when I had planned to work on something during my lunch hour (grabbing something quick to eat), when I was interrupted by a colleague or visitor to go out to eat. It has often happened that I got a lot more out of that lunch (mathematically or otherwise) than I would have back at the office, though not in the way I would have anticipated. And it was more enjoyable, too. (Similarly with skipping talks at conferences (or skipping conferences altogether) to go work on one’s own papers, etc.)

致谢：感谢陶哲轩教授允许本刊连载他的博客译文。