LECTURE 9

Writing Personal Statements

Whether you are applying for a Master's or for a PhD, the personal statement is your chance to present a coherent picture of your traits and abilities, and convey a bit about your personality. In this lecture, we discuss general best practices for writing such a personal statement. We discuss the purpose of the statement (Section 9.2), the information that should be included (Section 9.3), and finally some writing tips (Section 9.4).

However, what these notes will not do is teach you how to write your personal statement from scratch, sentence by sentence, or tell you what certain universities or people expect to hear from you.

REMARK 9.1. For the remainder of this lecture we say *Statement*, with a capital *S*, to mean some or all of the various personal prose communications that you may be asked to attach to an application. Depending on the country or university, this Statement comes under the heading of personal statement, cover letter, statement of purpose, statement of objectives, and so on.

9.1 Disclaimer

The following information is based on the experiences of the authors (as applicants) and on the limited experience of the second author in selecting PhD and postdoc students of his own. Therefore, even more so than elsewhere in these notes, what you will read are mere guidelines and suggestions for best practices. All students should conduct thorough research of their own into the requirements of the universities they are applying to. (See Section 9.3.4 for a slightly more detailed discussion.)

If you are not a mathematician, and will be applying to do a different science degree, please substitute in your subject every time these notes say "maths". Also, the less your subject is related to pure mathematics, the more these notes are likely to err in terms of what your application should look like. (Though some aspects of our advice remain universal: write good English is one of them.)

9.2 The purpose of the Statement

Suppose you were not required to submit a Statement, just your academic record and your references. In that case, a member of the application committee could still learn a lot about you: your grades reflect your ability to learn for exams and perform under that kind of pressure; your CV lists all the relevant academic and extracurricular milestones; your references describe the impression you give off as a student and comment on your talent. What is missing is your own voice, arguing your case.

Put differently, the Statement is the only place in your application where you are allowed to make two essential arguments that are not explicit elsewhere:

I. Why you think you *would* make a good Master's or PhD student (or postdoc).

II. Why you think you *should* be a taken on as a Master's or PhD student (or postdoc) at a particular institution or by a particular researcher.

Making these two arguments is the purpose of your Statement: the first establishes your motivation and relevant background, the second explains why you would be a good fit for the particular position. The two arguments are not always disjoint, but everything else—the formatting, the phrasing, the additional information you add—is there to pad out the text and prove you can string together a few decent sentences. Nonetheless, you have to get the whole package right (not just arguments I. and II.), or, at a minimum, you must not get any of it wrong! Here is why.

9.2.1 Getting all the elements right

First impressions matter, and two things will ruin the first impression of anyone reading your Statement: getting the form of address wrong and making English language errors. Next, the reader will notice immediately whether the Statement contains relevant information (I. and II.) and whether it is structured in the standard way (introduction, body, conclusion, and not a haphazard collection of thoughts). If all of these hurdles are cleared satisfactorily, your Statement will be given due consideration. At that point, you have to make sure you are not using overblown language and are not massaging half-truths to support your case, because a careful perusal will reveal any hollow boasts. Finally, if the rest of your Statement is well-written, the reader may appreciate a light touch of humour or a rhetorical flourish that shows a tad more of your non-academic personality. We proceed to discuss all of these elements.

9.3 Relevant information

Many Statements include the wrong kind of information, such as:

- too much personal history, which is either outdated (stories from childhood) or irrelevant to the subject (hobbies);
- too few appropriate subject-specific detail: a lot is said about maths in general, and not much about what makes the applicant a worthy mathematician;
- too few precise references to the university of choice (e.g. usually people say it is prestigious and in a good geographic location), which is a bare, almost embarrassing minimum that distinguishes you in no way from dozens of other applicants.

In this section we warn against such mistakes and offer what we think is a healthier balance of information.

9.3.1 Personal history in the Introduction

Especially for American Statements, it is often recommended that you try to engage the reader in the introduction by recounting a memorable personal anecdote. You do not have to include an anecdote if there are none. However, if you decide to include an anecdote, you do yourself no favour by starting with a memory of how "I fell in love with maths in fifth grade because I noticed I was good at geometry" or how "I became passionate about pursuing a degree in engineering after I played with origami as a child".

Let us see how you could improve on the first sentence to make it a bit more relevant.

To begin with, try to include a maths fact or some terminology.

> I fell in love with maths in fifth grade when the teacher stated you could not square a circle with compass and straightedge in a finite number of steps.

Secondly, try to avoid general words like *love*; instead, relate a concrete incident.

> When my fifth grade teacher stated you could not square a circle with compass and straightedge in a finite number of steps, I spent the whole evening trying to do just that, convinced I could disprove her.

This is already much better. What is missing now is the relevance to your current aspirations (Galois Theory, for example).

> When my fifth grade teacher stated you could not square a circle with compass and straightedge in a finite number of steps, I spent the whole evening trying to do just that, convinced I could disprove her. When I failed, I wanted to know why. Eventually, I went on to learn about π, transcendental and algebraic numbers, and polynomials, and finally Galois Theory at university, but by then my interest in the subject was firmly established and had evolved far beyond the ancient problem from geometry that started me on this path.

This would be a solid *first draft* of an introductory anecdote. Depending on the remainder of your introduction and the rest of your Statement, you would remove some of the elements. Regardless, you would need to edit these sentences to about half the current length, because your Statement should be chiefly about your most recent work, not your enthusiasm as a child.

See Section 3.2.4 for more about *opinion* words, words that require justification or that are simply overused.

> Only ever include relevant incidents, and be specific about how they are relevant. Use concrete (but not overly technical) maths terminology whenever possible; avoid opinion words.

9.3.2 Personal history elsewhere

Personal history details that occur in the Statement fall into two groups:

i) facts mentioned in the records,

ii) facts not mentioned in the records.

The records encompass any other formal, factual documents whose contents you are familiar with; most commonly, these are your academic record and your CV (unless you have also read your recommendations).

Facts mentioned in the records. Your CV will contain dates, names, and GPAs. When drafting your Statement, you can assume the reader is familiar with all of that information or has it at hand. Therefore, you do not need to repeat yourself. On the other hand, you can and should freely reference facts. Here are some examples:

- BAD: I finished my Bachelor's degree in the Summer of 2017.
  (*The whole sentence is redundant; it should be obvious from the CV. It becomes relevant only if there is a some greater point you are about to make. For example, that you took a gap year to do charity work, and it was important that this gap year was 2017–2018 because that is when a particular disaster happened—a socio-historical fact not mentioned in the CV. This is an extreme example, but you should need an extraordinary reason for explicit repetition.*)

- GOOD: While completing my Bachelor's degree, I...
  (*Appropriate referencing of information known from the CV.*)

- BAD: During my internship (MayJune 2016 at Zrootech), I learned how to...
  (*The parenthetical information belongs in the CV.*)

- GOOD: The conferences I attended last summer gave me an opportunity to meet various researchers in my field, and talk to them about...
  (*The CV should include information about the conferences, locations, dates, topics, so this is an appropriate reference that can be followed up via the CV.*)

Whilst you should not repeat yourself, you should also not tend to the other extreme of avoiding all references to facts from your CV. That would make writing the Statement difficult, and it would also mean that you miss out on an opportunity to offer supporting, if roundabout, evidences for arguments I. and II. Specifically, any details that you mention in the Statement that are also mentioned elsewhere are viewed as one of the following:

- A "highlight": if you won an award, had a particularly successful thesis, or achieved anything that is outstanding in recent years (not in kindergarten!), then you are entitled to talk about this event in the Statement and say how it has influenced you. What is more, you are expected to do so, and it would be strange if you chose not to.

- An "explanation": if there were any unexplained gaps in your CV, or you took a non-standard route towards accomplishing your degree, or you have a medical reason why you do badly on exams, then you are expected to help the reader understand the circumstances and how they have influenced you. As a rule do not complain or seek sympathy, instead always talk about the lessons you took away from difficult experiences.

Events that make you stand out will fit in either of those categories, highlight or explanation, or even might be considered as both. For example, a six-month internship with a railroad company looks like it needs *explaining* if you are applying to do a PhD in Statistics, until you say that you were learning on the job about route and time-table optimisation, in which case it could become a highlight.

> Use the Statement to "highlight" or "explain" any facts on your CV that make you stand out, thus making them even more memorable. Focus on what you have learned or gained from experiences, rather than repeating facts or becoming emotional (bragging, complaining etc).

Facts not mentioned in the records. Hard facts (dates, names, numbers) really should be mentioned in the records. As we saw Section 9.3.1 and in the examples of the previous section, any other personal history that you end up relating beyond that will be anecdotal. Your anecdotes may or may not be verifiable. Naturally, if you are relating a conversation with professor or a public experience like a presentation, then you have to be careful not to state obvious falsehoods about time, place, and content. If you are talking about your internal motivation and gain, then you should portray yourself as best possible, with a caveat.

Caveat: be careful of exaggeration in general, and cultural sensibilities in particular. Some assertions might come across as appropriately bold in an American application, but might seem like boasting on a British application.

- I am especially keen on your program because it would allow me to interact with and learn from top specialists in my field, specifically Professor Juniper, the Fields medallist who has recently taken up a post at your university.
  (*More forceful, forthright, confident. To British ears might sound presumptuous that you think you would get to interact with such an esteemed member of staff.*)

- I would especially appreciate the opportunity to attend the seminar series given by your Fields medallist, as I am interested in one the research areas she developed. Namely, I would...
  (*More subdued, realistic, humble, and in line with British sensibilities. Might sound unambitious to American ears.*)

Do you notice the difference in tone? Neither is better or worse, and you should not try to affect a tone foreign to you, but be aware that small word choices, viewed cumulatively, will influence the way you come across. See Section 9.4 for more tips on form of address and tone.

All important facts should be mentioned in the academic record or CV. Any other anecdotal and personal information should showcase your experiences in the best possible light, honestly and gracefully.

9.3.3 Making argument I: subject-specific detail

The first argument (and more important one in a lot of ways) is for why you think you *would* make a good Master's or PhD student. Traditionally this argument is made by directly answering the following questions in your Statement.

i) General motivation: Why do you want to do an advanced degree?
This is a natural, open-ended question, but you are not expected to give a creative answer. It will suffice to say that you have long-term interest in a particular subject, or wish to gain insight into the subject before going into industry or continuing a PhD.

ii) Skill-specific question: What research skills or experience do you have that make you think you would be a good Master's or PhD student?
For this you mention your most relevant skills: specialised courses, reading courses, projects, seminars, programming experience from an internship, other practical experiences. This is where you are aiming to "highlight" facts from the CV.

iii) Personal motivation: Why have you chosen your subject area and not some other? What interests you within it?
This is your opportunity to deliver a an insight into your mathematical thinking that appears nowhere else, and that shows your interest is not merely superficial. For example:

> I particularly enjoy investigating which structures an invariant can see and applying its properties to distinguish two otherwise similar spaces, ranging from elementary examples: CP^2 and $S^2 \wedge S^4$ are not homeomorphic as their cohomology ring structure is different, to more complex ones: there exist diffeomorphic Calabi-Yau 3-folds with different quantum cohomology rings.

Remark 9.2. In answering iii) you should bear in mind your Ideal Reader, as discussed in 7.1.4. In other words, depending on who you judge will be reading your Statement, you should adjust your language. If you are addressing a professor in your future field, any specialised technical terms will be understood and appreciated; if you are addressing a member of a general admission panel, you should stick to more general maths terms.

You should plan to spend between one and three sentences answering these questions somewhere within the structure of your Statement.

Make yourself memorable by including a sentence on two on the mathematical content that interests you most.

9.3.4 Making argument II: application-specific detail

You have to convince whoever is reading your application that you are applying to them or their department, and not that you copy-pasted the text for some other university. There is a good reason for this: no advanced program wants to accept people who do not actually want to attend. In other words, as much as you are worried whether a position will suit you, the university offering that position is worried about the same thing. Because, once accepted, if you are unhappy, you are likely to be unsuccessful and that will also likely make the university look bad. In forcing you to write a few relevant sentences about why you think they should admit you, universities ensure that you have at least done the basic research about their degree program and that you are convinced it is a decent fit. Universities always have too many applicants and would rather that people self-selected for good fit (academically and otherwise) before applying.

Thus, in your statement you are expected to answer these basic questions (when applicable):

i) **When applying to a person:** What drew you to this particular academic? Which of their research do you find most interesting and why?
Here it is good to list a specific paper or book they have written and you have at least glanced at, or if you took a course or seminar with them, even better, comment on what you enjoyed and why. Obviously, if you have met in person, even briefly, then remind them of this if the encounter was at all positive.

ii) **When applying to a department (but also to a person):** What drew you to this particular department or university? What research conducted in the department do you find interesting?
If you can, avoid more than the briefest mention of general ranking or prestige, or of location. The second question suggests the kind of answer you are expected to give: mention research groups at the department, any facilities that they provide and that you need for your work, specific courses that you need for your degree that may not be offered elsewhere, etc.

iii) **When applying to a taught Master's program:** If the program envisions a particular curriculum, what makes you suited to that study that curriculum? If there is flexibility, which areas do you intend to focus on?
This is where you can "highlight" facts from your CV and say how this background has prepared you well for the curriculum, or what areas you will build on.

iv) **When applying for any research degree:** How do you see yourself contributing to the research or to the research life at the department?
This is an open-ended question where you are not expected to give a particularly creative answer. Most well-meaning answers will do: contributing to a particular research group, hoping to develop a skill set which will complement those of others, working closely with other researchers in a similar area.

This is a bit of a chicken-and-egg cycle: to answer these questions you have to know where you are applying, but in order to know where you are applying, you need to have answered these questions at least partially (in your head). These lecture

notes assume that you already have a number of names and institutions in mind, either due to repeating this cycle (and narrowing down your options) or due to recommendations from senior colleagues and professors that seeded your search. Therefore, it hopefully remains just to crystallise these answers and commit them to paper.

Before writing each individual application, remind yourself of why you are applying to a particular program. If it was due to a recommendation, that might be worth including sometimes, but most of the time, it is hardly sufficient (or advisable) to say: *Professor Juniper says that I should apply to you.* Go and find out why that professor recommended this program, and write down those reasons. In particular (when applicable):

- Find out more about the person you are applying to. Look at their CV, at their official department page, at a list of their research, at the abstract of those research papers that seem most relevant to you.
- Find out more about the department you are applying to. If it is a taught Master's program, look at the details of the coursework.
- Find out which research groups the department has, what their specialities are, whether you would fit in and how. It is good to see some famous names, but it is more important to see the speciality areas that you might be looking to join.
- Sure, learn more about the prestige of the institution and its location. But even though these factors may play a huge role in your own decision process, do not emphasise them in the statement because the institution is well-aware of its own prestige and the attractiveness of its location (as are all the other candidates), so emphasising this will not gain you anything.

> Find out more about the person or department you are applying to, then give a specific reason as to why you think you would be a good fit for the position they are offering. The more precise your answer, the more it will be obvious that you care about being admitted.

9.4 Writing tips

9.4.1 Get the name right

If you are applying to a professor in person, then make sure to get their name right as well as any titles.

If you are applying to a department and no name is given, or an impersonal online application form then it may acceptable to use the standard impersonal form of address: *To Whom It May Concern.* Though, whenever you can, try to find out whether there is someone you can address it to (perhaps the Head of Department).

9.4.2 Follow standard structure

The letter follows the standard structure of: Introduction, Body, Conclusion. The precise content is difficult to define for all the different kinds of Statements. For example a paid, taught Master's program in the UK is less likely to expect introductory anecdotes about why you got into maths, but an American university might appreciate you hooking them with an imaginative opening. Look up sample letters for the country you are applying to (America, UK, and others) and the type of program you are interested in (Master's or PhD), then follow the guidelines outlined in these notes to ensure you address all the things that are expected of you.

9.4.3 Do not use bombastic language or cliches

Throughout this course we have urged you to rephrase sentences to remove redundant words, as well as, when appropriate, to remove opinion words (Section 3.2.4). In your Statement opinion words are welcome, though whenever you can back them up with concrete reasons.

> I find knot theory *interesting*, especially the idea of refining Floer theoretic methods to investigate the properties of knots.

The second part of the sentence does not actually say why you find knot theory interesting, but it does indicate that you have been thinking about the subject (itself an indication of interest).

That said, you should scrutinise your use of adverbs: *always, best, never, well,* and all those ending with *ly*. You should have no need for *very*, especially in phrases such as ~~*very*~~ *interested,* ~~*very*~~ *excited,* ~~*very*~~ *enthusiastic,* ~~*very*~~ *good,* ~~*very*~~ *helpful*. The same is true of *really*. In the same vein, avoid creative words that may not use superlatives, but are meant to sound like superlatives. Also avoid cliches and colloquialisms. Here is a sample of what not to write under any circumstances:

- I am bursting with enthusiasm.
  (*This metaphorical meaning of bursting does not belong in formal writing.*)
- I am highly motivated.
  (*The adverb should be remove, but then so should motivated unless you are following it up with a good reason.*)
- I love my subject.
  (*This is understood and expected.*)
- The realisation that I wanted to do a PhD blew my away.
  (*The phrase blew me away is informal and does not belong in your Statement.*)
- My childhood dream, my dream, my utmost desire.
  (*You are too old to refer to dreams and desires in this way.*)
- My greatest ambition, I am ambitious, my ambition has paid off so far.
  (*This sounds either like bragging or like you are running for president and hoping to build orphanages. It is best avoided.*)

- Since the age of five I have been fascinating with science.
  (*Whilst this may be true, the statement is too general to be helpful, and must be either deleted or modified as illustrated in Section 9.3.1.*)

9.4.4 Be truthful.

This may sound obvious, but it is surprising how easily one can get carried away with embellishments and small alterations that seemingly slant the Statement in your favour. Typically this involves one of the following scenarios:

i) You decide to inflate a (programming or language) skill. For example, you might write: *During my internship, I learned to use MATLAB*, actually you opened MATLAB twice during that time. Commonly, this happens when you think no one can actually check whether your claim is true or not until after they have decided to hire you.

ii) You decide to unduly highlight a subject area. For example: *In my third year I attended an advanced seminar on Kirby Calculus,* may sound impressive, until it becomes apparent that you attended it by sitting in the back, staring blankly at the board, or playing with your phone. This is kind of truth slippage occurs most commonly when you need a list of two items to look longer, so you add a few more things you attended, or a few more things that would look good if they were true.

iii) You decide to get help with writing advanced maths in your Statement. You have correctly identified that coming up with an advanced answer to iii) in Section 9.3.3 is a good idea, so you ask an older friend to supply you with a maths insight. Alternatively, you open a textbook or paper, select an important-looking result, and regurgitate it in your statement.

Depending on your sophistication and on how far away from the truth you have strayed, each of these scenarios will be more or less detectable. Your Ideal Reader has probably seen hundreds of such applications, and can detect a *lie* (let us call it what it is) without even thinking about it.

It is best if you self-police, and detect such scenarios in your own Statement before sending it off. The question you should always be asking yourself is as follows:

> If I am asked to demonstrate a skill, talk about an experience, or discuss technical knowledge would a charitable interviewer buy my story?

Here *charitable* means, you imagine a friendly interviewer, who is willing to take into account that you are nervous or that you may have forgotten some details. In the examples above, no matter how charitable the interviewer the student who boasted of knowing MATLAB, Kirby Calculus, and an advanced result would have been busted.

> There are shades of truth and shades of lies. Stay as close to the truth as you can; ask yourself whether you would be able to look an interviewer in the eye, if challenged, and *plausibly* justify every sentence in your Statement.

9.4.5 Use a professional tone

Reread Sections 7.2.1 and 7.2.2 on tone and tone meets pitch with an eye towards writing the Statement.

9.4.6 Humour

Everyone likes a joke or two, but the Statement is hardly the place to try to be funny. Avoid humour, puns, and anecdotes that are supposed to be amusing. That said, if you have met the person you are applying to or have seen them speak and are aware of their sense of humour, *and* you are confident you can say something that would fit their sense of humour, then you could include an appropriate reference or humorous comment. Though, we cannot emphasise enough how cautious you should be when doing so.

> Do not use humour in your Statement unless you are certain it will be appreciated.

9.4.7 Editing and proofreading

When it comes to editing your draft, think of your Statement as if it were a proof: every single line needs to be justified either directly or indirectly (as shown in the first example of Section 9.4.3). Not only should every line be justified, but it must be specific. A way to check for specificity is as follows: Take your Statement and replace the word *mathematics* every time it appears with the words *molecular biology* or *art*. If there is a single sentence in your Statement that makes sense after this substitution, then you should rework that sentence—it is not specific enough!

- Ask a friend to take a look at the Statement and tell you what they think (does it leave a good impression, does that impression match who you are, are there any glaring errors, etc).
- Google phrases that you are unsure of.
- Check the spelling and grammar.
- Read the Statement aloud.
- Leave the text to sit for a few days before looking at it again.
- Be careful when copy-pasting bits into other statements—it's easy to paste in a detail which obviously does not belong.

> Take the time to get the details right.

Problem Sheet 9 (Non-examinable)

Problem 1. Write an excellent Statement and get into a program of your choosing.