

Graphs and networks in teaching the history of linguistics

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Abstract. Teaching the history of linguistics often involves talking about a large number of people – linguists and scholars in related fields – who are only hazily recognized by students, and often the teacher is no better off. A set of graphical networks can help enormously in the task of orienting oneself and keeping track of who is exactly who.

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1. Introduction. Teaching the history of linguistics involves both the ideas that have developed over time in our profession and the people (both within the field and outside of it) whose work has had an impact on our thinking today. The importance of dealing with ideas is obvious, but dealing with the range of characters in this history who are not well-known to the students, and often even to the teacher, can pose some special problems to the teacher of the history of linguistics, some of them daunting indeed.

There are some special rewards that come from talking about the individuals, in addition to the ideas, that are worth emphasizing. The most striking reward comes from emphasizing to one's students that so many of the movers and shakers in the history of our field accomplished their most influential work when they were young—in their twenties—and they did it at a point in time when they had little idea that their work would be noticed and taken seriously.

One of the most striking consequences of looking at the individuals whose work we study is the discovery that in many ways the characters of a given generation form an invisible college, a community of people of the same age, give or take, and they shared ideas and communicated with one another more broadly.

My own experience in teaching the history of linguistics has convinced me that one of the most important aspects of that teaching is an exploration of the ways in which ideas have flowed between and among the disciplines that are near neighbors to linguistics, of which the most notable are psychology, philosophy, and anthropology. But again, opening the in-class discussion to a wider cast of characters, many barely known to the students, makes for a pedagogical challenge.

This challenge is no less for the author who wishes to write about these issues, not just teach about them in the classroom. I encountered them full on in writing *Battle in the Mind Fields* (Goldsmith and Laks 2019), and I would like to describe one of the ways that we dealt with this problem in writing that book, a design that has carried over to my classroom teaching.¹

To be a bit more concrete: my task, both in writing and in teaching, was to make as clear as possible what was happening in linguistics, philosophy, psychology, and logic in the period from 1820 to 1940. Needless to say, there were many scholars in these disciplines whose names

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¹ Stephen Anderson, in his contribution to this volume, notes that it is these days rare to find a department of linguistics offering a course on the history of the field; I would like to add to that the fact that until 2020, when I retired, the University of Chicago did indeed offer a course on the subject, but that graduate students in linguistics only rarely chose to enroll in the course, concerned that they did not have the time to invest in a topic not directly helping their early careers.

were more or less familiar (usually less, not more) and quite a few whose names were not really familiar at all.

As I began to write, I found myself taking notes in the form of charts, organizing the characters by the times in which they lived and worked, and who they interacted with—people who were their peers, or even more important, their research advisors. Slowly these charts began to take on a life and an importance of their own, and they became the figures that I would like to discuss here.

2. Generations. The diagrams I made all began with a particular organization of the paper: I would set the name of a person with their dates of birth and death on a piece of paper, with the vertical height on the page of the person based simply on the year in which they were born. People of the same age or generation would find themselves lining up on the same horizontal lines, of course.

And what emerged then—a bit to my surprise—was that people in different fields seemed to naturally fall into generations. Generations in academic disciplines generally tend to be shorter than those in the general population; people tend to grow old more quickly in disciplines, and to have children (that is to say, students) at an earlier age as well.

Consider Figure 1, from a forthcoming book (*The Real Origins of Generative Grammar*, Goldsmith and Laks in preparation), where a stripped down version of eight linguists appears. The more or less vertical arrows indicate teacher-student relationships, and the colored boxes indicate explicitly the organization of these linguists into three separate generations. Jakobson falls a bit outside the generational structure of the American linguists; we will come back to that below.

Of course some decisions went into deciding who to include; I chose Hockett, Pike, and Harris because I believe that they were the most creative and imaginative of the American linguists of their generation. The graph indicates, surprisingly, that all three were students of both Bloomfield and Sapir, from their own points of view.

All three were students of both Bloomfield and Sapir, and that is a point worth emphasizing to students. This can lead to a discussion of the differences in how Sapir and Bloomfield influenced their discipline: Sapir through his teaching and his charisma (though not only through that), and Bloomfield through his writing, but not at all through his teaching except at the LSA Summer Institutes. But how was it that all three were students of both, if the Sapir and Bloomfield were not at the same institution? Their careers overlapped at the University of Chicago for a few years, but it was not there that they shared students. In fact, none of the three linguists in the Fifth Generation were official students at either Chicago or Yale. And this leads to an interesting discussion of how Hockett, Pike and Harris all saw themselves as carrying on the traditions of Bloomfield and Sapir. And it leads to a discussion of how some saw Sapir and Bloomfield as carrying the same banner—and others did not. In trying to understand the continuities between pregenerative American phonology and Chomsky and Halle's view of phonology, it is important to consider Zellig Harris's phonology carefully (which is to say, through reading Harris's work such as Harris (1951), not through reading what others have said about it), and to consider the very positive remarks made by Halle about Sapir's conception of phonological analysis in his work as early as the late 1950s (see, notably, Halle 1960).

In this diagram, the arrows present a graphical image emphasizing the personal continuities, which in fact always realize intellectual continuities. Harris's name appears in boldface because

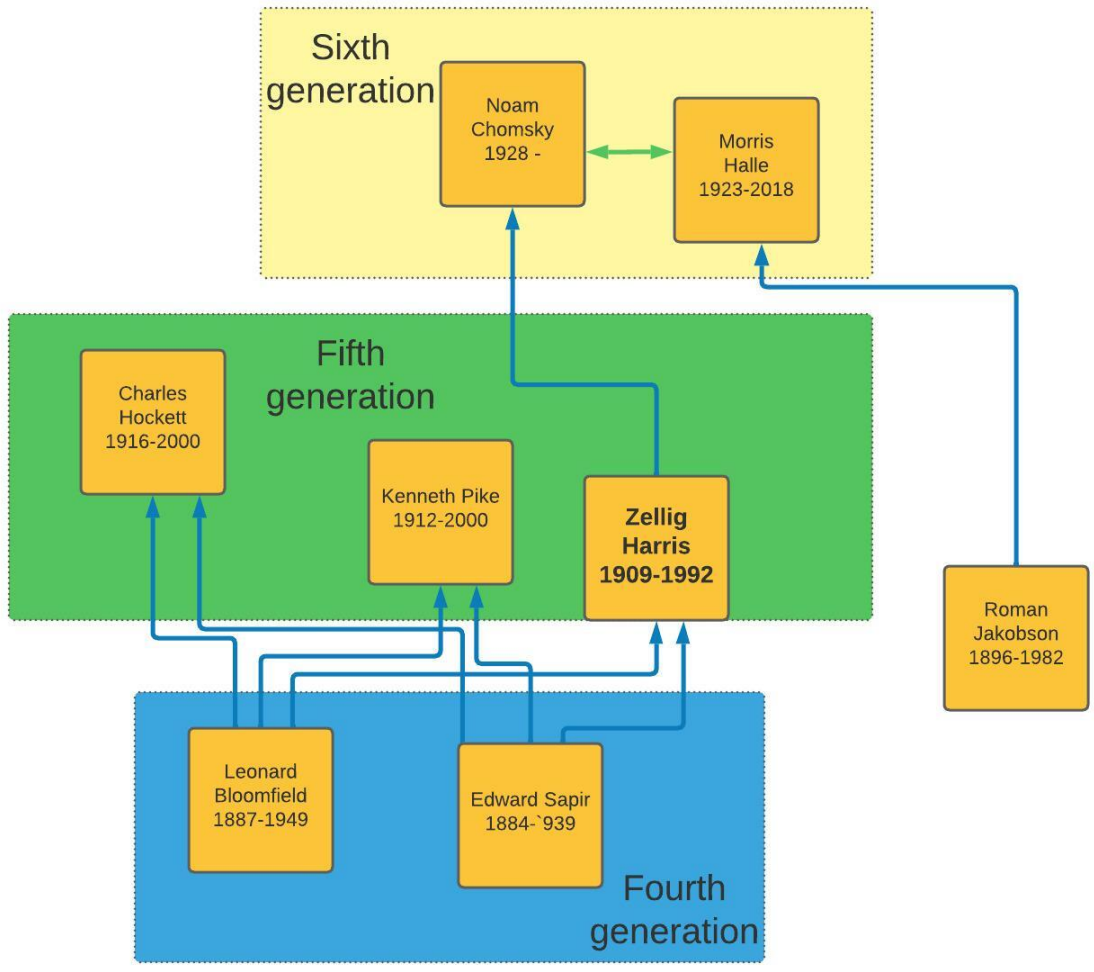


Figure 1. Generations 4, 5, and 6 among American linguists

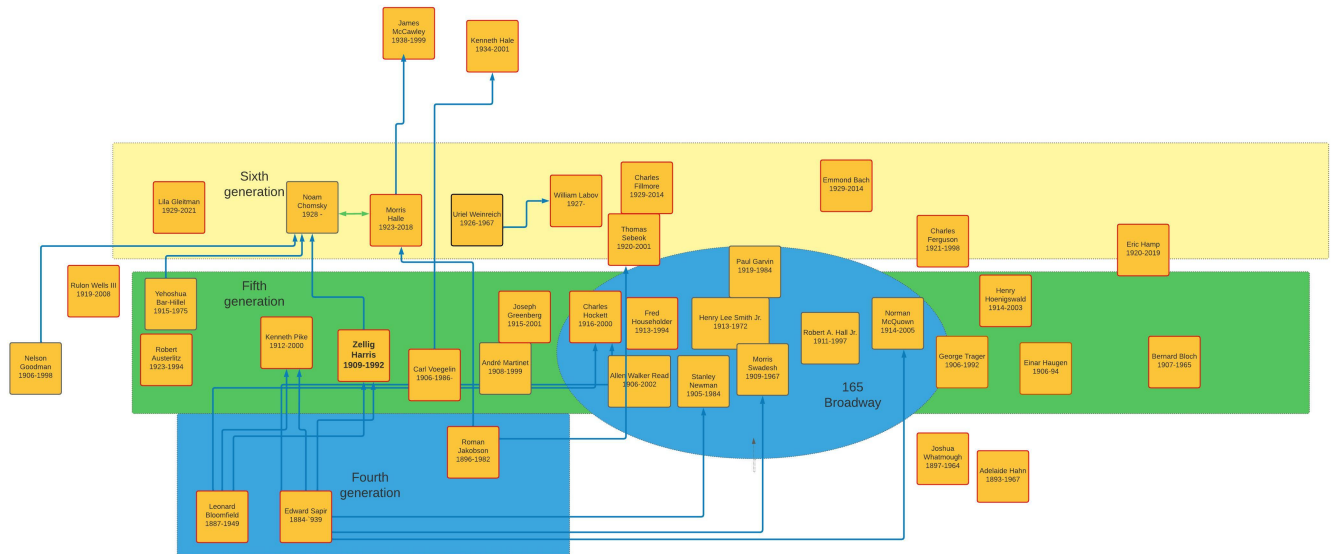


Figure 2. Expanded version of Figure 1

this image occurs in a chapter about him.

A more detailed and expanded look at these generations presents a more nuanced image, as we see in Figure 2, dealing principally with the 1930s, 1940s, and 1950s. Some of the boxes here are in red, which indicates that the linguist was president of the LSA, a fact worth considering when looking at how a linguist’s work was regarded by the field at the time. (One can look at Figure 2 and immediately ask oneself a question that might not have occurred before: why wasn’t Chomsky ever the president of the LSA? I will leave the answer to this question to the reader.)

A new set of characters who are probably known to the students emerge here. The most notable perhaps—and best known to students—in the Sixth and Seventh Generation are William Labov, Joseph Greenberg, and Charles Fillmore, and to psycholinguists Lila Gleitman, and then from the next generation James McCawley and Kenneth Hale.

There are many new names presented here from the Fifth generation. Some of them the student may have heard of, many not—but there is some organization in the diagram to help the student grasp what is going on.

One of the social networks that plays a role in the history of this period is the camaraderie that developed at the 165 Broadway group during World War II, and this is brought out clearly in the graph.² There are some more influences on Chomsky, often less discussed but no less important for that: Yehoshua Bar-Hillel, and the philosopher Nelson Goodman, who taught Chomsky at the University of Pennsylvania and who opened his ideas to the problem of induction, and thus to the problem of learning.

3. Numbering of the generations. The reader may well wonder why Bloomfield and Sapir were placed in the Fourth Generation – why not the first, or the tenth? The answer derives from a larger look at the discipline given in *Battle in the Mind Fields*, where 19th century linguists found themselves organized into four generations. This simple fact is a big help in keeping straight how

² See my discussion on this in “Europe comes to New York: Jakobson and World War II” at https://www.youtube.com/watch?v=U4L_rSB-Zsg.

the linguists of the 19th century related to one another.

In Figure 3, we see a diagram of the first three generations of European linguistics. While it is true that serious linguistics was done in Europe before the 19th century, the 19th century is the period during which a self-conscious group of scholars worked together to form the field that we know today. And as we can see, they naturally formed generations.

It can be instructive to explain to students that what made the first generation of linguists different from those that followed that they had to do their linguistics straight from the data: they did not have other scholars whose work they could agree or disagree with. Some relations worth noting are indicated in red, indicating downright hostility, such as that between William Dwight Whitney and Max Müller. Hermann Grassman's box has two colors, highlighting the fact that his influence was felt in two disciplines: he was not just a linguist, but he was also a mathematician, one whose work had an enormous impact over the century that followed his death, despite his working during his lifetime with relatively little recognition as a mathematician.³ There are two linguists in Figure 3 whose nationalities led to a distinct professional status: one was William Dwight Whitney, an American (though he is not the only American there; Maurice Bloomfield, Leonard's uncle, was also an American), and Ferdinand de Saussure, from Switzerland.

4. Edward Sapir. Two important characters in the history of modern linguistics are, of course, Edward Sapir and Leonard Bloomfield, two of the three people I've included in the Fourth generation. Any graduate student in linguistics knows their names, but rare is the student who has read anything by them, or is capable of explaining in what respects Sapir's view of phonology is closer to Chomsky and Halle's view than Bloomfield's was or why.

Let's look at the graph I've drawn for Sapir, this one from *Battle in the Mind Fields*, in Figure 4. It is not explicitly divided up into generations, but if the student has spent some time looking at the generational graphs, it is only natural to see this graph of Edward Sapir as being divided vertically into generations—and of course the blue arrows (marking who was whose teacher) serve to stand in for generational divides as well. In this diagram, we see green arrows, which represent collegial relations of intellectual influence. The disciplines of the actors have been color-coded, too, separating as best one can the linguists from the anthropologists and the psychologist.

Let's put ourselves in the place of someone who is learning about Sapir. Some of the names on this diagram are familiar, and only just. For most, the names that are familiar (in addition to Sapir's) are Franz Boas, Benjamin Lee Whorf, Margaret Mead perhaps, Zellig Harris (as Noam Chomsky's teacher), and maybe Charles Hockett and Kenneth Pike. Students might have heard of Gestalt psychology; Koffka was one of the leaders of that field.

Immediately the reader sees the beginnings of an academic family tree, stretching from teacher (the anthropologist Franz Boas) to Sapir, and from Sapir to a half a dozen students who were linguists (including Mary Haas), and some side-connections to three anthropologists, two of whom were women. (It's not impossible that the students know something about anthropology, and then the anthropologists' names will have some meaning to them.) Some of the teacher-student links have dotted lines; this indicates a close mentoring relationship that was not formally that of a dissertation supervisor.

³ Grassmann essentially created the modern notion of the matrix.

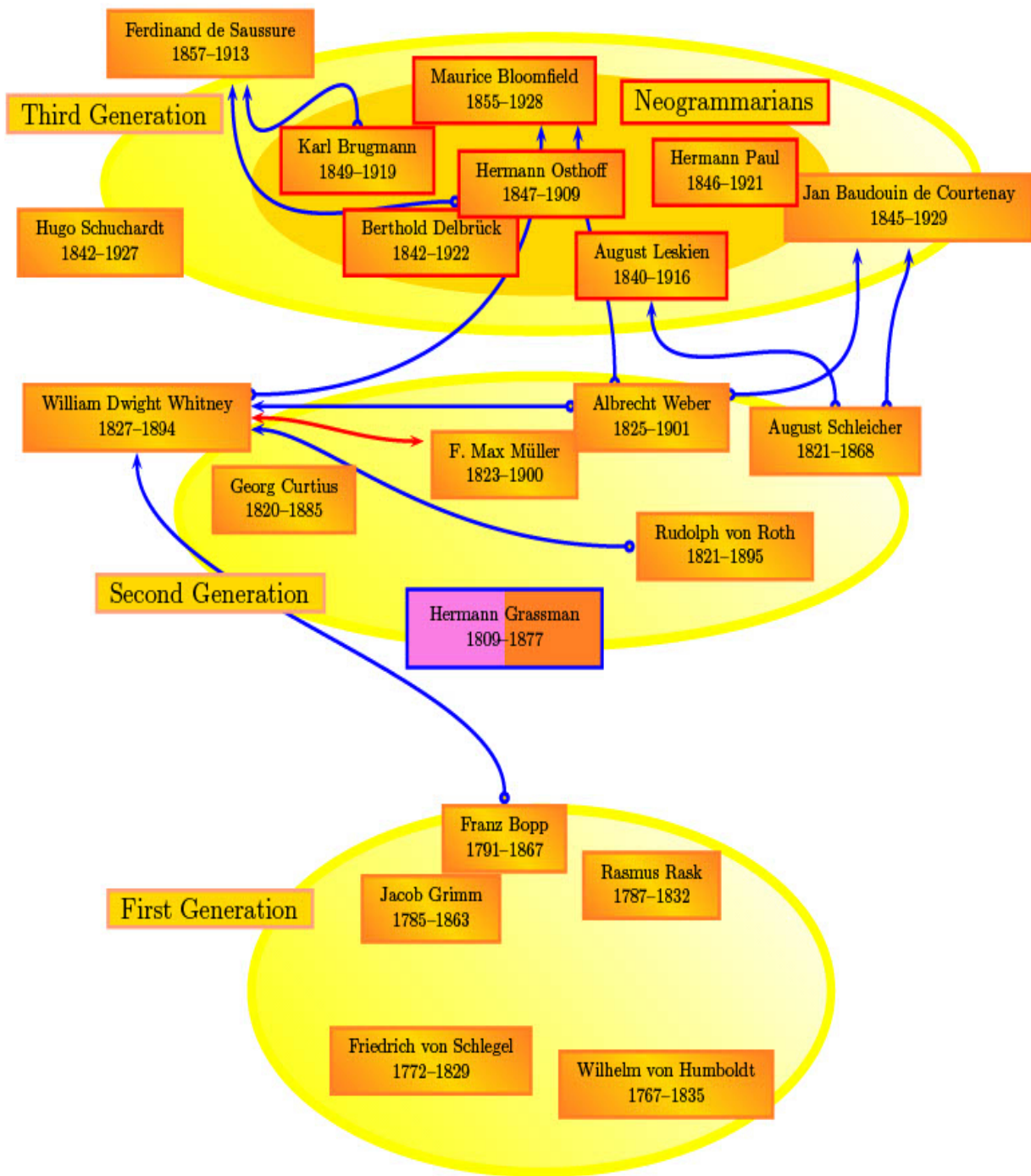


Figure 3. The first three generations

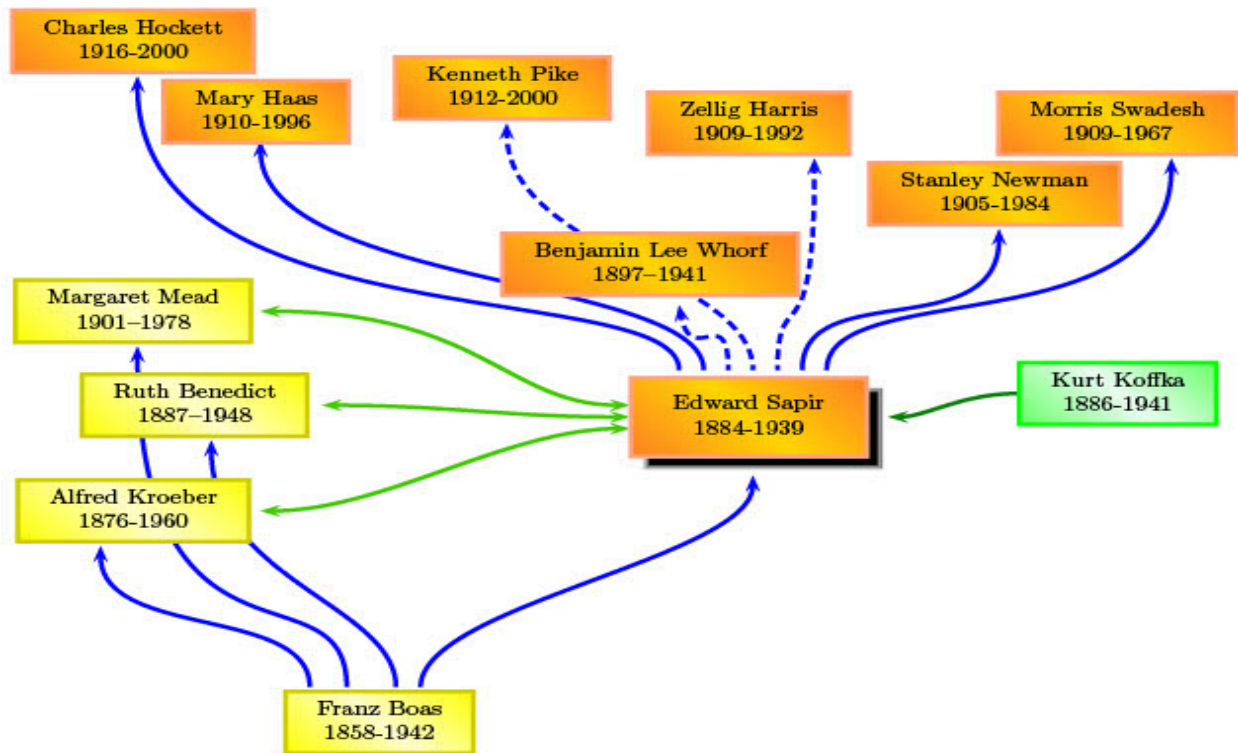


Figure 4. Edward Sapir's network

5. The big poster. By far the greatest interest has been generated in my experience by a large poster that I created that put together all of the two dozen graphs contained in *Battle in the Mind Fields*. The poster is about 1 foot by 2 feet (13 by 26 inches), and it can be downloaded at <http://people.cs.uchicago.edu/~jagoldsm/images/battle-graphics.pdf>, and unfortunately the margins of this article are too small to permit me to contain it here. When I have given lectures about the book, I've brought a few dozen copies with me, and distributed them before my talk begins. It's hard to get people to lift their eyes from the posters once they see them. They immediately start playing the game of identifying who they know, and after a while start to think of who they know that might appear in the graph but cannot be found. Why didn't I include so-and-so?

The 26 individual network graphs that appear in *Battle in the Mind Fields* can be downloaded from <http://people.cs.uchicago.edu/~jagoldsm/battle-graphics.pdf>.

Where then do these graphs come from? I have made them in different ways. Most of them I constructed from the *pstricks* package, inside of Latex (many people prefer TikZ to pstricks, but I got started from in pstricks.) A couple of them I made, more rapidly, with an online graphical editor called *Lucidchart*. They take some time to get right, of course, but once they are done they are worth a lot, both in teaching and in publication.

6. Conclusion. My goal in teaching the history of linguistics, whether it is in a classroom or in a book, is to look to the past to understand how a question arose. It is easy, but wrong, to think that questions arise easily when looking at data. Questions are in fact very hard to identify and formulate, and formulating them *well* requires a deep understanding of the state of the art at the time. This point of view undercuts any simple historical account that hugs too closely to any naive ver-

sion of John Joseph's presentism (see Joseph, this volume), and constitutes, in my opinion, one of the most important reasons why linguists should study the history of their field.

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