

Re: Mathematical ASL?

Source: <http://sci.tech-archive.net/Archive/sci.math/2005-08/msg04903.html>

- *From:* "Stephen J. Herschkorn" <sjherschko@xxxxxxxxxxxxx>
 - *Date:* Thu, 25 Aug 2005 13:51:43 -0400
-

This from a good friend who is technically very savvy and quite familiar with ASL.

Of course there is ASL to express math concepts, and advanced math classes are taught entirely in American Sign Language (for example, at Gallaudet University). Whether the students (or their interpreters) know these signs is a different matter. In the same way, most English-speakers would not get the mathematical sense of "series" on first hearing. You can imagine when I was interpreting for computer science classes, and the professor said "UNIX", and my non-computer-literate interpreter colleague signed "eunuchs". (Remember, in class, we go by what we hear). There are lots of jokes around these types of errors.

These things quickly work themselves out. Students who know the math signs will correct a non-math-savvy interpreter (all sides are used to this). Often the math signs mimic the signs that translate the non-technical term in English (i.e., polysemy is preserved across languages, because borrowing is the simplest approach): thus, the sign for the mathematical concept "series" is the same as the sign for series in general (though "world series" uses a different sign), or they may in the moment decide to use the English word (spelled blindingly fast) s-e-r-i-e-s. Teachers may need to make clear that they are using word in a technical sense for both their hearing and deaf students. Sign language can represent italics or "quotes" during conversation in ways spoken language cannot (except perhaps weakly by tone of voice), and these are sometimes used. If you say "the difference between a series and a sequence is X", and the same sign is used for both series and sequence (as they are in non-technical ASL), the interpreter will easily be able to create that distinction for the students whether or not s/he knows the math signs, and maintain the distinction going forward.

Interestingly, things like arithmetic are arguably more straightforward in ASL than in English. Because it is a

Re: Mathematical ASL?

spatial language, it can represent spatial concepts (like "add up these two columns of numbers, take the sums at the bottom and calculate their ratio") extremely clearly and concisely. For hearing people learning sign language, watching signers "talk math" is rather hard, since the syntax of english expression is quite thoroughly replaced with the spatial syntax of ASL. (Of course, understanding number speech is one of the later fluencies one gains when learning any foreign language). I have never seen vector calculus or group theory interpreted, but it wouldn't surprise me if the difficulty we have rendering written equations, or even diagrams, in english speech is substantially reduced in ASL.

The main advice to teachers who are using interpreters for deaf students is to be straightforward, but not obsessed, about communications concerns: the interpreters either know where the problems lie (lots of things you think might be an issue will, in fact, not be a problem), or the students know and can inform the interpreters. Teaching technical subjects through an interpreter (of any language) always poses some "lost in translation" risk, and requires some extra patience on both sides to assure that communication is working effectively. I find the best way to determine if communication is clear is simply to ask questions, and listen to the answers. One can detect communication breakdowns, whether they are caused by linguistic issues or not. Ask for feedback from the deaf students after class about whether things are clear. Also, specifically for deaf students, be aware that the eyes can only be in one place at a time, so if you want them to look at what you are drawing on the board, you have to stop talking (so they can take their eyes off the interpreter). You also have to manage the classroom conversation so there is only one speaker at a time, and allow time for the interpreter to mark who is talking, so deaf students can track the flow of conversation. Cacophony is very hard to interpret.

I also bear in mind that the concepts in advanced math are sometimes hard for any student to apprehend on first hearing, so lack of understanding may have little to do with language difference or translation inadequacy.

--

Stephen J. Herschkorn
Math Tutor in Central New Jersey and Manhattan

sjherschko@xxxxxxxxxxxxxx