Dysinferentia: A Potential Learning Disability in Logic

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Abstract

Having taught informal logic and critical thinking for decades, I surmise that there are rare learners who seem to manifest an undocumented learning disability marked by the incapacity to recognize when two or more propositions bear an inferential relationship to one another. As implied, this proposed learning disability does not yet seem to be recognized formally by the scientific community. The purpose of this brief paper is twofold: First, I simply intend to note that my anecdotal teaching experiences suggest that such a learning disability seems to exist; Second, I have coined and evaluated several possible names for this learning disability, ultimately proposing that it should be termed dysinferentia.

Keywords: dyslexia, dyscalculia, dysinferentia, dyslogismia, dysepagogia, dysnous, dyssyllogismia

Background

Learning disabilities exist before they are recognized by the scientific community. The examples of dyslexia and dyscalculia can illustrate this point. Dyslexia is a learning disability concerning reading and practical fluency in written language. In general, a person with dyslexia may have difficulties in reading, writing, spelling, and/or comprehension. It should be noted here that dyslexia can manifest an especially complex array of reading and language-related difficulties well beyond the scope of this discussion, and persons with dyslexia will each experience it uniquely. Dyslexia is thought to affect roughly 1 in 5 people.

Similarly, dyscalculia is a learning disability concerning practical fluency in arithmetic. Dyscalculia can manifest as difficulties in understanding numbers correctly, as well as difficulties in applying mathematical concepts in practice, such as making utterly fundamental errors in simple calculations, or perceiving an affinity (a conceptual relationship) between conceptually unrelated numbers. Similar to dyslexia, dyscalculia typically involves an array of potential difficulties well beyond the scope of this discussion, and as with dyslexia, people with dyscalculia will each experience it uniquely. Dyscalculia is thought to affect roughly 1 in 20 people.

Connecting this information to the larger purpose of this paper, the earliest wave of scientific research into dyslexia seems to have occurred in the late-19th century, while the earliest wave of such research into dyscalculia seems to have occurred in the mid-20th century. Importantly, in both cases, and well before these two learning disabilities were recognized scientifically, their respective symptoms must have been recognized by educators for centuries prior.

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Dysinferentia

Regarding dysinferentia, let me begin by noting that to my knowledge, the ostensible learning disability that I have termed *dysinferentia* has yet to be researched scientifically, though I concede at the outset that I very well may have missed a recognized learning disability that is meaningfully similar if not identical to dysinferentia.

The term "inference" is ambiguous. In some cases, it functions as a synonym for a (logical) argument. This usage is relatively rare today. More commonly, the term inference refers to the conscious mental process of recognizing the logical inter-relationships between two or more propositions. In this latter sense, "making an inference" is the same thing as "inferring". (Here we use "infer" in its correct sense, where it is absolutely not a synonym for "implying" – with the widespread cultural misuse of the term "inferring" notwithstanding!)

Drawing upon this latter understanding of *inference* as described above, *dysinferentia* concerns cognitive difficulties related to making rational inferences, or recognizing the presence or absence of inferential relationships between propositions.

Some examples will serve to clarify what we mean. Suppose we are faced with the following two propositions:

> Jim is in California right now.
>
> Jim is in Texas right now.

Because of the relationship between the meanings of these two propositions, it turns out that if we know that one of these two propositions is true, this tells us that the other proposition must be false. Thus, if Jim is in California right now, it is literally impossible for Jim to be in Texas right now. In this sense, these two propositions are logically inter-related, and the mental process by which we recognize this logical inter-relation is the process of inferring, or making an inference.

Importantly, there are degrees of logical inter-relation, and while the two propositions under discussion here are logically inter-related in some senses, there are other senses in which these same two propositions are *not* logically inter-related. For example, if we know that Jim is *not* in California right now, this information by itself tells us nothing about whether Jim is in Texas. (In this latter example, given everything that we know – i.e., that "Jim is not in California" – it is still logically possible that Jim could be in *neither* California nor Texas right now. For example, what if Jim were currently in Hawaii?)

Two salient points are worth noting here:

- Some learners – a relatively rare subset of all adult learners – seem to be cognitively incapable of recognizing the presence or absence of logical inter-relationships as described in the examples discussed immediately above.
- If a learner is in fact cognitively incapable of recognizing the presence or absence of logical inter-relationships, this learner could be described as having dysinferentia.

Regarding the naming of dysinferentia

Building from Greek and/or Latin components, I have coined and evaluated six potential terms to name the proposed learning disability described in this paper. Relative to the two best candidates, the following four potential names were clearly either too broad or too narrow in etymological meaning:

- dysnous (“impaired intellect”)
- dysdeductia ("impaired ability to reason deductively")
- dysepagogia (“impaired ability to reason inductively”)
- dyssyllogismia (“impaired ability to reason syllogistically”)

The following two finalists each had their own appeal:

- dyslogismia (“impaired ability to reason”)
- dysinferentia (“impaired ability to infer”)

Some might judge dyslogismia to be the preferred name based on the grounds that it is perhaps more easily decipherable for the reader who seeks to determine its meaning from context clues alone. While this point may be true, its etymological meaning seems too broad relative to the disability under review. (Most would agree that “reasoning” encompasses much more than just logical reasoning.)

In contrast, when broken down into its etymological components, and when these parts are each interpreted literally, and then combined, “dysinferentia” effectively denotes the precise issue at hand – i.e., an impaired ability to infer. In this sense, due to its greater etymological integrity, dysinferentia is etymologically superior to dyslogismia. Thus, from among the new terms that I have coined, dysinferentia is arguably the best candidate to name the newly described learning disability.

Conclusions

Regarding both dyslexia and dyscalculia, their respective symptoms must have been recognized by educators for centuries before these learning disabilities were acknowledged formally by the scientific community. Thus, the fact that something like dysinferentia is apparently yet to be researched and established scientifically portends neither the absence nor the implausibility of dysinferentia. This being the case, the potential existence of dysinferentia as a cognitive trait of some learners is being proposed here for its sufficiency (i.e., its explanatory power). Indeed, if dysinferentia exists as proposed, this would explain why some learners find it seemingly impossible to differentiate reliably between good and bad logical arguments.