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## Being Definitive with Definitions

It is well known that many students entering university struggle with the role, nature, purpose and use of definitions in mathematics. To those who are thoroughly enculturated into mathematics, it is hard to imagine there is an issue, while to those teaching students it is hard to work out where the difficulty lies. The classic distinction between *concept definition* and *concept image* (Tall & Vinner 1981, Vinner 1983), makes an important start, but there remains the issue of what definitions are for and how they are used. Following various linguists and philosophers (Edwards & Ward 2005) it is vital to distinguish between what have been called *extractive* definitions (usage is described and reported, as in a dictionary) and *stipulative* definitions (specifying required properties, as in mathematics). Students are culturally immersed in and familiar with the former, but in order to succeed in mathematics they have to become used to using the latter.