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Arbitrary natural numbers in the framework of Carnapian quantified modal logic[1]

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Inspired by Fine's work on arbitrary objects, we discuss how "arbitrary" — or "generic" — natural numbers can be dealt with. It was proposed by Kripke that reasoning about such objects can be represented using Carnapian modal logic with quantifiers over individual concepts (i.e., functions from possible worlds to elements of a given domain). Following this proposal, we develop a formal framework for dealing with arbitrary natural numbers; note that a distinctive feature of our presentation is that we supplement the original modal language with a special intensional predicate of being "specific". Both the model-theoretic and complexity aspects of the resulting generic structure are investigated.

[1] Joint work with Leon Horsten.