Galileo occupies a prominent place in the literature on thought experiments. The short argument that Salviati uses, in the *New Sciences*, to prove “without further experience” that Aristotle was wrong in assuming that a heavier body would fall more rapidly than a lighter one, has been the object of much scholarly interest. James Brown has singled it out as a perfect example of a Platonic thought experiment, which “gives a grip on nature just by thinking”;1 John Norton has used it to prove, against Brown, that thought experiments are just logical arguments in disguise;2 Tamar Szabó Gendler, in turn, has argued that good thought experiments like Galileo’s derive their persuasive power from the fact that they enable one to systematize “a previously inarticulable knowledge about the world”; whereas David Atkinson and Jeanne Peijnenburg have maintained that Galileo’s argument is “logically deficient” and fails “to adequately describe the empirical world.”3

That Galileo’s thought experiment was inspired by a similar argument in Giambattista Benedetti’s *Speculationum liber* (1585), is usually regarded as an insignificant historical detail. But if one looks at the many thought experiments presented in Galileo’s work, one finds that many of them derive from pre-existing sources, notably Aristotelian ones. As I shall show, this fact must not be read as a sign of continuity between scholastic and early modern science, but rather as an indication that Galileo consciously used a traditional way of arguing in order to build up his non-traditional conclusions. I hence cannot share the opinion of James McAllister, who regards Galileo’s thought experiments as a new

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3 Gendler, “Galileo,” 415; Atkinson and Peijnenburg, “Galileo and Prior,” 127. Galileo’s thought experiment is also discussed in the contribution to this volume by Goffi and Roux.

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instrument, the validity of which was not recognised by contemporary Aristotelians:

The discrepancy between what occurs in Galileo’s thought experiments and what occurs under natural circumstances ensured that Aristotelian natural philosophers failed to attribute evidential significance to the former. For them, Galileo’s thought experiments carried no weight: evidence in natural philosophy was constituted by natural occurrences.4

It is certainly not the case that Galileo’s Aristotelian contemporaries relied exclusively on the evidence provided by natural occurrences. In the medieval period natural philosophy had turned into a “philosophy without nature” (in Murdoch’s felicitous formulation), which heavily relied on arguments secundum imaginationem.5 Following in Murdoch’s footsteps, other scholars have emphasised the non-empirical character of medieval science; according to Peter King “thought experiments are the methodology of medieval science,”6 whereas Edward Grant has observed that “the most powerful tool medieval natural philosophers possessed was not empiricism manifested by observation per se, but rather experience as adapted for use in thought experiments.”7

As I shall show in the following pages, Galileo was acquainted—though possibly but indirectly—with the medieval secundum imaginationem arguments, and he consciously reused some of them with the aim of either strengthening or subverting the conclusions reached by their first proponents.

The medieval thought experiments that reappear in Galileo’s works can be divided into two groups, namely those that concerned the actual physical world, and those that hinged on worlds that God, in his infinite potency, could have created. Arguments of the first type served Galileo to show that medieval natural philosophers had detected some major inconsistencies in Aristotle’s physics, but had not understood the disruptive implications of their critique. Arguments of the second type were instead used to show that what medieval authors had imagined to happen in alternative worlds could actually be the case in our own physical world. Importantly, by reinterpreting old cosmological thought experiments in the light of his new science of motion, Galileo took an important step

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4 McAllister, “Virtual Laboratory,” 51. Cf. also McAllister, “Evidential Significance.”
5 Murdoch, “The Analytic Character.”
6 King, “Medieval Thought-Experiments.”
7 Grant, “Medieval Natural Philosophy,” 167. For an analysis of medieval secundum imaginationem arguments, cf. Grellard’s contribution to this volume.