Remark 2.53. [01J]*A distinction is made between an* informal set theory *and a* formal set theory. [a]

Informal set theory exploits all notions previously listed, but does not investigate the fundamentals, that is, the axiomatization. For this approach we recommend the text [?]; or [?] for a brief discussion.

The most widely used formal set theory *is the Zermelo–Fraenkel axiomatic, that we will shortly recall in next Section. See Chap. 6 in [?] (for a brief introduction [?] can also be fine).*

In Zermelo–Fraenkel's axiomatic set theory, all variables represent sets, so variables do not have a meaning of truth or falsehood. For this reason, in the definitions [00G] *and* [00Q] *of* well-formed formula *changes the concept of "atom". A An atom is now a formula of the form* $a \in b$ *that has truth/falsehood value.*

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[a] See the introduction to Chap. 6 in [?] for a discussion comparing these two approaches.