

A propositional proof system R is called *automatizable* if there is an algorithm that produces for every formula F a proof in R in time polynomial in $s(F)$, where $s(F)$ is the length of the shortest proof of F in R .

This paper shows that under a plausible complexity assumption, the proof systems *Polynomial Calculus* and *Polynomial Calculus with Resolution* are not automatizable. The same result was shown for the well-known *Resolution* proof system under the same complexity assumption by Alekhovich and Razborov [1]. The proof closely follows the method of Alekhovich and Razborov [1].

References

- [1] M. Alekhovich and A. A. Razborov, Resolution is not automatizable unless $W[P]$ is tractable, *SIAM J. Comput.* **38** (2008), no. 4, 1347–1363. MR2448451 (2010c:03038)