

Plan for our last week at MSRI

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1 Alexandra

In order to feel somewhat complete with this project for our final paper, I would really like to nail down the proofs that we have done so far. We have just begun to be able to understand the p -adic limits of general $\{C(ap^n)\}$, but to be able to have an airtight proof of everything we know would feel really good. In terms of moving forward, I'd like to be able to understand what happens to the sequences $\{C(ap^n + r)\}$, where a and r are arbitrary constants, but specifically the case where $p = 2$.

2 Andrew

Assuming that we can get a good proof of the limit of $\{C(ap^n)\}$, I would like to investigate two further problems next week:

1. Write the limit of $\{C(2^n)\}$ in base-2.
2. Find the limit of $\{C(2^n + c)\}$ for arbitrary c , and, if that is not too difficult, the limit of $\{C(ap^n + c)\}$ for arbitrary c .

3 Joseph

Ideally we will have a rigorous (possibly elegant) proof of all of our "results" thus far. That way we can move on to generalizing our results by looking at subsequences which are constant shifts of prime powers. I was hoping to define a continuous p -adic function in terms of catalan number subsequences using our results. I would also like to search for limits of other combinatorial sequences including the franel numbers and the stirling numbers. If there's time we may be able to define functions for these as well.