Hello,

We were very happy to see your preprint Enumerating Seating Arrangements that Obey Social Distancing on arXiv in which you cited our article Packing density of combinatorial settlement planning models from the American Mathematical Monthly. It is always a pleasure to read something new and interesting related to this nice topic.

As we mentioned in that paper, we were introduced to this problem by our friend Juraj Božić who came up with it during his studies at Faculty of Architecture, University of Zagreb. We considered this model already in the paper Combinatorial settlement planning that appeared recently in Contributions to Discrete Mathematics.

We realized that in your recent preprint you mention a few other problems that we were also working on, so we decided to write a short email about that, in case you find it interesting. We considered one-dimensional version of our problem (without the sun coming from the south) in the preprint On a variant of Flory model. You can see that the function f_3(z, x) on page 6 of your preprint is the same function that we have on the top of page 9 in our preprint. Additionally, the corresponding limiting average density of 0.5772029462 is also mentioned in our preprint on the top of page 10.

It turns out that physicists are also very interested in these kinds of models. In particular, the setting in which each person must have at least b empty seats on either side translates to the setting of the so-called Rydberg atoms with blockade range b. We tackled the model of Rydberg atoms on a one-dimensional lattice in the preprint Complexity Function of Jammed Configurations of Rydberg Atoms in which we obtained your conjectured function g_b(z, x) (that appears on page 7 of your preprint). In our preprint, the function is called F_b and it appears on the top of page 6.

There are a few other preprints, but not so closely related to things that you mention. For example, we recently considered the problem of Rydberg atoms on a ladder (in RSA setting, and in equilibrium setting).

There are a few more references that would make sense to add to your article. Not by us, but by Pavel Krapivsky and Jean-Marc Luck. We often exchange ideas with them, and they worked on many similar problems as we did, but they are physicists and they attack problems with slightly different techniques, and sometimes use different language. Two papers that would make sense to mention are Jamming and metastability in one dimension: from the kinetically constrained Ising chain to the Riviera model published in The European Physical Journal Special Topics and A renewal approach to configurational entropy in one dimension published in Journal of Physics A: Mathematical and Theoretical. In the paper Jamming and metastability in one dimension: from the kinetically constrained Ising chain to the Riviera model they reconstruct the bivariate generating function that we calculated in our preprint On a variant of Flory model (this is the function that you also have in your preprint under the name f_3(z, x)). They also did simulations to estimate the jamming limit in the dynamic (random sequential adsorption) model. In their paper A renewal approach to configurational entropy in one dimension they also developed the bivariate generating function which you conjectured. To the best of our knowledge, our paper Complexity Function of Jammed Configurations of Rydberg Atoms, and the paper A renewal approach to configurational entropy in one dimension by Pavel and Jean-Marc are the first two papers where the precise shape of your conjectured function has appeared. However, this model of Rydberg atoms is equivalent (up to the conditions near the border) to the model of deposition of k-mers on a linear substrate. In this setting of k-mers deposition, an analogous function to the one you conjectured appeared already in the paper Block allocation of a sequential resource written by one of our coauthors, Tomislav Došlić, published in Ars Mathematica Contemporanea - (see Corollary 2.4.).

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