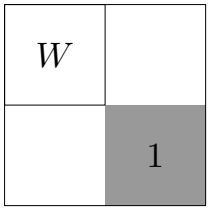
Open lectures for PhD students in computer science
Combinatorial limits course by D. Král' and A. Grzesik
Assignment #1

1. Decide which of the following graph sequences $(G_n)_{n\in\mathbb{N}}$ are convergent:

- **a)** $G_n = K_{n,4n}$,
- **b)** G_n is $K_{n,4n}$ with a perfect matching on the side with $4n$ vertices,
- **c)** G_n is the graph on n vertices containing a clique on $\lfloor \pi n^2 \rfloor$ mod n vertices and the remaining vertices are isolated.

2. For each convergent sequence from the previous problem find a graphon to which it converges.

3. Express $d(\,\therefore,W')$ in terms of $d(\,\therefore,W)$, $d(\,\therefore,W)$, $d(\,\Lambda,W)$ and $d(\,\Lambda,W)$, where W' is the depicted graphon containing two equal-sized parts, one with the graphon W and one with the complete graphon.



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