

# Practical 2018

March 22, 2018

## 1 Milestone 1

**Formulate the problem for splitting the sites of a single partition among  $k$  CPUs as hypergraph problem.**

We want to define each member of  $H = (V, E, c, \omega)$  and an objective function  $f$ .

Let  $N$  be the set of internal nodes.

Let  $R_n$  be the set of all repeats classes for a given node  $n \in N$ .

Let  $r(n, s)$  be the repeats class of the site  $s$  under the node  $n$ .

Then:

- $V = \{sites\}$
- $E = \bigcup_{n \in N} R_n$
- $\forall s \in V, c(s) = \sum_{n \in N} \frac{1}{|r(n, s)|}$
- $\forall e \in E, w(e) = 1$
- $f(\Pi) = \sum_{E \in E'} w(e)$  (cut-net metric)

## 2 Milestone 2

**Same with multiple partitions.**

Same solution, but also some over the partitions (as previously done over the nodes). When implementing it, just be careful not to put sites from different partitions in the same hyperedges.

### 3 Milestone 3

**Also Minimize the maximum number of partitions assigned to a CPU.**

I think that the problem is not well defined here... Two quantities to minimize at the same time??