



Matching Vital Needs

A person needing a kidney transplant may have a friend or relative who volunteers to be a living donor, but whose kidney is incompatible, forcing the person to wait for a transplant from a deceased donor. In the U.S. alone, thousands of people die each year without ever finding a suitable kidney. A new technique applies graph theory to groups of incompatible patient-donor pairs to create the largest possible number of *paired-donation* exchanges. These exchanges, in which a donor paired with Patient A gives a kidney to Patient B while a donor paired with Patient B gives to Patient A, will dramatically increase transplants from living donors. Since transplantation is less expensive than dialysis, this mathematical

algorithm, in addition to saving lives, will also save hundreds of millions of dollars annually.

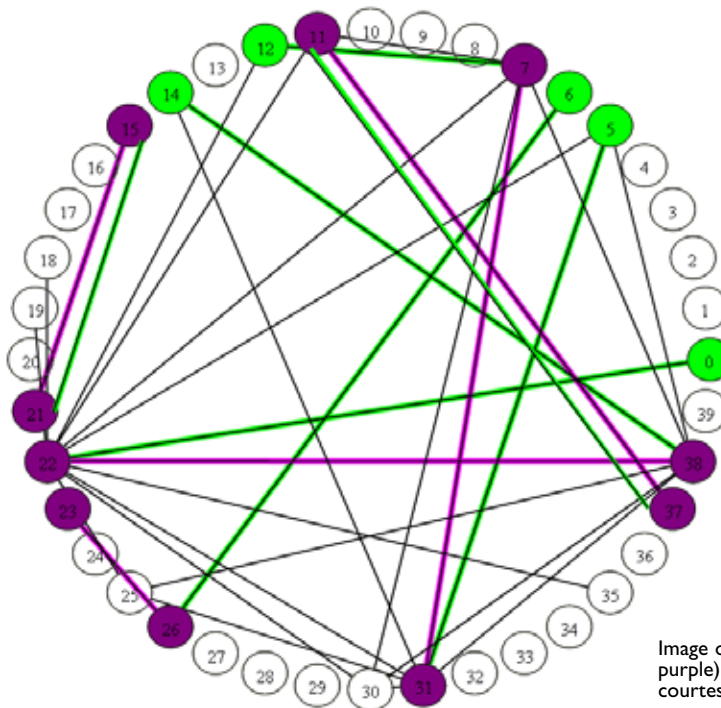


Image of suboptimal two-way matching (in purple) and an optimal matching (in green), courtesy of Sommer Gentry.



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