

EE 162

Random Processes for Communication and Signal Processing

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<http://ee162.caltech.edu>

4. *Where no one has gone before*

You, the Federation, are at war with the Cardassians, the Romulans, the Borg, and the Hirogen. Each of your enemies has 32 ships from which they will attack 32 planets each. If they all attacked different planets you would have to defend 128 planets. However, your spies have learned that various alliances have been formed whereby each of your enemies has agreed to jointly attack 16 planets with each of their compatriots (For example, for the Romulans this means that the Romulans and Borg will attack 16 jointly, the Romulans and Cardassians will attack 16 jointly and the Romulans and Hirogen will attack 16 jointly). In addition you have learned that as a result of this there will be 32 planets which will have to fight off at least 3 enemies, and 4 planets which will be attacked by all four enemies. How many Federation planets must you prepare to defend?

