Some problems raised by Horn's theorem

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Horn's 1962 conjecture on the inequalities describing the possible eigenvalues of the sum of two Hermitian matrices in terms of the eigenvalues of the summands has been proved almost ten years ago. This celebrated result is a consequence of work done by A. Klyachko and A. Knutson + T. Tao. The theorem raises some additional interesting problems. We shall describe two of these: partial spectra description, and effective construction of solutions in the existence part of the theorem.