2022 - 12 - 05

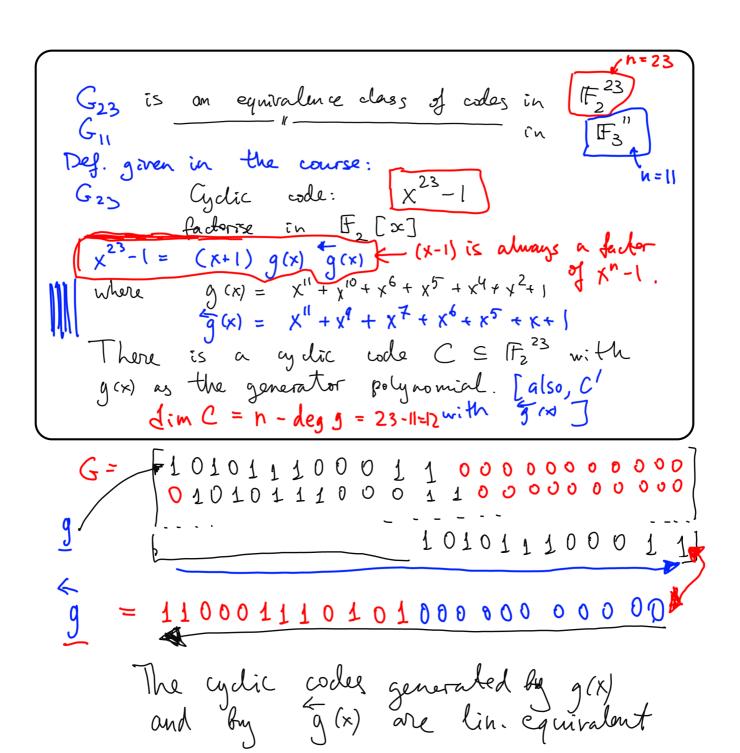
Week 11 Review Session

The Golay codes. Classification of perfect codes up to parameter equivalence.

The two Golay codes: * 1) The Binary Golay code G23 * 2) The ternary Golay code G11

Reminder: Ham (r, q) & IFg is not one code but a class of linearly equivalent codes.

Same for the Golay codes.



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Tietavainen-van Lint thum (1973)

If I is a prime power, every perfect
q-ary code is perameter equivalent to
one of the above.
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Reed-Nuller codes R (r,m) Binary Constructed using Boolean functions $V^{M} = \begin{cases} 000 - 00, 00 - 01, - 01, - 01 \end{cases}$ $= \begin{cases} \text{all binary words of length in m} \end{cases}$ $V^{M} \longrightarrow \begin{cases} 0,13 = F_{2} \end{cases} \longmapsto \begin{bmatrix} 00100 - 00 \\ 0 \end{bmatrix}$ 2m possitions 010 000 001 110 ou 100 lol O \mathcal{O} l 0 0 1 \mathcal{O} \mathcal{O} Ú \mathcal{O} 0 R (2,3)

R(r, m) is $[2^{m}, {\binom{m}{0}}, {\binom{m}{1}}, {\binom{m}{1}},$

0

V1 V2 V2