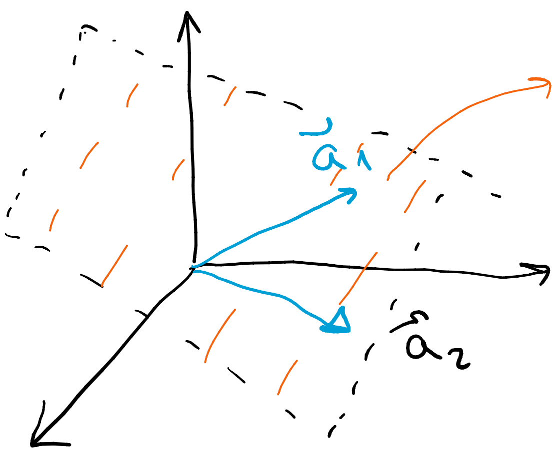
24. marts 2020 08:39

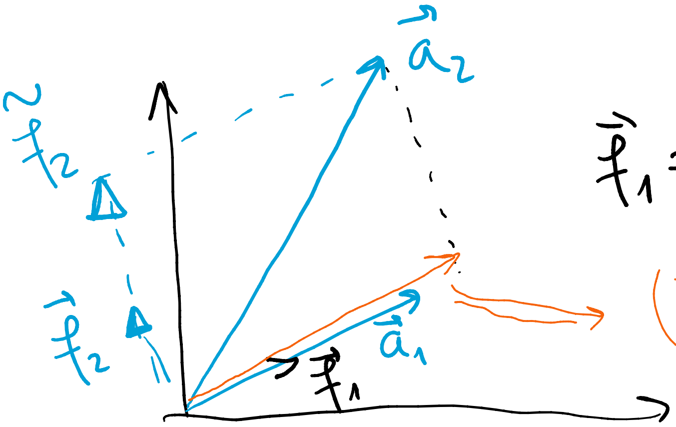


Span$\{\vec{a}_1, \vec{a}_2\}$

$\exists\, \vec{n} \in \mathbb{R}^3$ således at

$\vec{n}\cdot\vec{a}_1 = 0$ og

$\vec{n}\cdot\vec{a}_2 = 0.$



$$\vec{f}_1 = \frac{1}{|\vec{a}_1|}\vec{a}_1$$

$(\vec{a}_2\cdot\vec{f}_1)\vec{f}_1$

$$\tilde{f}_2 := \vec{a}_2 - (\vec{a}_2\cdot\vec{f}_1)\vec{f}_1 \perp \vec{f}_1$$

$$\tilde{f}_2\cdot\vec{f}_1 = 0 \,,\quad \tilde{f}_2 \neq 0 \Rightarrow \vec{f}_2 := \frac{1}{|\tilde{f}_2|}\tilde{f}_2$$

Gram-Schmidt proceduren

$$\vec{a}_i^T\cdot(\vec{x}+\lambda\vec{d}) = \underbrace{a_i\cdot\vec{x}}_{=b_i} + \lambda\vec{a}_i\cdot\vec{d}$$
$$+ \lambda\cdot 0 = b_i$$

$\vec{c}\cdot\vec{y} = \vec{c}\cdot\vec{x} + \lambda\,\underbrace{\vec{c}\cdot\vec{d}}_{<0}$. Hvis λ kan være

$\vec{c}\cdot\vec{y} \longrightarrow -\infty$

hvad som helst $\overset{<0}{\Rightarrow}$ $\vec{c}\cdot\vec{y} \xrightarrow[\text{når } \lambda \to +\infty]{} -\infty$.

„P indeholder en halv linje" $\Leftrightarrow$

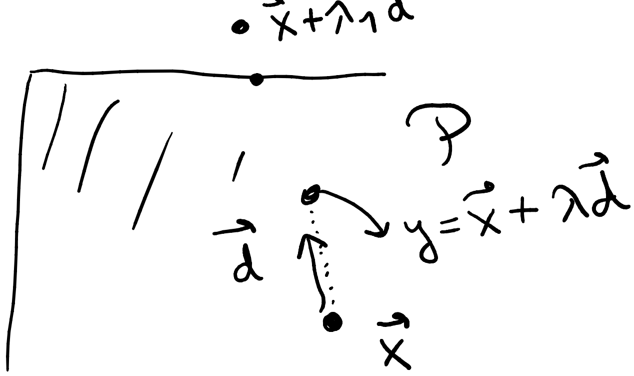
$\vec{x} + \lambda \vec{d} \in P$ for alle $\lambda > 0$

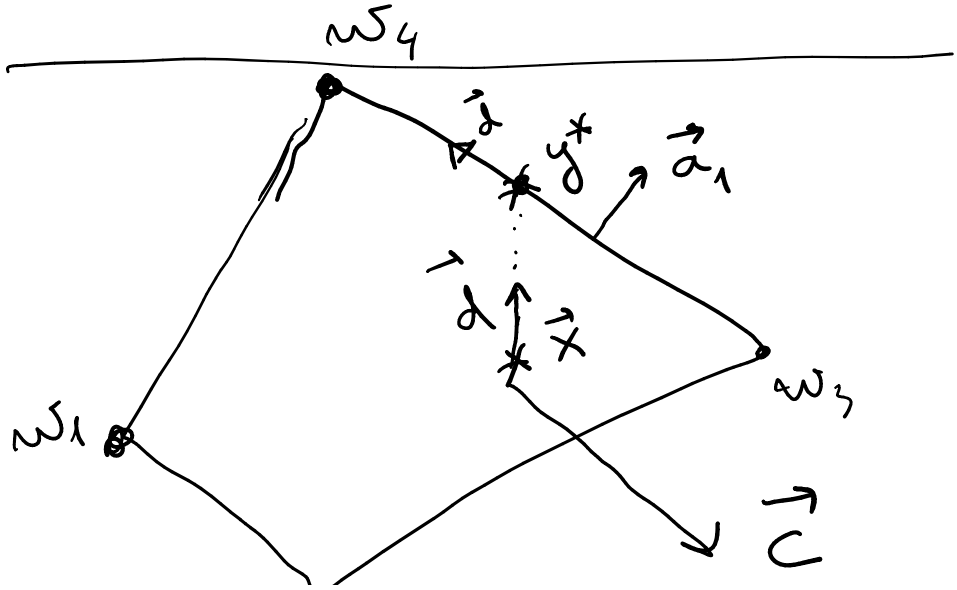
P indeholder ikke ... $\Leftrightarrow$

$\exists\, \lambda_1 > 0$ s.a. $\vec{x} + \lambda_1 \vec{d} \notin P$.

Kig på $[0, \lambda_1] \longrightarrow \vec{x} + \lambda \vec{d}$

$\lambda^* = \sup\{\lambda \in [0,\lambda_1] : \vec{x} + \lambda \vec{d} \in P\}$





$$c\cdot \underbrace{w_1}_{= w^*} \le c\cdot w_2 \le c\cdot w_3 \le c\cdot w_4$$

$$\{\vec{x}\in\mathbb{R}^n : \vec{a}\cdot\vec{x}=0\} = V_0$$

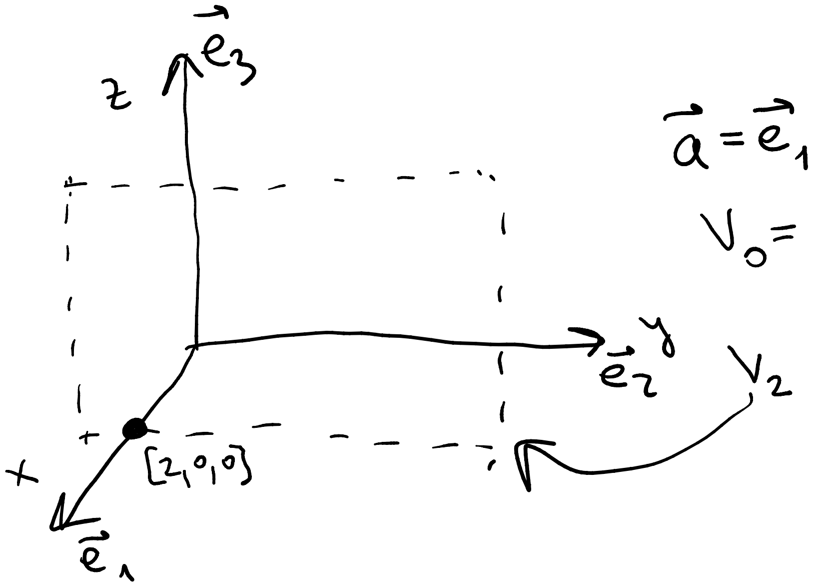
V_0 er et underrum

$\vec{0}\in V_0$, $\quad (\lambda \underbrace{\vec{x}}_{\in V_0} + \mu \underbrace{\vec{y}}_{\in V_0})\cdot\vec{a} = \lambda\vec{x}\cdot\vec{a} + \mu\vec{y}\cdot\vec{a} = 0.$

$$\{\vec{x}\in\mathbb{R}^n : \vec{a}\cdot\vec{x}=b\} = V_b$$

$\perp$ ikke et underrum

men $\forall\, x, y\in V_b \Rightarrow x-y\in V_0$



$\vec{a} = \vec{e}_1$

$V_0 =$ YZ-plane