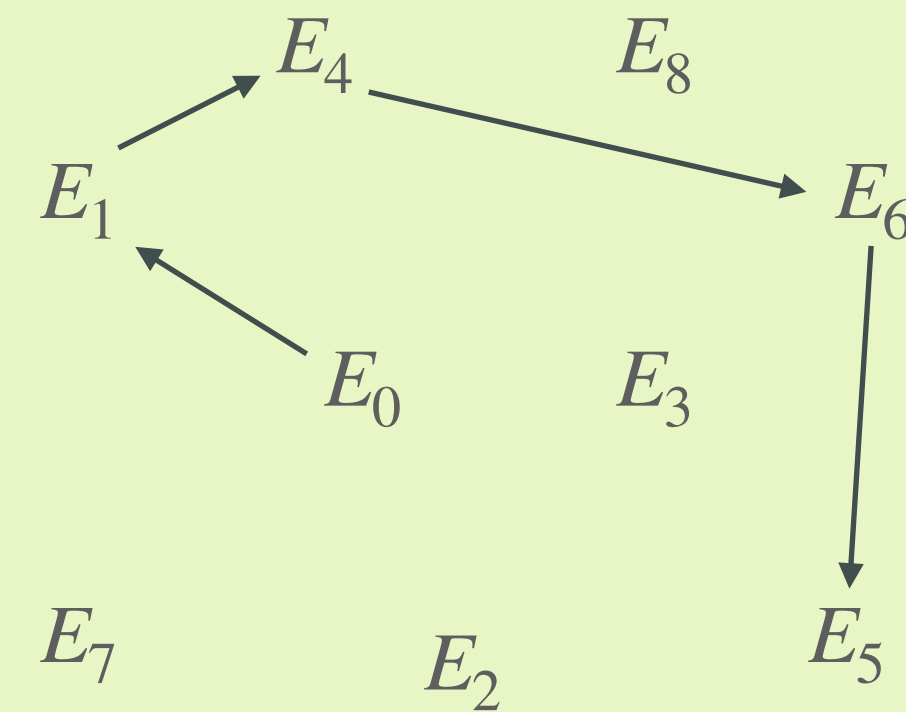


PART 1

SQLsign

Deuring correspondence

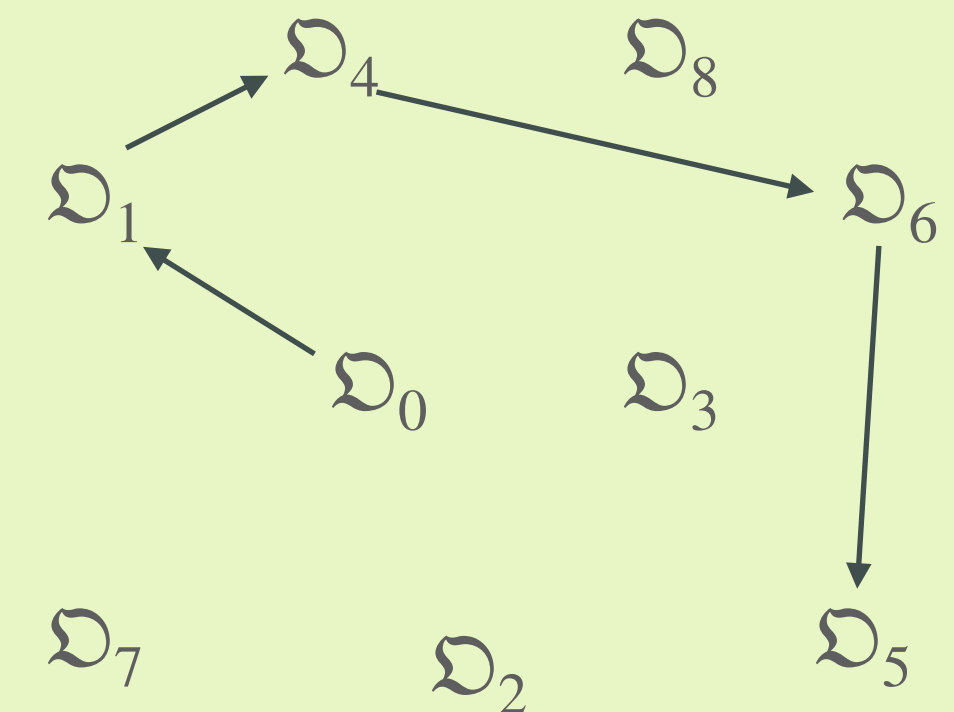
world of supersingular curves



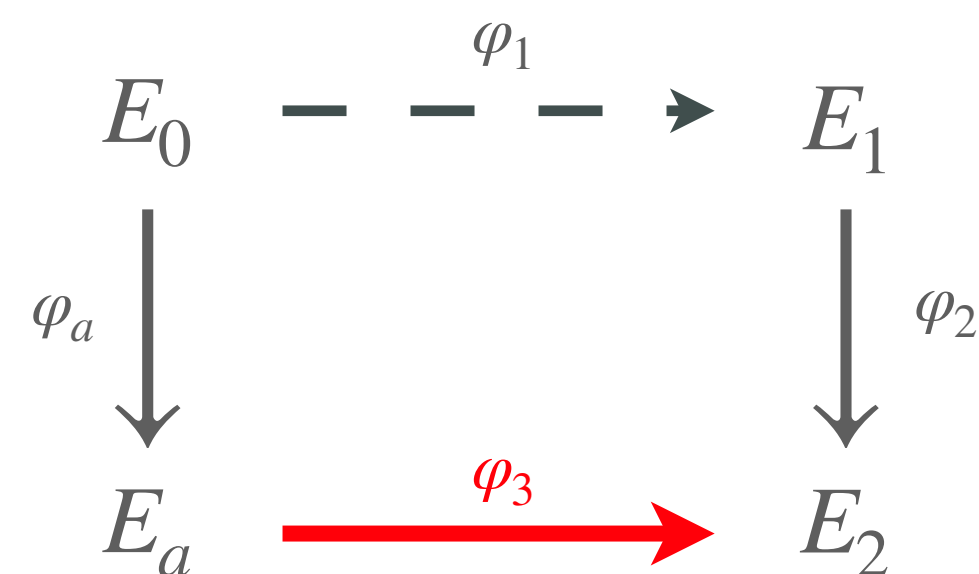
Equivalence
of categories

$$E \mapsto \text{End}(E) \cong \mathfrak{D}$$

world of maximal orders



computing the signature



Fact: Given $\text{End}(E_a)$ and $\text{End}(E_2)$
you can compute $\varphi_3 : E_a \rightarrow E_2$

curve-order dictionary

supersingular curves

curve E (up to Galois conjugacy)

quaternion orders

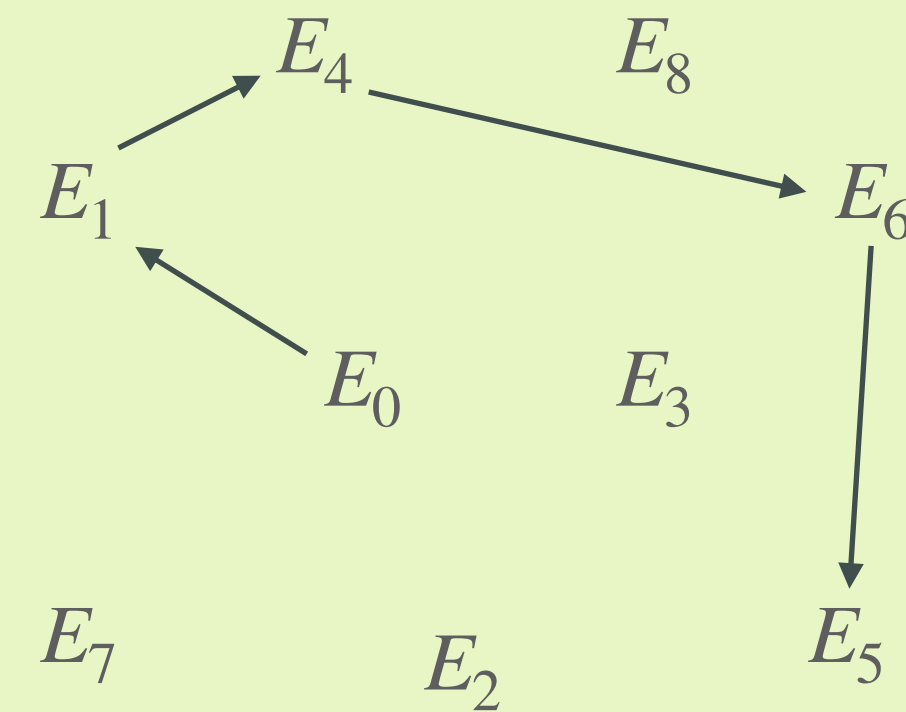
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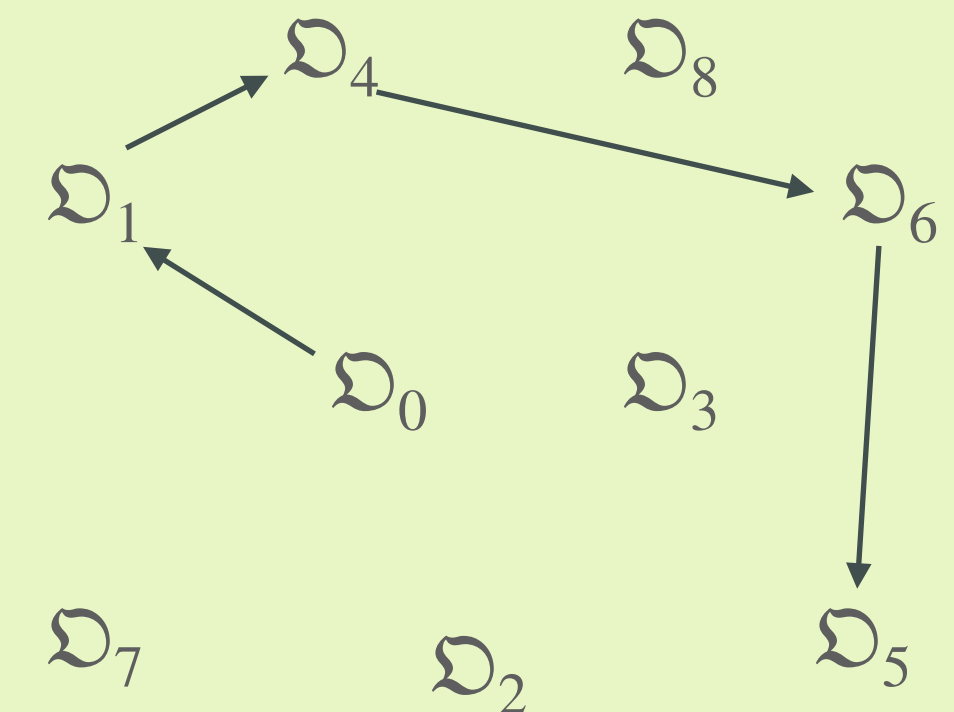
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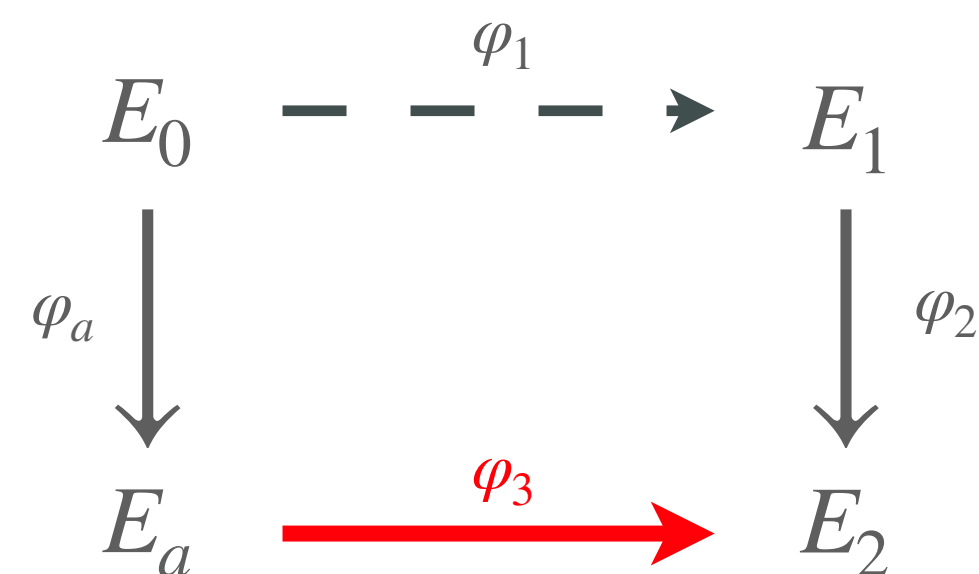
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isogeny $\varphi : E_1 \rightarrow E_2$

endomorphism $\psi : E \rightarrow E$

quaternion orders

maximal order \mathfrak{D} (up to isomorphism)

integral ideal I_φ that is
left \mathfrak{D}_1 -ideal and right \mathfrak{D}_2 -ideal

principal ideal $(\beta) \subset \mathfrak{D}$