

Mono-anabelian Transport

étale-like object



Frobenius-like monoid

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

G

\curvearrowright

$\mathcal{O}^\triangleright$

Mono-anabelian Transport

ét. object



Frob. monoid

(“ét.” = étale-like, “Frob.” = Frobenius-like)

Mono-anabelian Transport

ét. object $\xrightarrow[\text{algorithm}]{\text{mono-anab.}}$ ét. monoid



Frob. monoid

(“ét.” = étale-like, “Frob.” = Frobenius-like)

Mono-anabelian Transport

ét. object $\xRightarrow[\text{algorithm}]{\text{mono-anab.}}$ ét. monoid \Rightarrow ét. cyclotome



Frob. monoid \Rightarrow Frob. cyclotome

(“ét.” = étale-like, “Frob.” = Frobenius-like)

Mono-anabelian Transport

ét. object $\xRightarrow[\text{algorithm}]{\text{mono-anab.}}$ ét. monoid \Rightarrow ét. cyclotome



cycl. \uparrow } rig.

Frob. monoid \Rightarrow Frob. cyclotome

(“ét.” = étale-like, “Frob.” = Frobenius-like)

Mono-anabelian Transport

ét. object $\xRightarrow{\text{mono-anab. algorithm}}$ ét. monoid \Rightarrow ét. cyclotome

\curvearrowright Kmm. \uparrow } isom. $\xleftarrow{\text{Kmm. theory}}$ cycl. \uparrow } rig.

Frob. monoid \Rightarrow Frob. cyclotome

(“ét.” = étale-like, “Frob.” = Frobenius-like)

Mono-anabelian Transport

ét. object

mono-an. \Downarrow alg'm

ét. monoid \Rightarrow ét. cyclotome

Kmm. \uparrow } isom. $\xleftarrow{\text{Kmm. theory}}$ cycl. \uparrow } rig.

Frob. monoid \Rightarrow Frob. cyclotome

(“ét.” = étale-like, “Frob.” = Frobenius-like)

Mono-anabelian Transport

\dagger ét. object

mono-an. \Downarrow alg'm

\dagger ét. monoid

Kmm. \uparrow } isom.

\dagger Frob. monoid

Mono-anabelian Transport

\dagger ét. object

\ddagger ét. object

mono-an. \Downarrow alg'm

mono-an. \Downarrow alg'm

\dagger ét. monoid

\ddagger ét. monoid

Kmm. \uparrow \wr isom.

Kmm. \uparrow \wr isom.

\dagger Frob. monoid

\ddagger Frob. monoid

Mono-anabelian Transport

\dagger ét. object

$\xrightarrow{\sim}$
coricity

\ddagger ét. object

mono-an. \Downarrow alg'm

mono-an. \Downarrow alg'm

\dagger ét. monoid

\ddagger ét. monoid

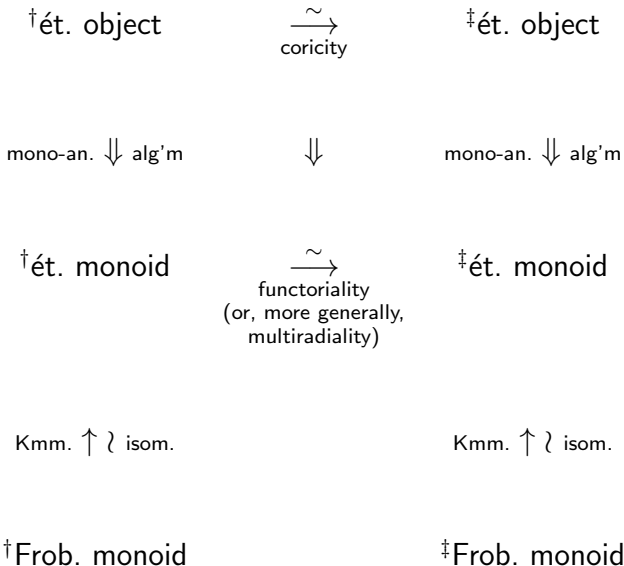
Kmm. \uparrow \wr isom.

Kmm. \uparrow \wr isom.

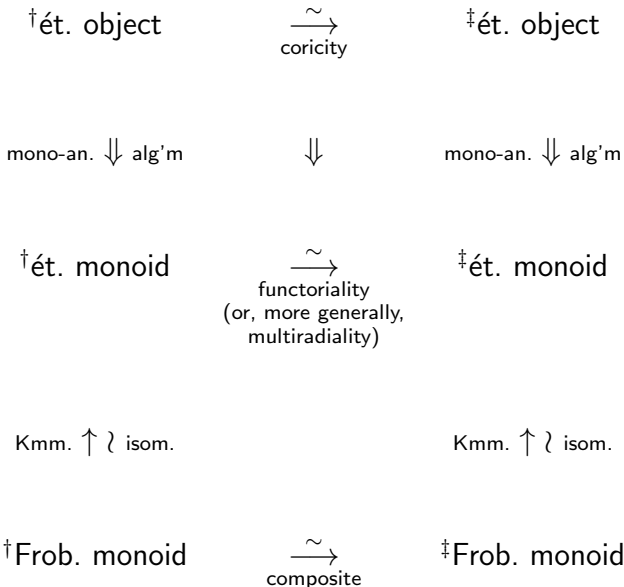
\dagger Frob. monoid

\ddagger Frob. monoid

Mono-anabelian Transport



Mono-anabelian Transport



Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

G



$\mathcal{O}^\triangleright$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

G mono-anab.
 \Rightarrow
 algorithm $\mathcal{O}^\triangleright(G)$

\curvearrowright

$\mathcal{O}^\triangleright$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_k^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$$G \xrightarrow[\text{algorithm}]{\text{mono-anab.}} \mathcal{O}^\triangleright(G) \Rightarrow \varprojlim_n \mathcal{O}^\triangleright(G)[n]$$

\curvearrowright

$$\mathcal{O}^\triangleright \Rightarrow \varprojlim_n \mathcal{O}^\triangleright[n]$$

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\curvearrowright

cycl. \uparrow \wr rig.

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Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_k^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$$\begin{array}{ccccc}
 G & \begin{array}{c} \text{mono-anab.} \\ \Rightarrow \\ \text{algorithm} \end{array} & \mathcal{O}^\triangleright(G) & \Rightarrow & \varprojlim_n \mathcal{O}^\triangleright(G)[n] \\
 & \curvearrowright & \text{Kmm. } \uparrow \wr \text{ isom.} & \text{Kmm.} & \text{cycl. } \uparrow \wr \text{ rig.} \\
 & & & \text{theory} & \\
 & & \mathcal{O}^\triangleright & \Rightarrow & \varprojlim_n \mathcal{O}^\triangleright[n]
 \end{array}$$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_k^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

G

mono-an. \Downarrow alg'm

$$\mathcal{O}^\triangleright(G) \quad \Rightarrow \quad \varprojlim_n \mathcal{O}^\triangleright(G)[n]$$

Kmm. $\uparrow \wr$ isom. Kmm. \Leftarrow theory cycl. $\uparrow \wr$ rig.

$$\mathcal{O}^\triangleright \quad \Rightarrow \quad \varprojlim_n \mathcal{O}^\triangleright[n]$$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$\dagger G$

mono-an. \Downarrow alg'm

$\dagger \mathcal{O}^\triangleright(G)$

Kmm. $\uparrow \wr$ isom.

$\dagger \mathcal{O}^\triangleright$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$\dagger G$

$\ddagger G$

mono-an. \Downarrow alg'm

mono-an. \Downarrow alg'm

$\dagger \mathcal{O}^\triangleright(G)$

$\ddagger \mathcal{O}^\triangleright(G)$

Kmm. \Uparrow } isom.

Kmm. \Uparrow } isom.

$\dagger \mathcal{O}^\triangleright$

$\ddagger \mathcal{O}^\triangleright$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$$\dagger G \quad \xrightarrow[\text{coricity}]{\sim} \quad \ddagger G$$

mono-an. \Downarrow alg'm

mono-an. \Downarrow alg'm

$$\dagger \mathcal{O}^\triangleright(G)$$

$$\ddagger \mathcal{O}^\triangleright(G)$$

Kmm. \Uparrow } isom.

Kmm. \Uparrow } isom.

$$\dagger \mathcal{O}^\triangleright$$

$$\ddagger \mathcal{O}^\triangleright$$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$$\begin{array}{ccc}
 \dagger G & \xrightarrow[\text{coricity}]{\sim} & \ddagger G \\
 \text{mono-an.} \downarrow \text{alg'm} & \downarrow & \text{mono-an.} \downarrow \text{alg'm} \\
 \dagger \mathcal{O}^\triangleright(G) & \xrightarrow[\text{functoriality}]{\sim} & \ddagger \mathcal{O}^\triangleright(G) \\
 \text{Kmm.} \uparrow \wr \text{ isom.} & & \text{Kmm.} \uparrow \wr \text{ isom.} \\
 \dagger \mathcal{O}^\triangleright & & \ddagger \mathcal{O}^\triangleright
 \end{array}$$

Classical Example $G \curvearrowright \mathcal{O}^\triangleright$: an isomorph of $G_k \curvearrowright \mathcal{O}_{\bar{k}}^\triangleright$, $[k : \mathbb{Q}_p] < \infty$

$$\begin{array}{ccc}
 \dagger G & \xrightarrow[\text{coricity}]{\sim} & \ddagger G \\
 \text{mono-an.} \downarrow \text{alg'm} & \downarrow & \text{mono-an.} \downarrow \text{alg'm} \\
 \dagger \mathcal{O}^\triangleright(G) & \xrightarrow[\text{functoriality}]{\sim} & \ddagger \mathcal{O}^\triangleright(G) \\
 \text{Kmm.} \uparrow \wr \text{ isom.} & & \text{Kmm.} \uparrow \wr \text{ isom.} \\
 \dagger \mathcal{O}^\triangleright & \xrightarrow[\text{composite}]{\sim} & \ddagger \mathcal{O}^\triangleright
 \end{array}$$

Example theta monoids

$$\Pi = \Pi_{\underline{X}}^{\text{tp}}$$

“ ↻ ”

$$\underline{\Theta}^{\mathbb{N}} \cdot \mathcal{O}_{\underline{k}}^{\times}$$

Example theta monoids

$$\Pi = \Pi_{\underline{X}}^{\text{tp}} \xrightarrow[\text{algorithm}]{\text{mono-anab.}} \underline{\Theta}(\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\Pi)$$

“ ↻ ”

$$\underline{\Theta}^{\mathbb{N}} \cdot \mathcal{O}_{\underline{k}}^{\times}$$

Example theta monoids

$$\Pi = \Pi_{\underline{X}}^{\text{tp}} \xrightarrow[\text{algorithm}]{\text{mono-anab.}} \underline{\Theta}(\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\Pi) \Rightarrow \varprojlim_n \mathcal{O}^{\times}(\Pi)[n]$$

“ \curvearrowright ”

$$\underline{\Theta}^{\mathbb{N}} \cdot \mathcal{O}_{\underline{k}}^{\times} \Rightarrow \varprojlim_n \mathcal{O}_{\underline{k}}^{\times}[n]$$

Example theta monoids

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“ \curvearrowright ”

cycl. \uparrow } rig.

$$\underline{\Theta}^{\mathbb{N}} \cdot \mathcal{O}_{\underline{k}}^{\times} \Rightarrow \varprojlim_n \mathcal{O}_{\underline{k}}^{\times}[n]$$

Example theta monoids

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“ \curvearrowright ”

Kmm. $\uparrow \wr$ isom.

Kmm.
 \leftarrow
theory

cycl. $\uparrow \wr$ rig.

$$\underline{\Theta}^{\mathbb{N}} \cdot \mathcal{O}_{\underline{k}}^{\times} \Rightarrow \varprojlim_n \mathcal{O}_{\underline{k}}^{\times}[n]$$

Example theta monoids

$$\Pi = \Pi_{\underline{X}}^{\text{tp}}$$

mono-an. \Downarrow alg'm

$$\underline{\Theta}(\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\Pi) \quad \Rightarrow \quad \varprojlim_n \mathcal{O}^{\times}(\Pi)[n]$$

Kmm. \uparrow } isom.

Kmm.
 \Leftarrow
theory

cycl. \uparrow } rig.

$$\underline{\Theta}^{\mathbb{N}} \cdot \mathcal{O}_{\underline{k}}^{\times} \quad \Rightarrow \quad \varprojlim_n \mathcal{O}_{\underline{k}}^{\times}[n]$$

Example theta monoids

$$(\dagger\Pi \twoheadrightarrow \dagger\Pi/\dagger\Delta \xrightarrow[\text{the hol. str.}]{\text{forgetting}}) \dagger G$$

mono-an. \Downarrow alg'm

$$\underline{\underline{\Theta}}(\dagger\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\dagger\Pi)$$

Kmm. \uparrow } isom.

$$\dagger\underline{\underline{\Theta}}^{\mathbb{N}} \cdot \dagger\mathcal{O}_k^{\times}$$

Example theta monoids

$$(\dagger\Pi \twoheadrightarrow \dagger\Pi/\dagger\Delta \xrightarrow[\text{the hol. str.}]{\text{forgetting}}) \dagger G$$

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$$\underline{\underline{\Theta}}(\dagger\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\dagger\Pi)$$

Kmm. \Uparrow } isom.

$$\underline{\underline{\dagger\Theta}}^{\mathbb{N}} \cdot \dagger\mathcal{O}_{\overline{k}}^{\times}$$

$$\ddagger G \left(\begin{array}{c} \text{forgetting} \\ \xleftarrow{\quad} \ddagger\Pi/\ddagger\Delta \leftarrow \ddagger\Pi \\ \text{the hol. str.} \end{array} \right)$$

mono-an. \Downarrow alg'm

$$\underline{\underline{\Theta}}(\ddagger\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\ddagger\Pi)$$

Kmm. \Uparrow } isom.

$$\underline{\underline{\ddagger\Theta}}^{\mathbb{N}} \cdot \ddagger\mathcal{O}_{\overline{k}}^{\times}$$

Example theta monoids

$$(\dagger\Pi \twoheadrightarrow \dagger\Pi/\dagger\Delta \xrightarrow[\text{the hol. str.}]{\text{forgetting}}) \dagger G$$

$$\xrightarrow[\text{coricity}]{\sim}$$

$$\dagger G \left(\xleftarrow[\text{the hol. str.}]{\text{forgetting}} \dagger\Pi/\dagger\Delta \leftarrow \dagger\Pi \right)$$

mono-an. \Downarrow alg'm

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$$\underline{\underline{\Theta}}(\dagger\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\dagger\Pi)$$

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Kmm. \uparrow } isom.

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Example theta monoids

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mono-an. \Downarrow alg'm

\Downarrow

mono-an. \Downarrow alg'm

$$\underline{\underline{\Theta}}(\dagger\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\dagger\Pi)$$

$$\xrightarrow[\text{multiradiality}]{\sim}$$

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Kmm. \Uparrow } isom.

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$$\underline{\underline{\dagger\Theta}}^{\mathbb{N}} \cdot \dagger\mathcal{O}_{\underline{k}}^{\times}$$

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Example theta monoids

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mono-an. \Downarrow alg'm

\Downarrow

mono-an. \Downarrow alg'm

$$\underline{\underline{\Theta}}(\dagger\Pi)^{\mathbb{N}} \cdot \mathcal{O}^{\times}(\dagger\Pi)$$

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Kmm. \Uparrow } isom.

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$$\underline{\underline{\dagger\Theta}}^{\mathbb{N}} \cdot \dagger\mathcal{O}_{\underline{k}}^{\times}$$

$$\xrightarrow[\text{composite}]{\sim}$$

$$\underline{\underline{\dagger\Theta}}^{\mathbb{N}} \cdot \dagger\mathcal{O}_{\underline{k}}^{\times}$$