Eine Woche, ein Beispiel

11.26 calculation of $\mathrm{Perv}_{\Delta}(\mathbb{CP}^1)$

Final goal: Fill in the tables in the next page.

(for presentation, remove the $i^!$ column)

Ref:

[Willians]: Langlands correspondence and Bezrukavnikov's equivalence

calculations from Lukas Bonfert's note (don't forward this to anyone else).

$\psi \underset{var}{\overset{can}{\rightleftarrows}} \phi$ alias

$var \circ can + 1 = 1$

$i_* \underline{\mathbb{Q}}_{\{\infty\}}$
$(0,1,1,1)$

	n	-2	-1	0	1
$\mathbb{C}$	j^*	0	0	0	0
$\{\infty\}$	i^*	0	0	$\mathbb{Q}$	0
	$i^!$	0	0	$\mathbb{Q}$	0
	$R^n\Gamma$	0	0	$\mathbb{Q}$	0

$0 \underset{0}{\overset{0}{\rightleftarrows}} \mathbb{Q}$ IC_0

In [Willians], $\{0\}$ is digged out

$\underline{\mathbb{Q}}_{\mathbb{CP}^1}[1]$
$(-1,-1,-1,-2)$

	n	-2	-1	0	1
$\mathbb{C}$	j^*	0	$\underline{\mathbb{Q}}$	0	0
$\{\infty\}$	i^*	0	$\mathbb{Q}$	0	0
	$i^!$	0	0	0	$\mathbb{Q}$
	$R^n\Gamma$	0	$\mathbb{Q}$	0	$\mathbb{Q}$

$\mathbb{Q} \underset{0}{\overset{0}{\rightleftarrows}} 0$ IC_∞
$IC(\mathbb{CP}^1, \underline{\mathbb{C}}_{\mathbb{C}})$

$Rj_* \underline{\mathbb{Q}}_{\mathbb{C}}[1]$
$(-1,0,0,-1)$

	n	-2	-1	0	1
$\mathbb{C}$	j^*	0	$\underline{\mathbb{Q}}$	0	0
$\{\infty\}$	i^*	0	$\mathbb{Q}$	$\mathbb{Q}$	0
	$i^!$	0	0	0	0
	$R^n\Gamma$	0	$\mathbb{Q}$	0	0
	Γ	0	$\mathbb{Q}$	$\mathbb{Q}$	0

$\mathbb{Q} \underset{1}{\overset{0}{\rightleftarrows}} \mathbb{Q}$ $I(\psi)$

$j_! \underline{\mathbb{Q}}_{\mathbb{C}}[1]$
$(-1,0,0,1)$

	n	-2	-1	0	1
$\mathbb{C}$	j^*	0	$\underline{\mathbb{Q}}$	0	0
$\{\infty\}$	i^*	0	0	0	0
	$i^!$	0	0	$\mathbb{Q}$	$\mathbb{Q}$
	$R^n\Gamma$	0	0	0	$\mathbb{Q}$

$\mathbb{Q} \underset{0}{\overset{1}{\rightleftarrows}} \mathbb{Q}$ $P(\psi)$

???
$(-1,1,1,0)$

	n	-2	-1	0	1
$\mathbb{C}$	j^*	0	$\underline{\mathbb{Q}}$	0	0
$\{\infty\}$	i^*	0	0	$\mathbb{Q}$	0
	$i^!$	0	0	$\mathbb{Q}$	0
	$R^n\Gamma$	0	0	0	0

$\mathbb{Q} \underset{(1\ 0)}{\overset{\binom{0}{1}}{\rightleftarrows}} \mathbb{Q}^2$ big tilting sheaf
$P(\phi) = I(\phi)$