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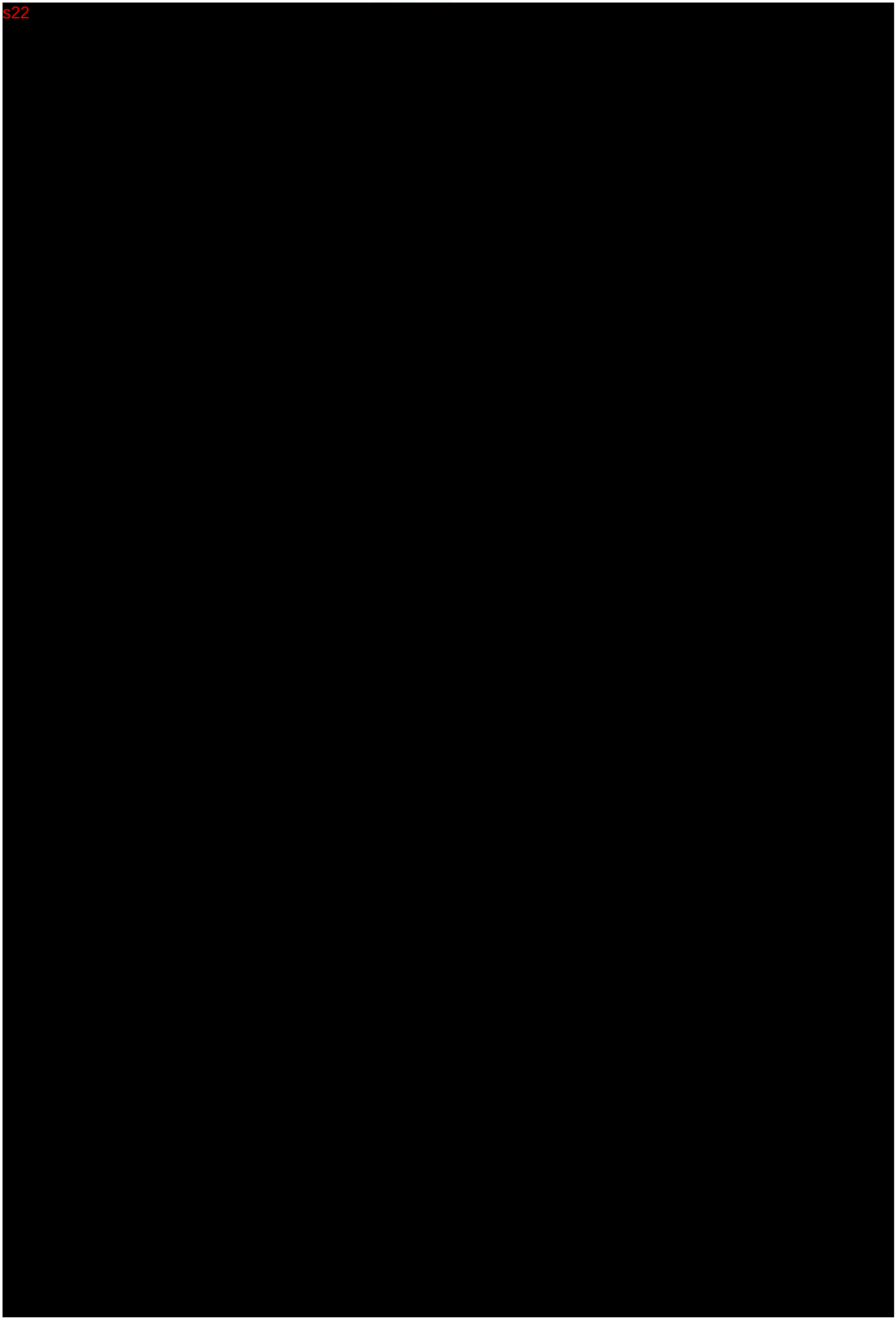

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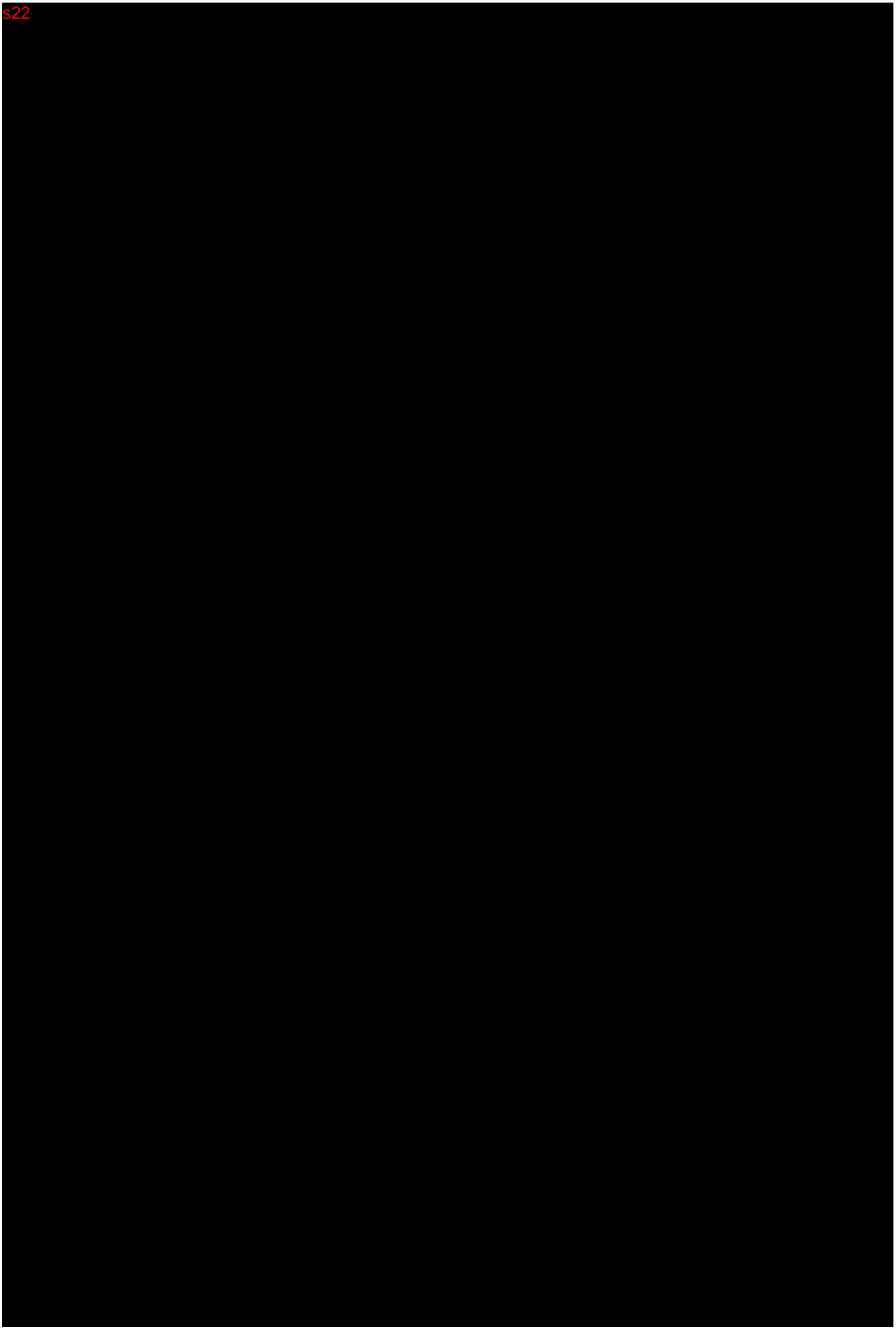

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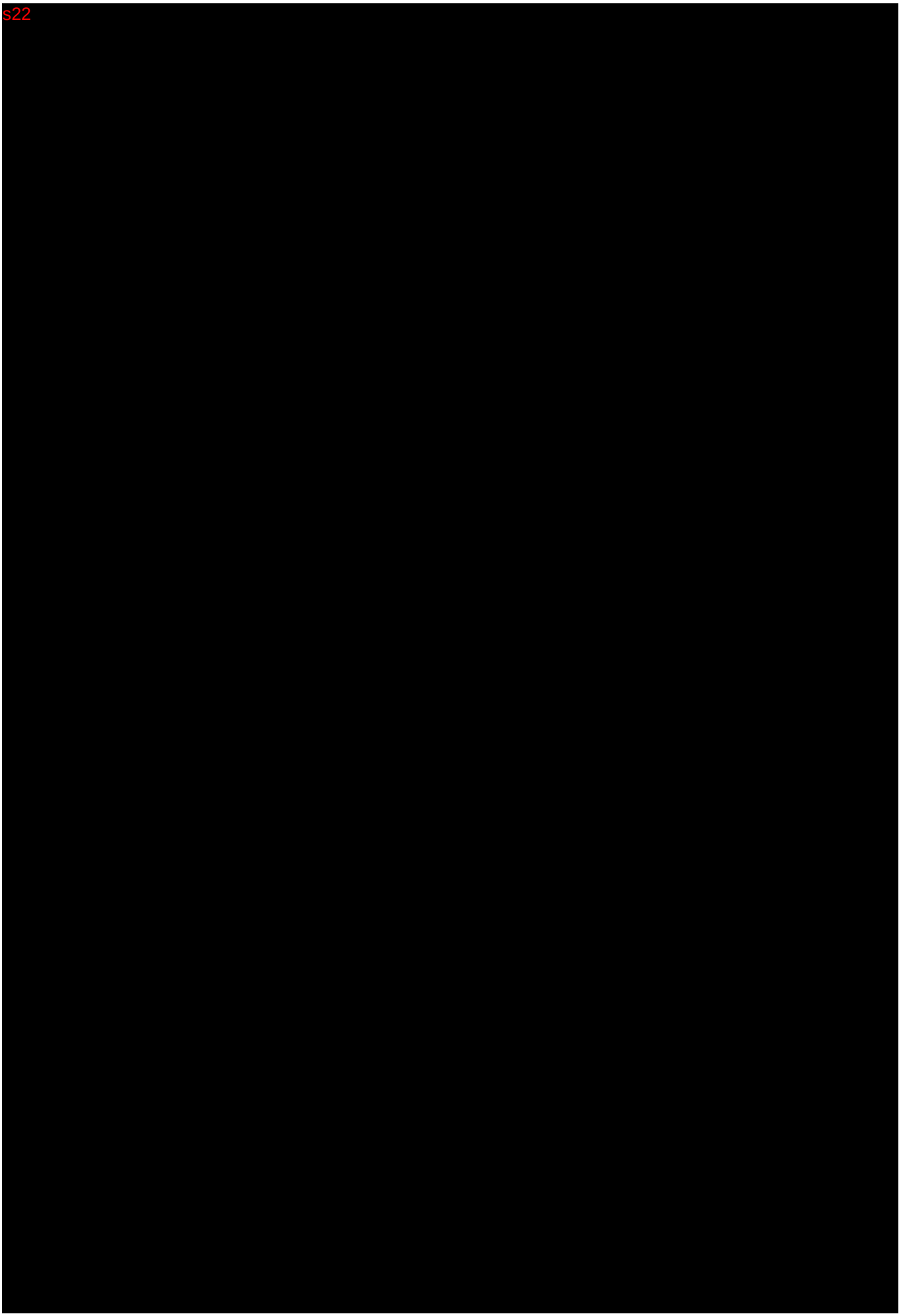

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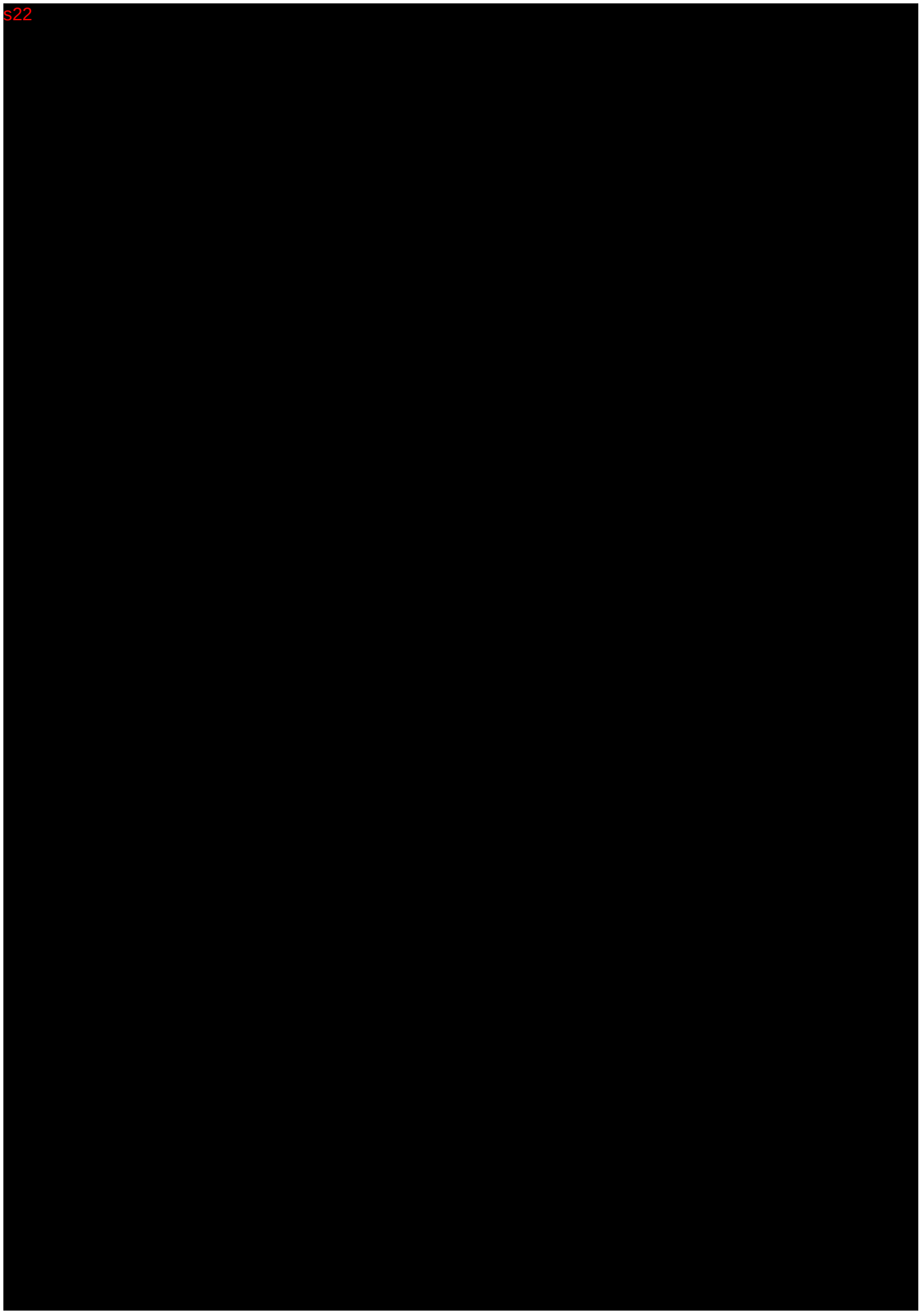

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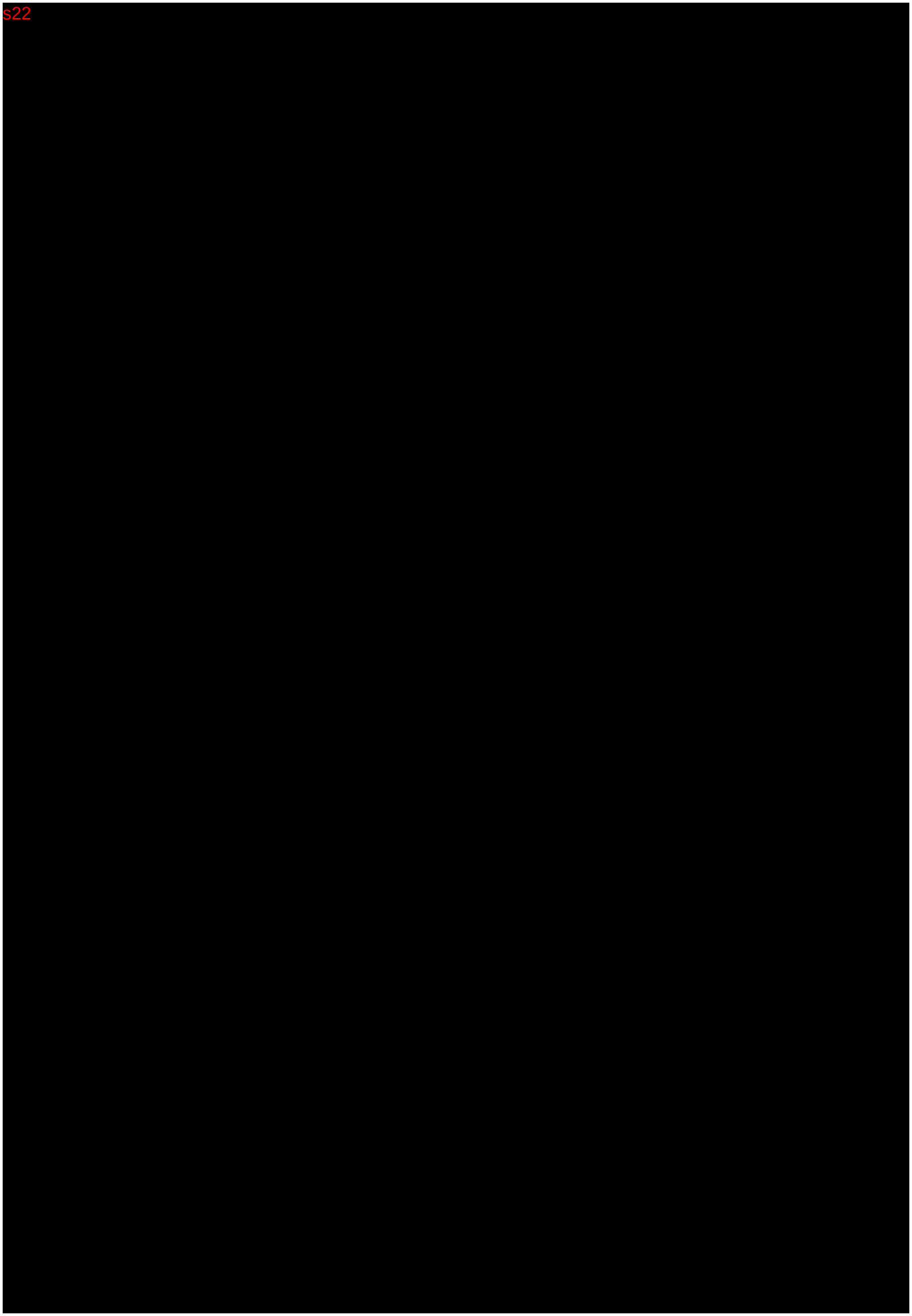

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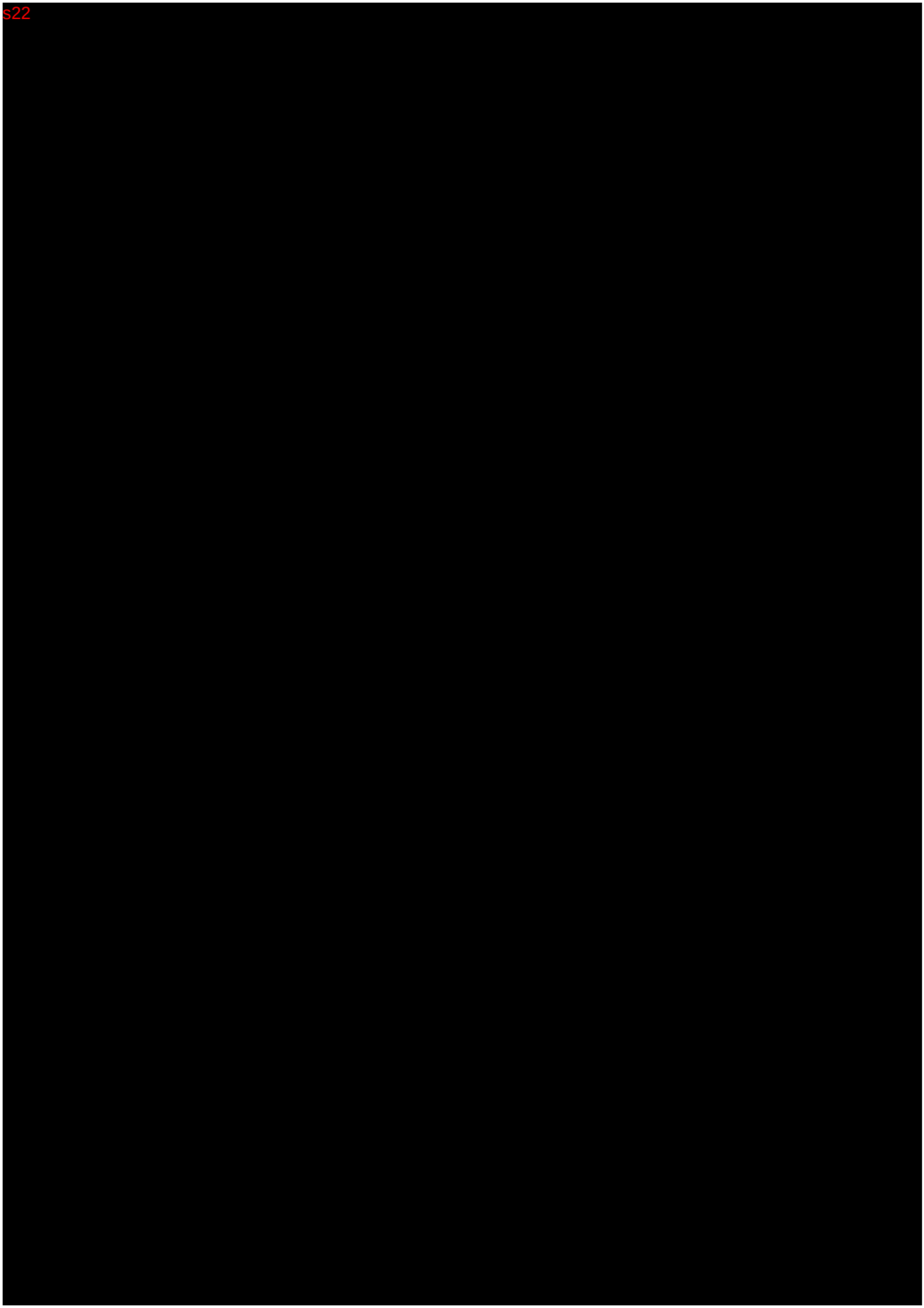

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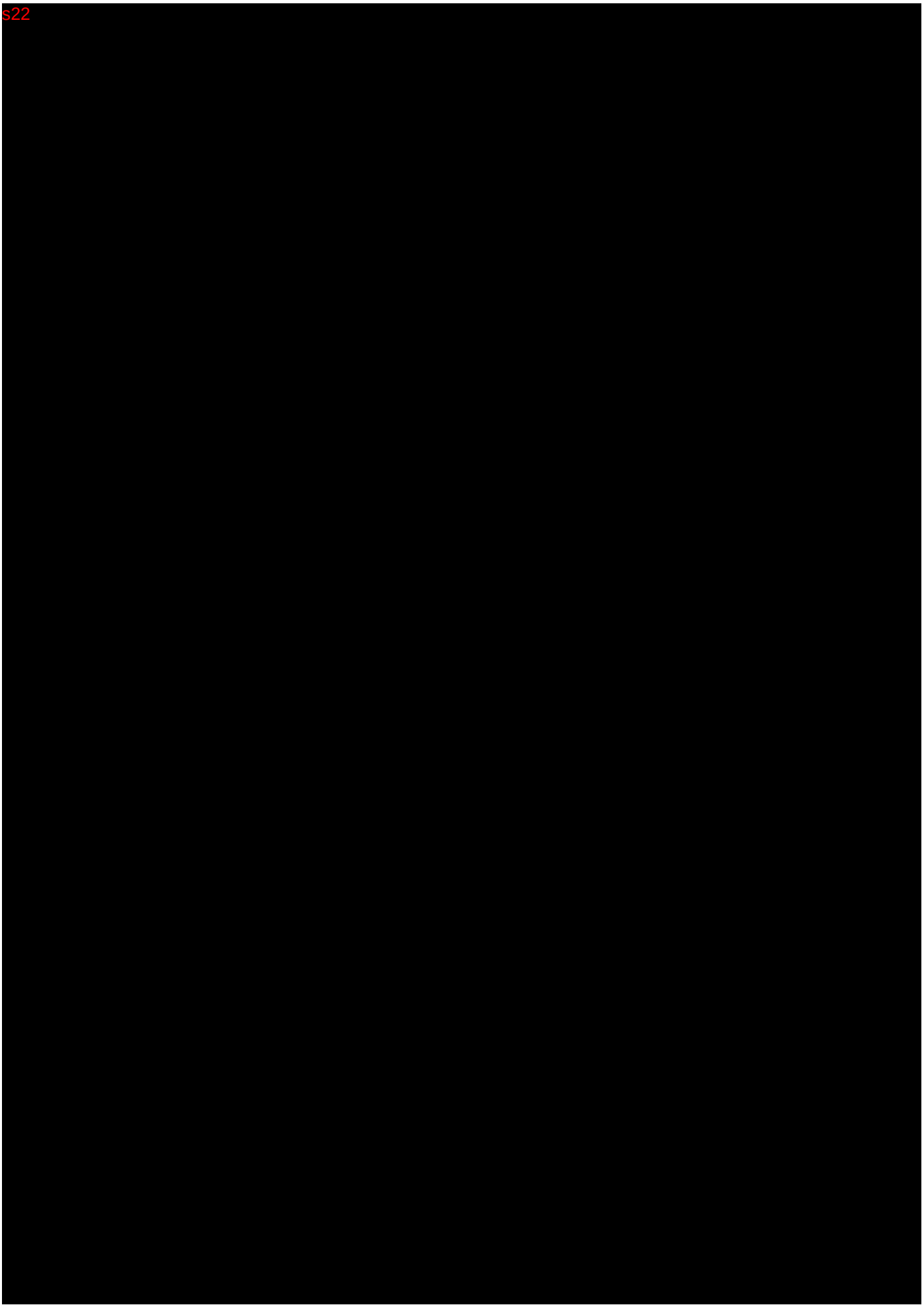

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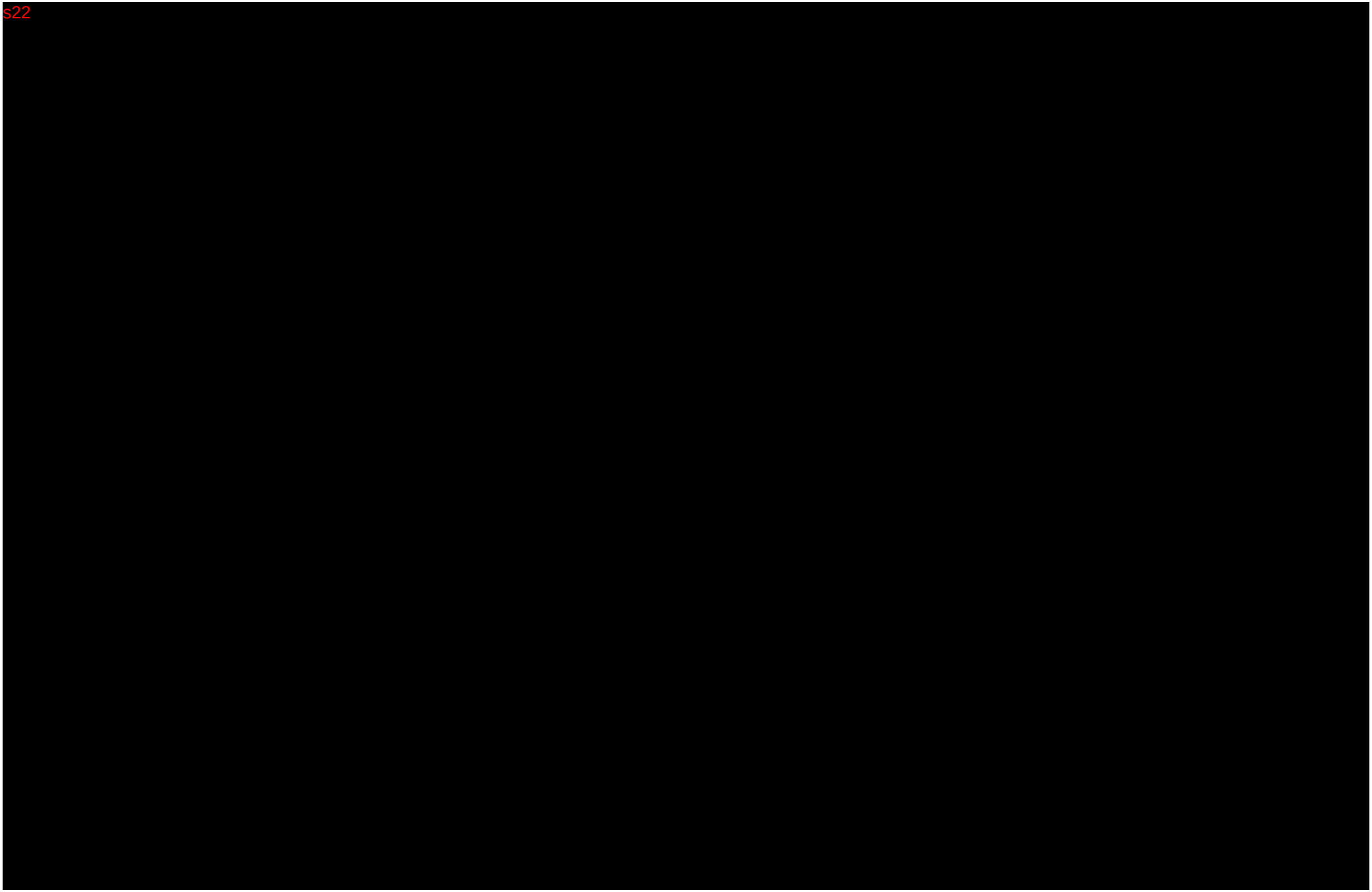

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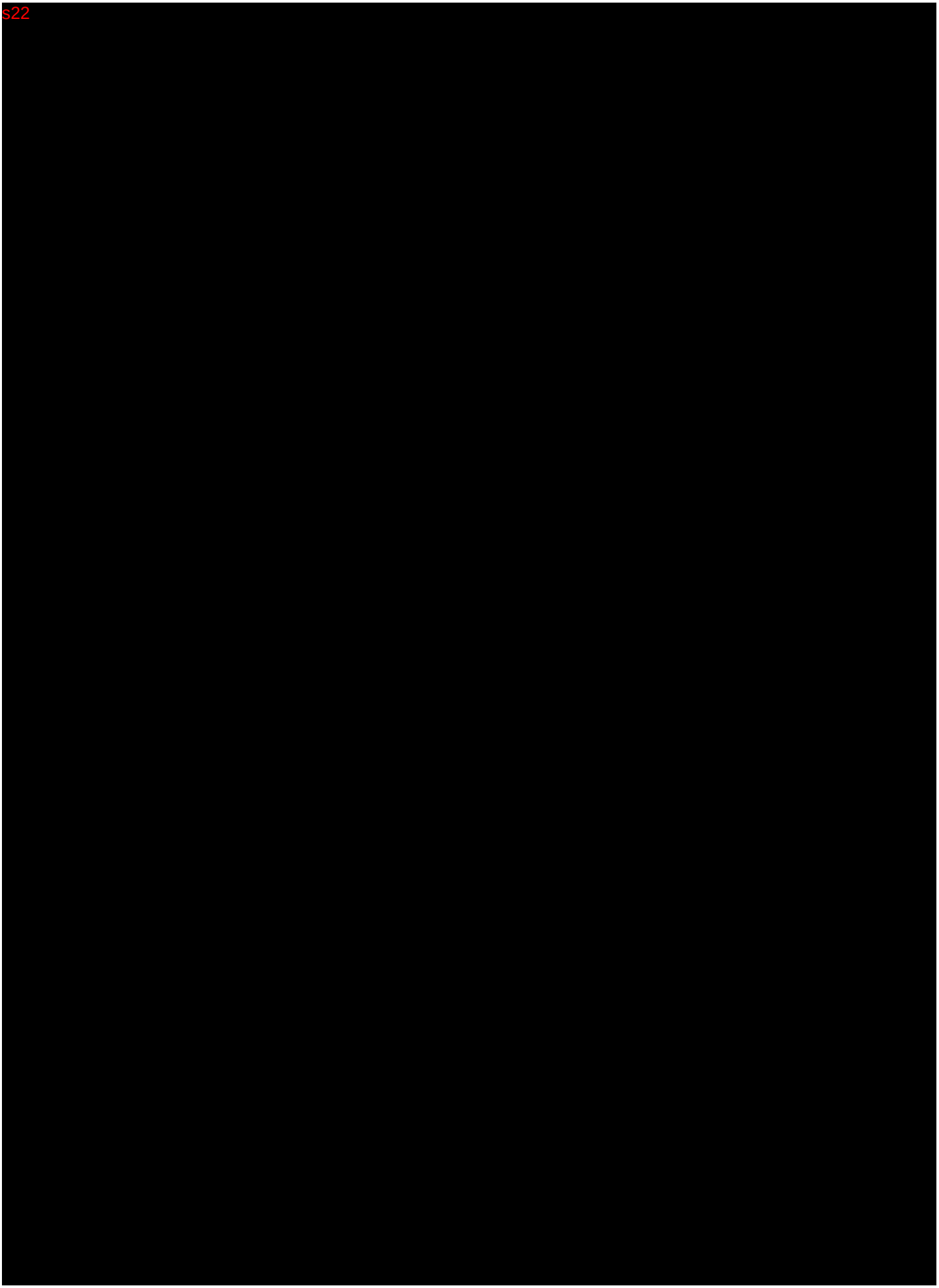

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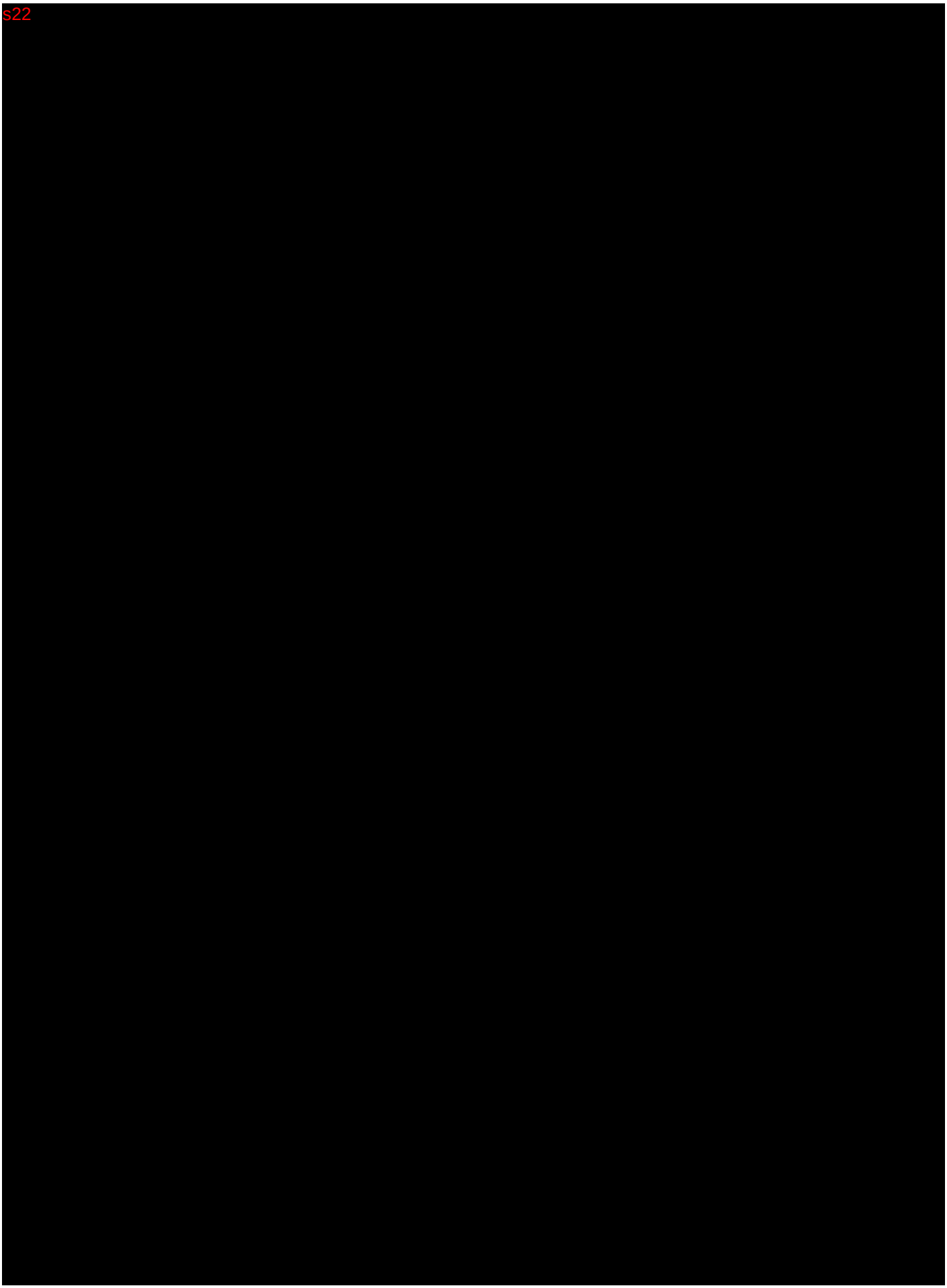

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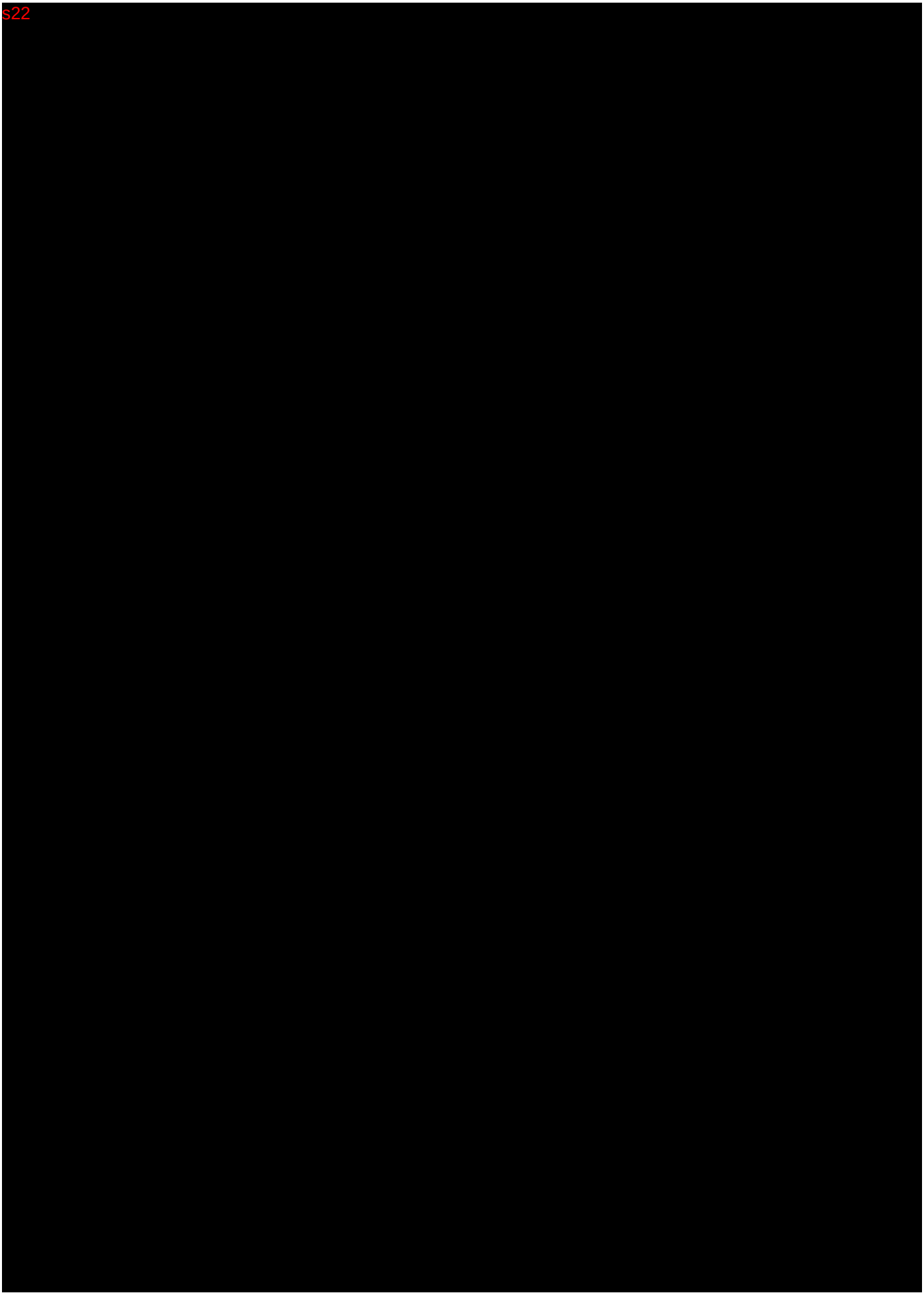

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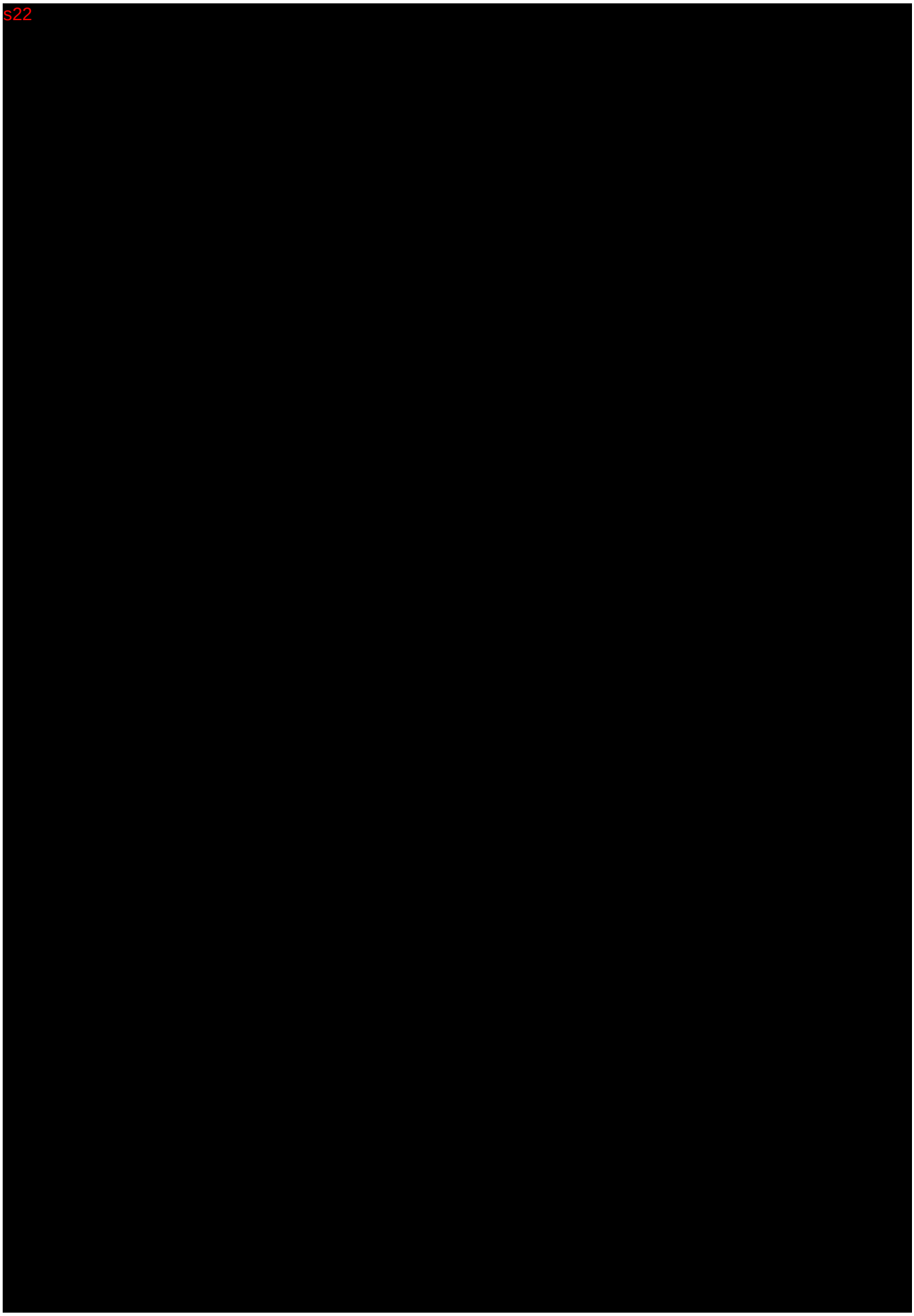

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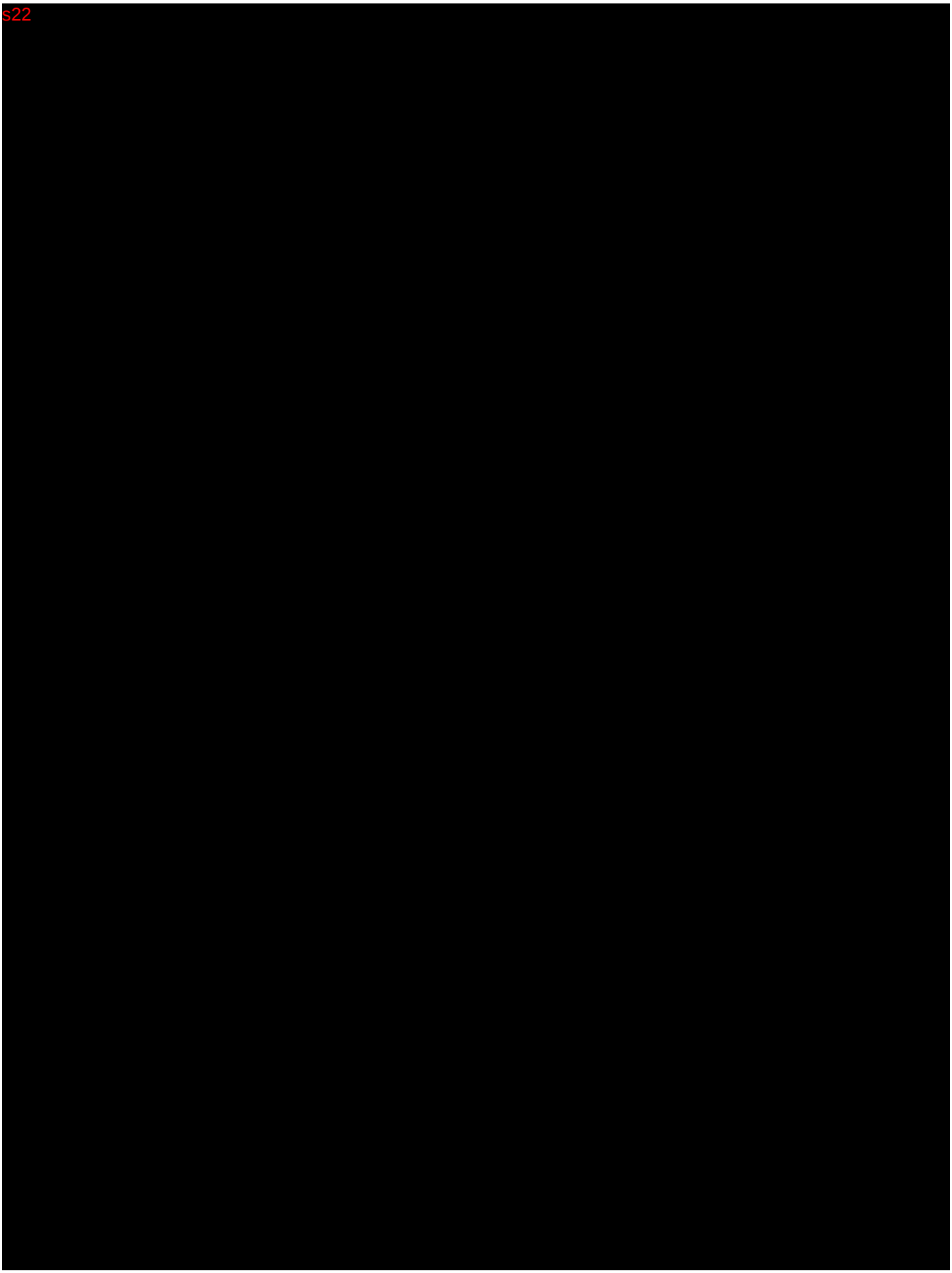

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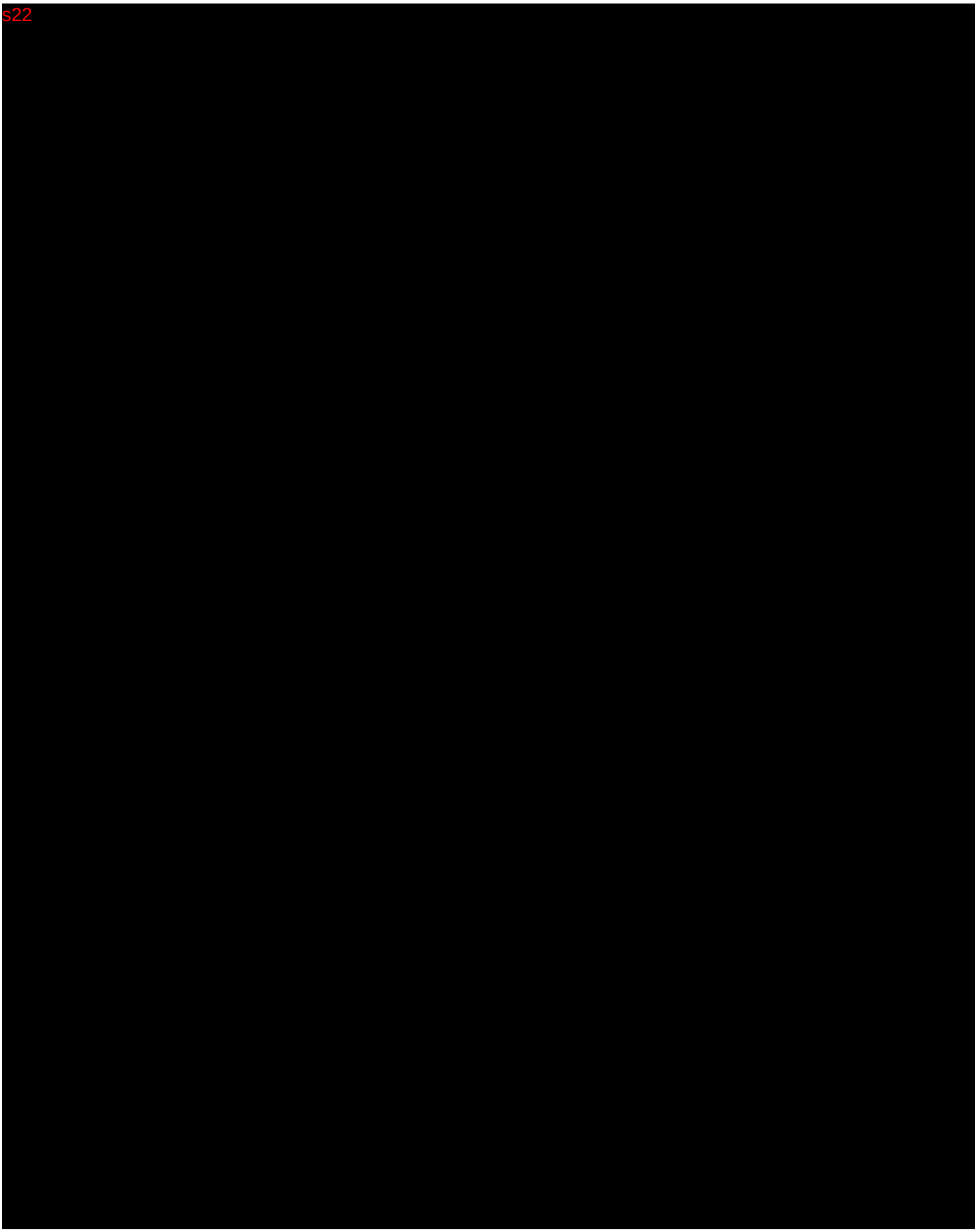

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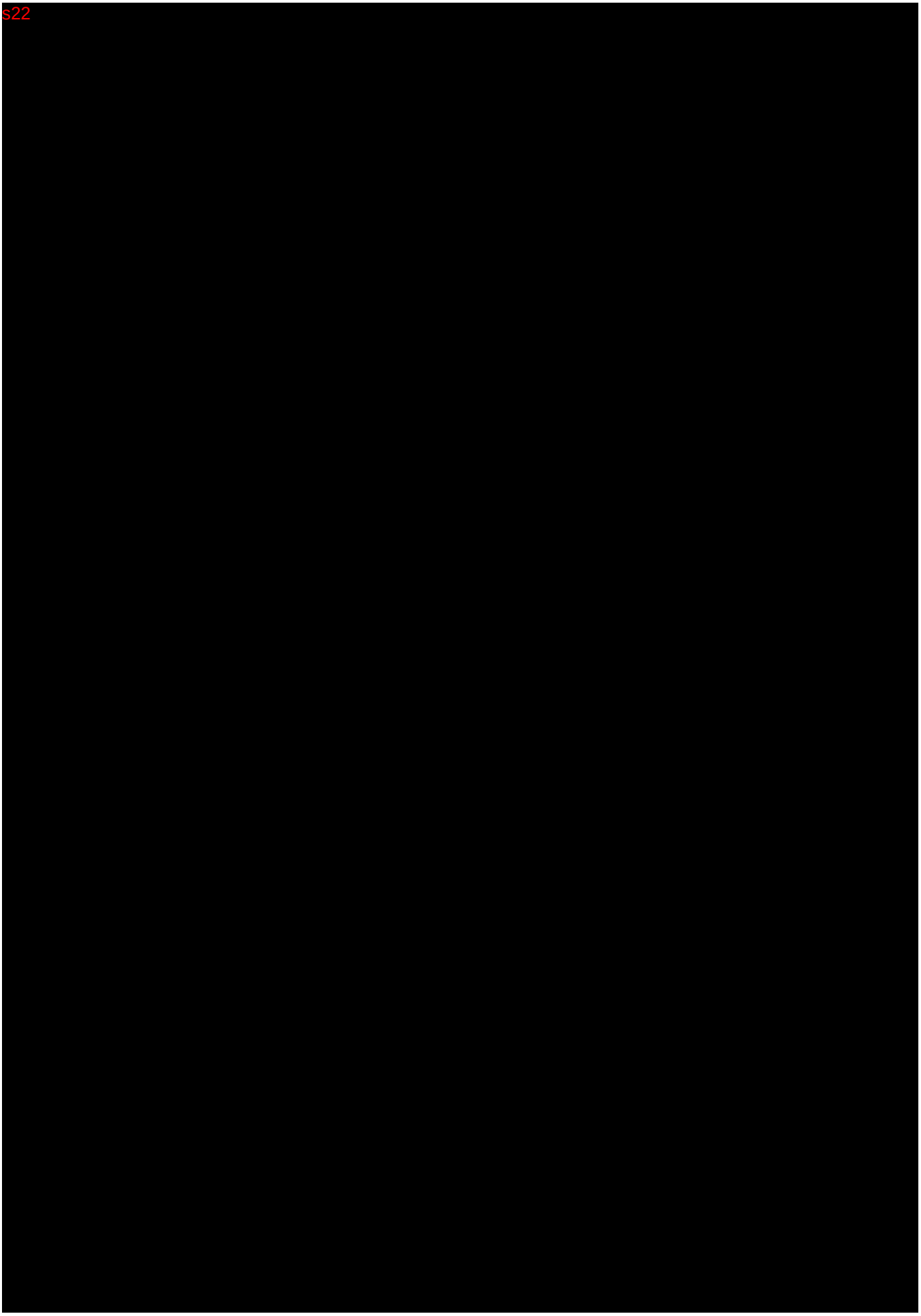

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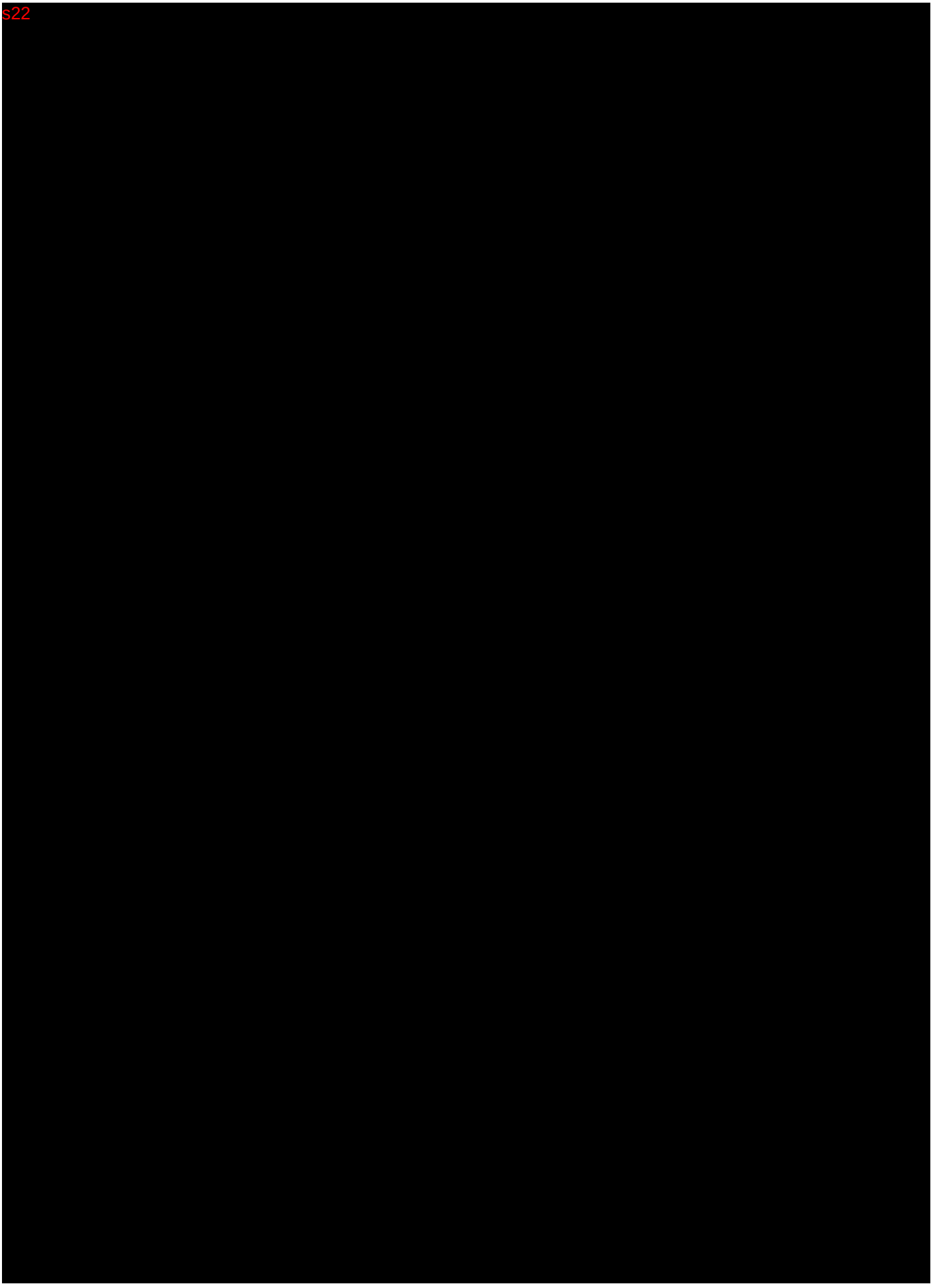

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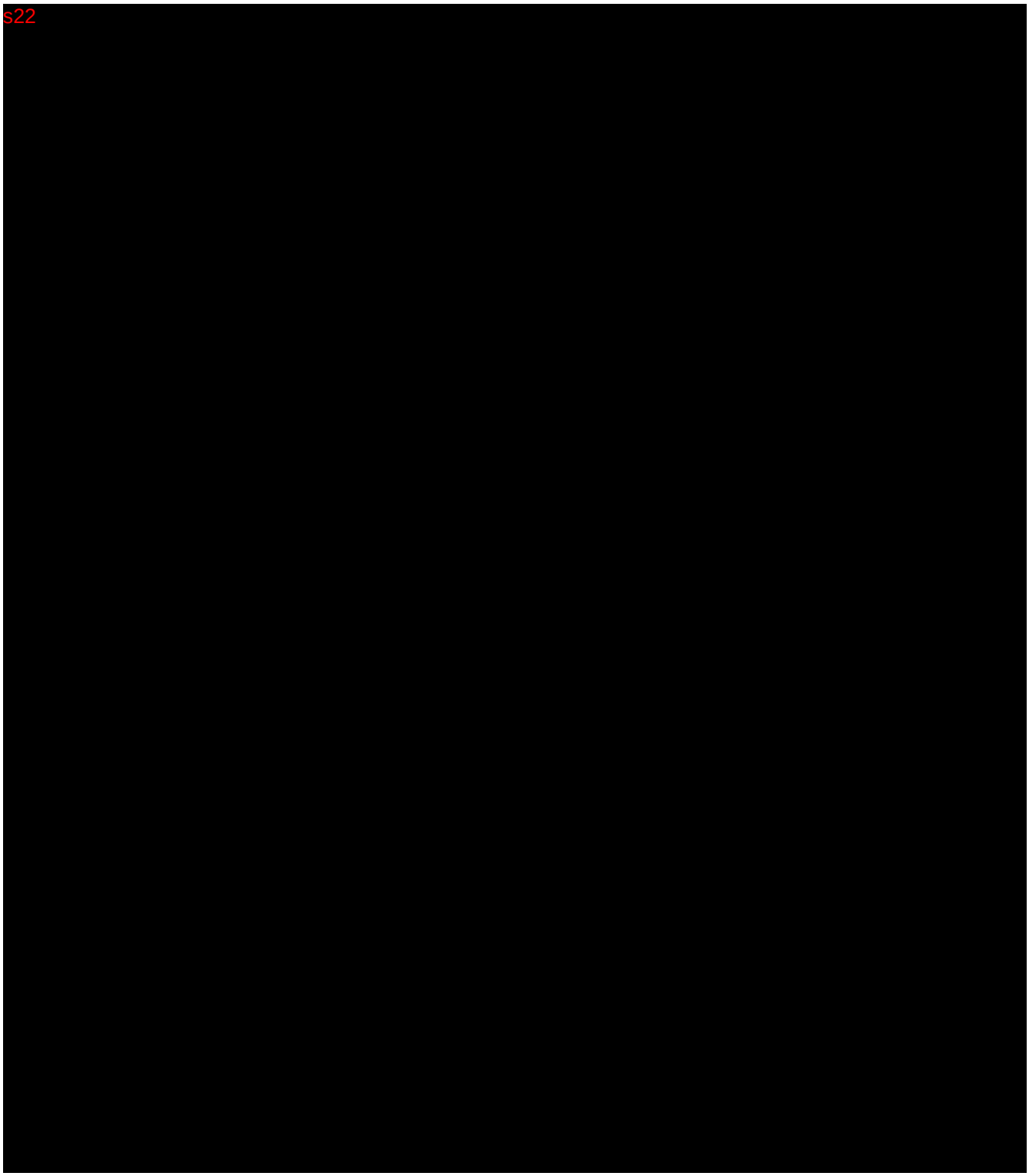

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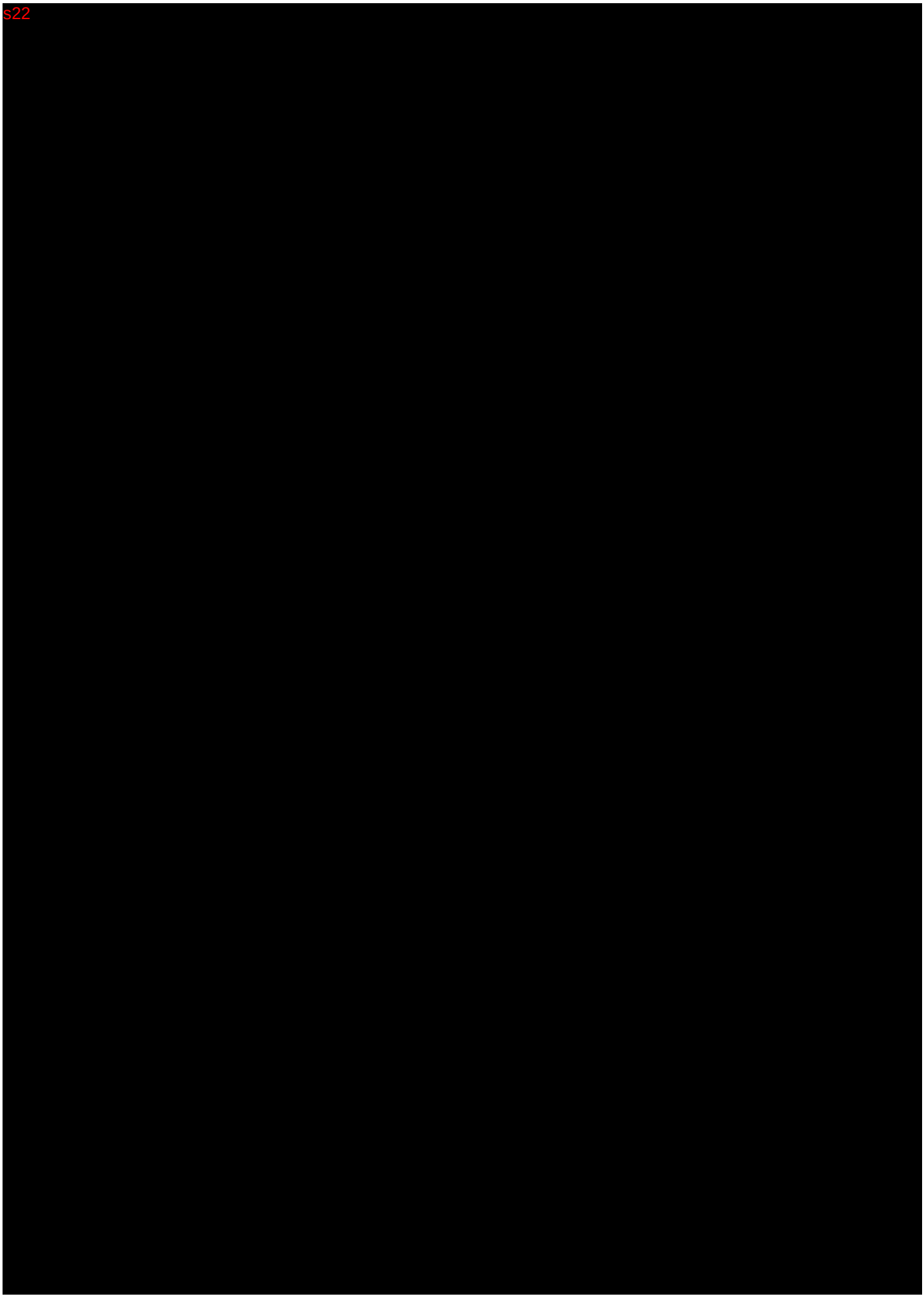

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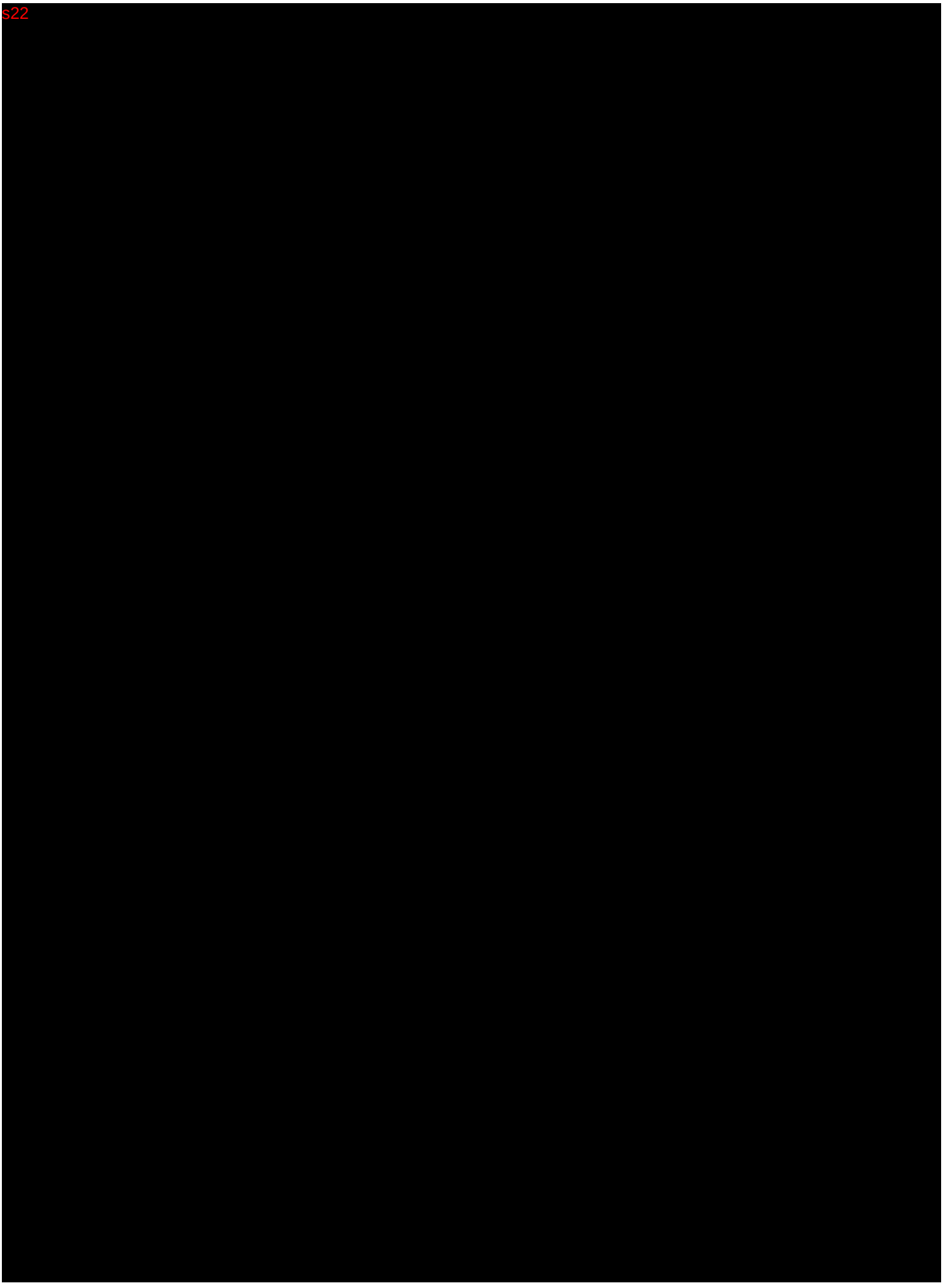

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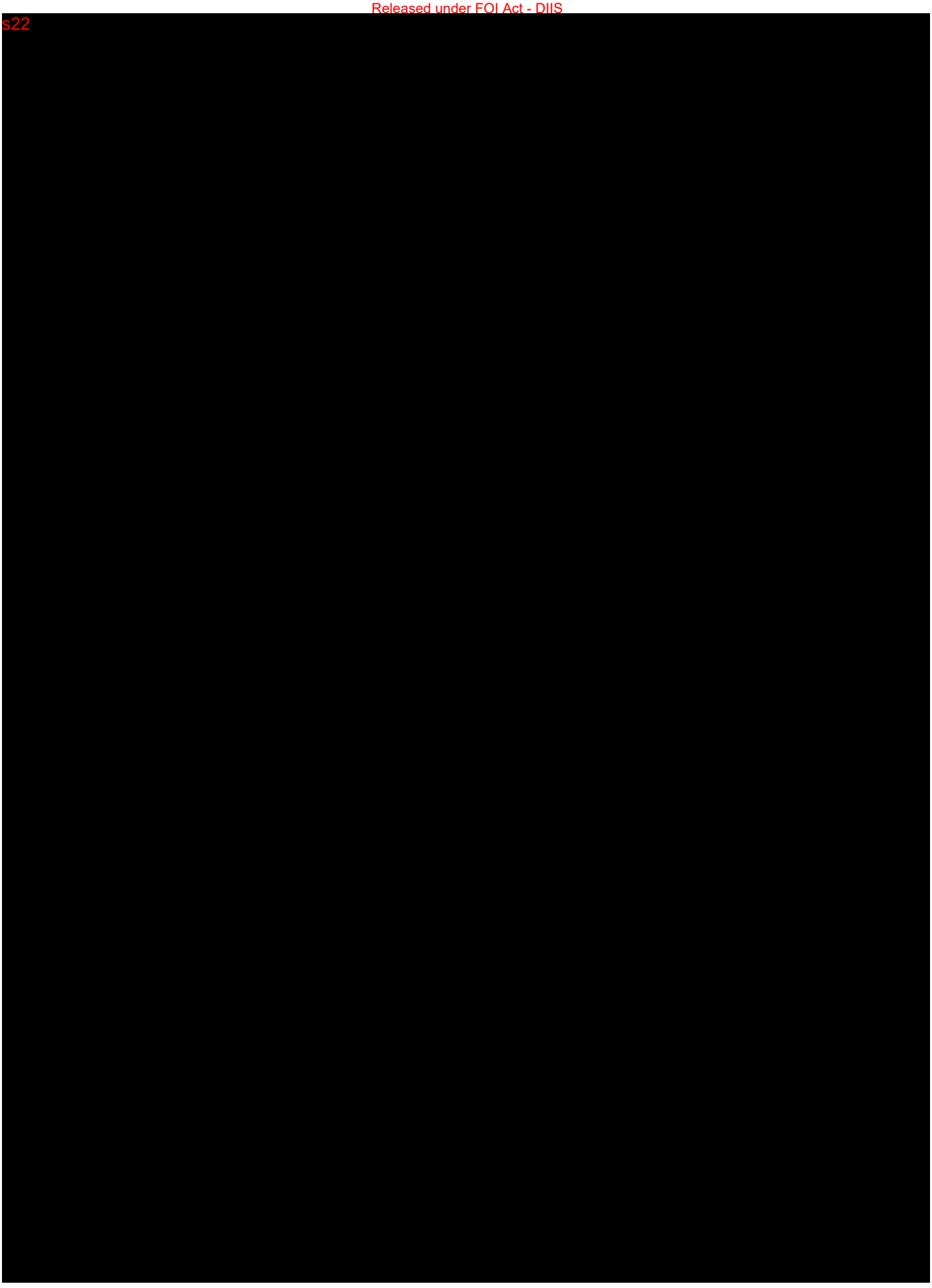

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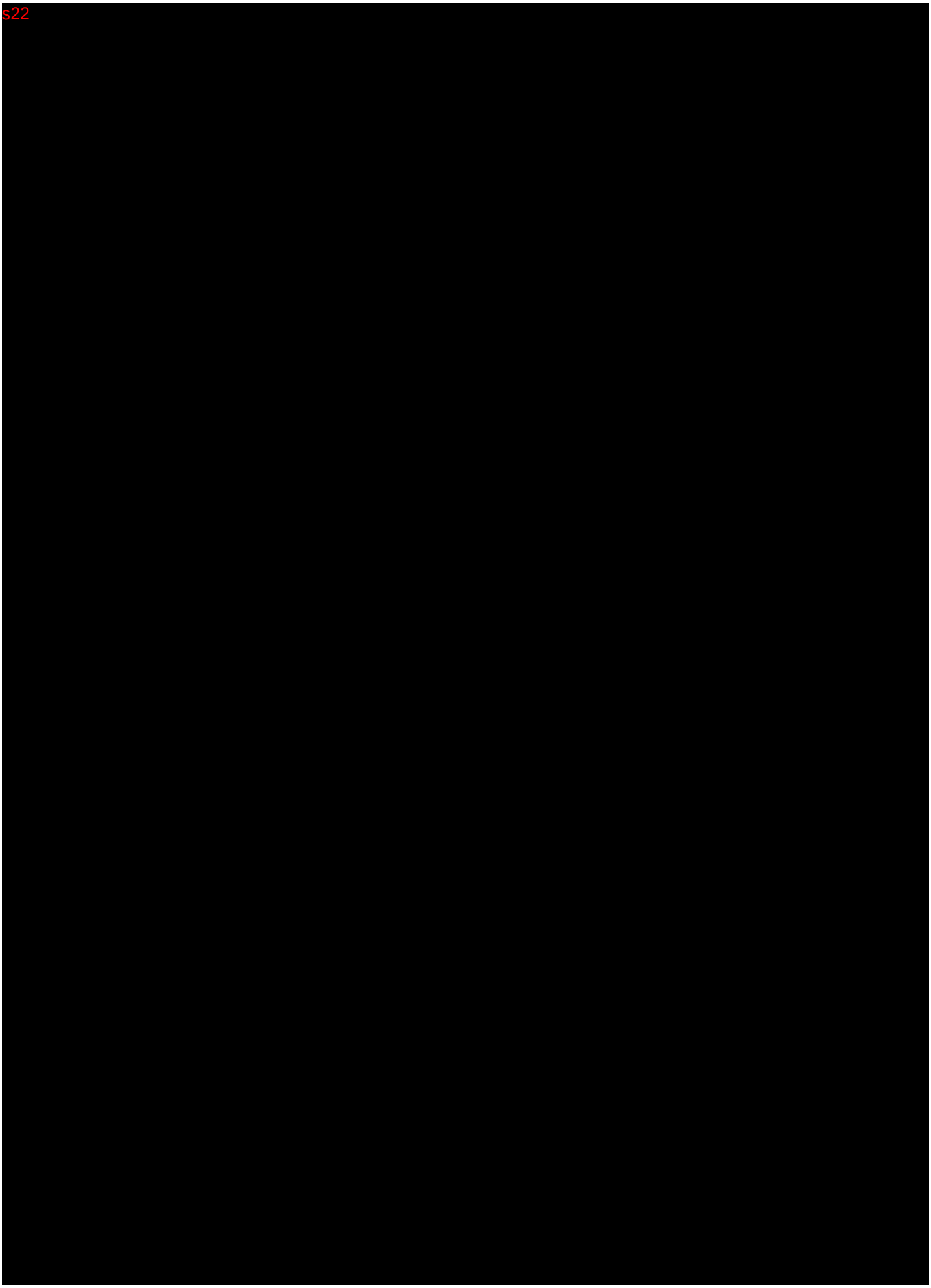

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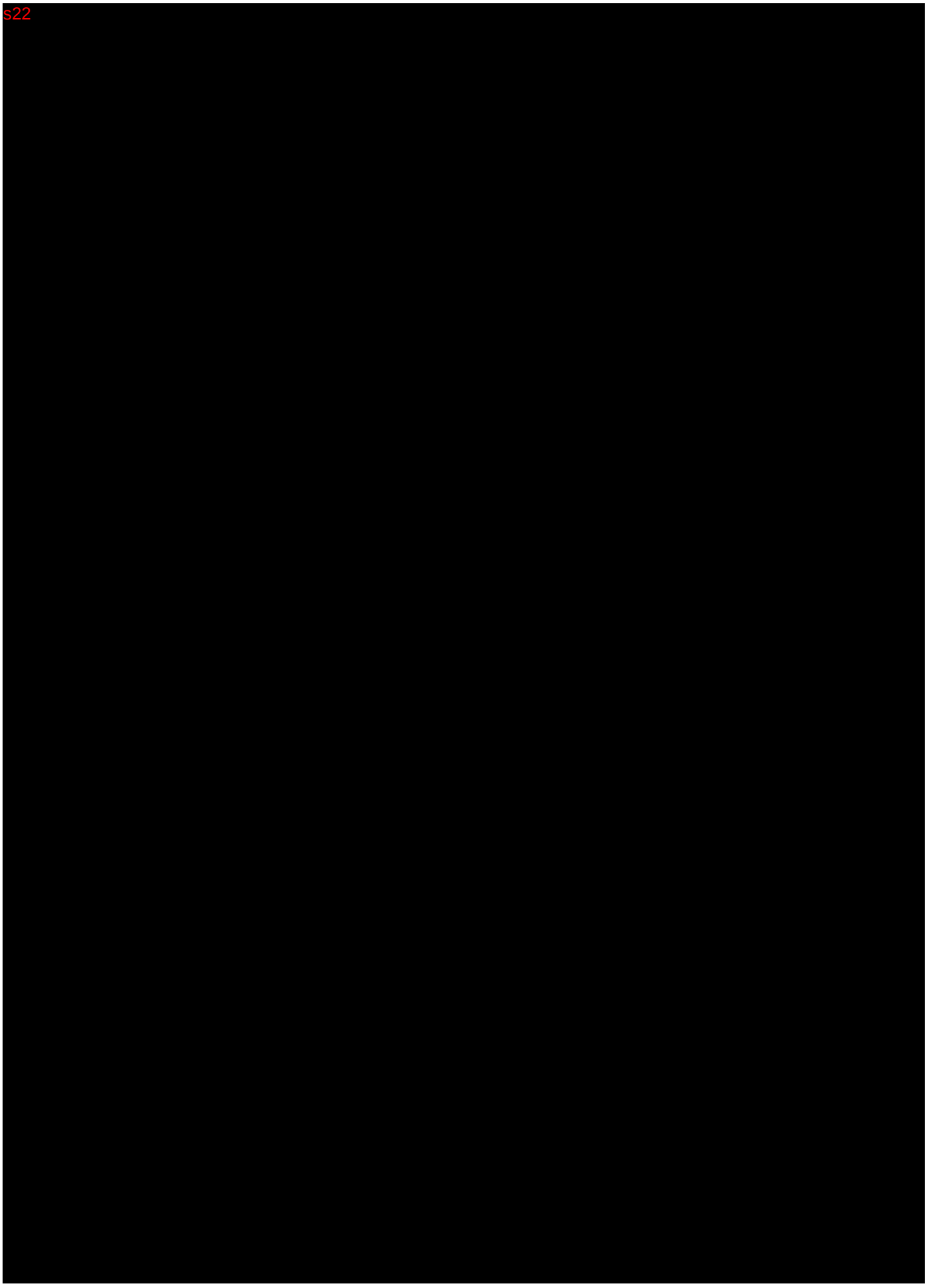

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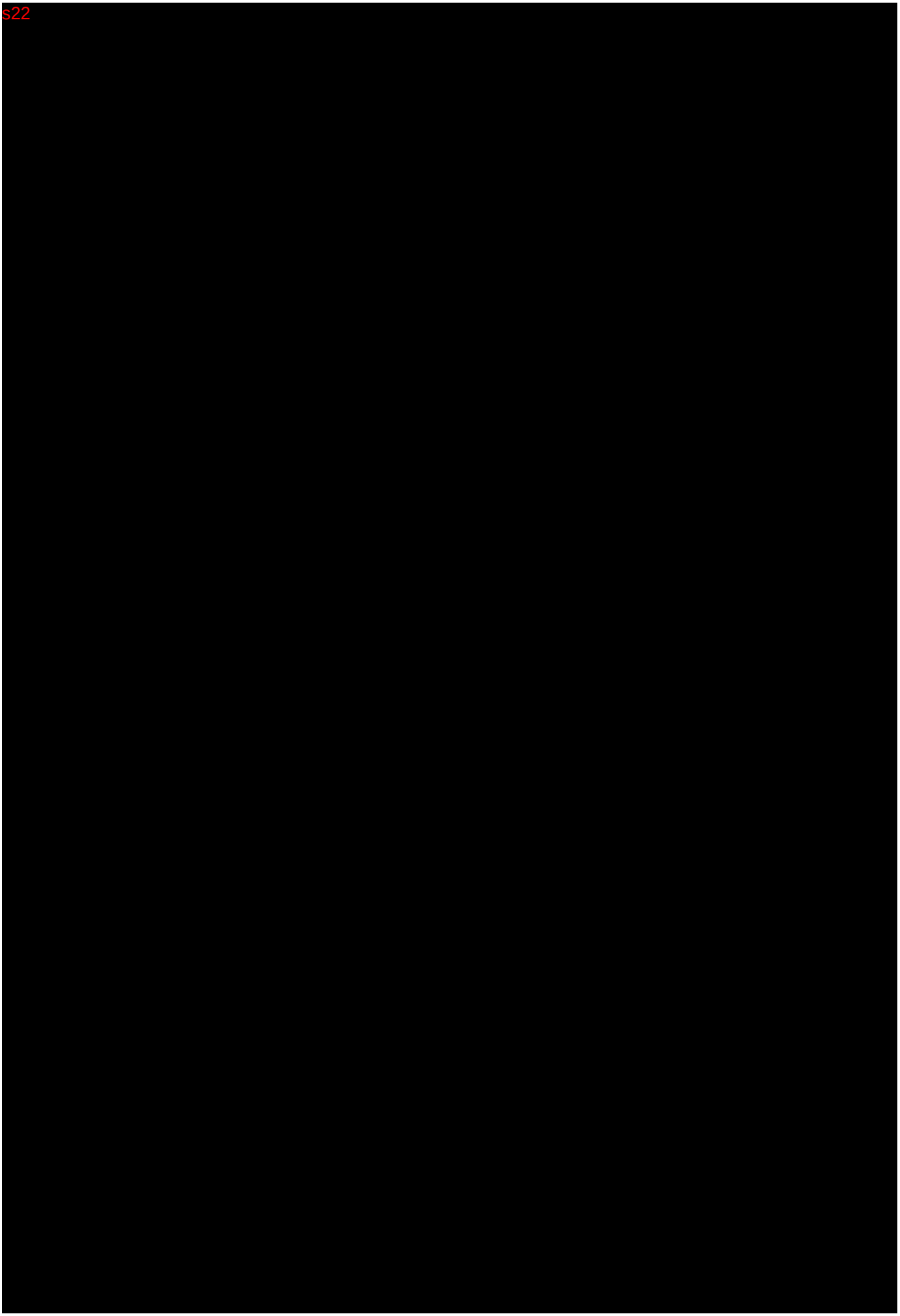

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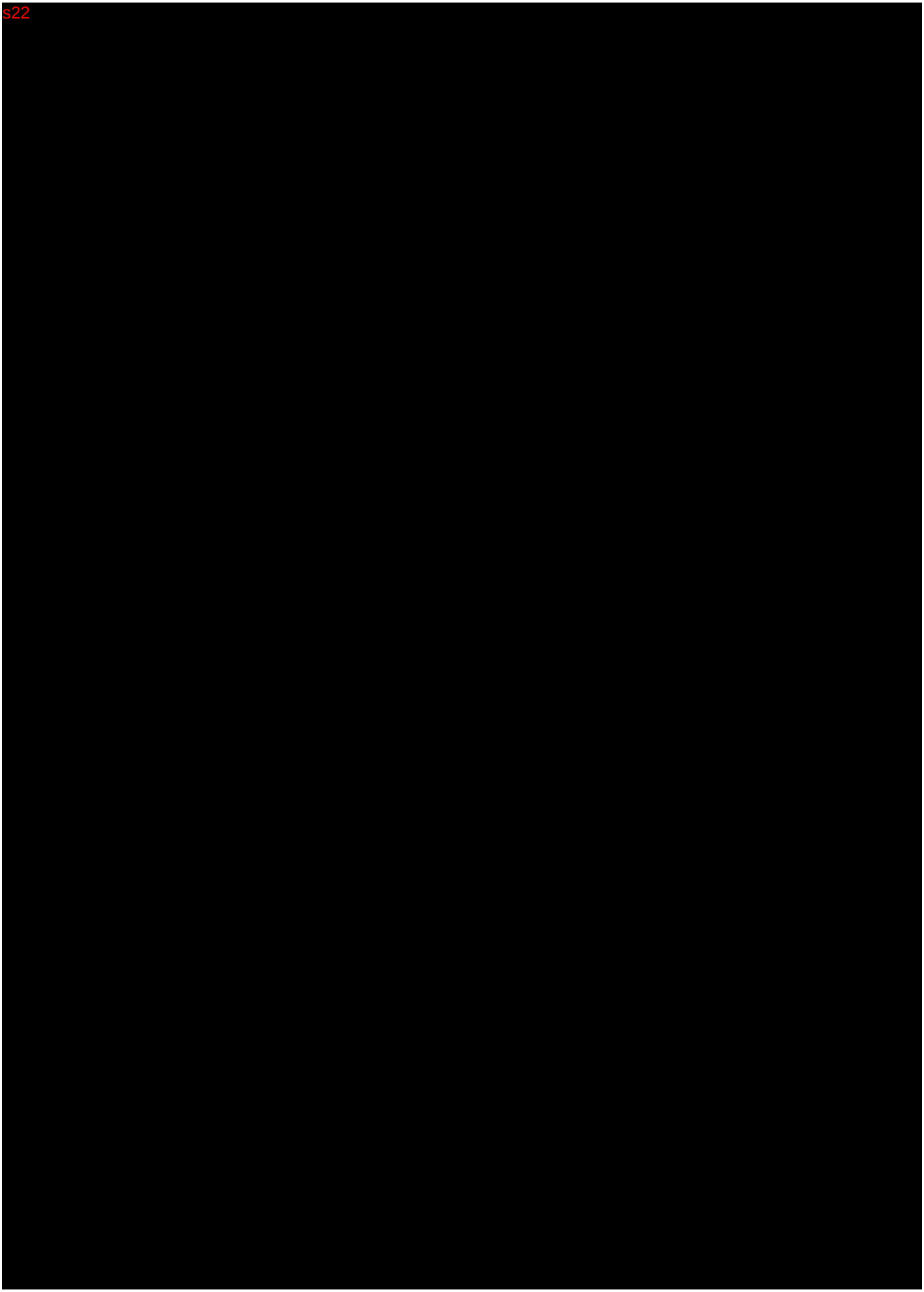

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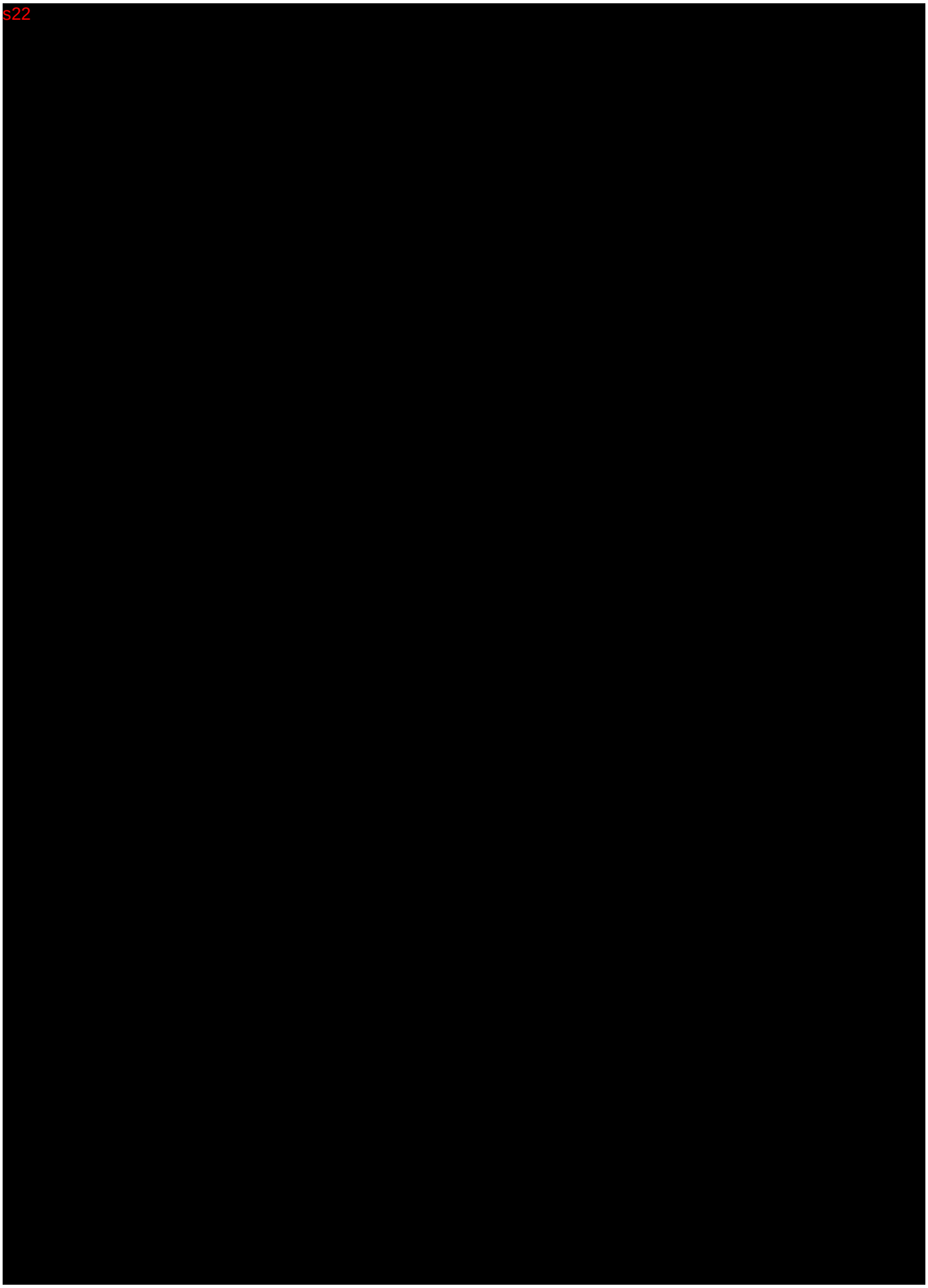

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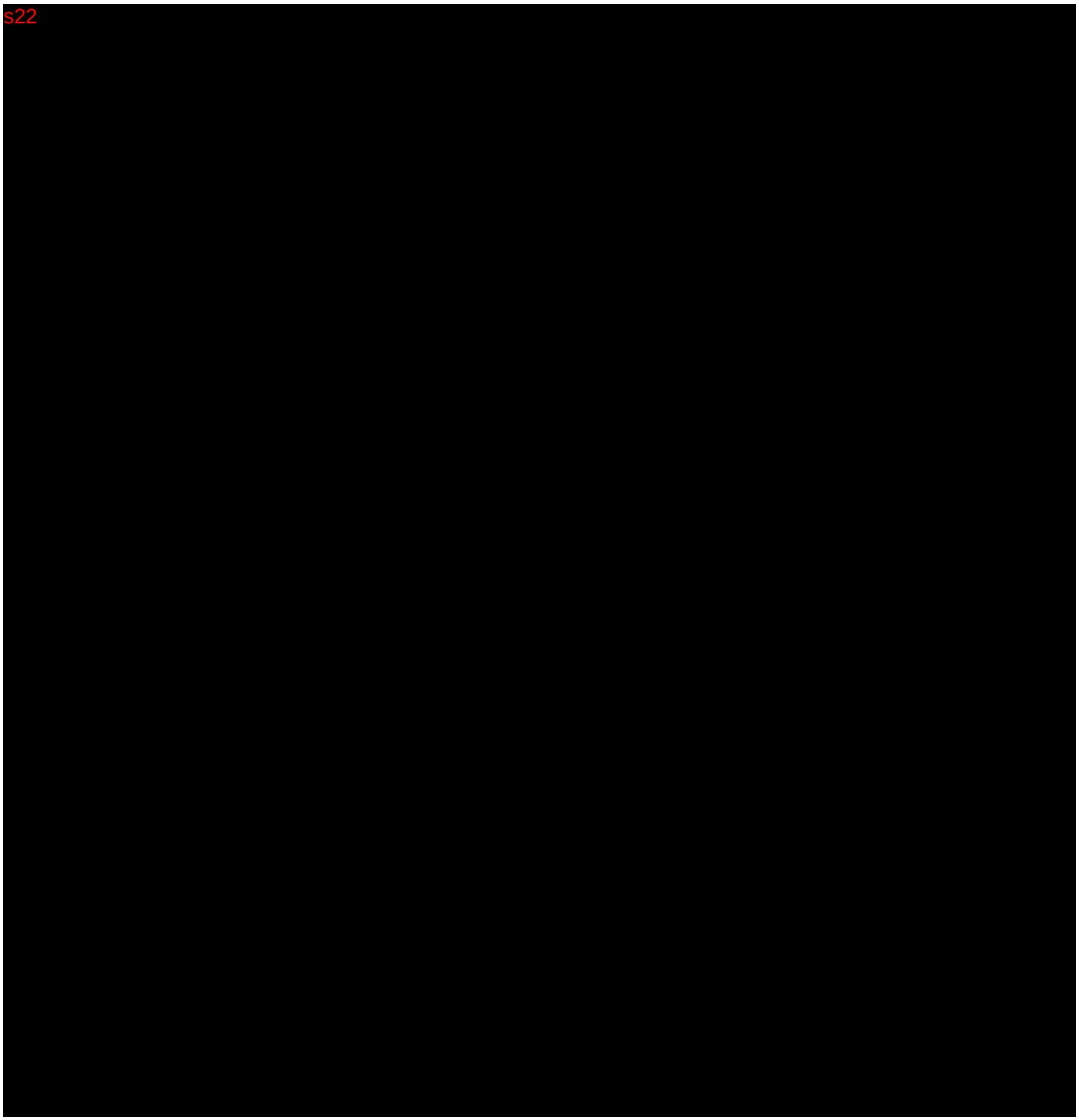

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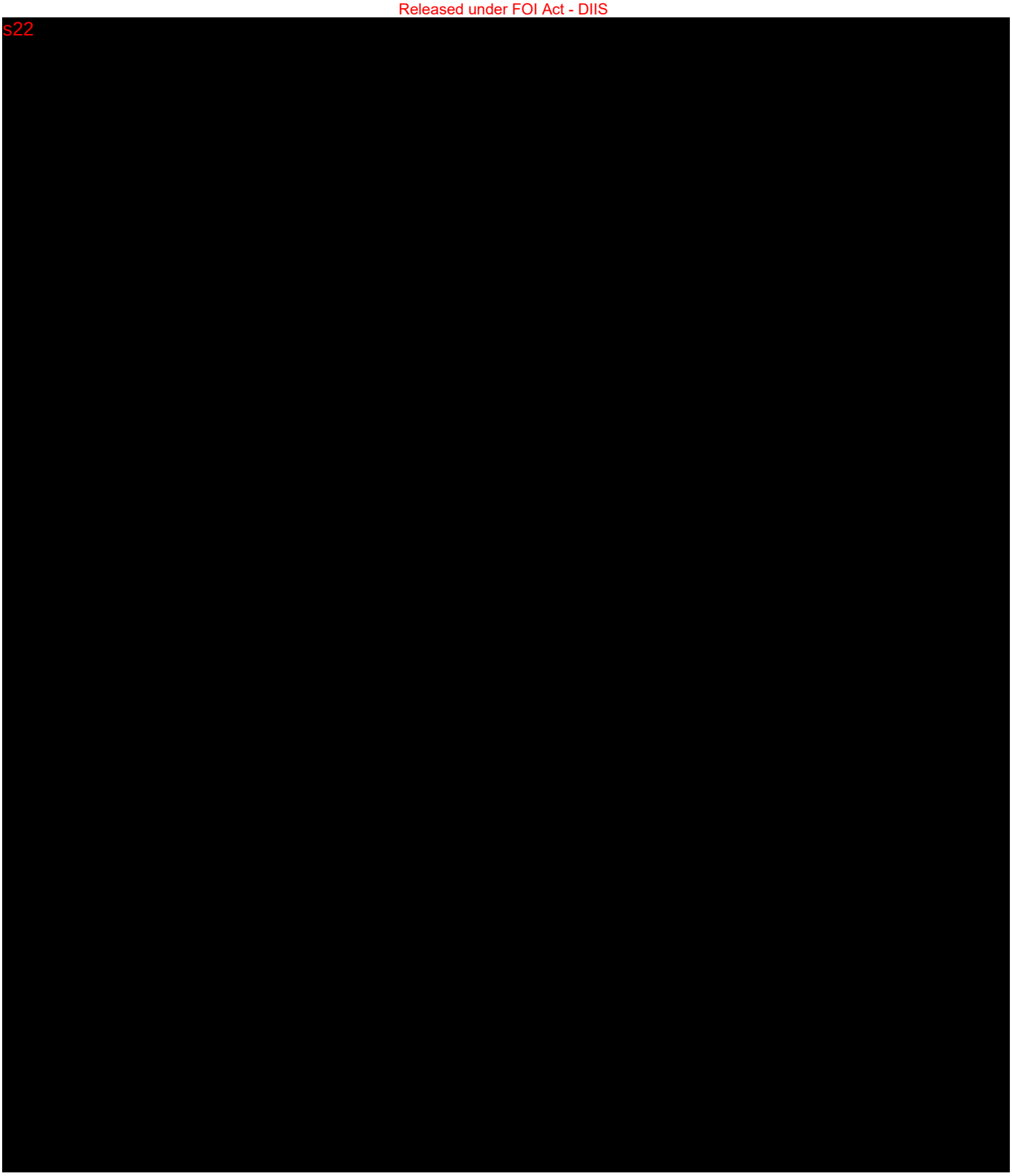

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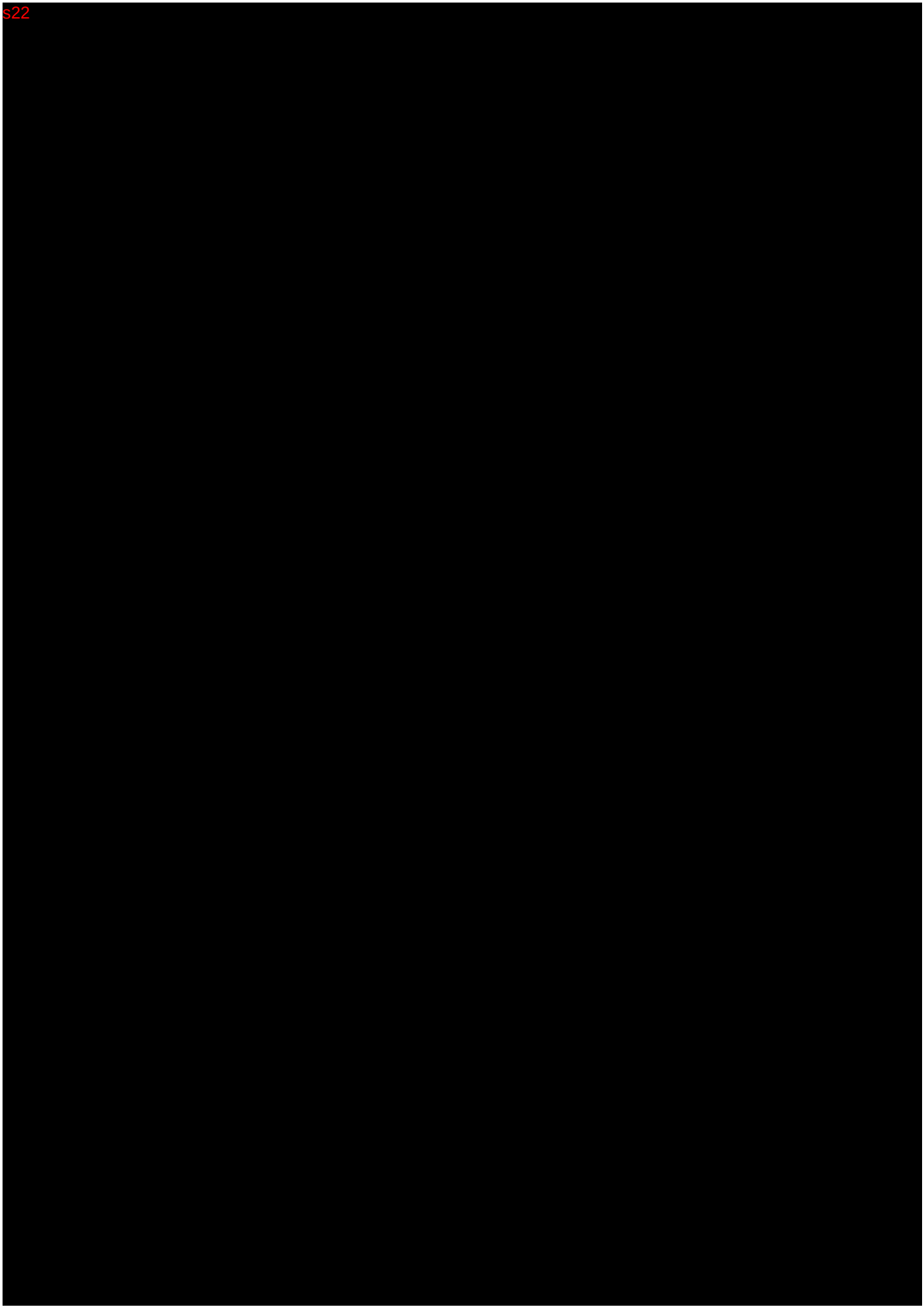

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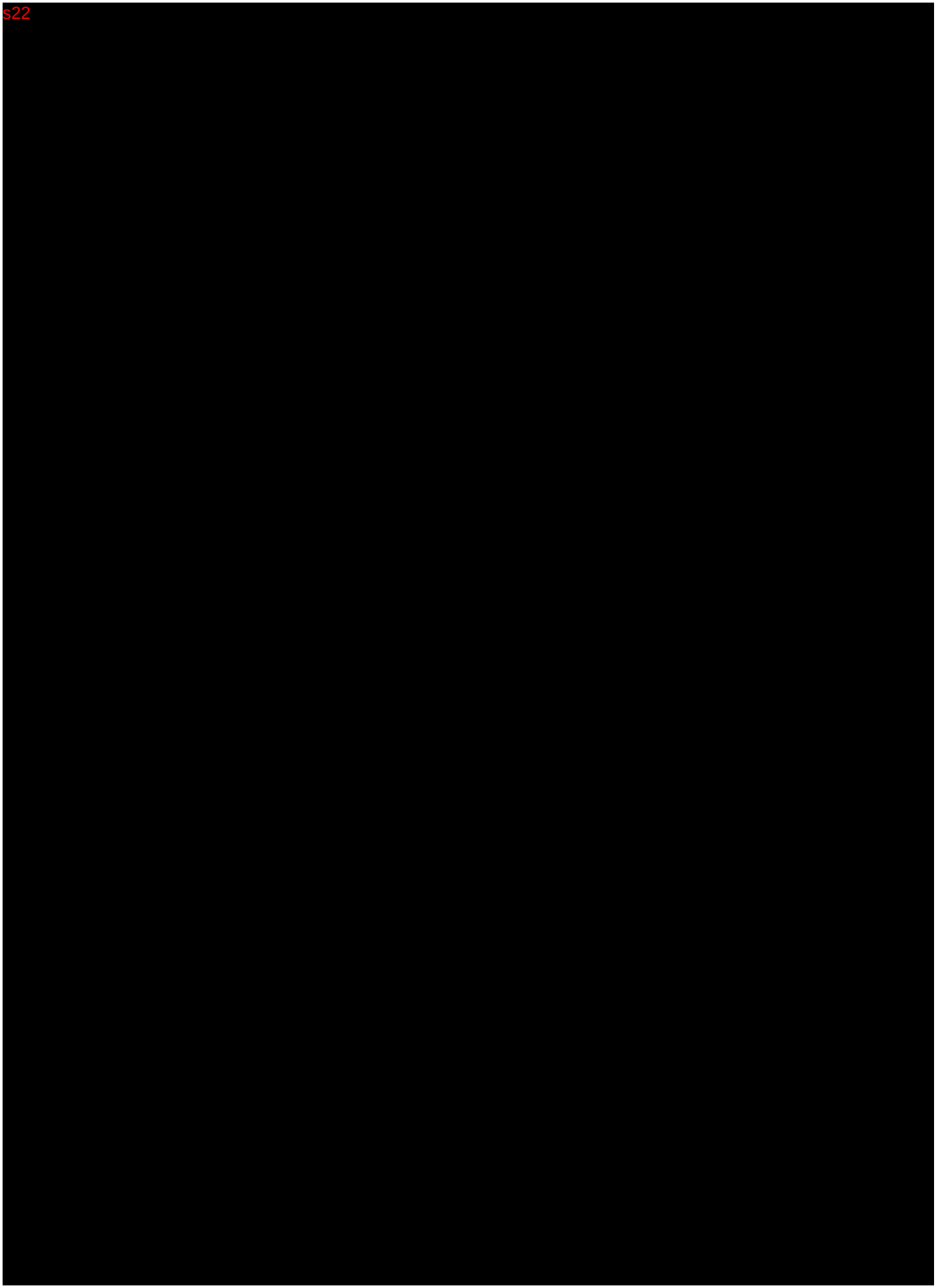

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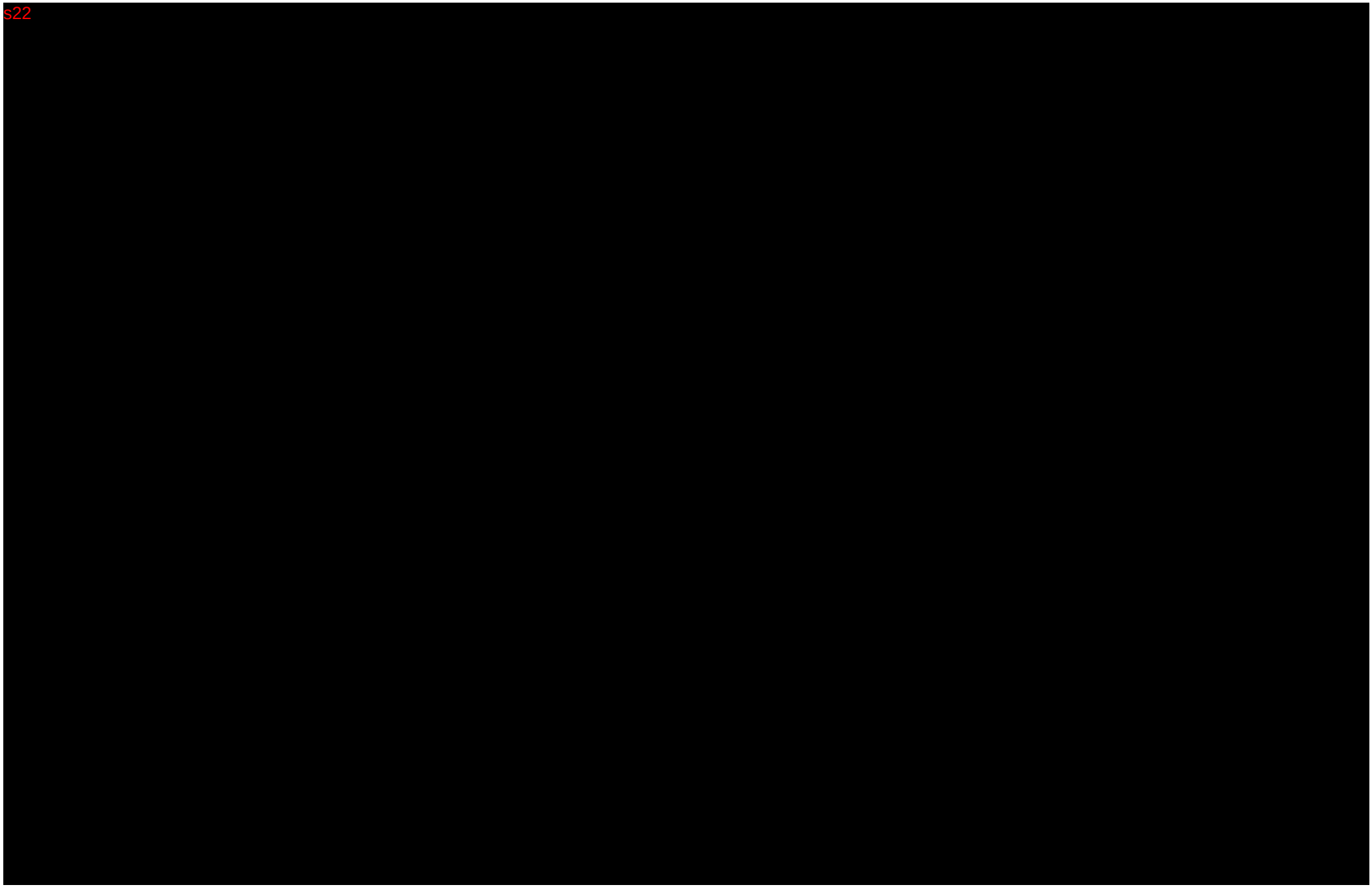

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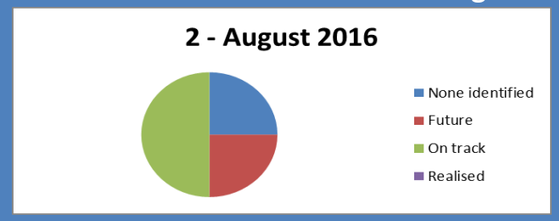
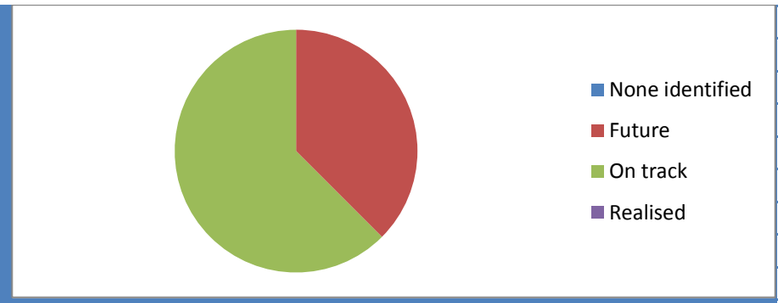
Program Outcome 2
Efficient and effective regulation of cumulative impacts on water resources from CSG and coal mining development





Measure / enabler	Rating	Realisation/s	Future opportunities
IESC advice reflects or directly references bioregional assessment findings	on track	1. Draft MBC GW model results considered (although not referenced) by IESC in development of its advice on the New Acland project. **2. The HUN products were used by the IESC to inform advice on water balance / modelling on Wambo.**	**1. Santos** **2. China Stone**
IESC advice reflects or directly references bioregional assessment methods	on track	**1. Current IESC information guidelines recommend the use of BAs in a) setting context b) baseline data c) reviewing risk assessments d) modelling of cumulative impacts**	1. Future update of IESC guidelines with specifics around uncertainty or other BA methods
Regulatory decisions reflect or directly reference bioregional assessment findings	on track	1. BA products are referenced in Stratford conditions for the protection of water resources (Condition 32(c)(iv) of Schedule 3) - *"prepare a protocol that gives consideration to information products as they arise from the Commonwealth Office of Water Science's Bioregional Assessment for the Gloucester subregion."* 2. Shenhua Watermark statement of reasons reference the Namoi BA water-dependent asset register. *On 23 June 2015, I approved the release of Bioregional Assessment product 1.3, a water-dependent asset register for the Namoi subregion. The register identifies potential groundwater dependent ecosystems within the groundwater model domain. Given the potential for some species and communities to access shallow groundwater, I agreed with the Department's recommendation that further validation is required regarding the groundwater dependence of these communities and species.*	**1. Through conditions on development approvals.** **2. Through development application guidelines**
Regulatory decisions reflect or directly reference bioregional assessment methods	on track	1. Shenhua Watermark conditions reference the BRAM. *"Mining cannot start in the southern mining area until the predicted impacts on groundwater have been updated with more than 10 years of actual groundwater data (Australian Government conditions 2, 7; NSW condition 27 (Schedule 3)), as well as the findings of all of the reports from the Bioregional Assessment. A verification report must be approved by the Commonwealth Environment Minister. If the impacts are predicted to be bigger than those approved, mining cannot start in this area."*	**1. Through conditions on development approvals.** **2. Through development application guidelines**
Bioregional assessments are directly utilised in the management of water resources at a regional scale	on track	1. GIP GW model is being used to assist in the assessment of rehabilitation options for the Latrobe Valley Coal Mines and is expected to inform a water study to be produced by mid 2017.	1. Update of the WSP for North Coast GW (HUN, GLO) 2. Update of the GAB WRP (GAL)

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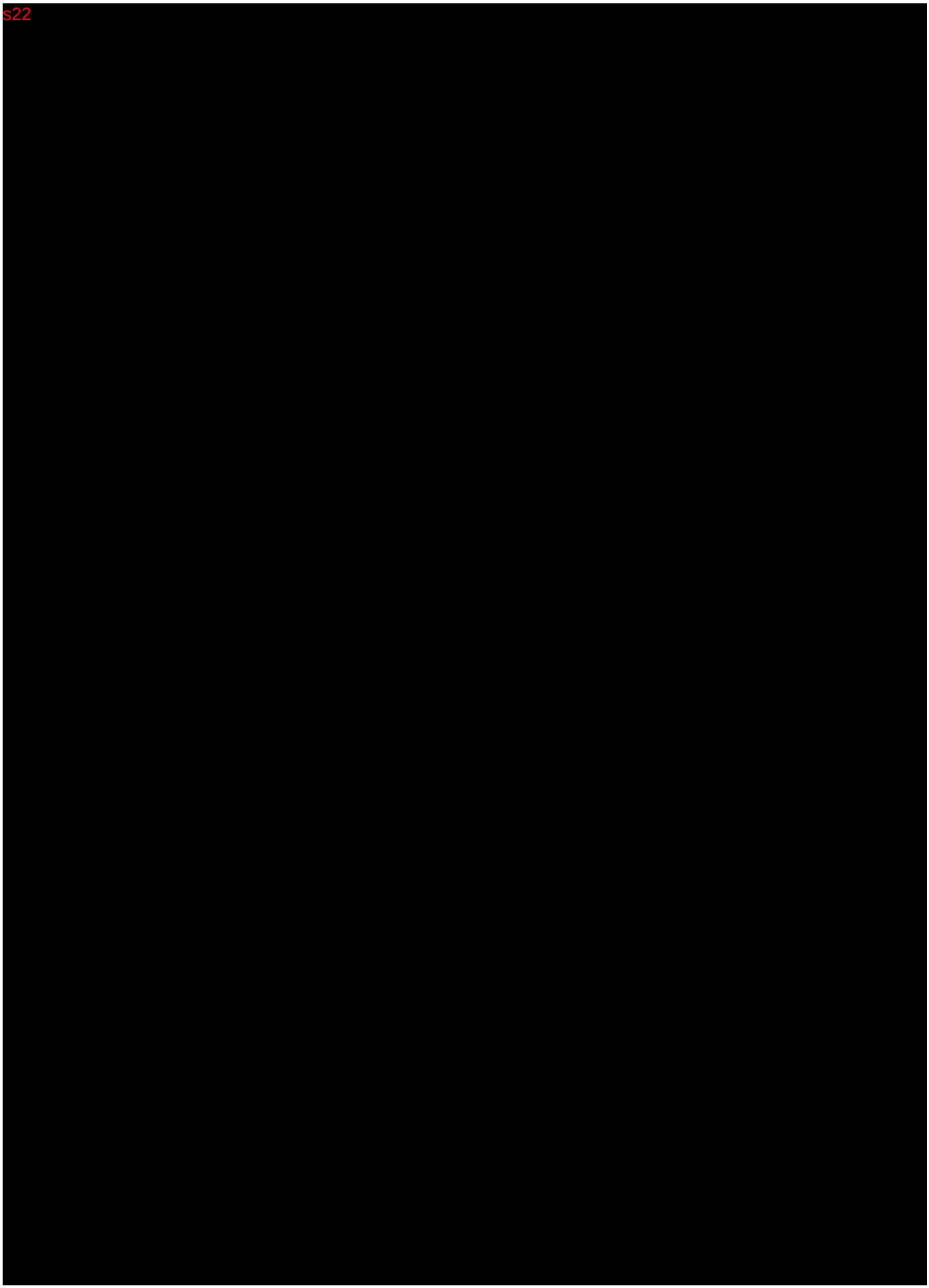

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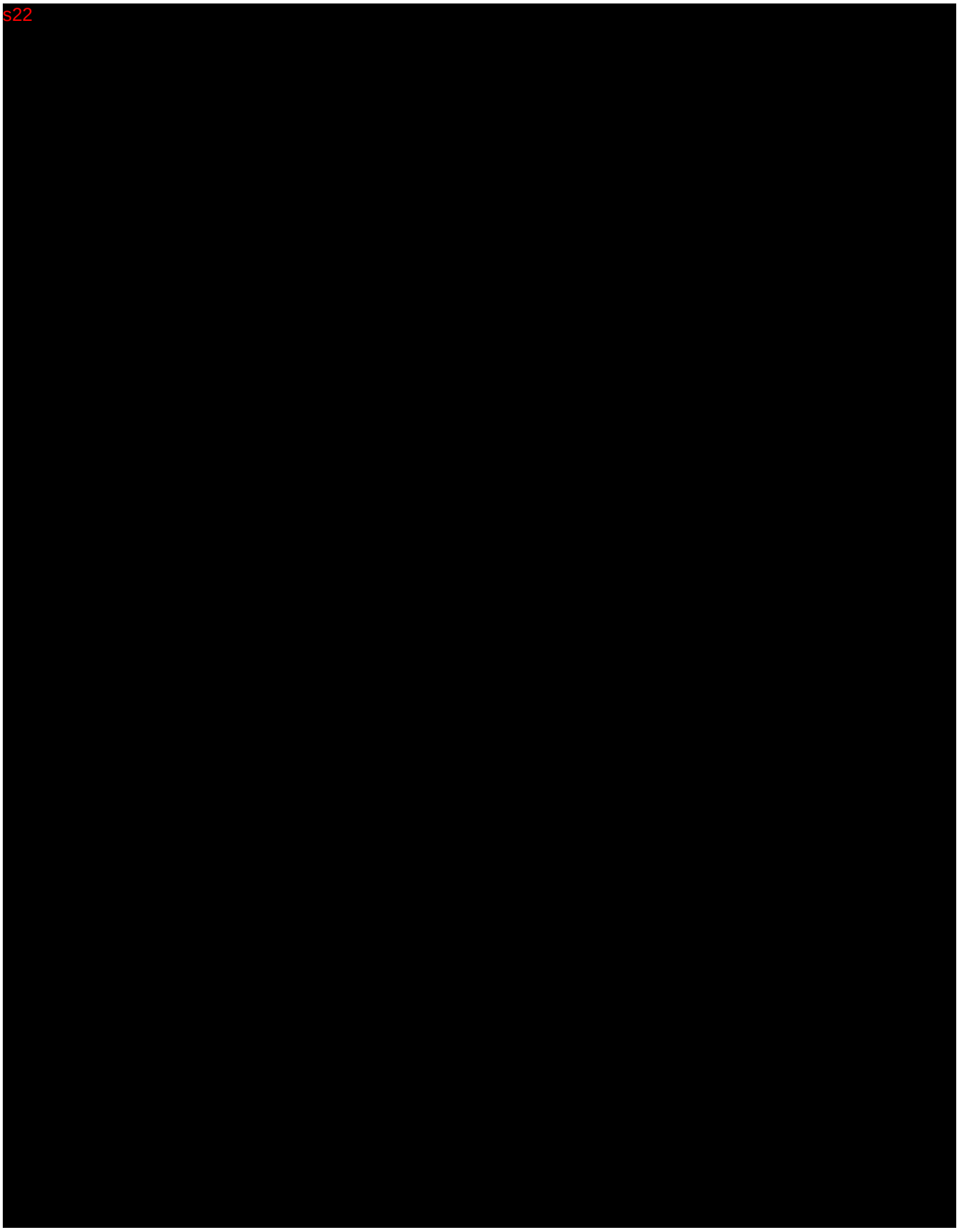

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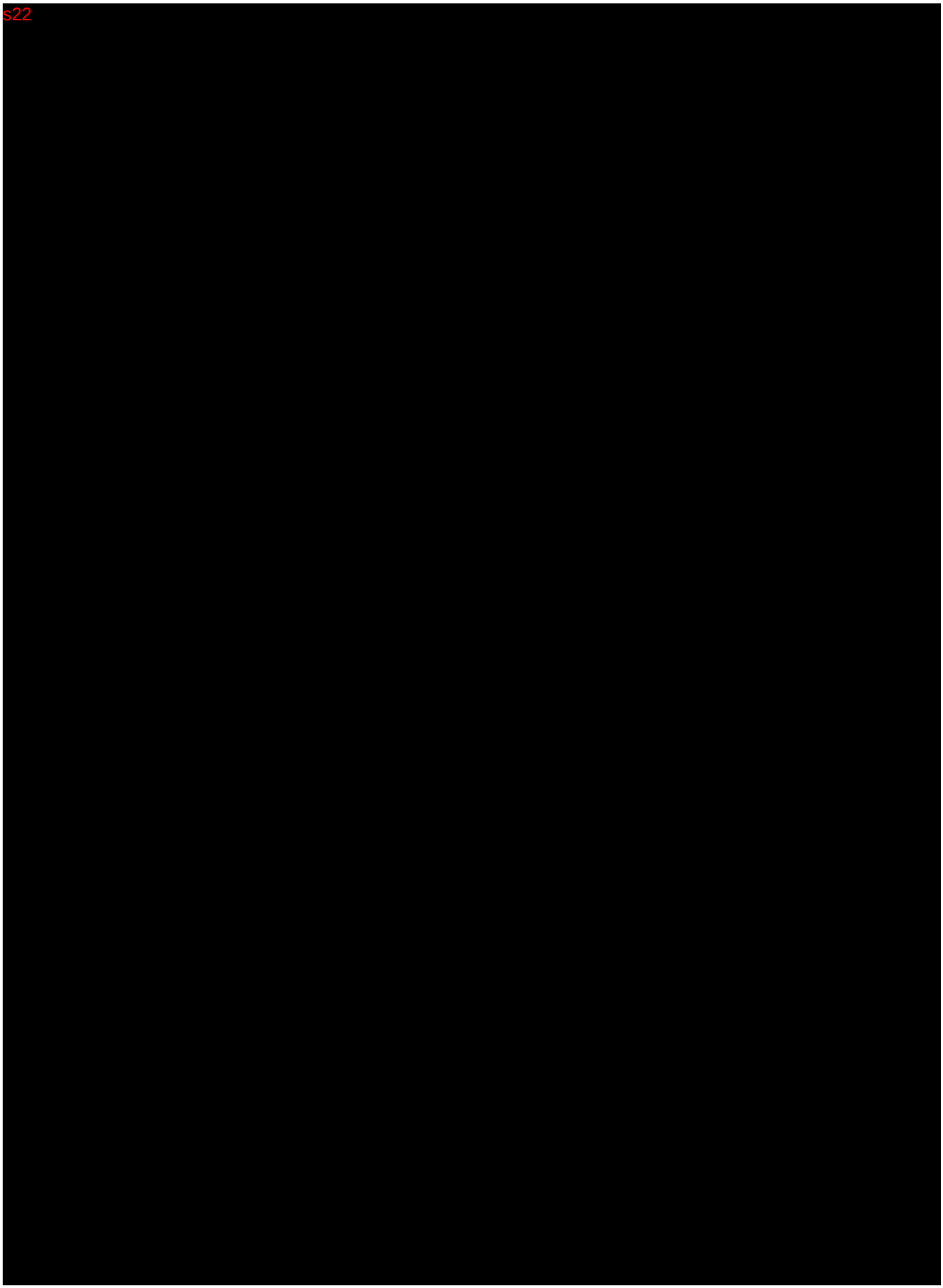

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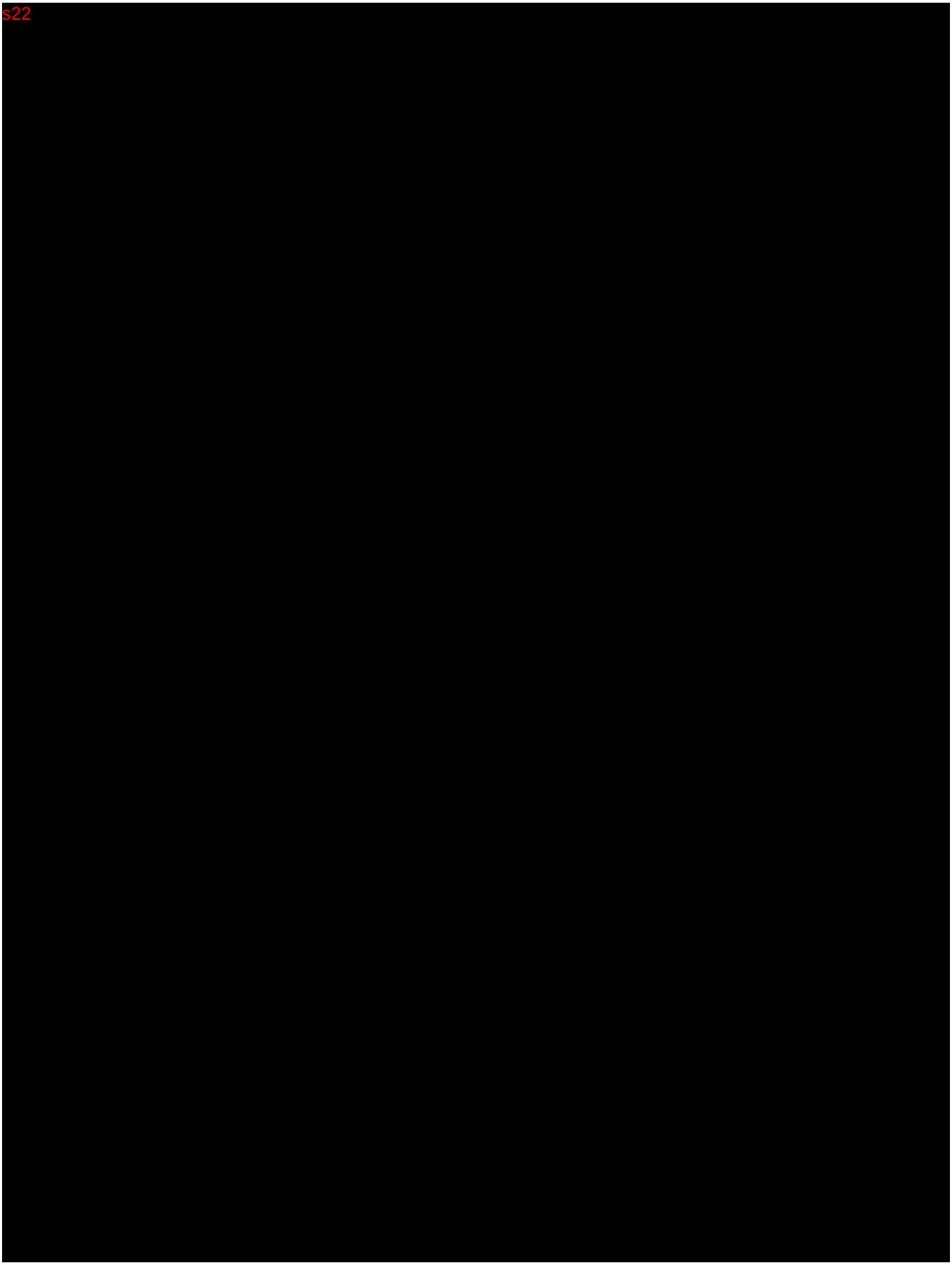

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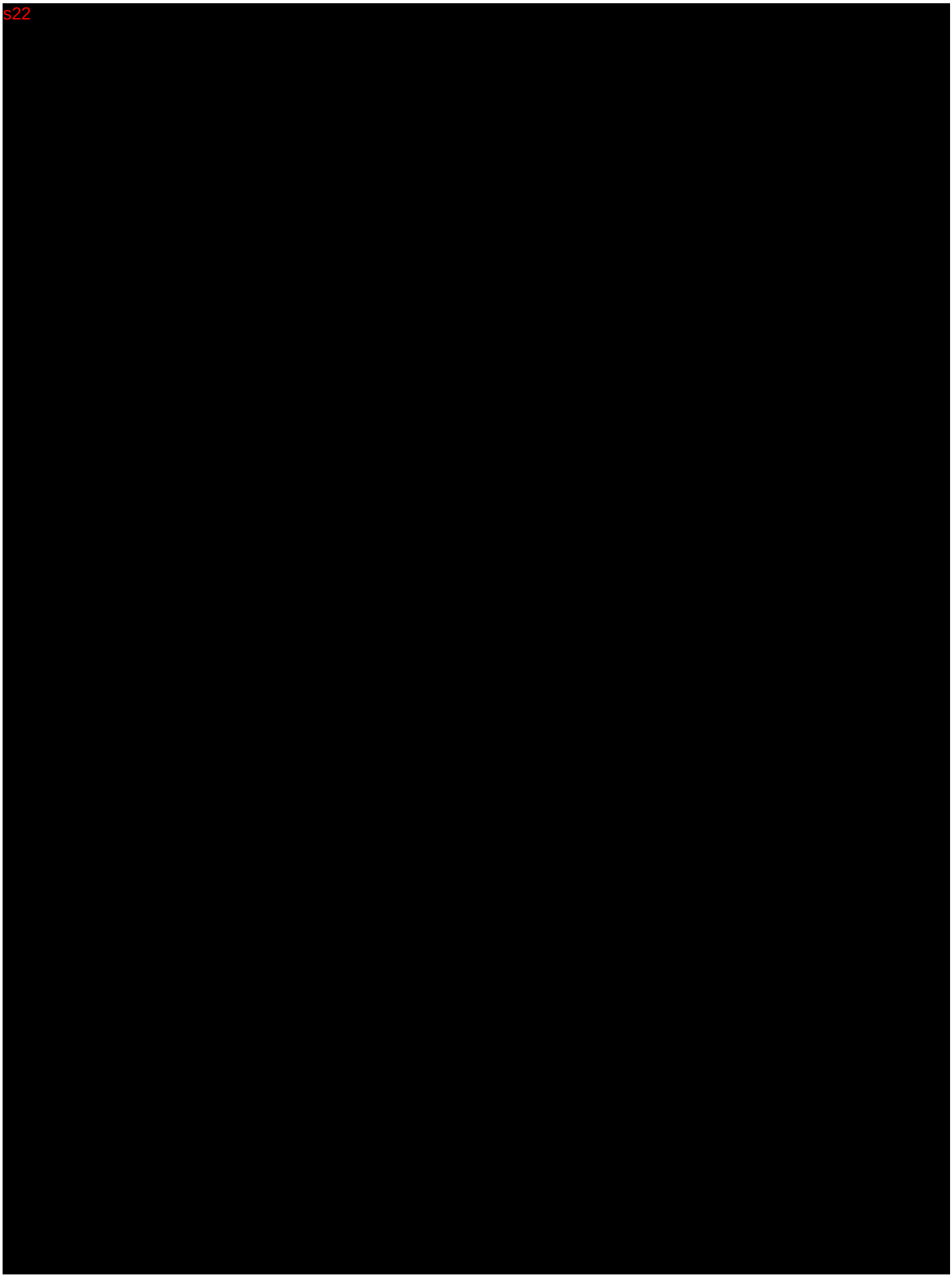

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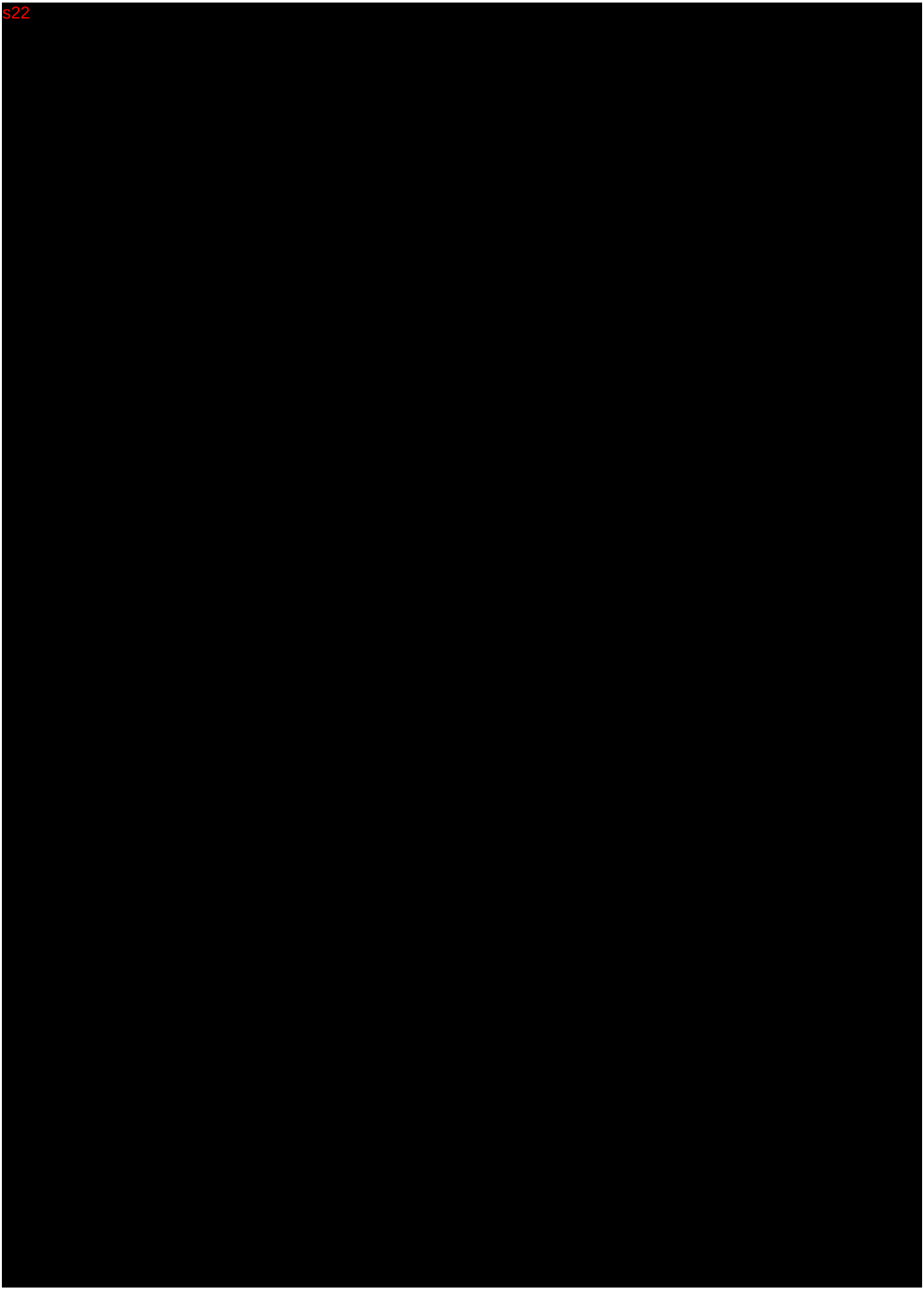

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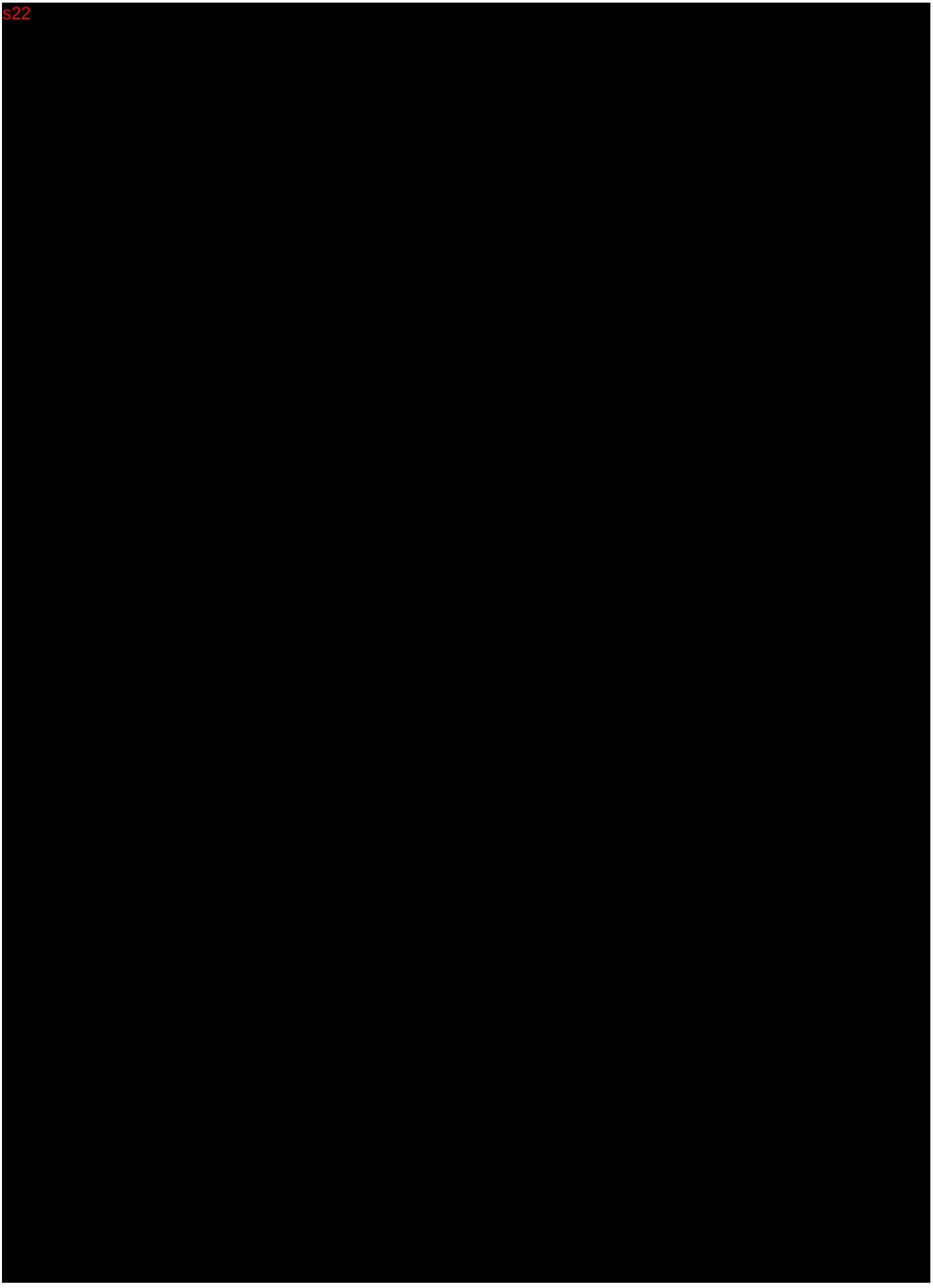

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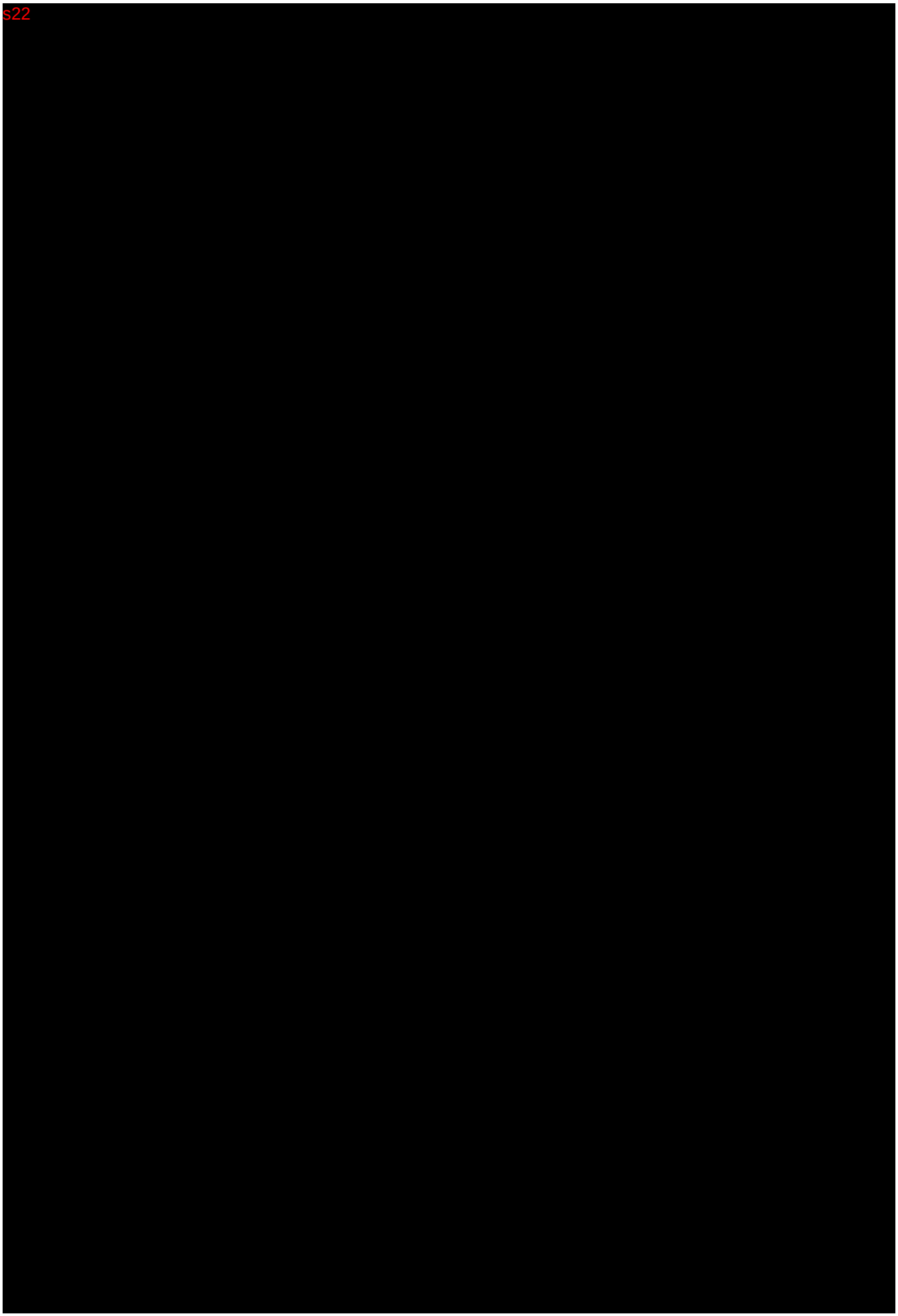

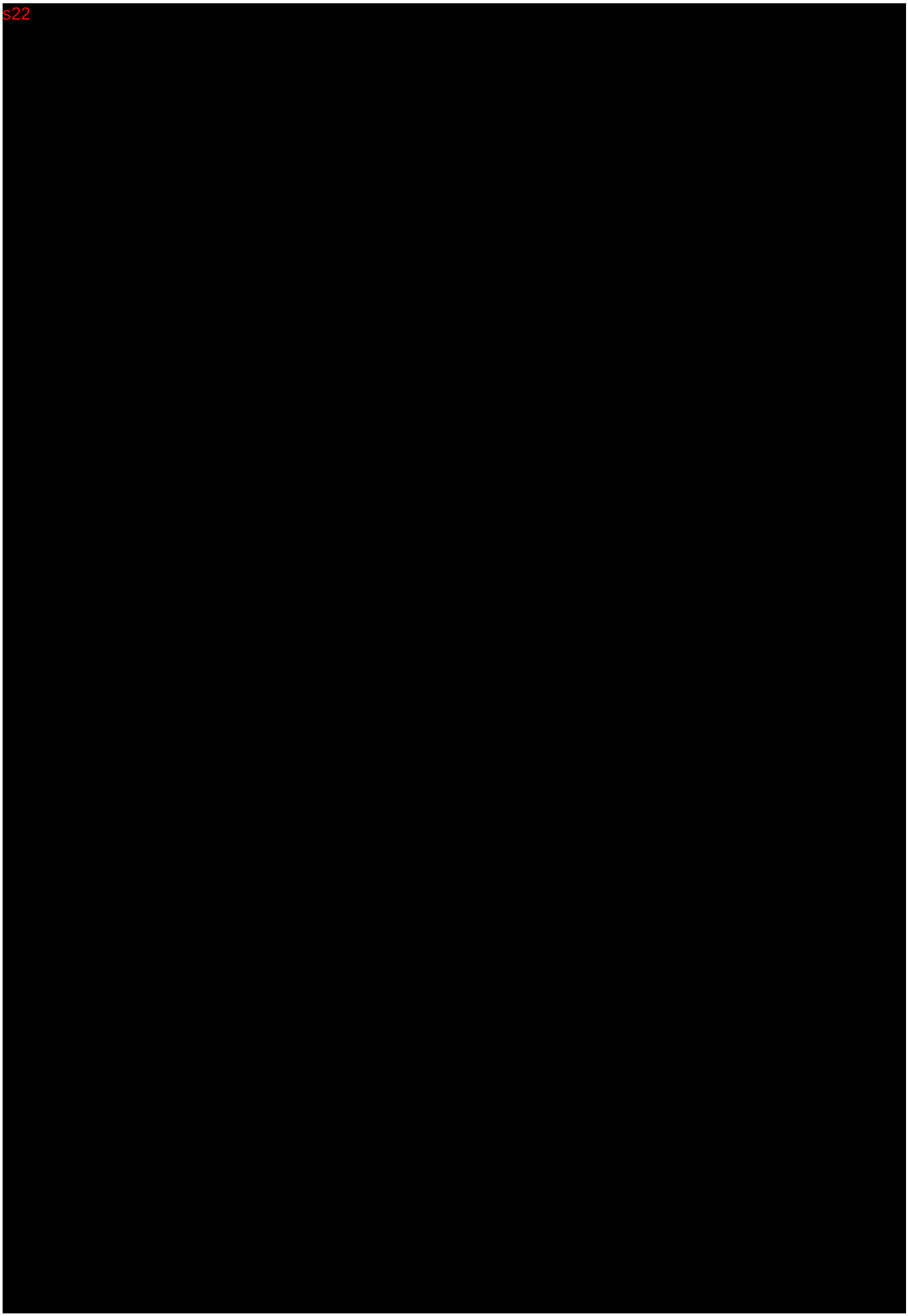

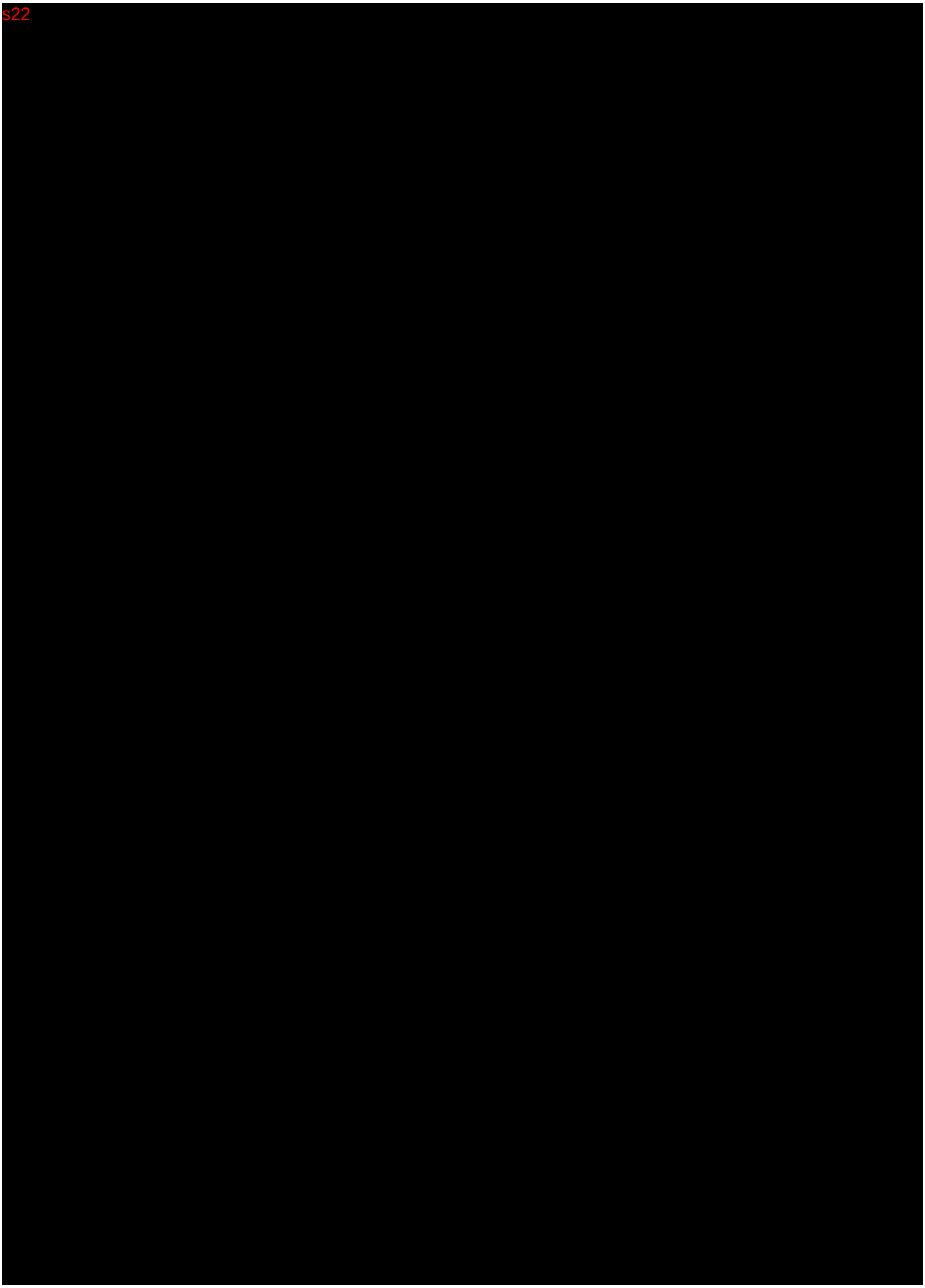

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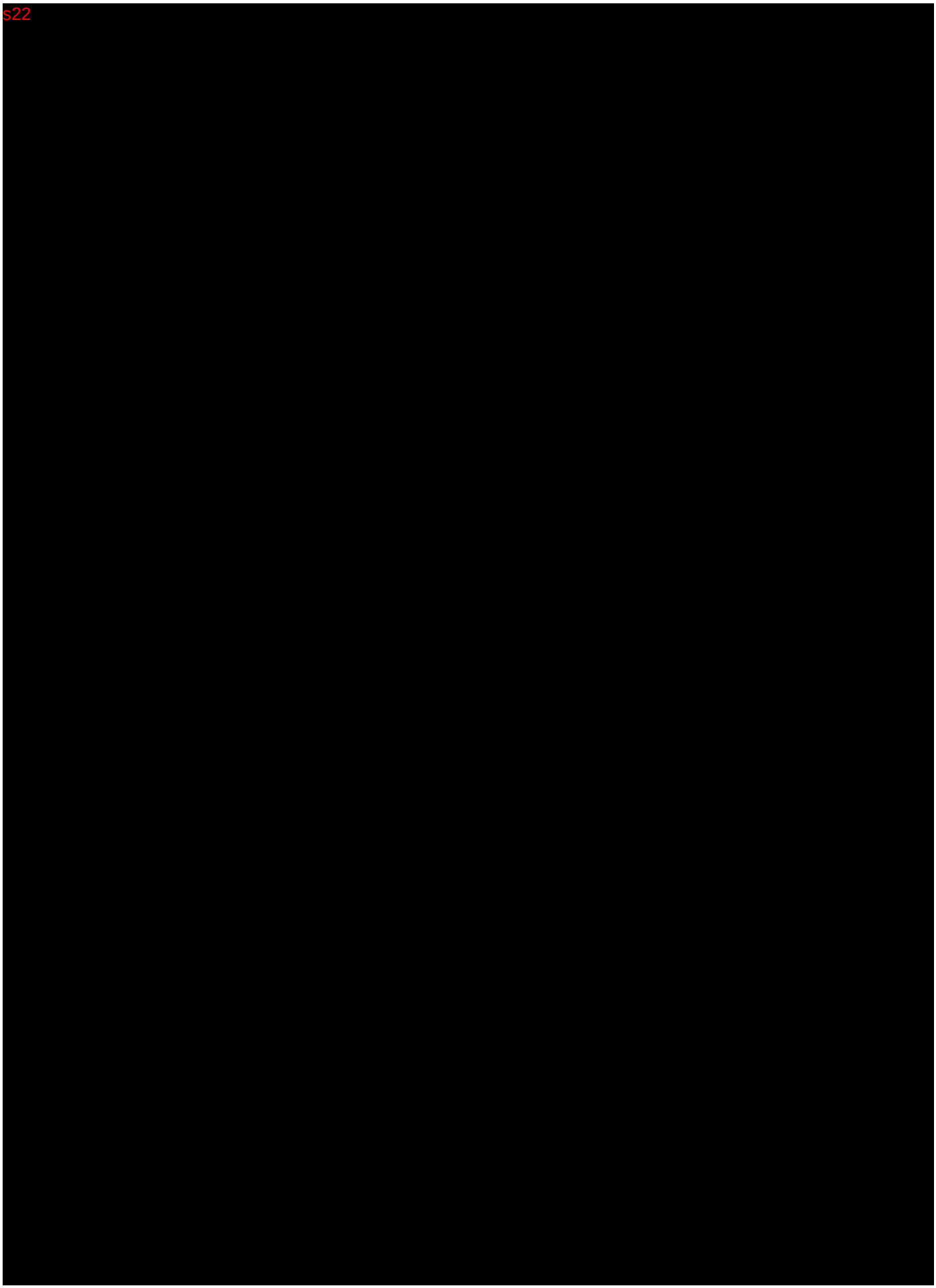

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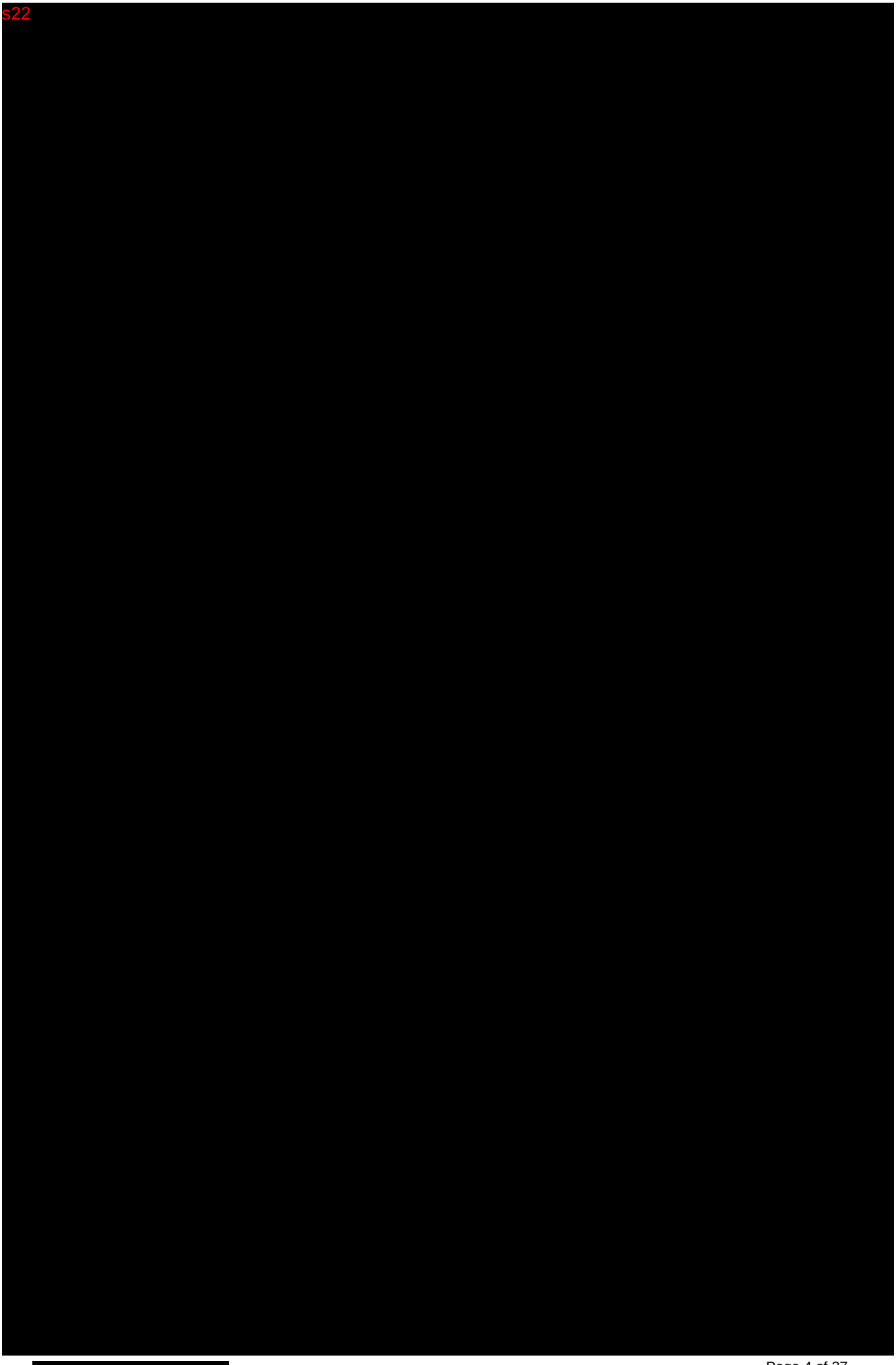

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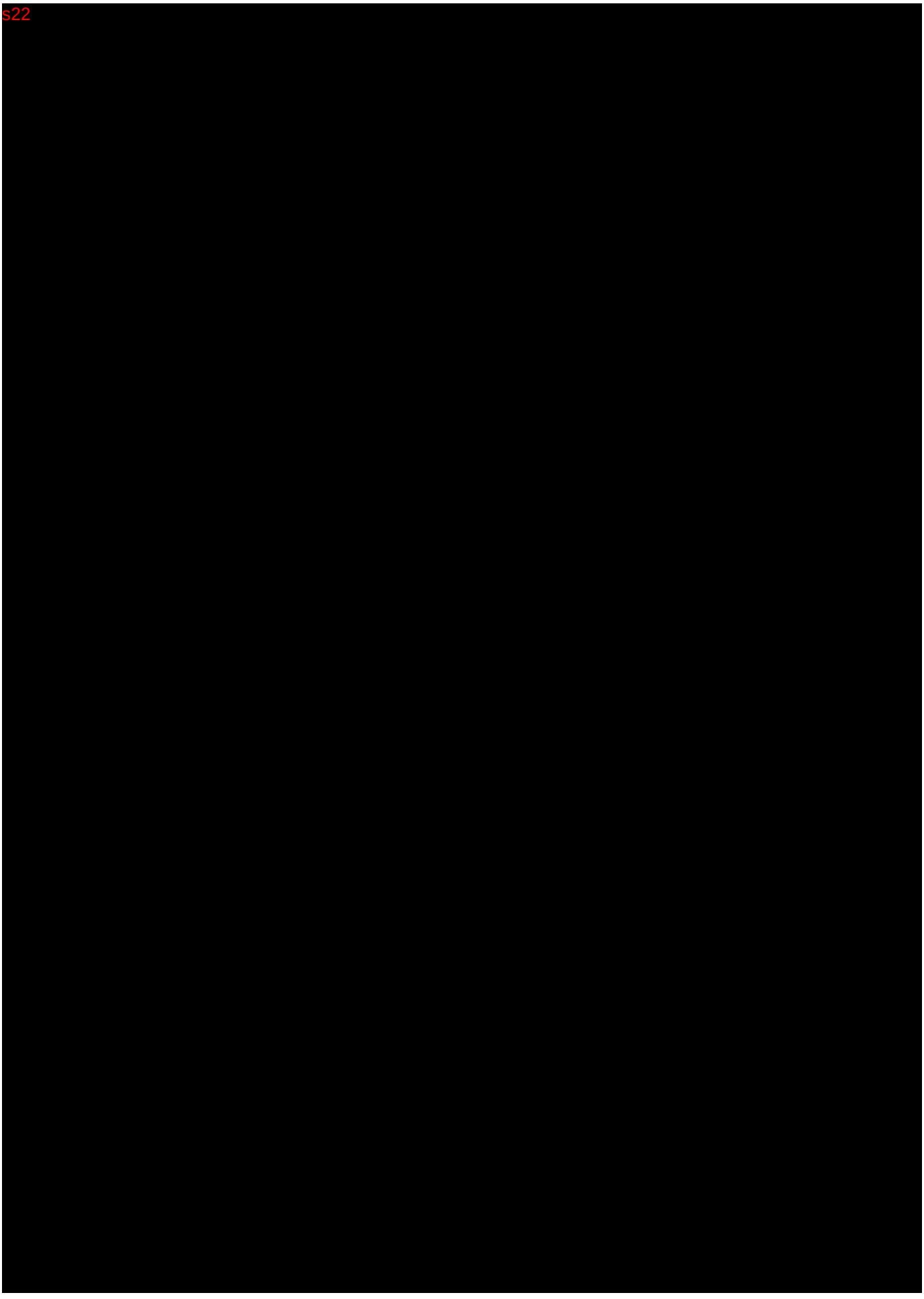

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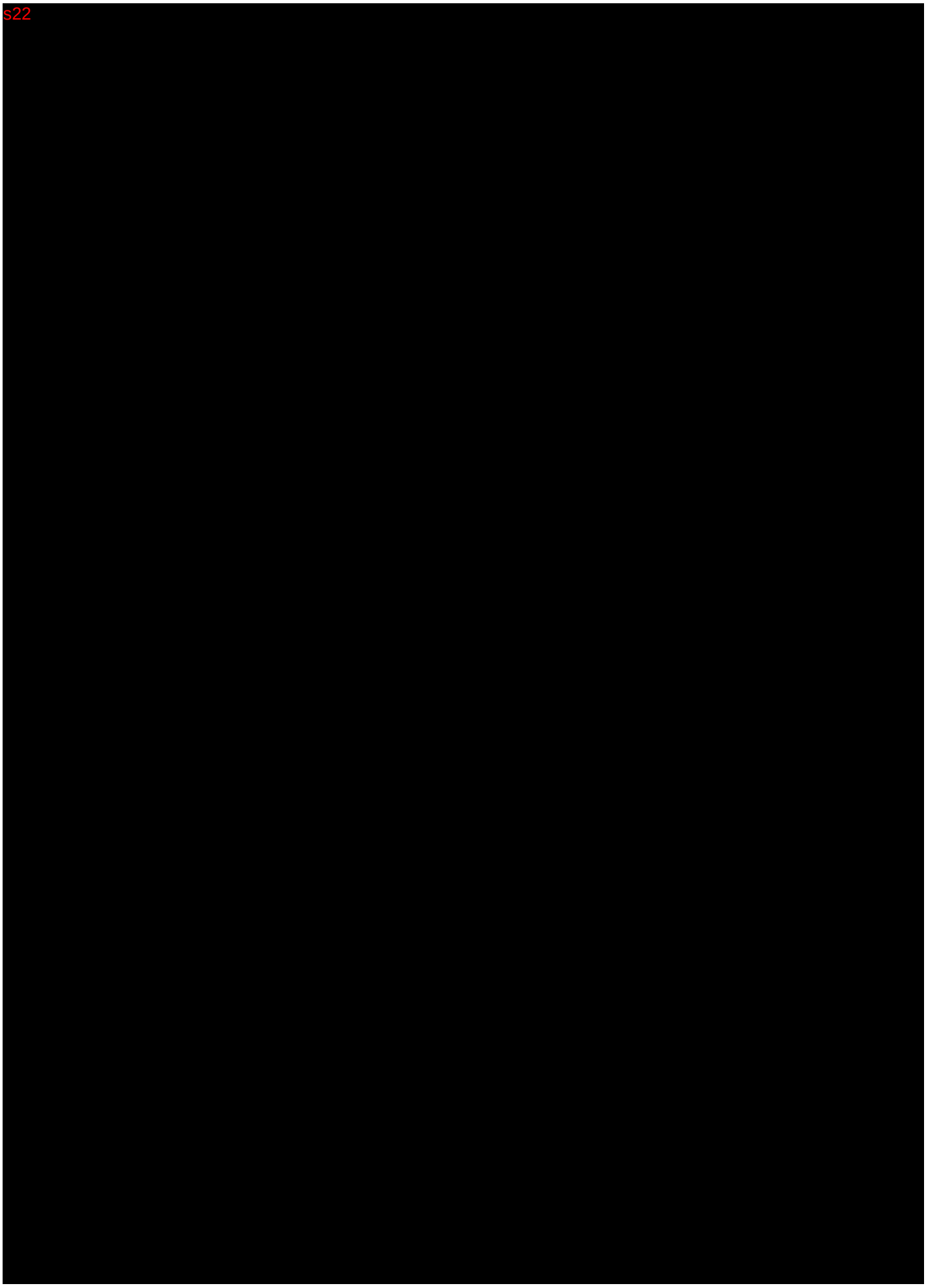

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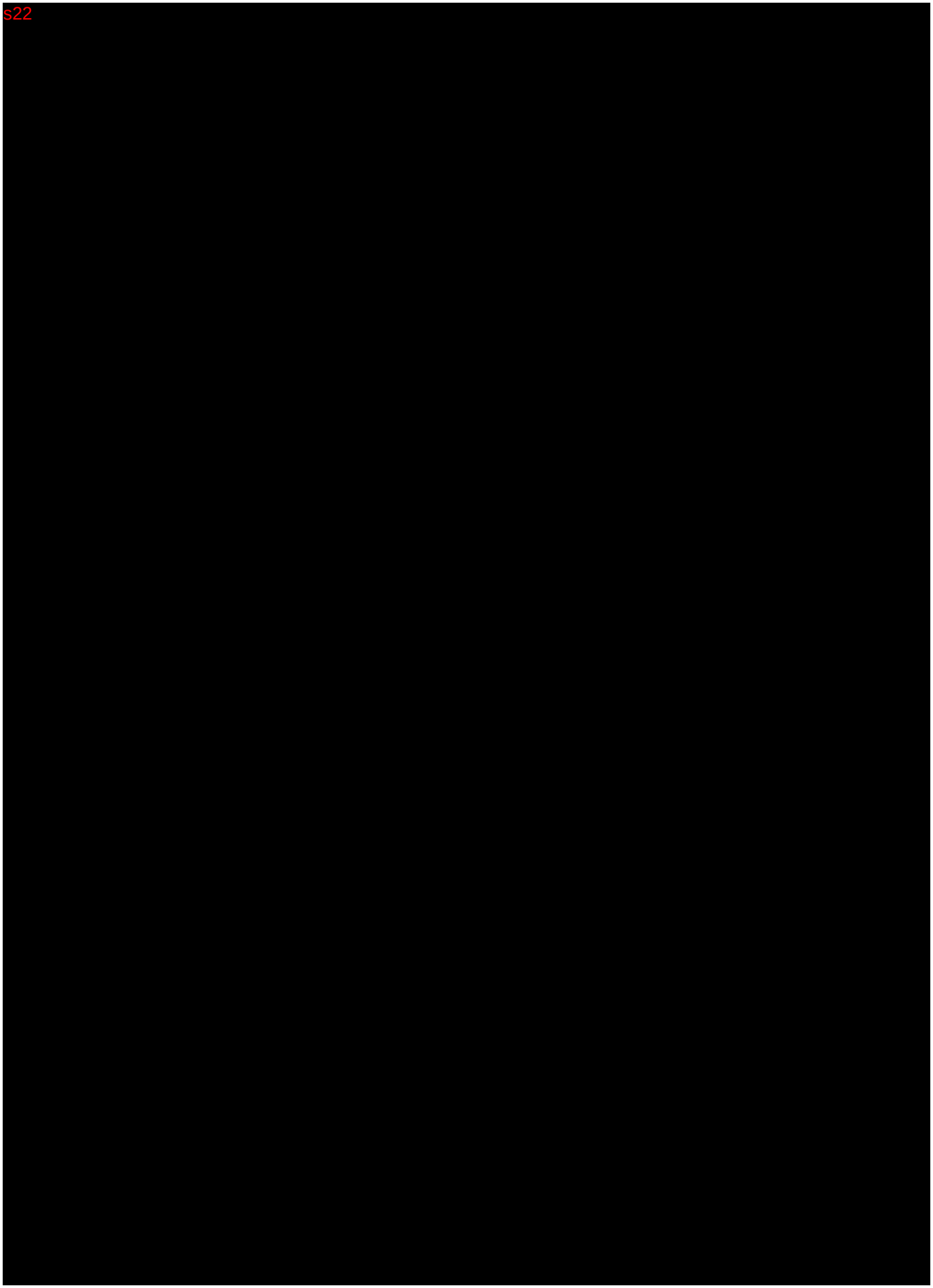

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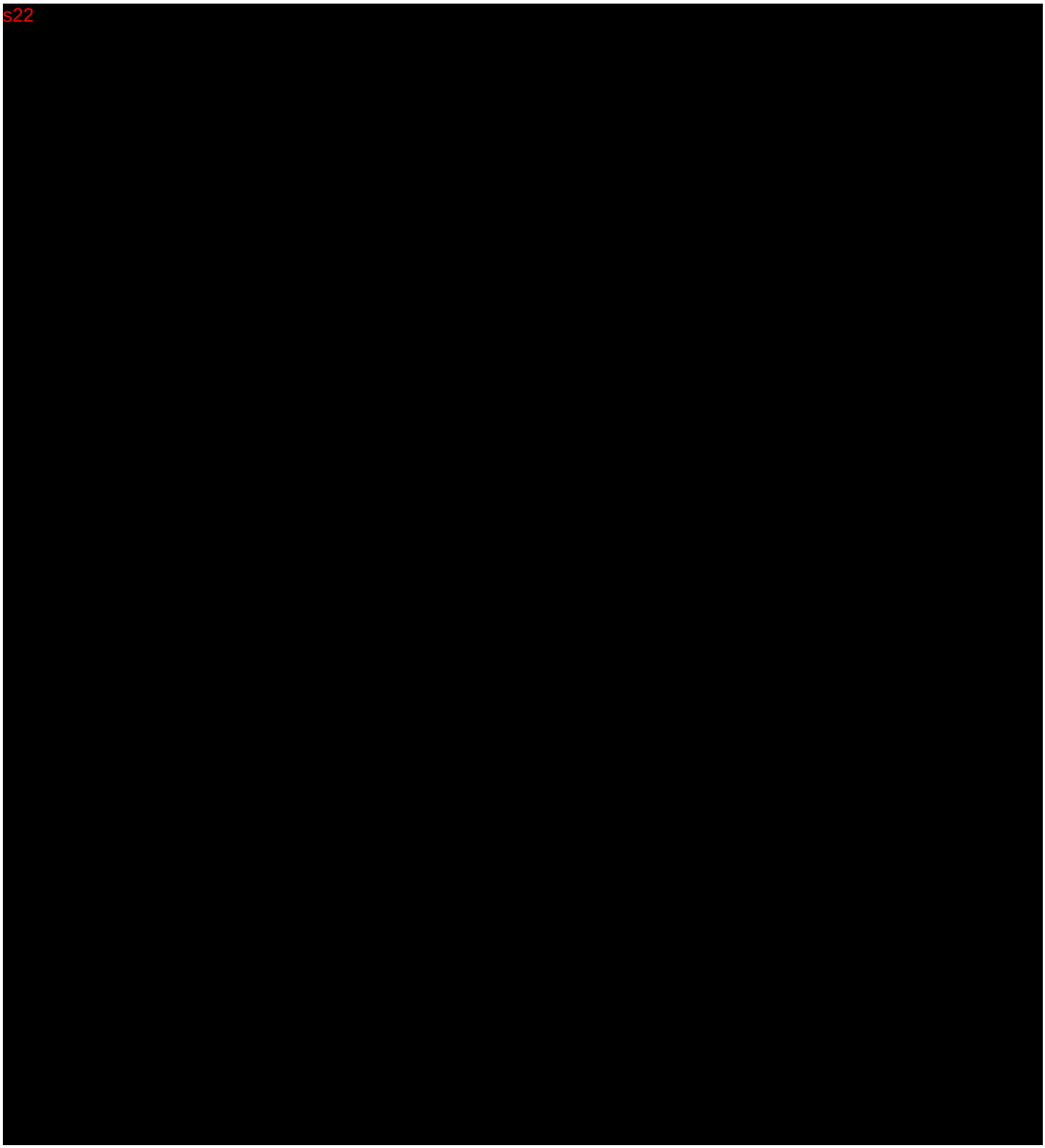

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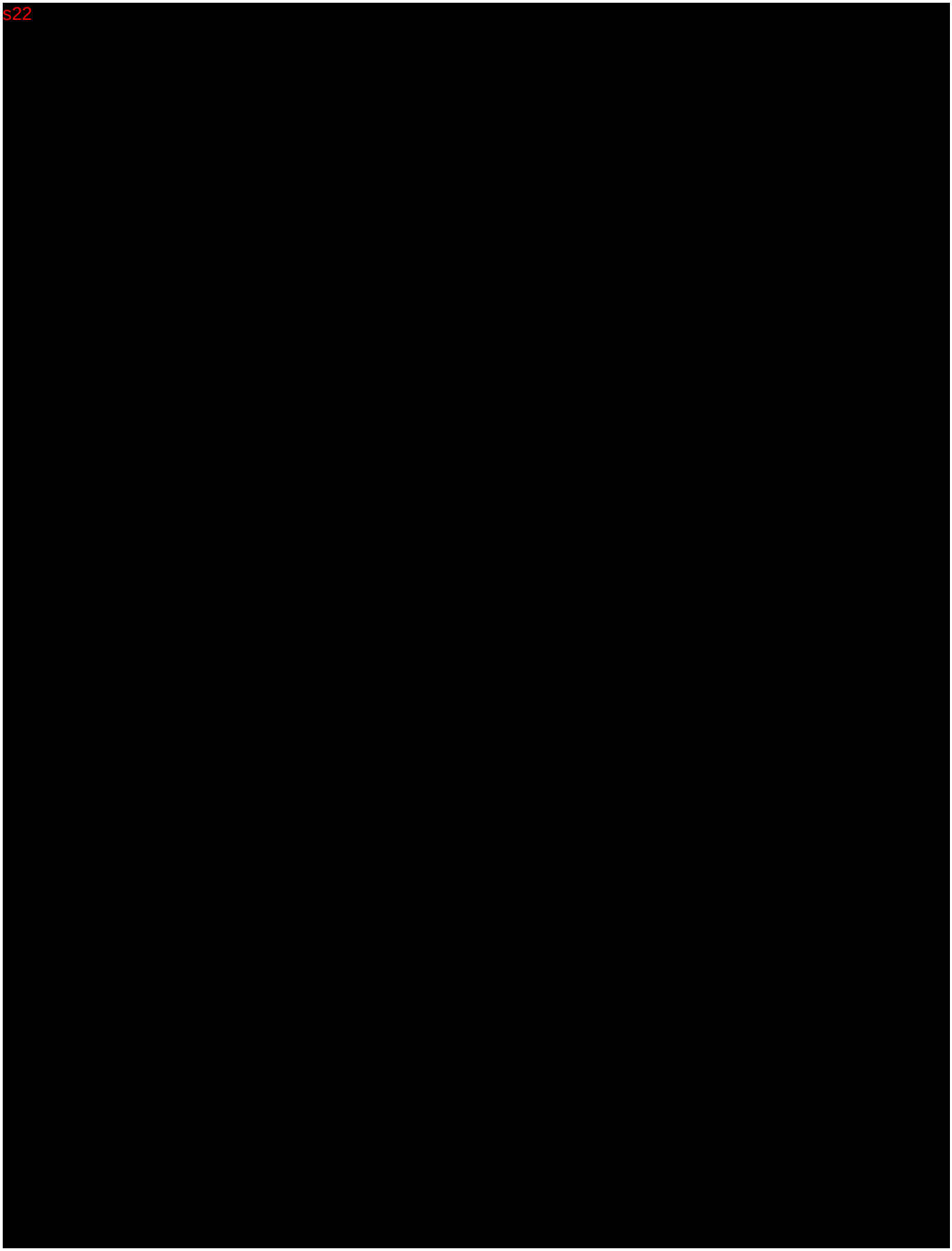

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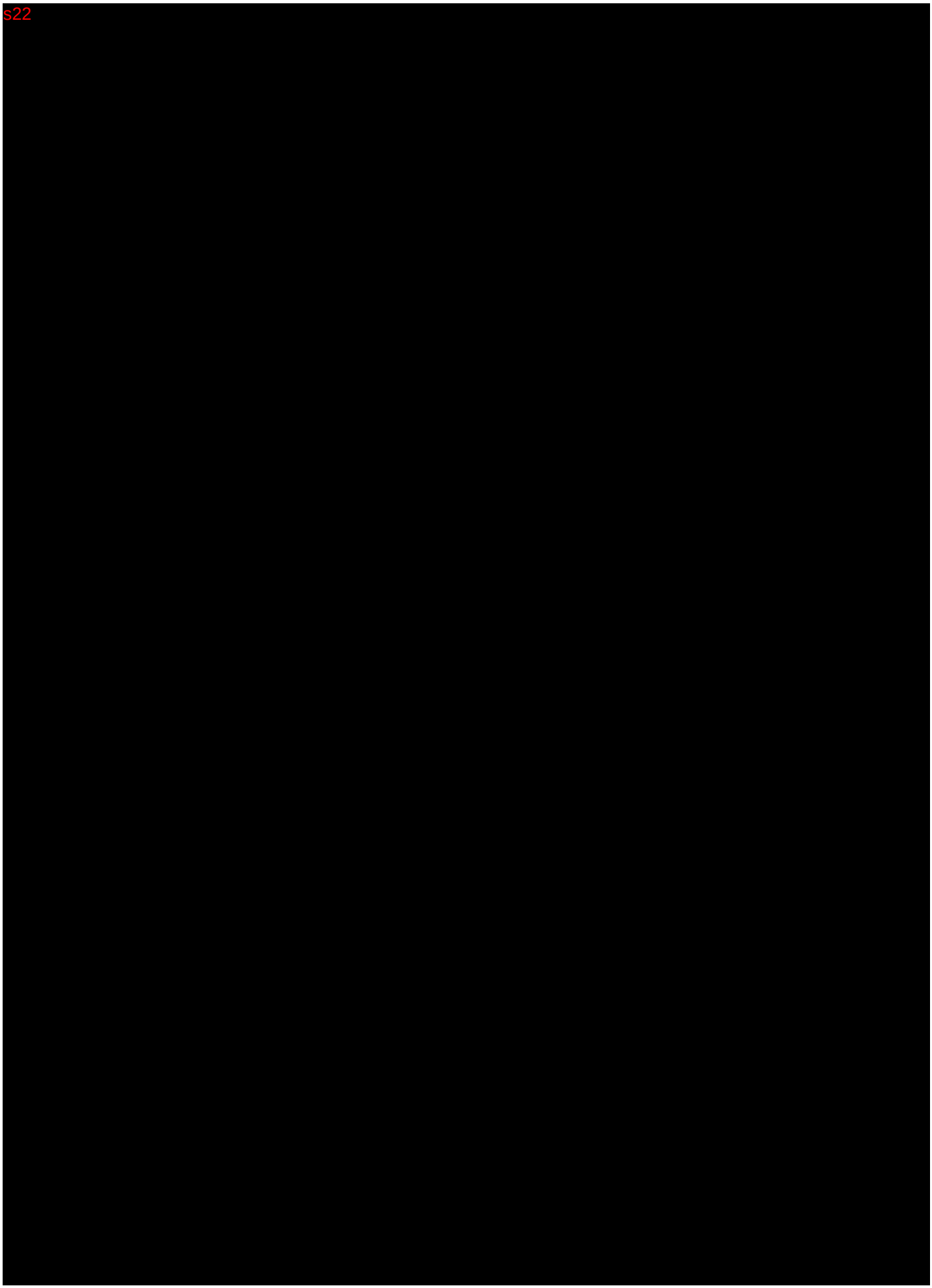

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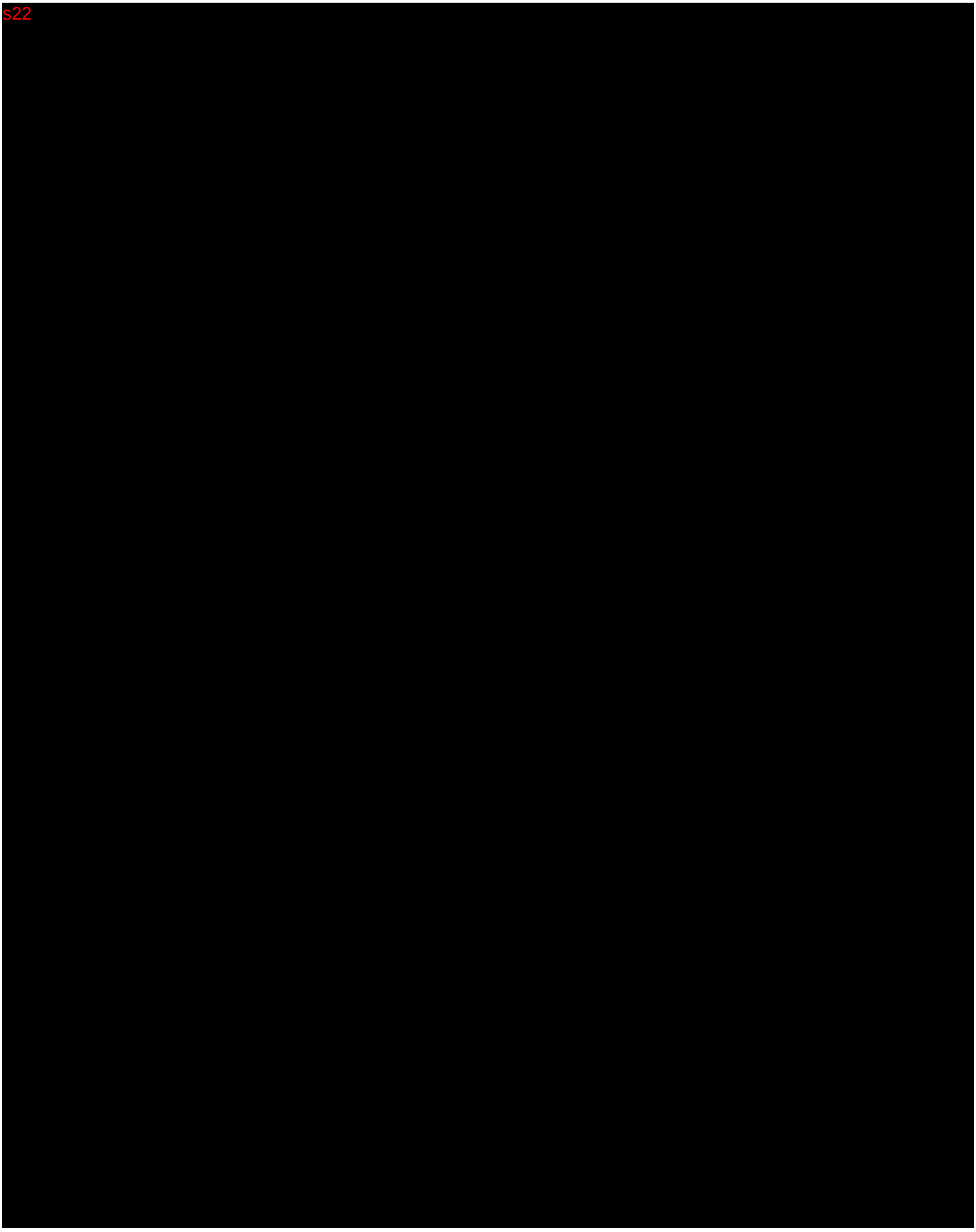

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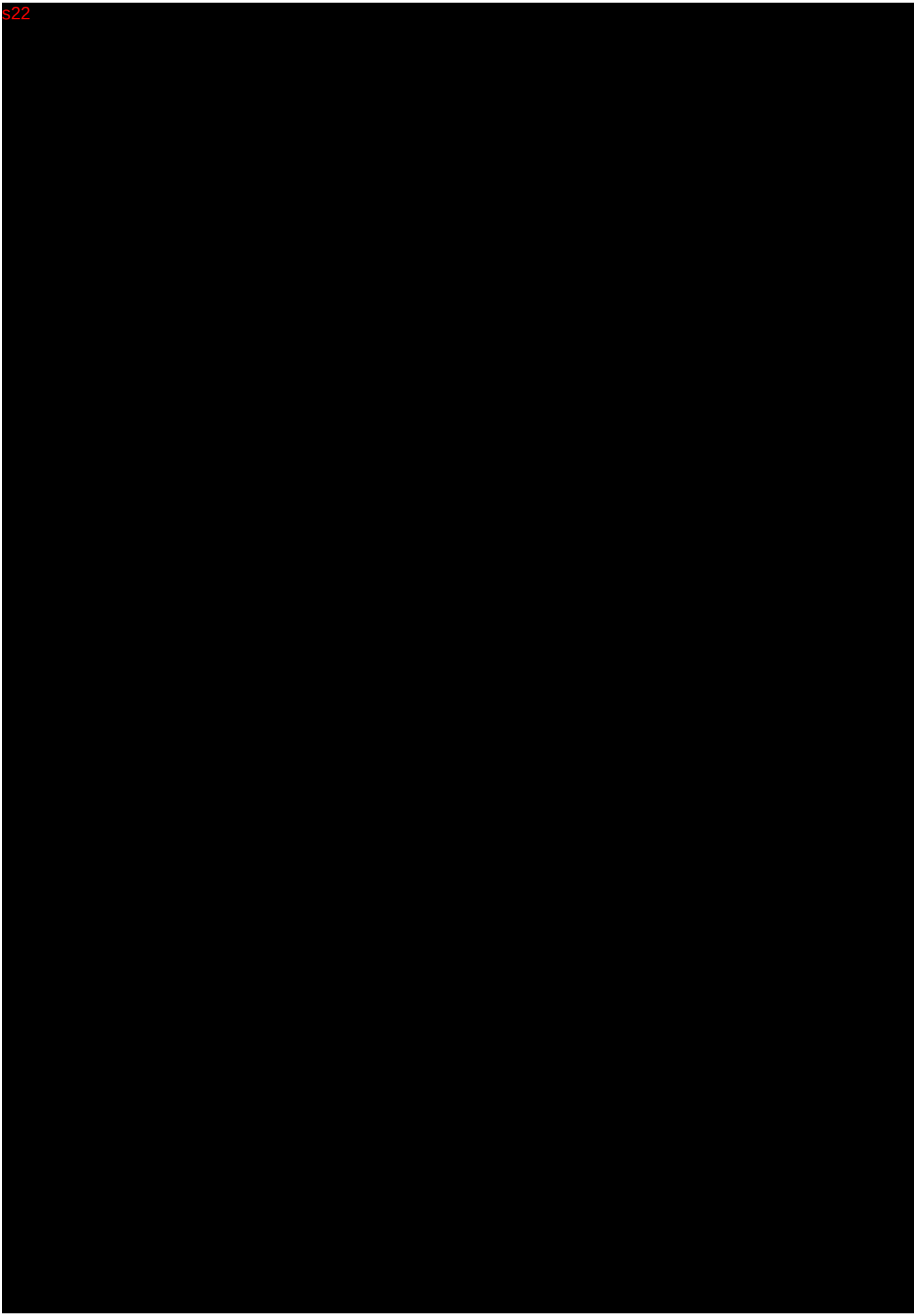

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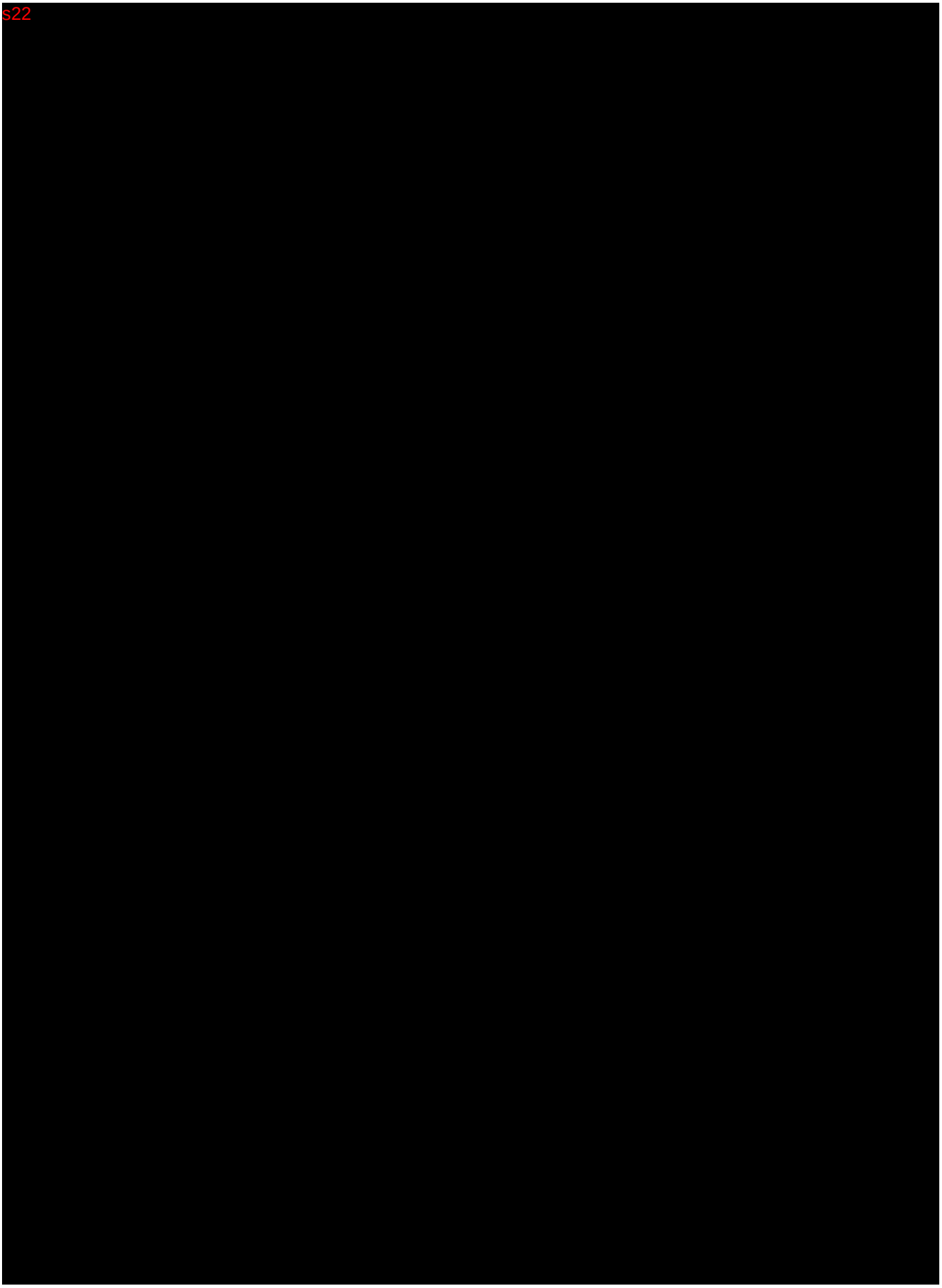

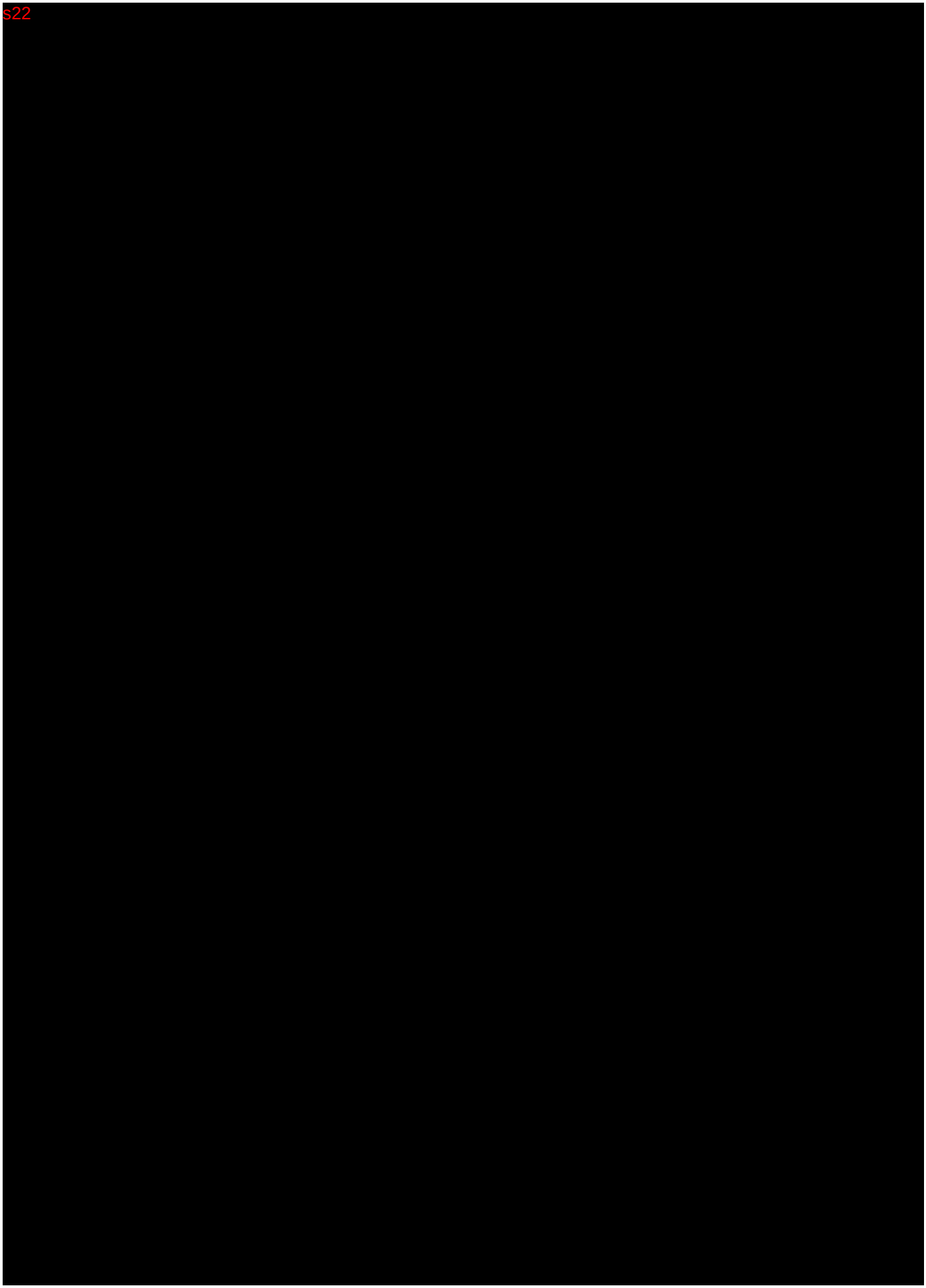

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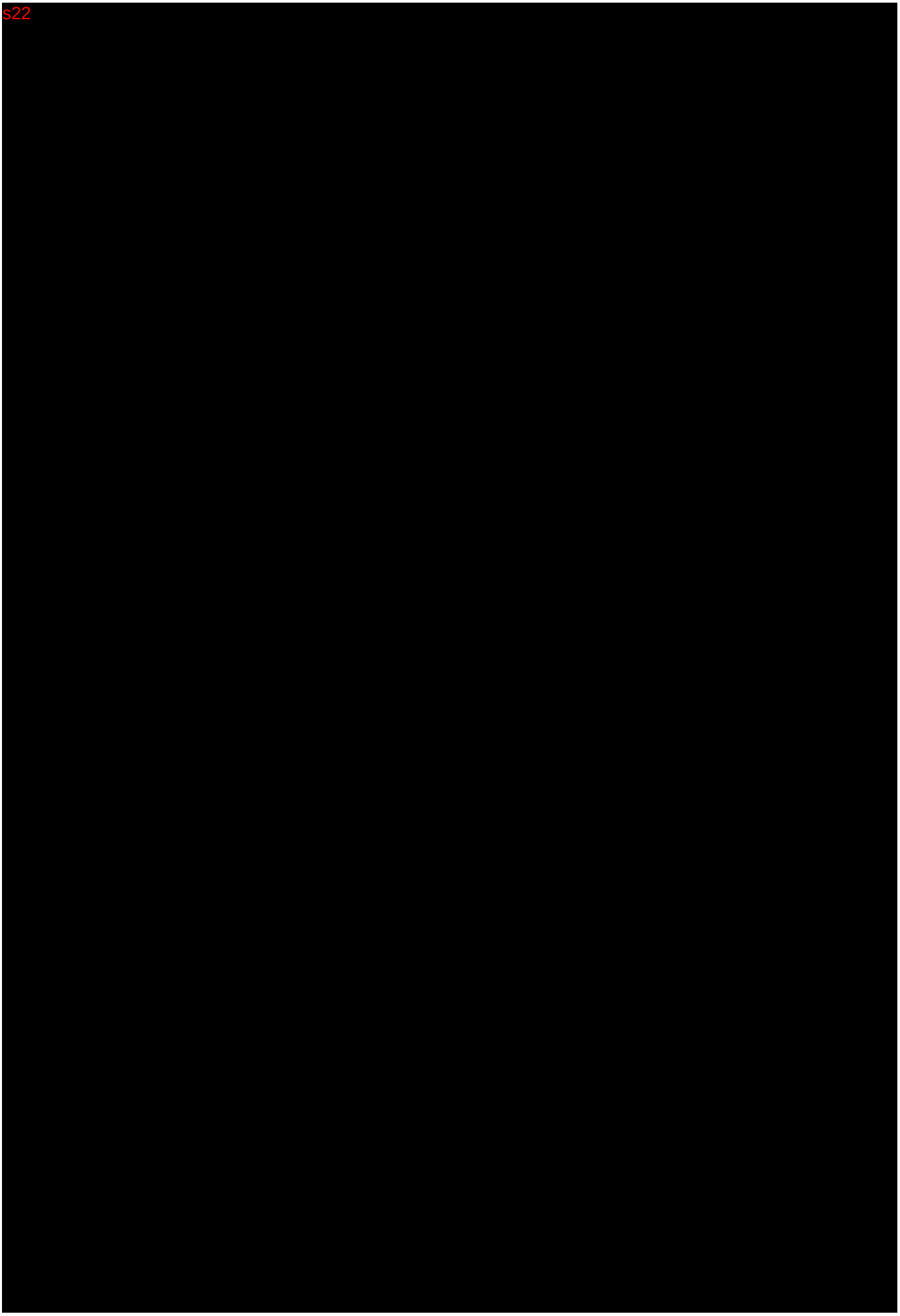

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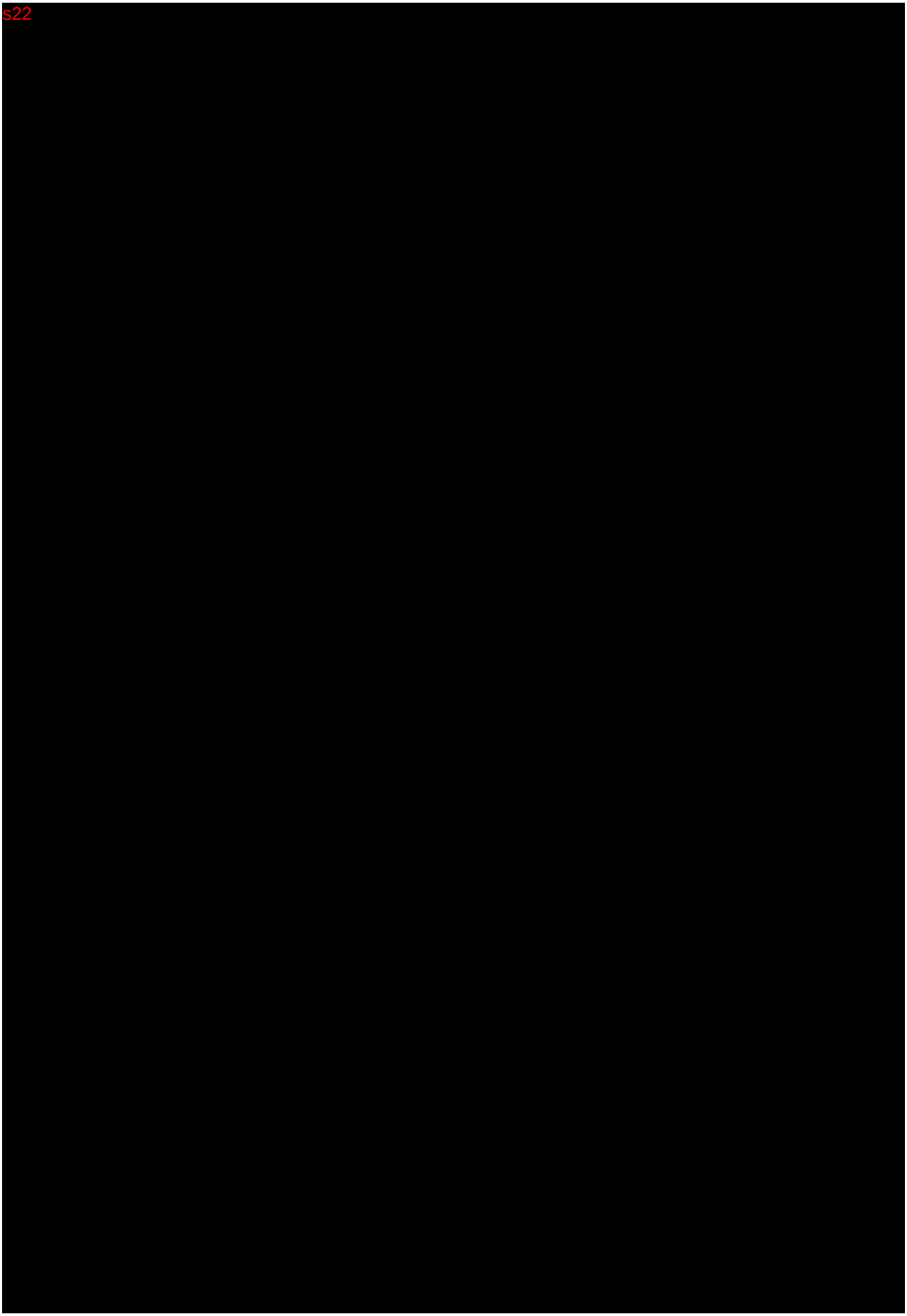

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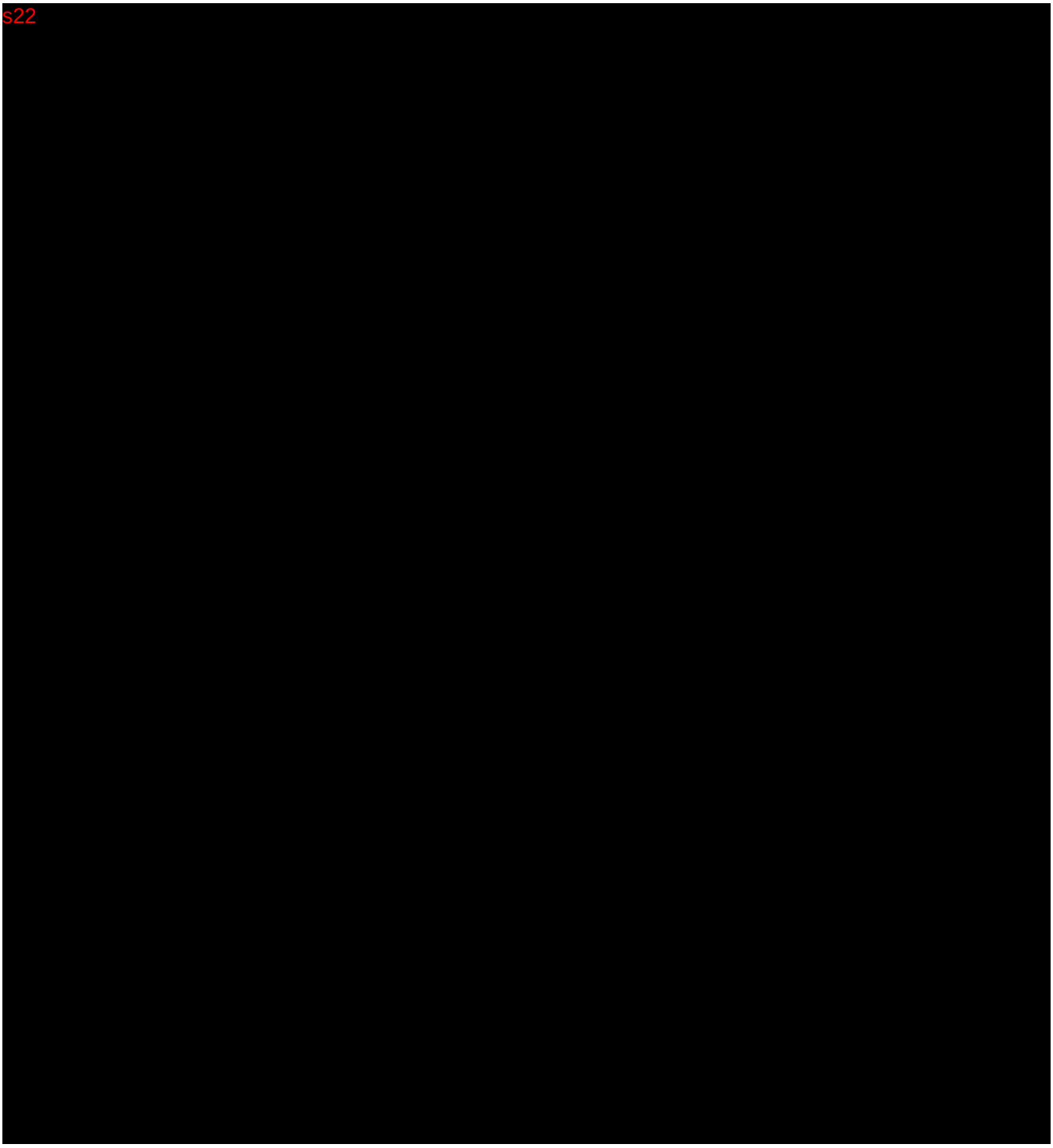

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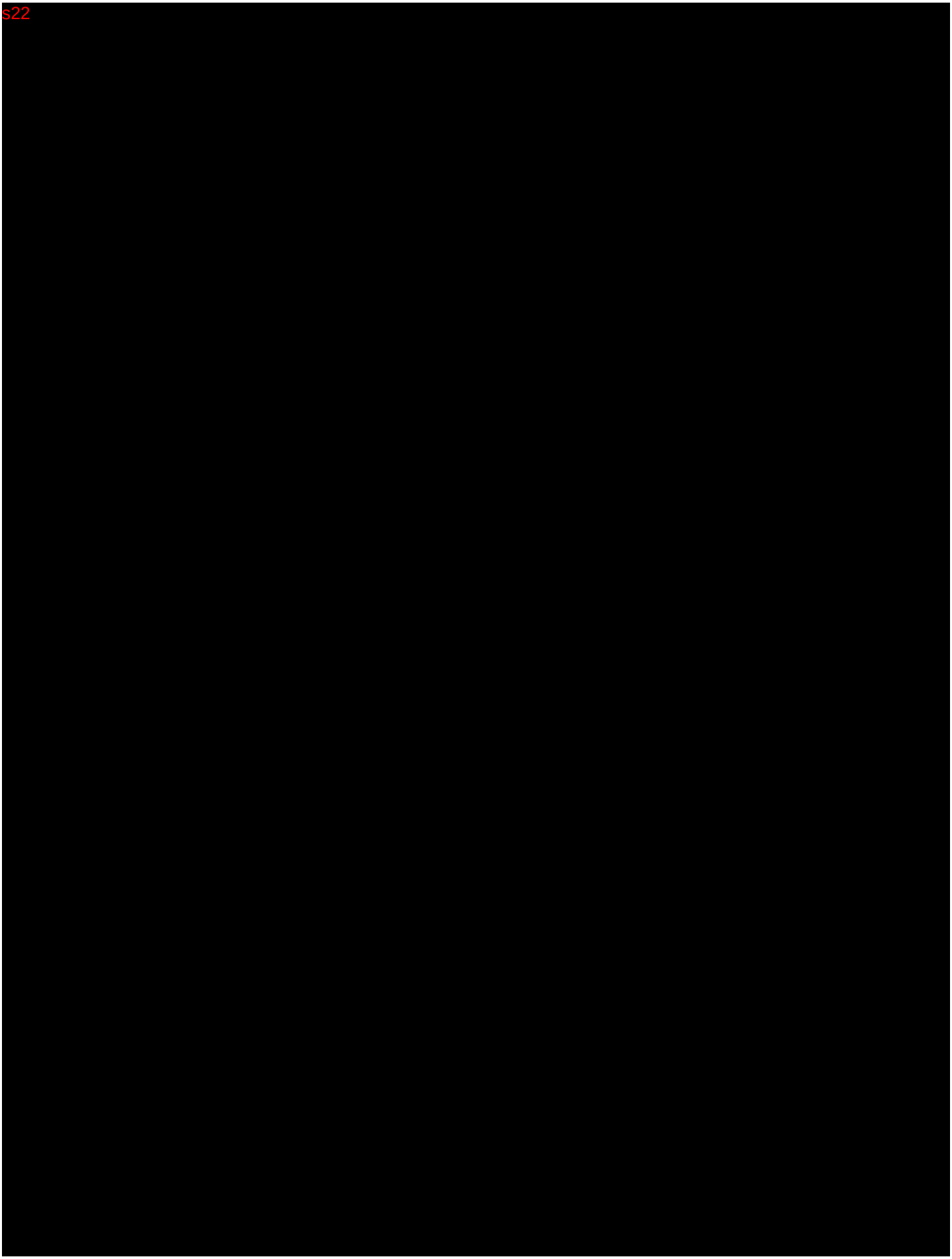

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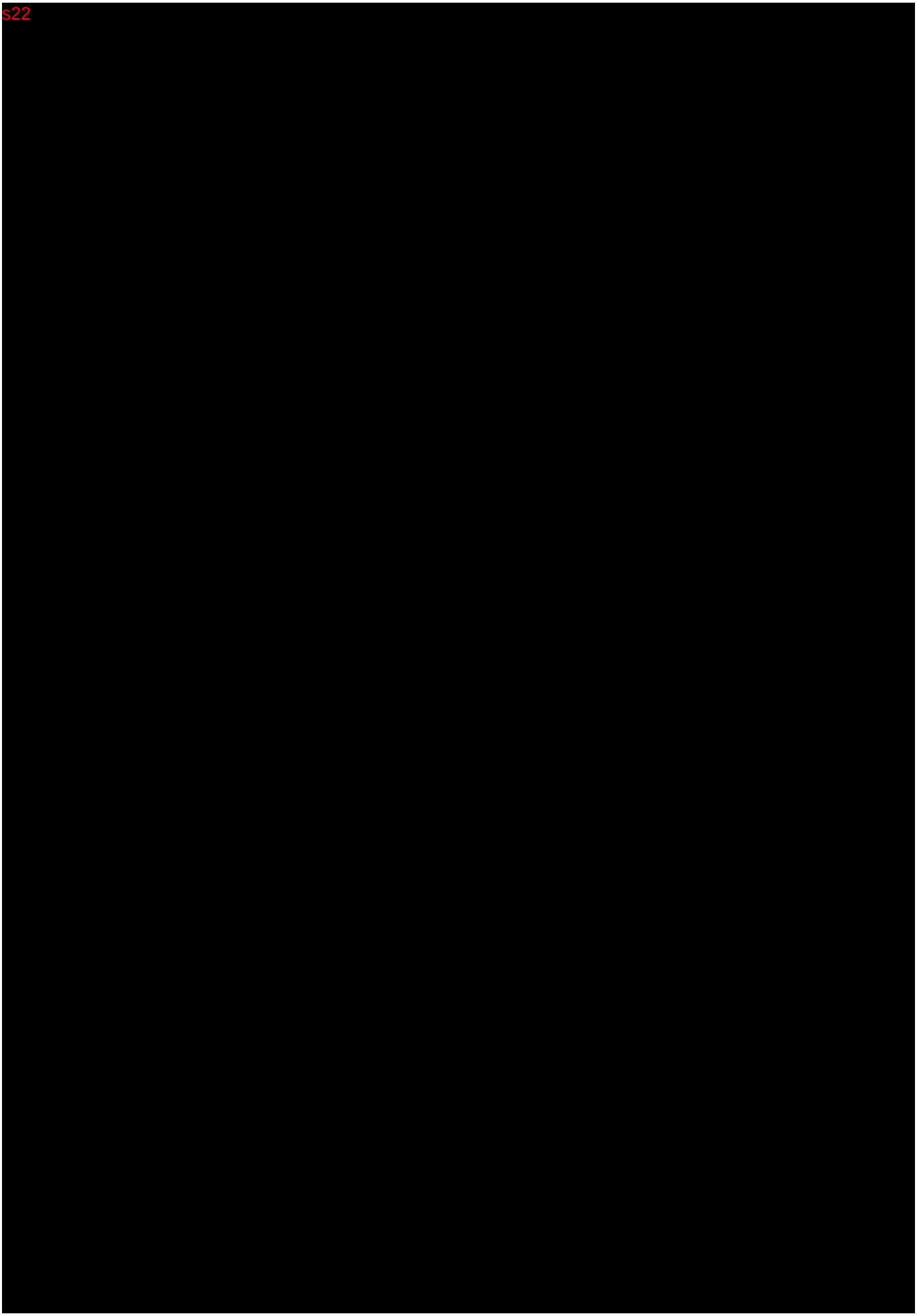

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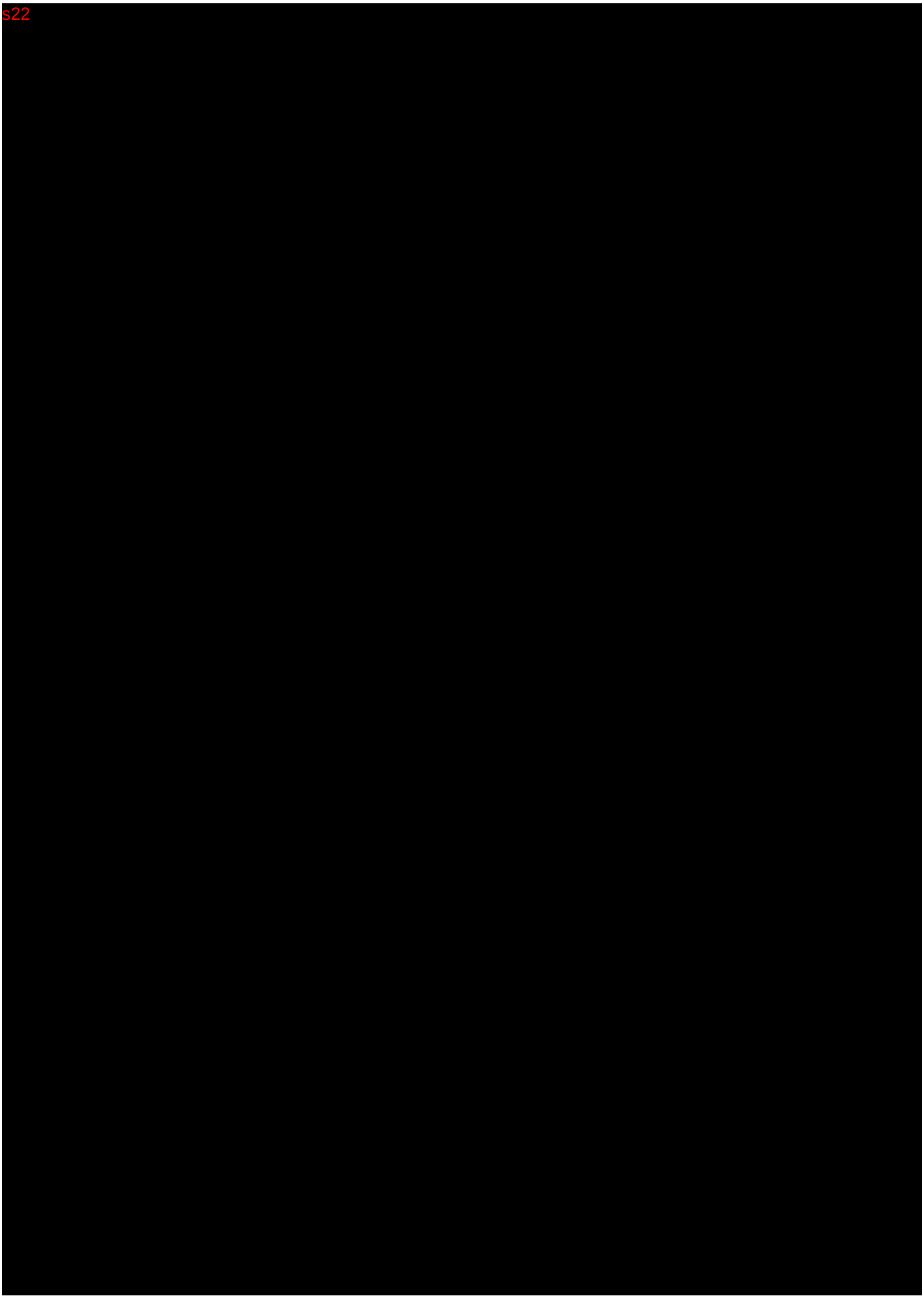

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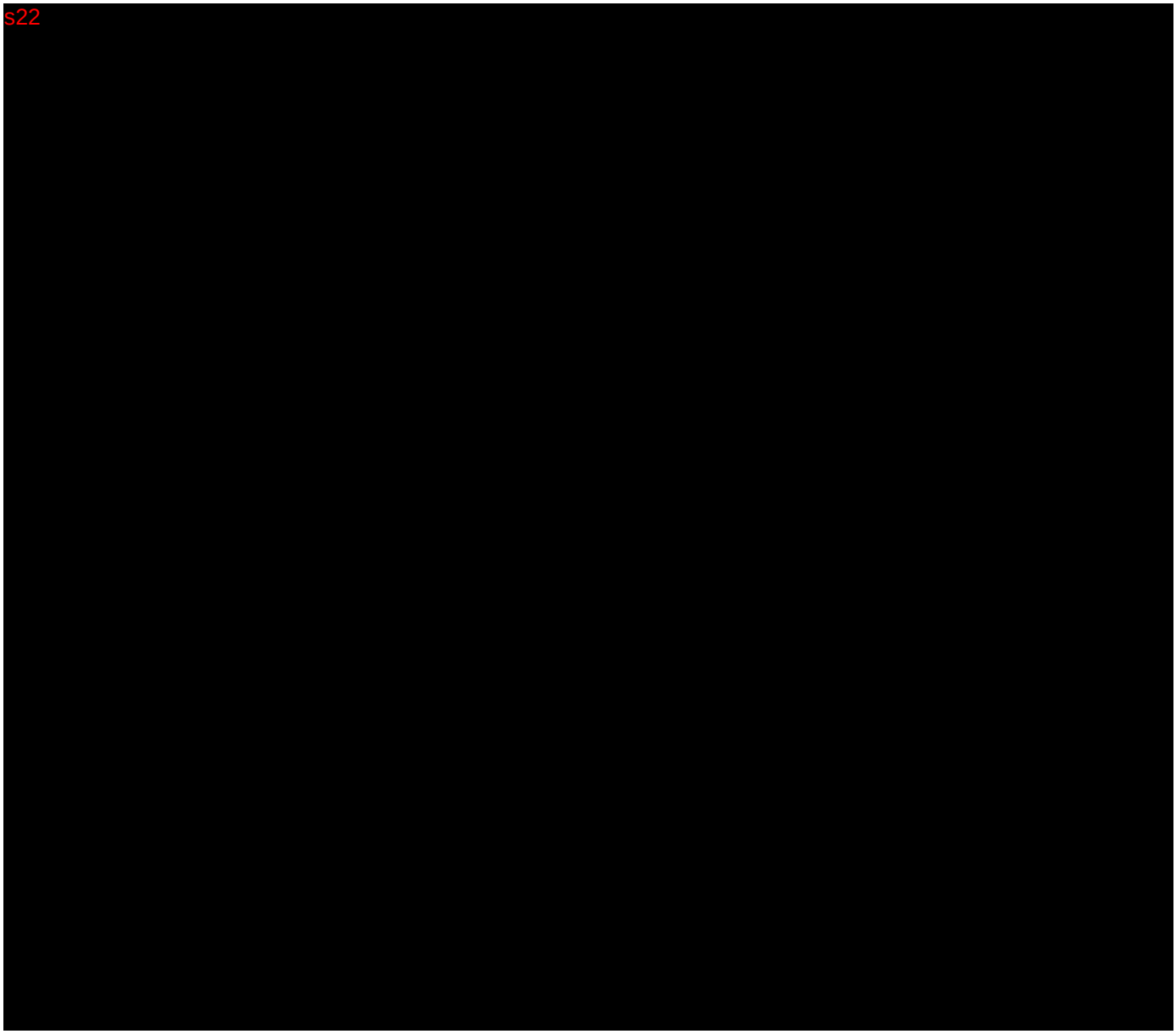

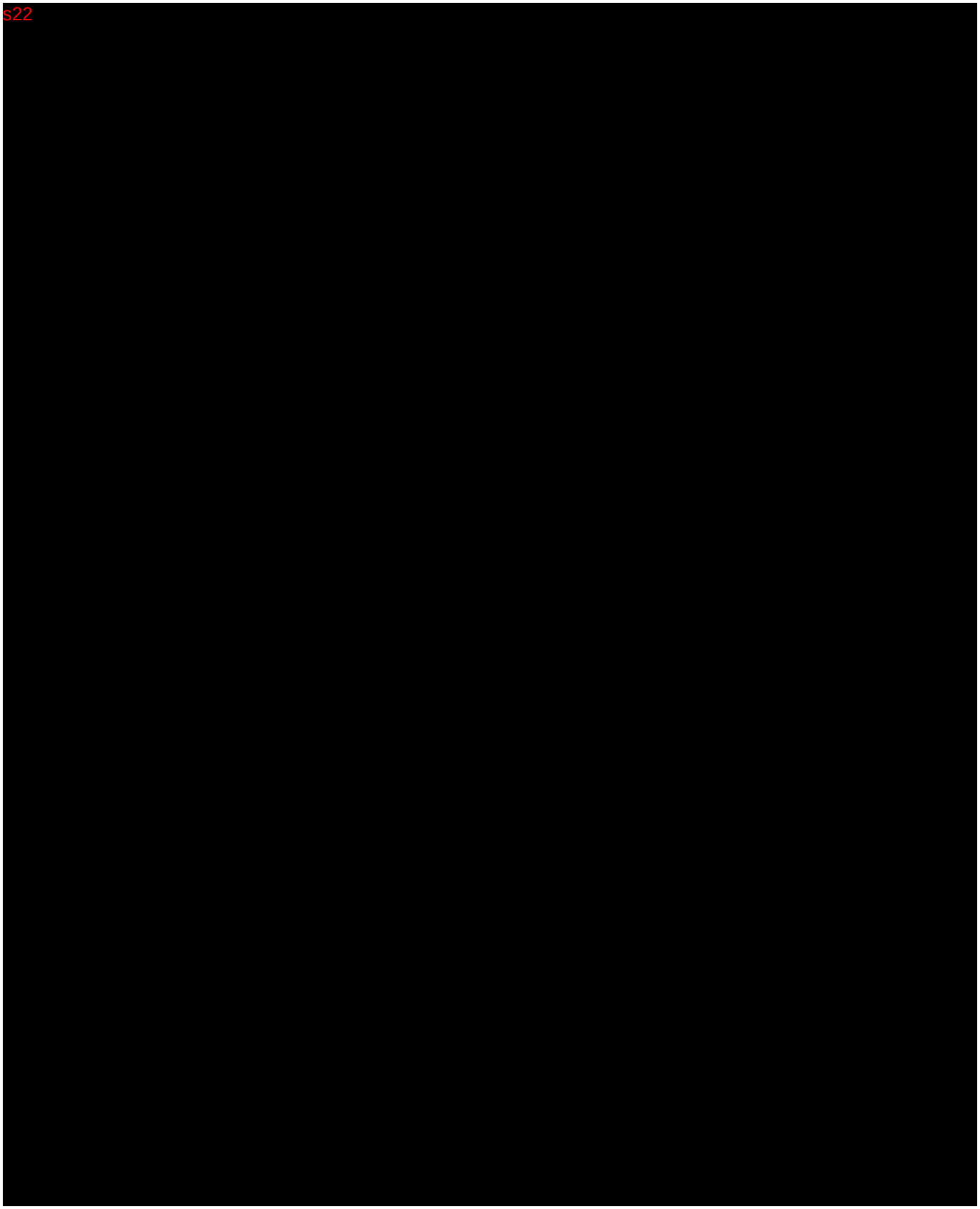

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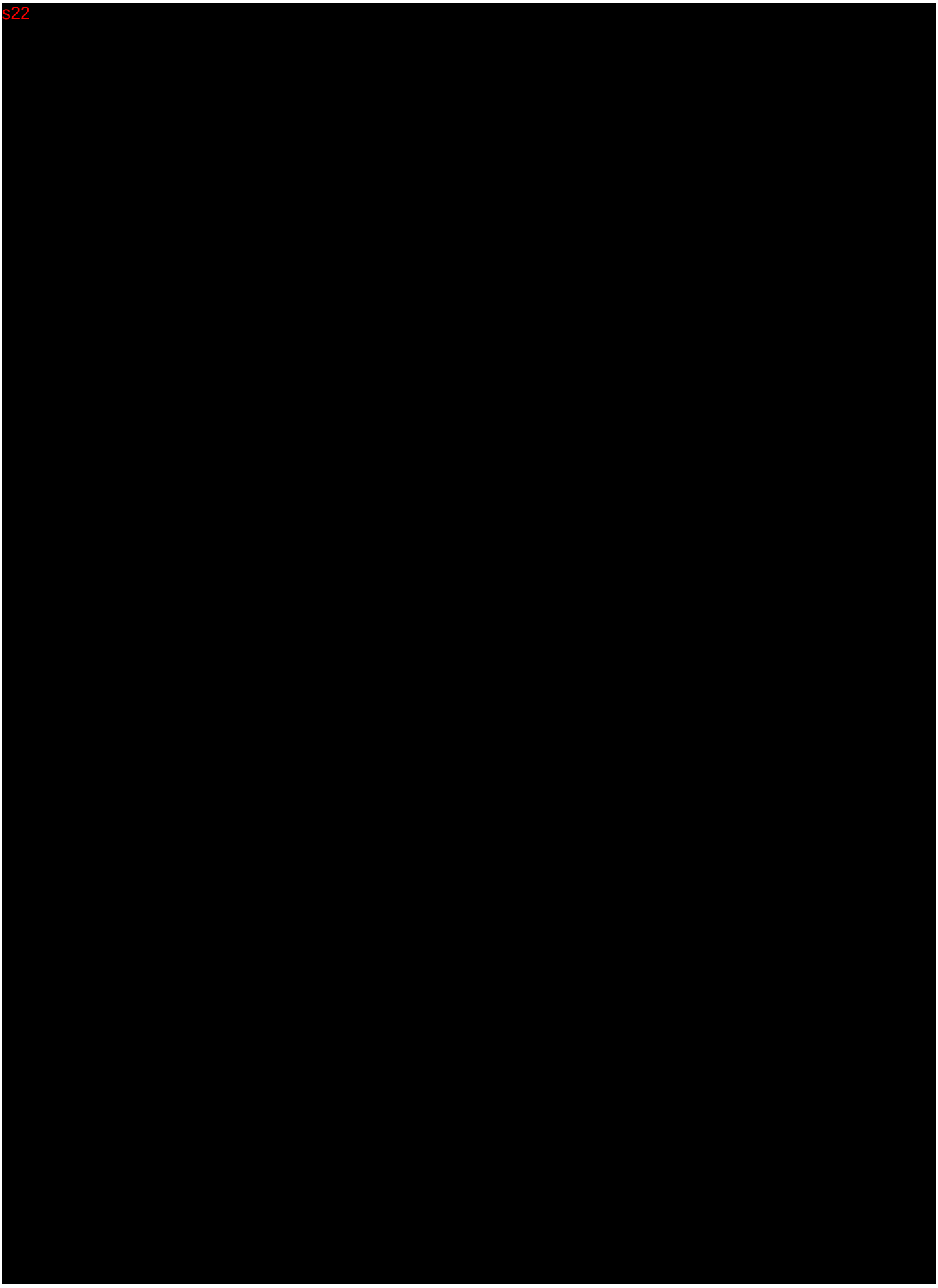

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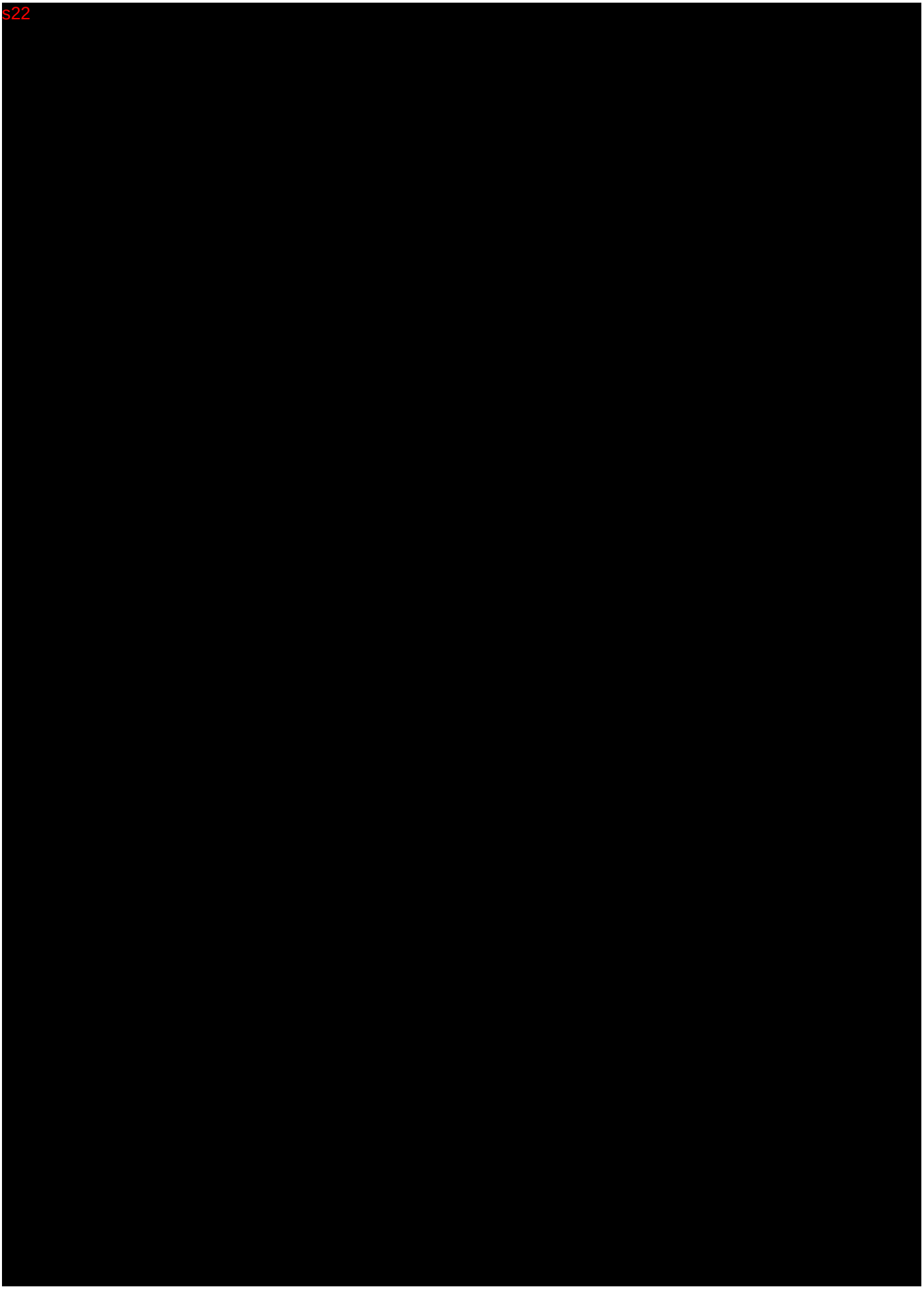

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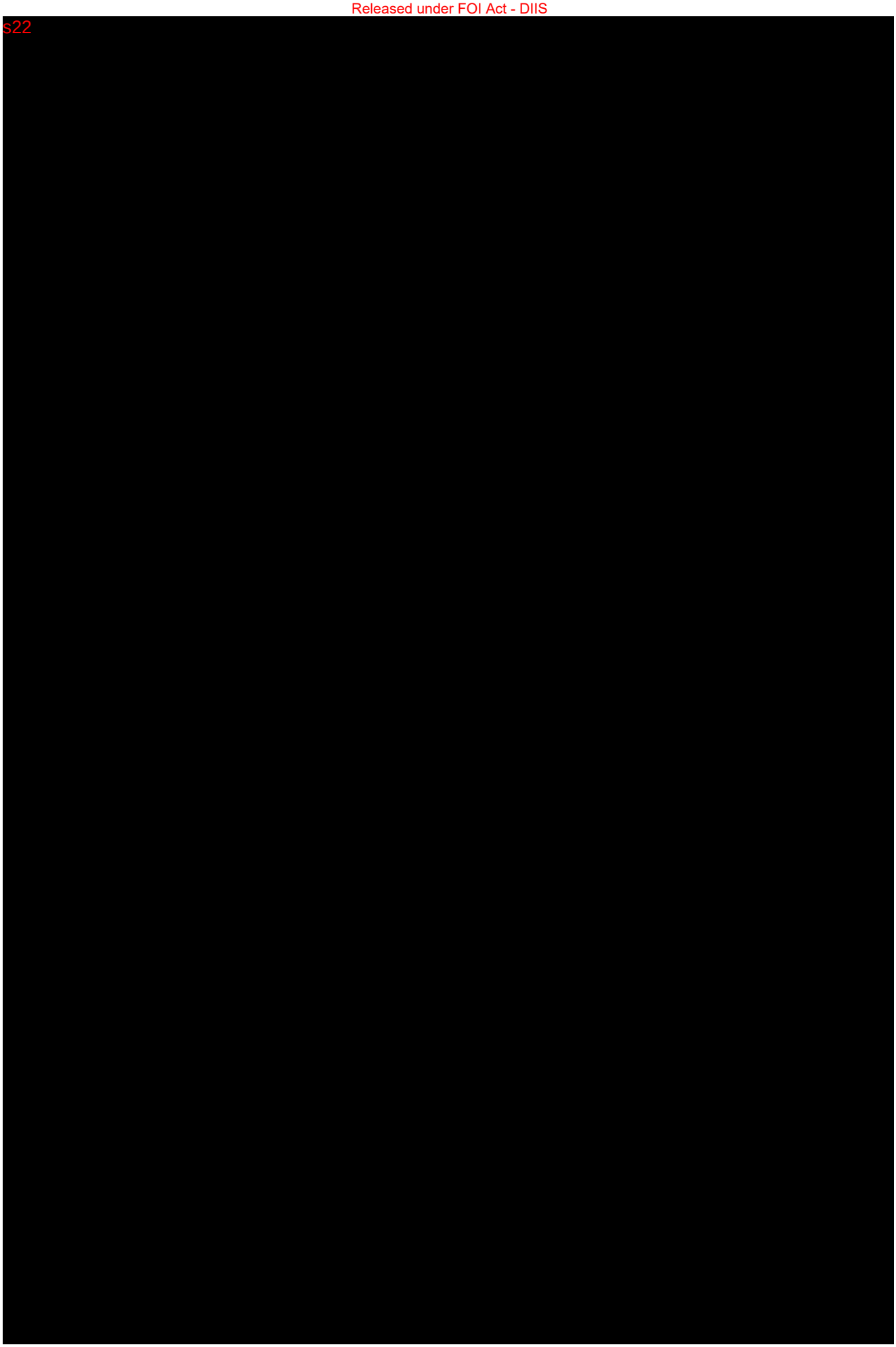

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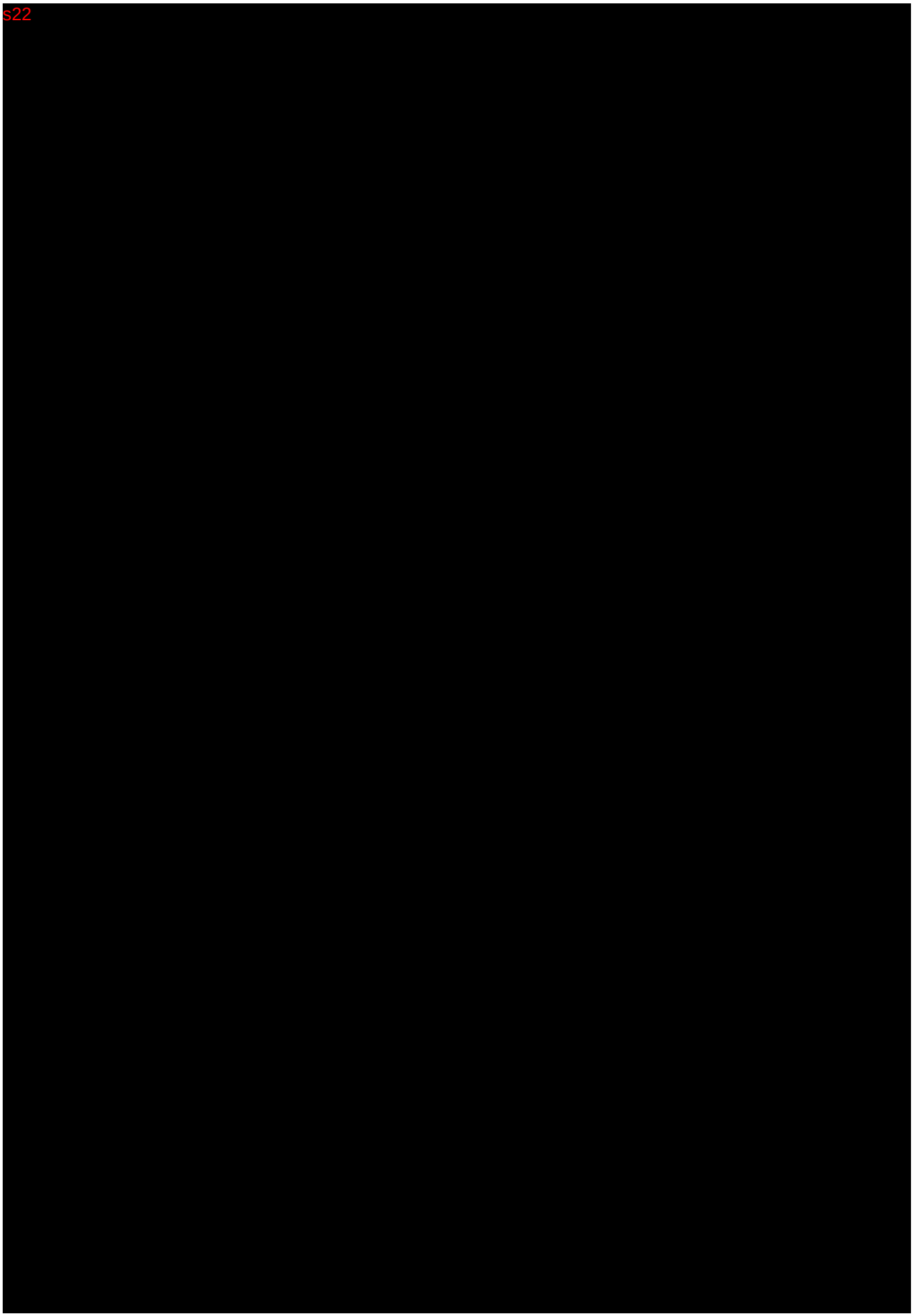

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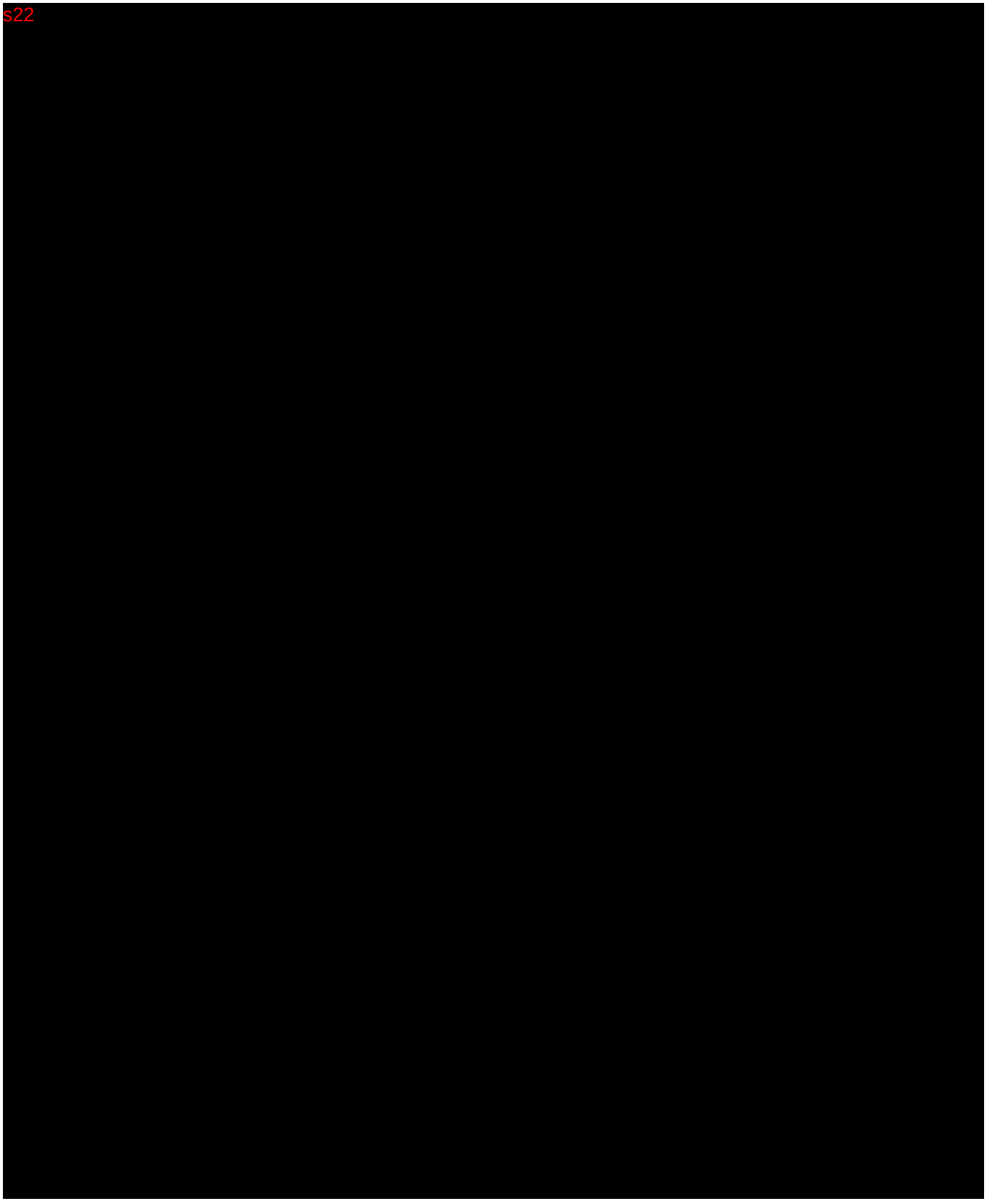

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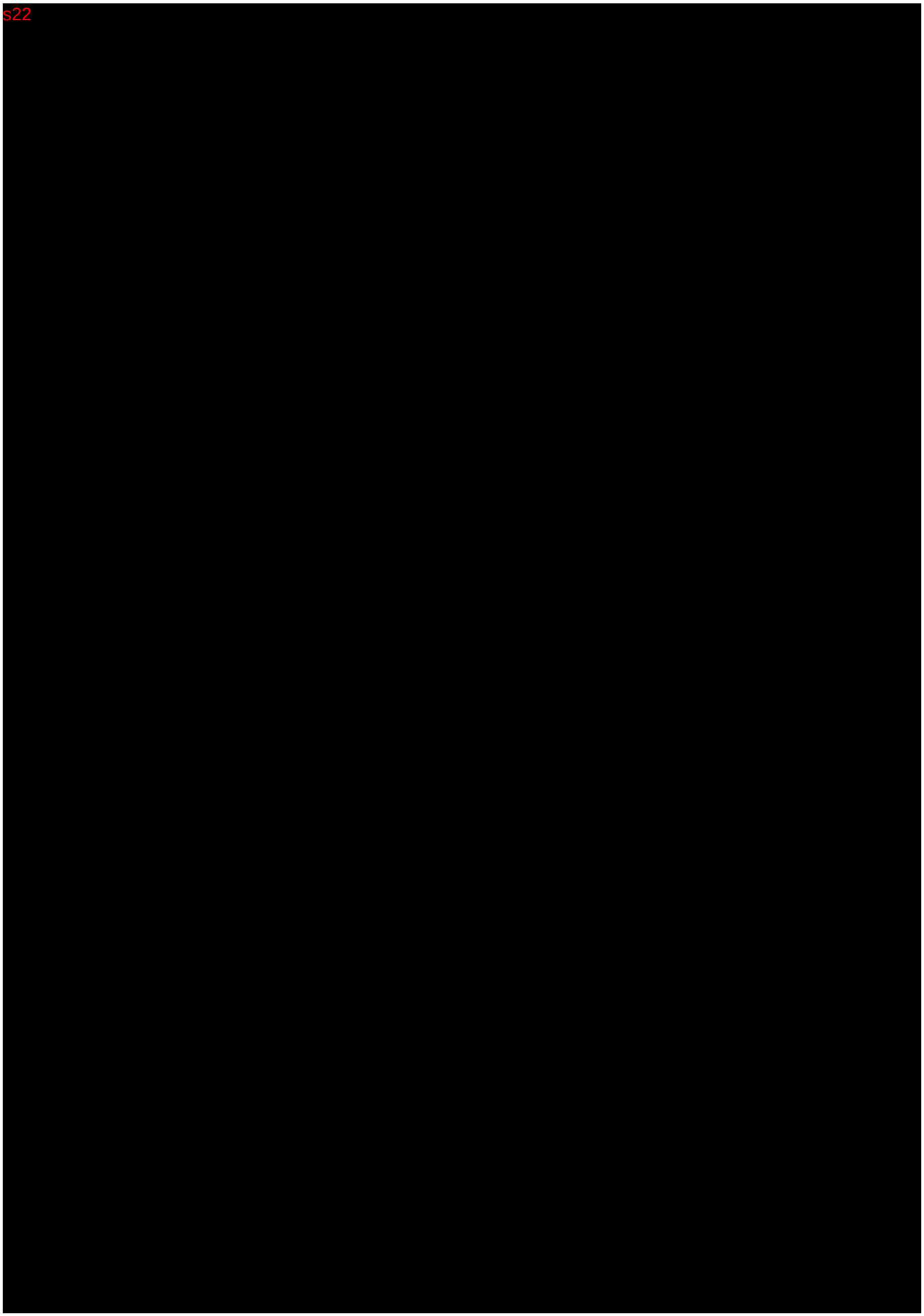

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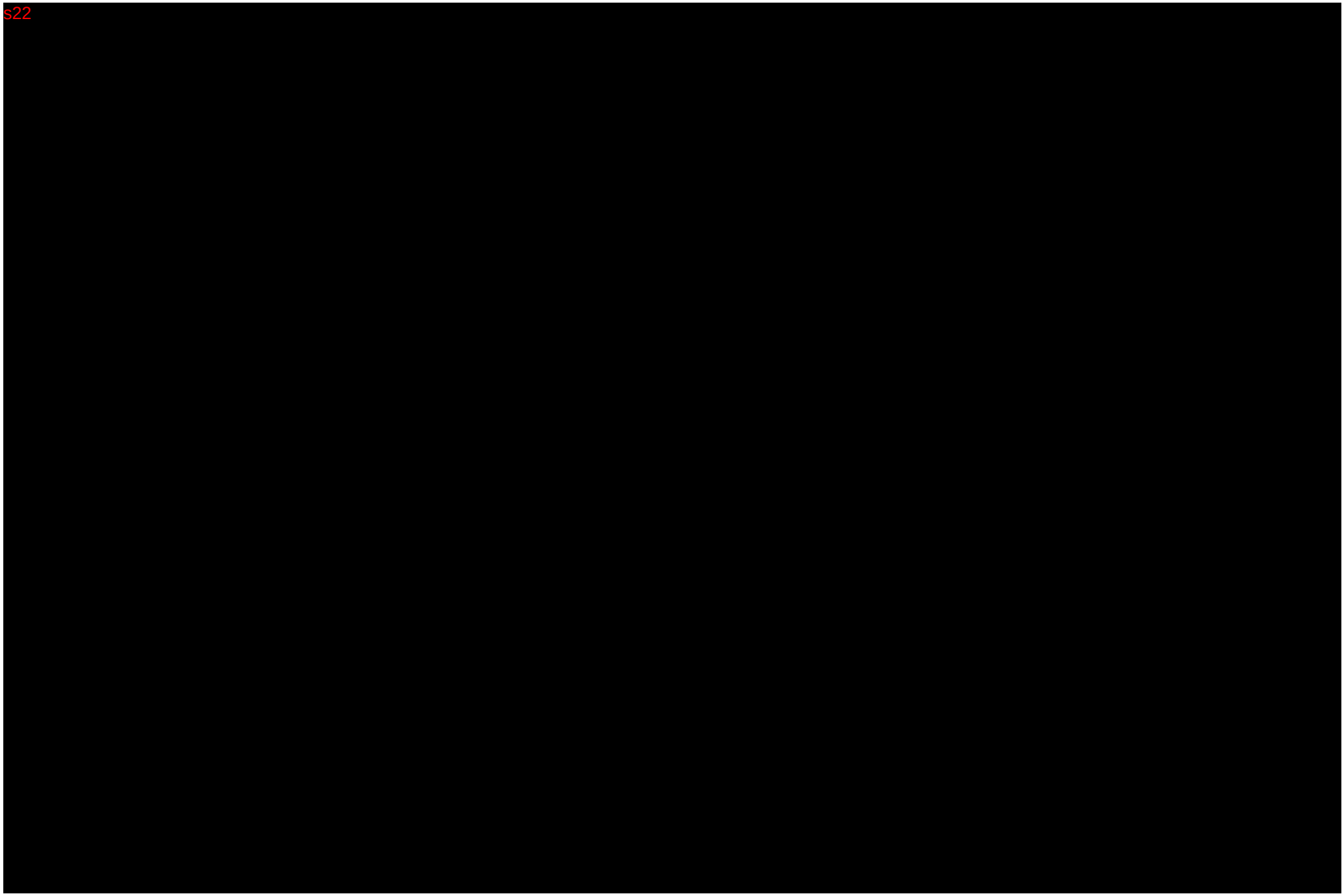

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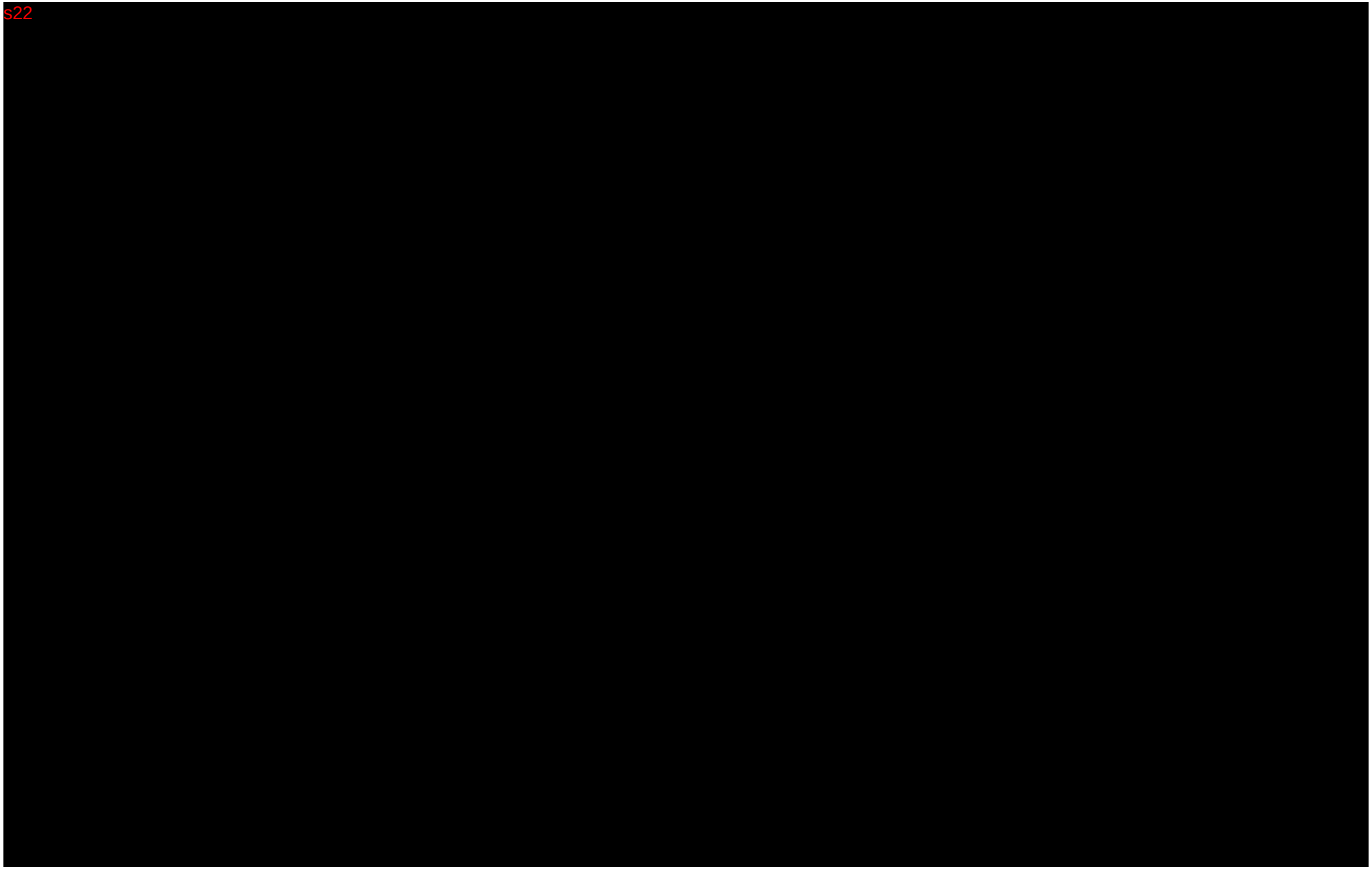

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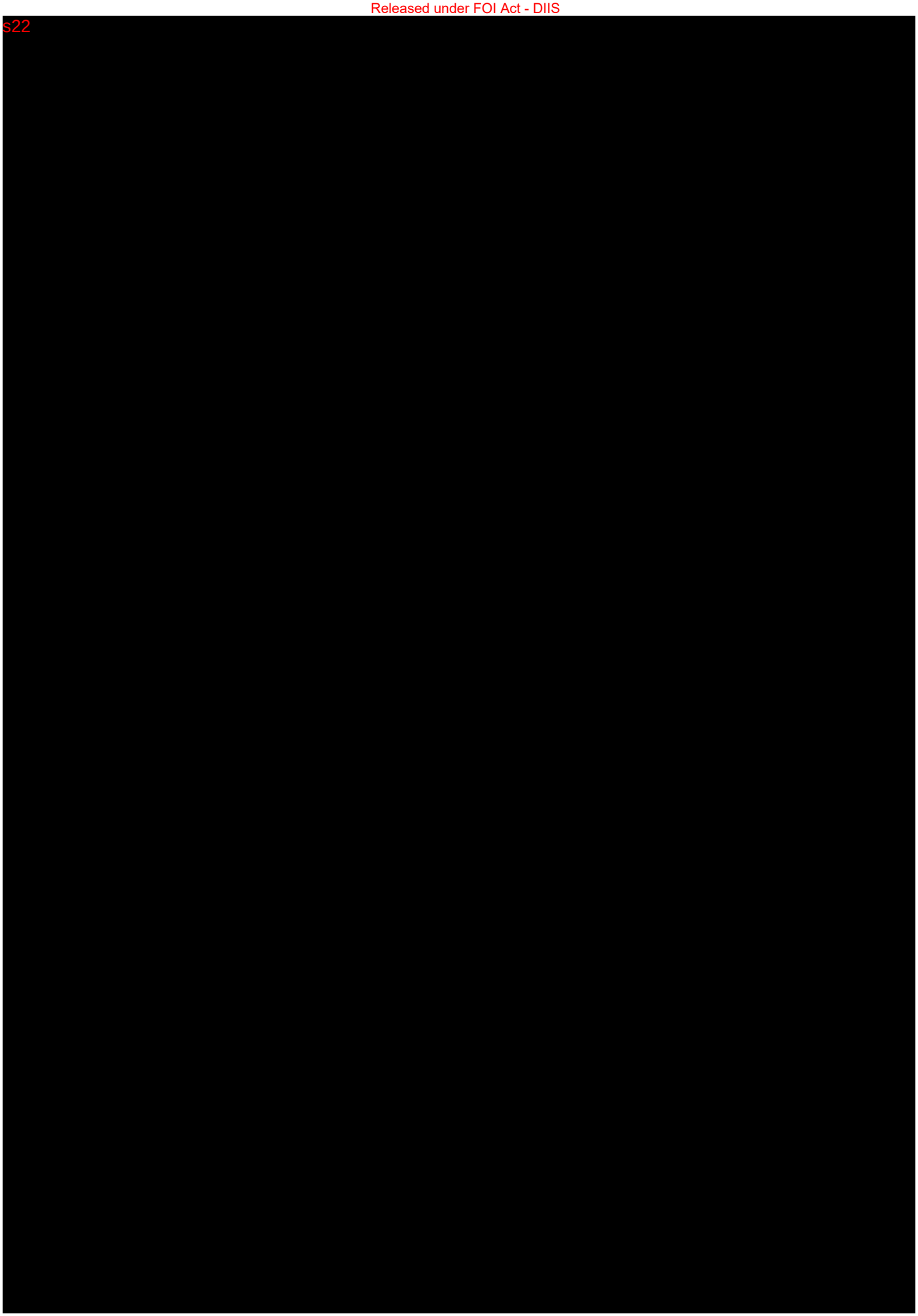

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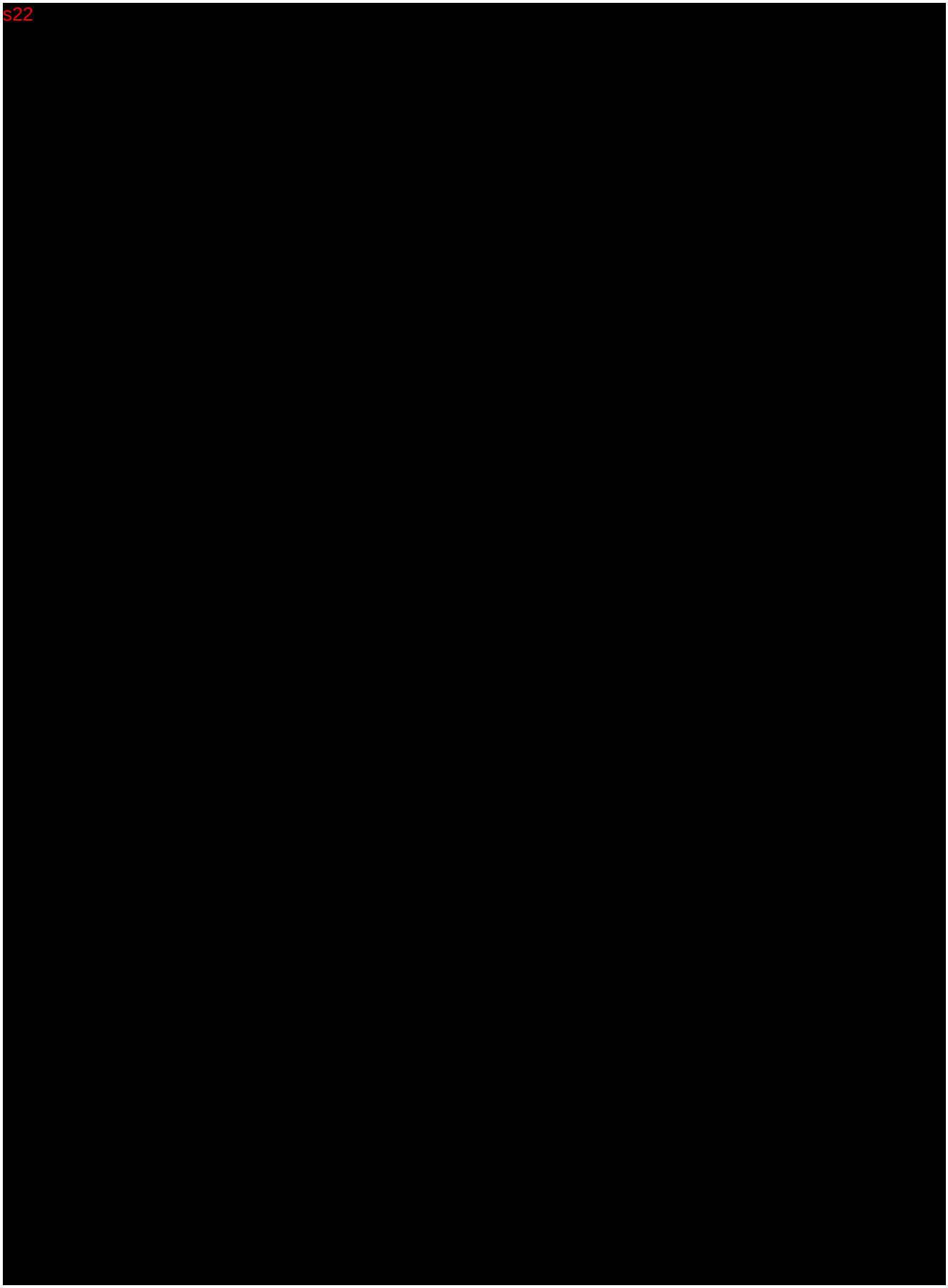

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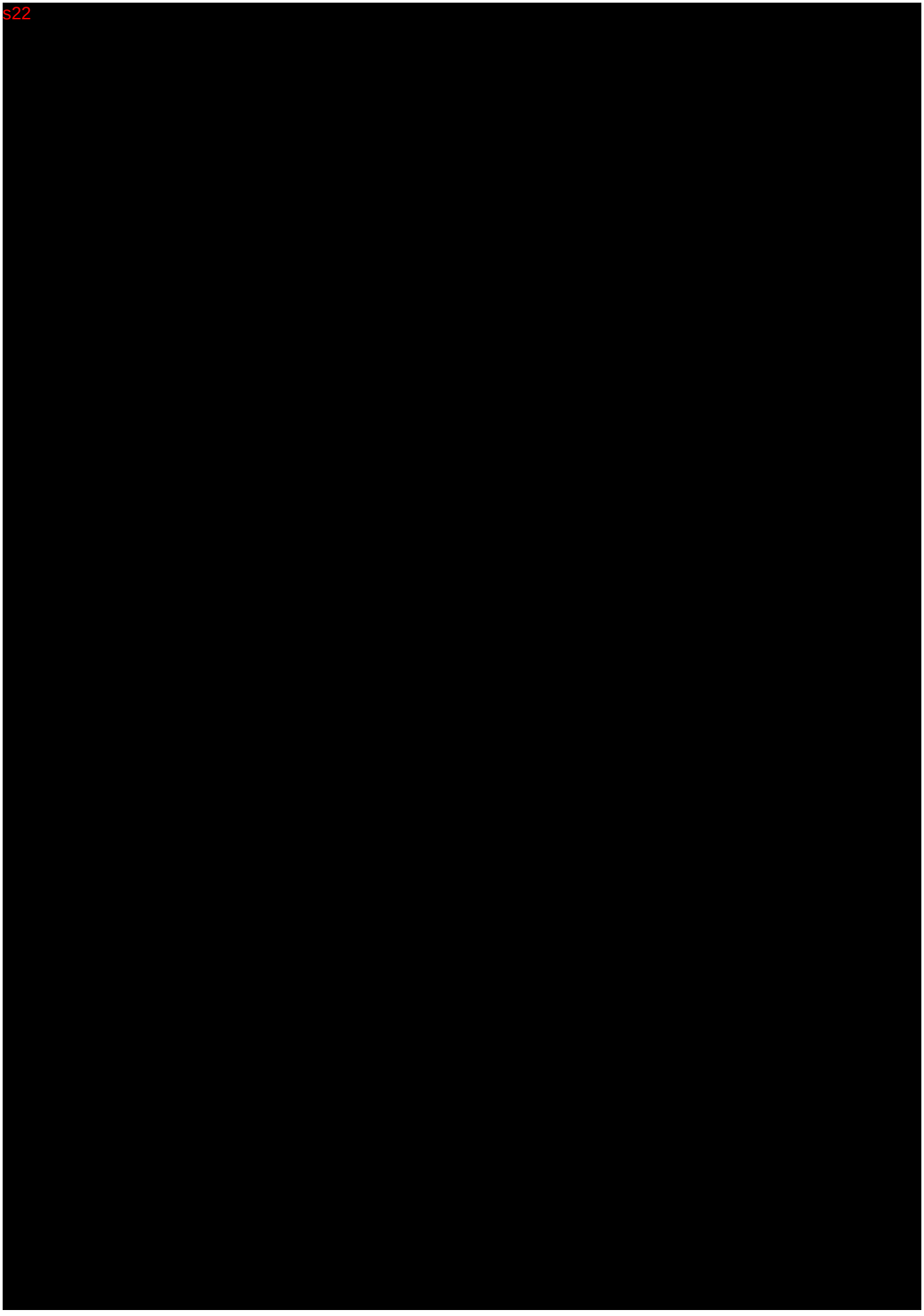

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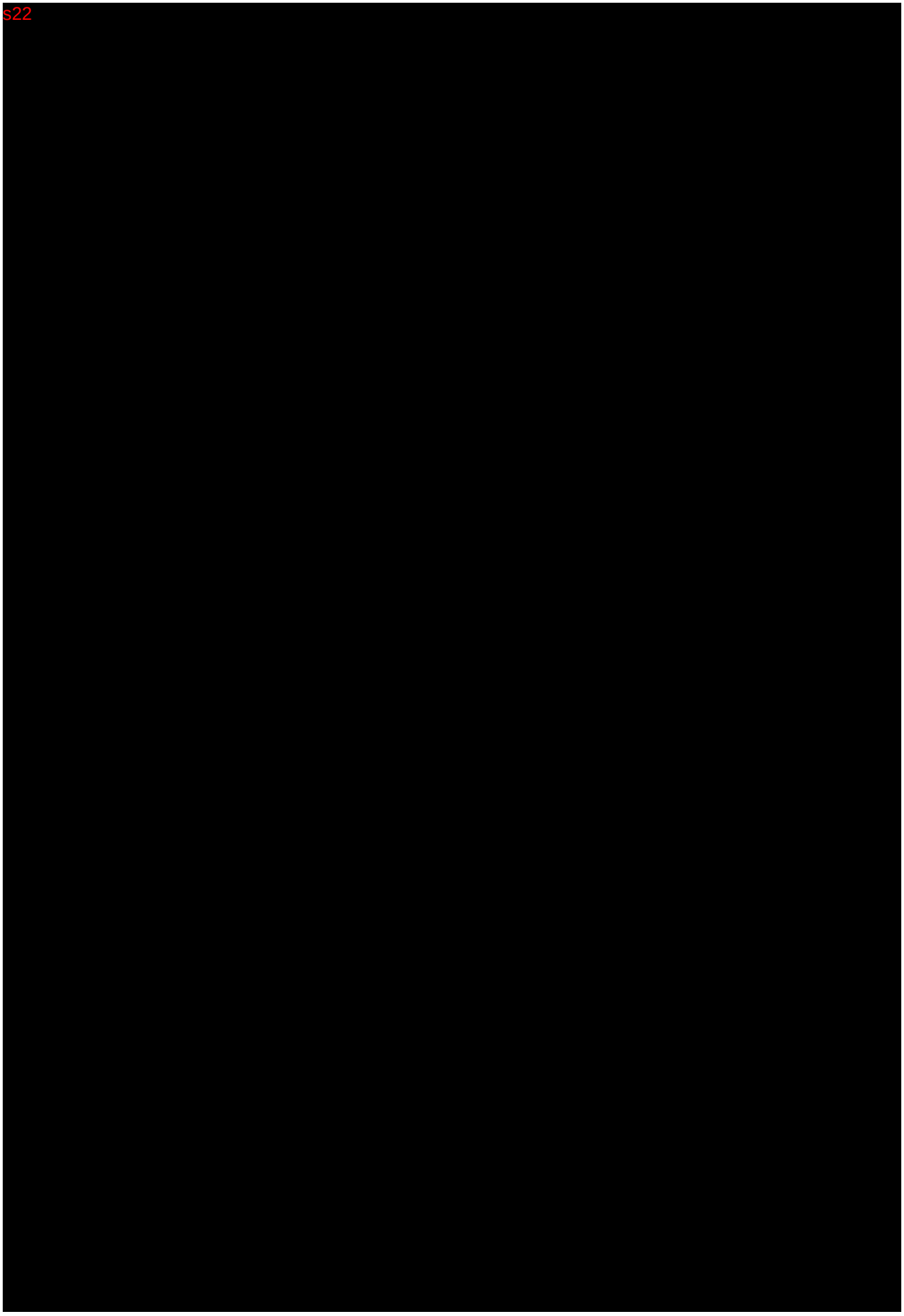

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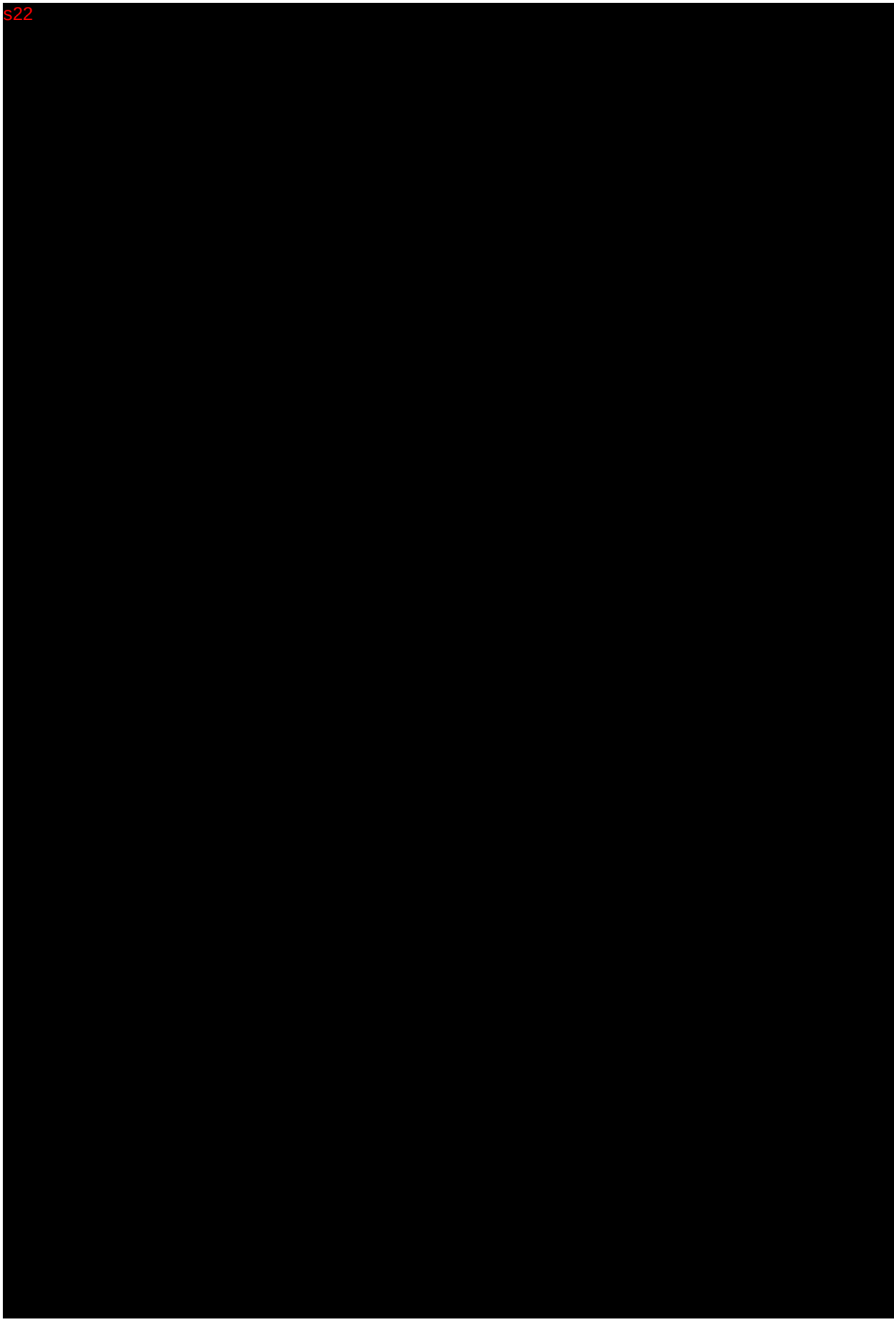

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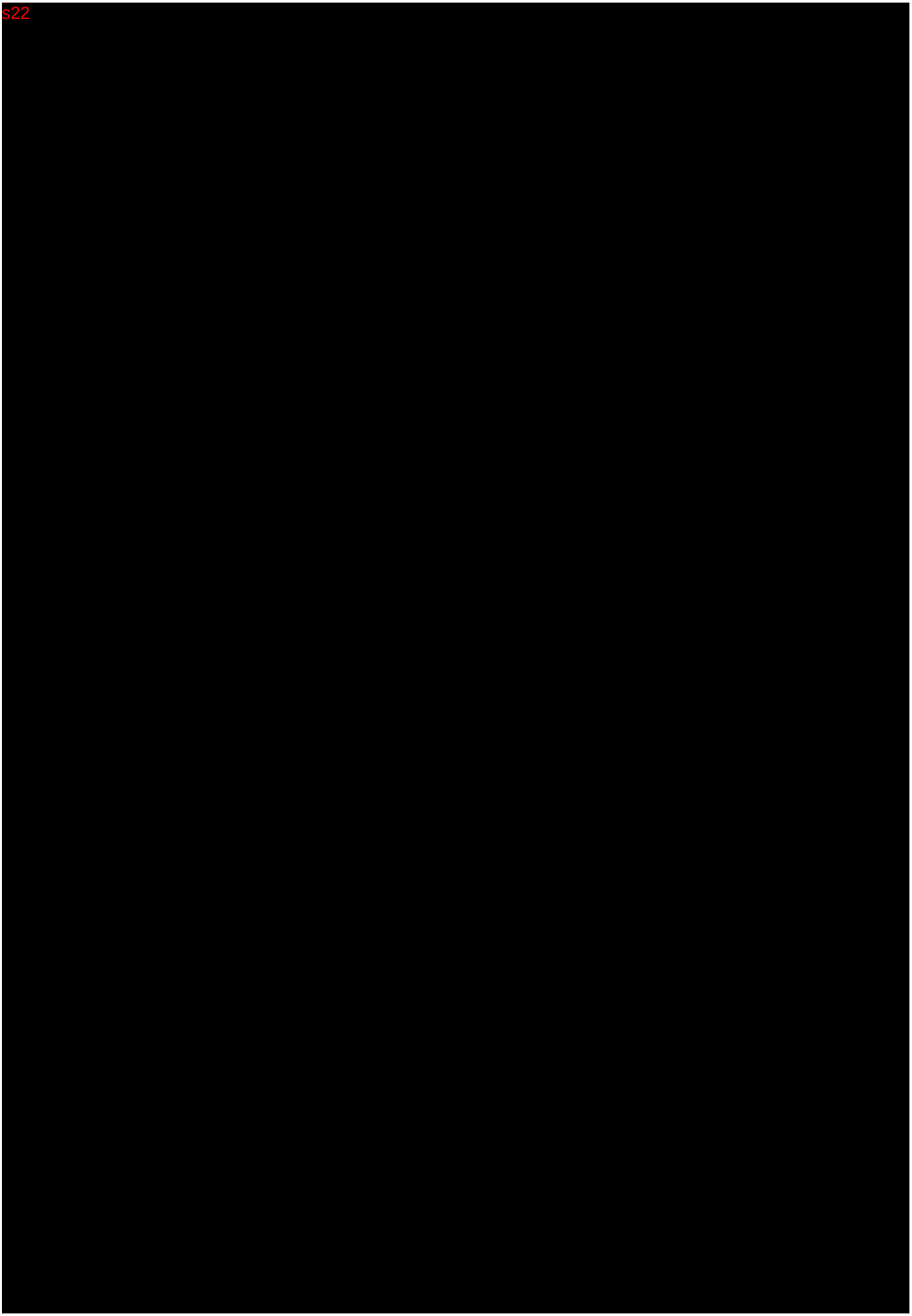

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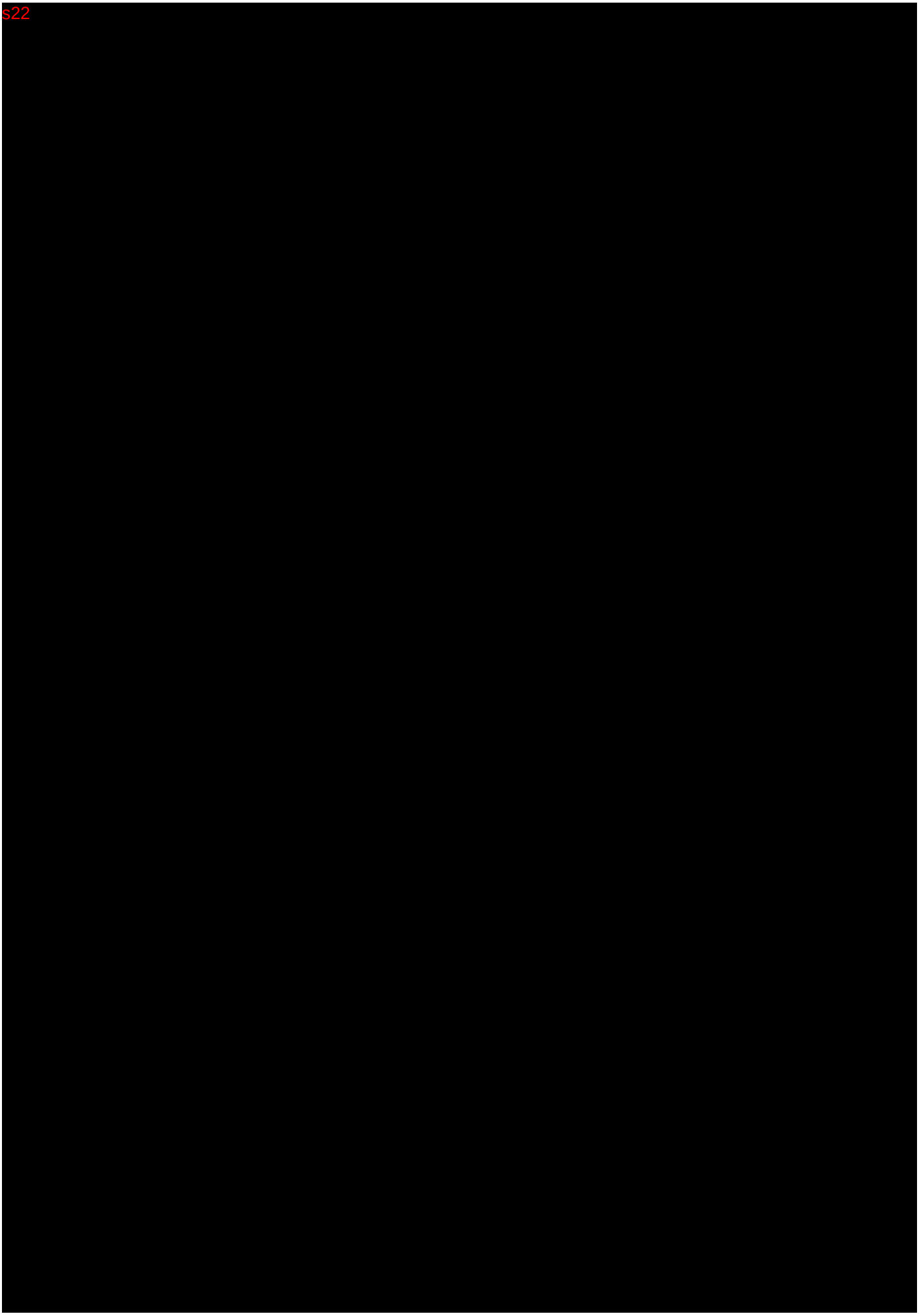

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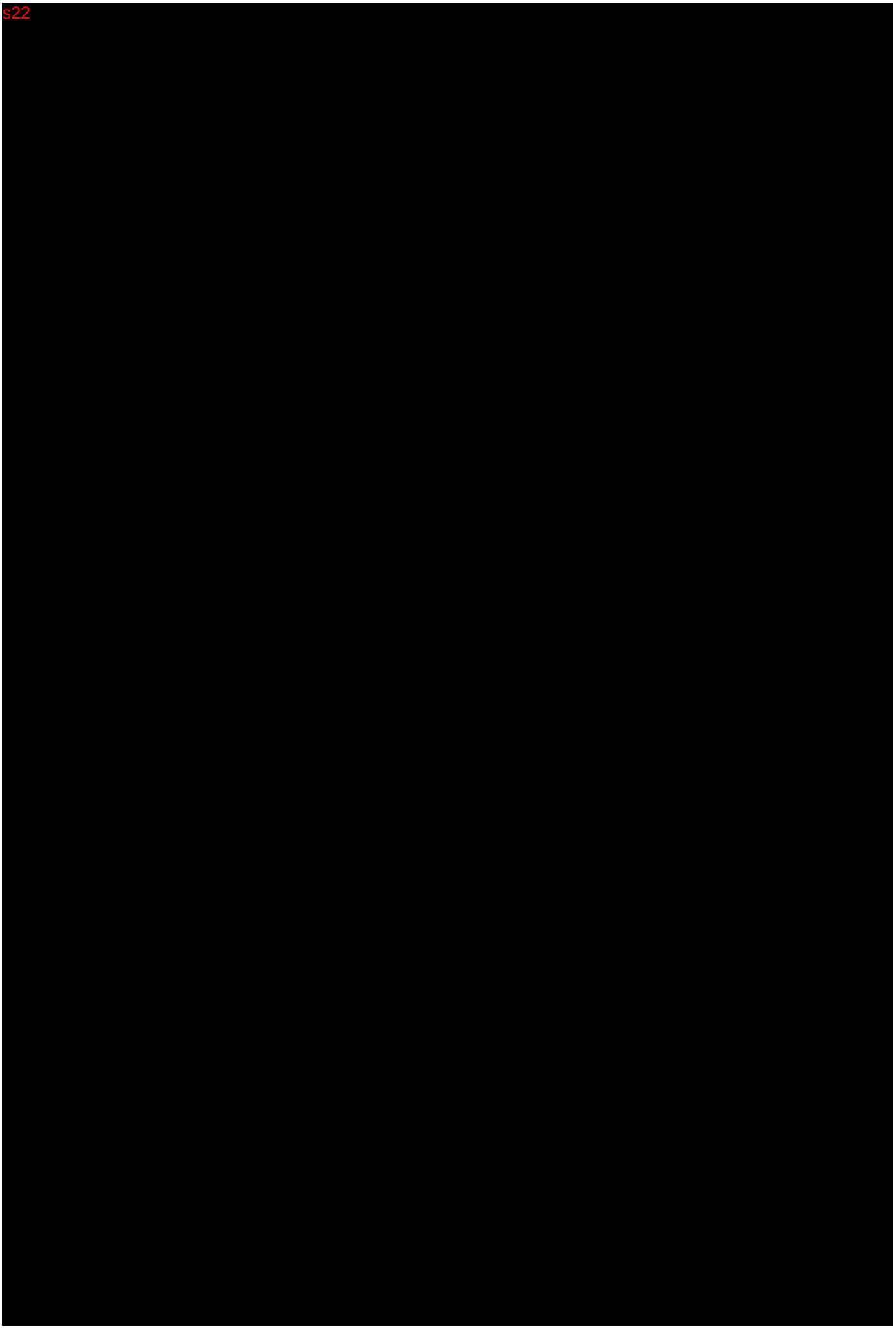

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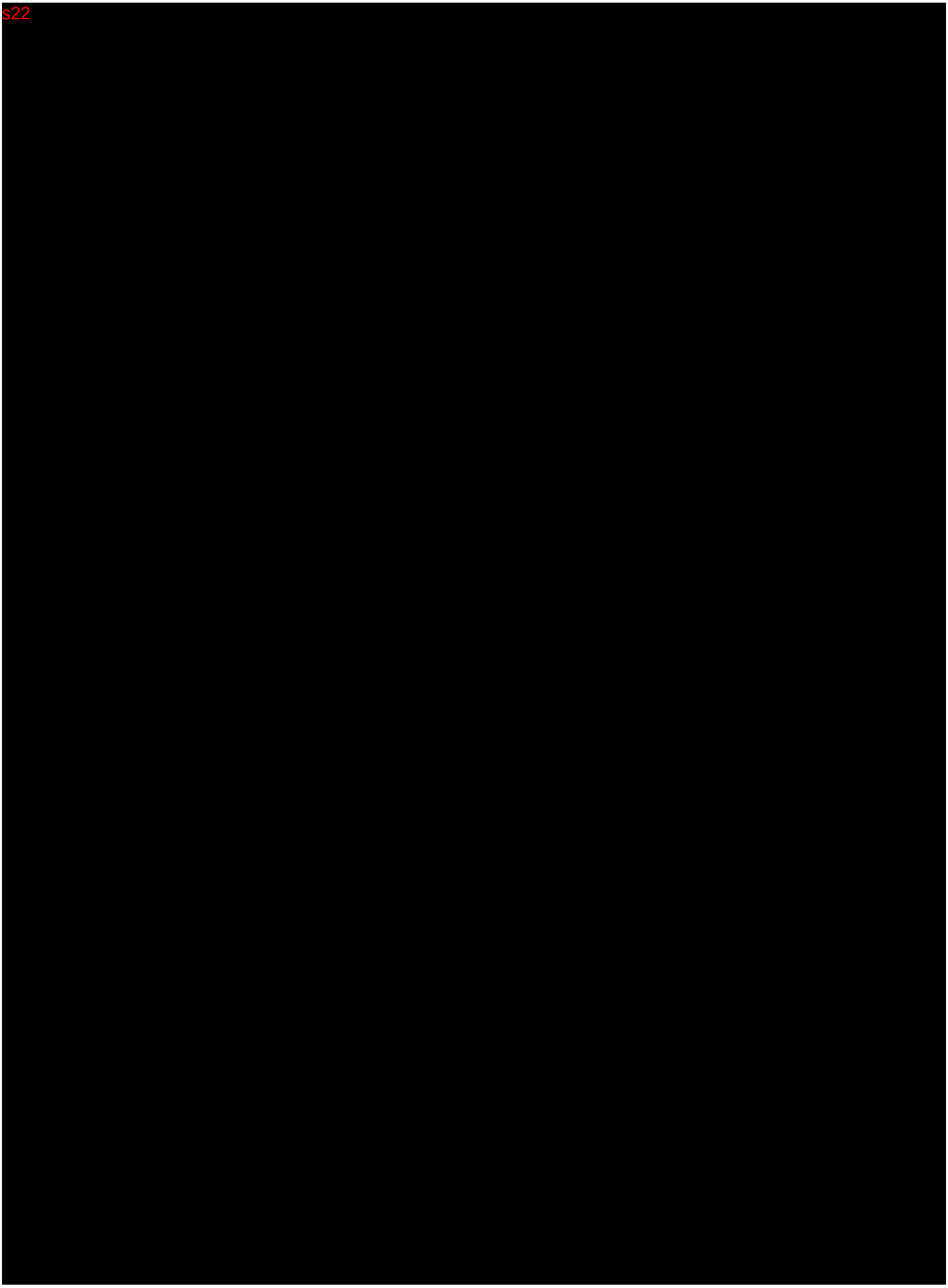

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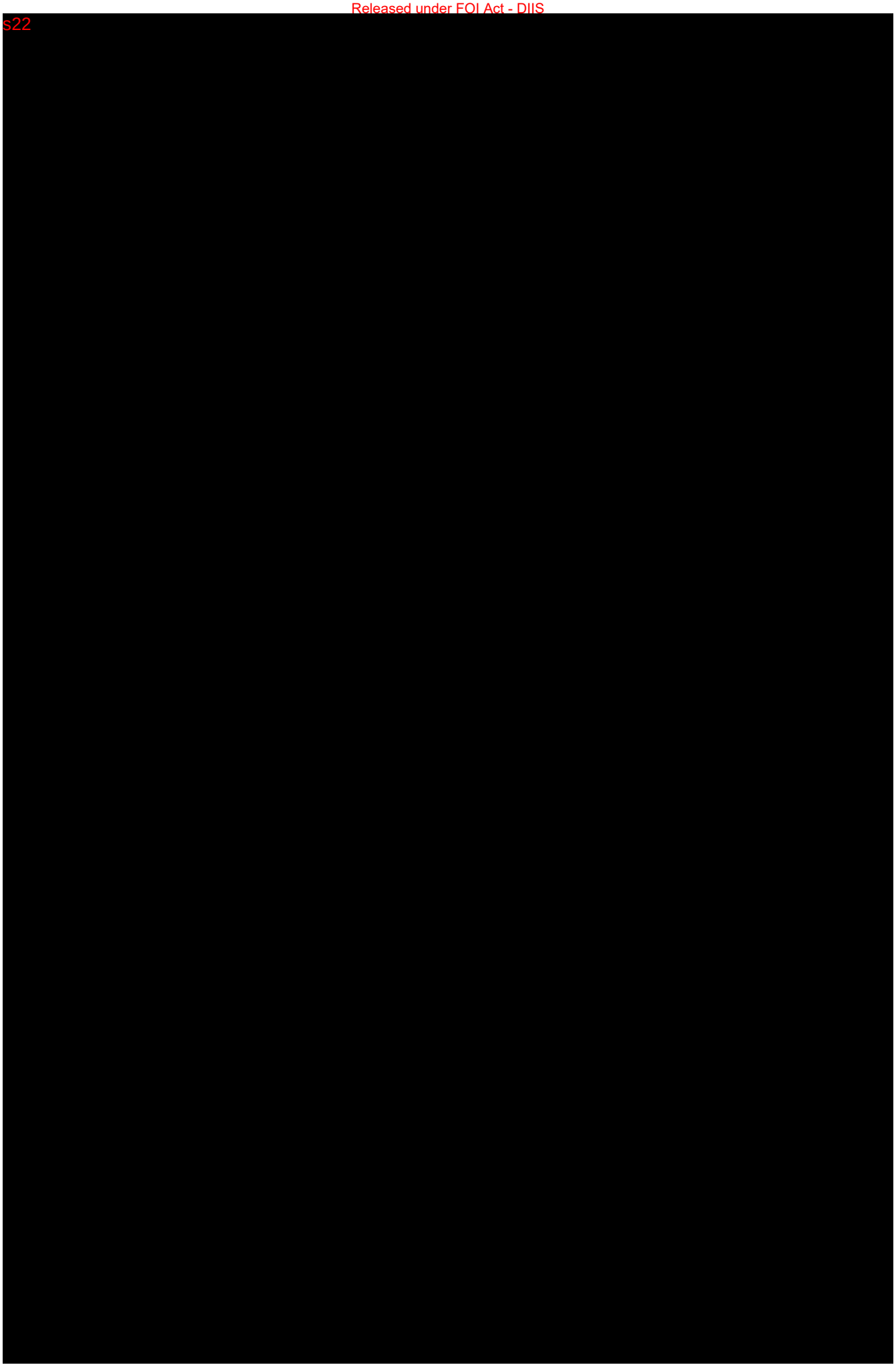

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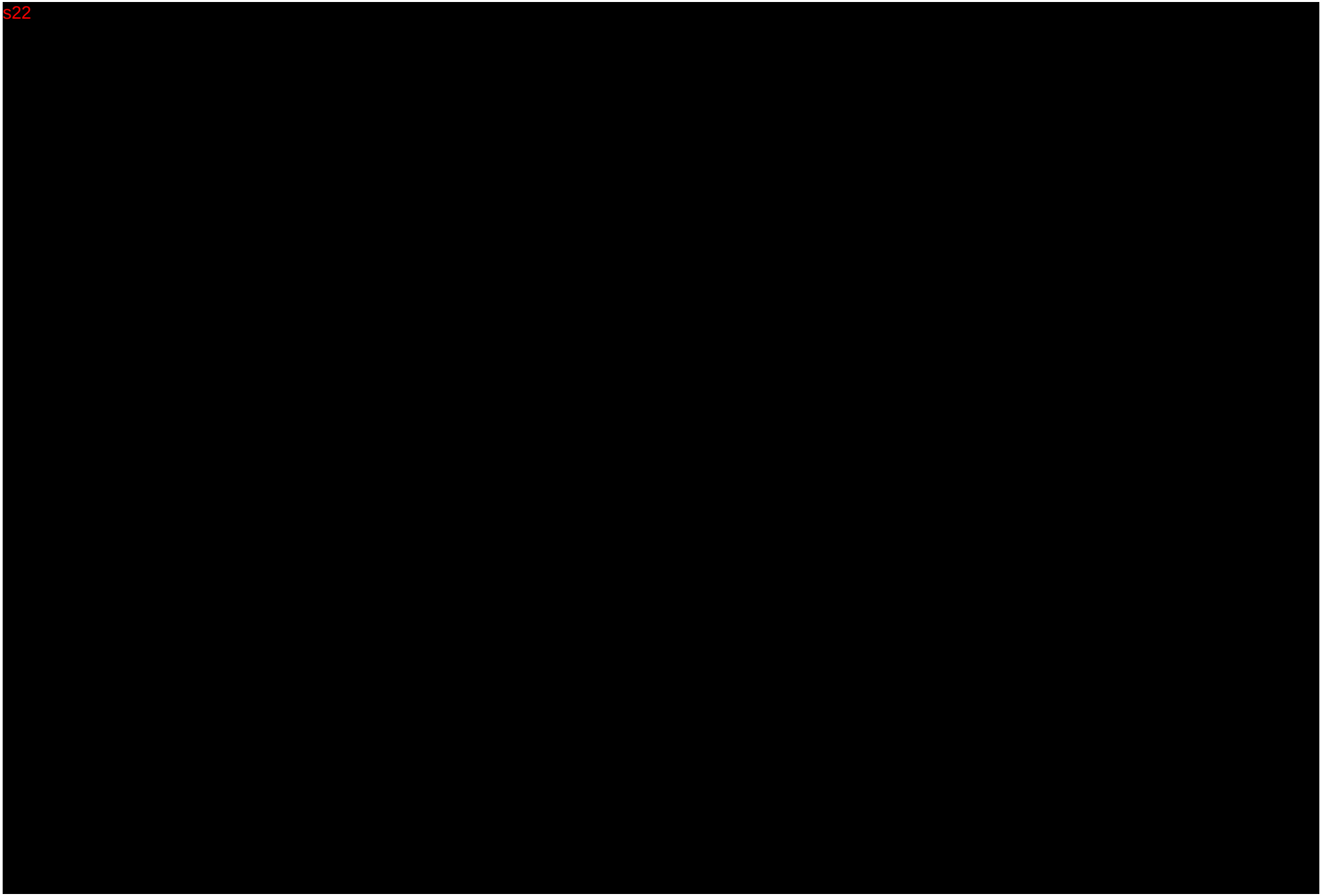

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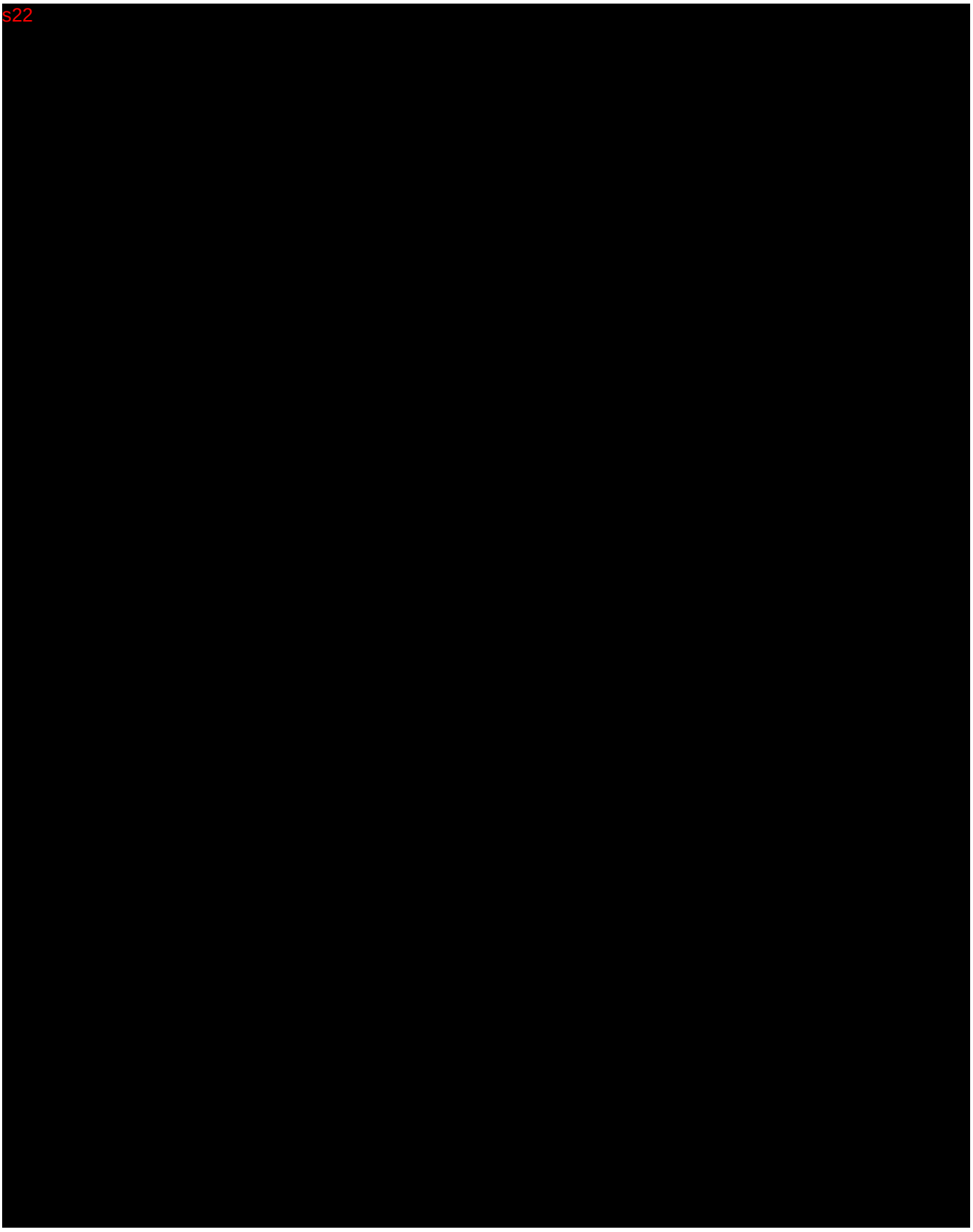

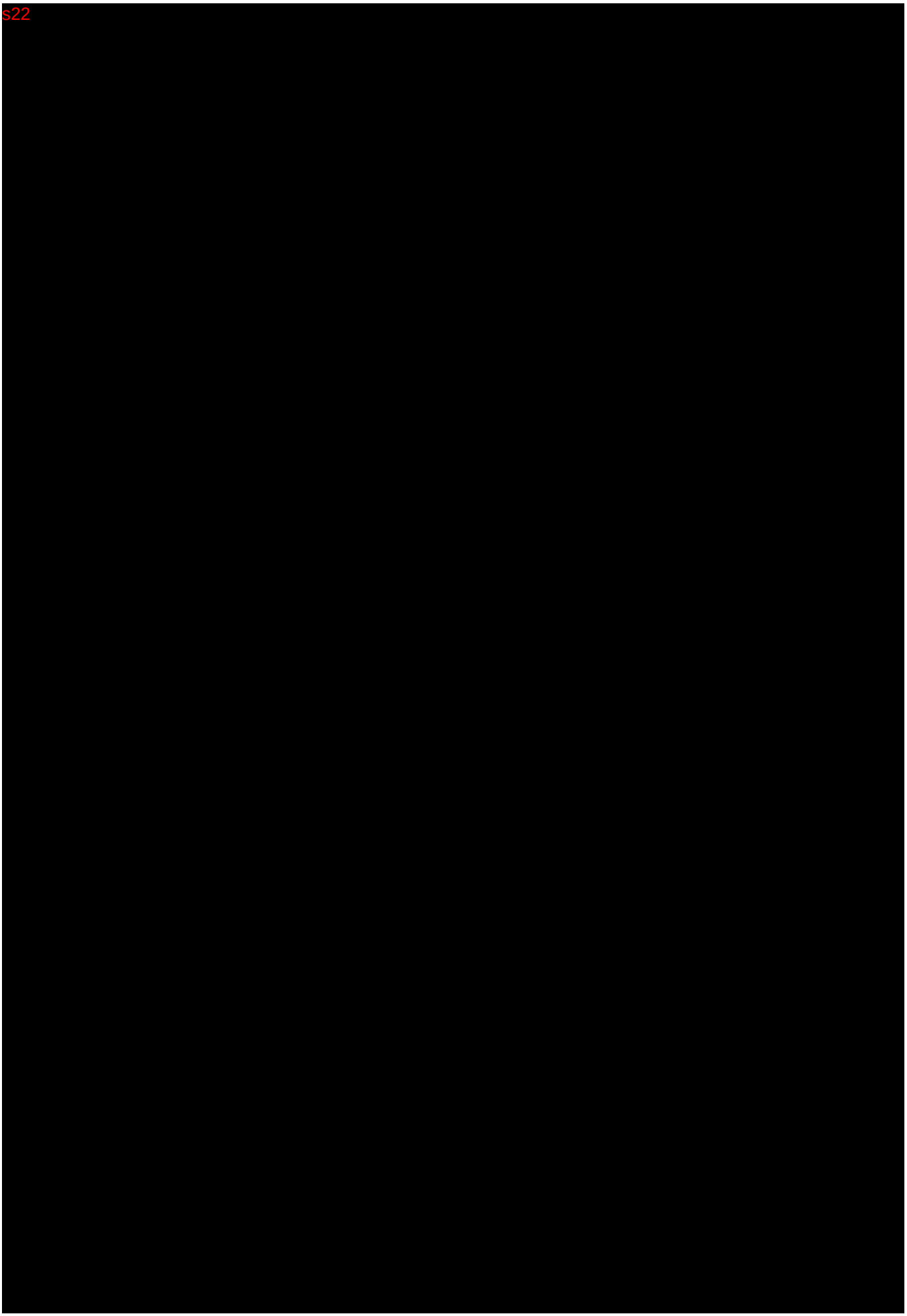

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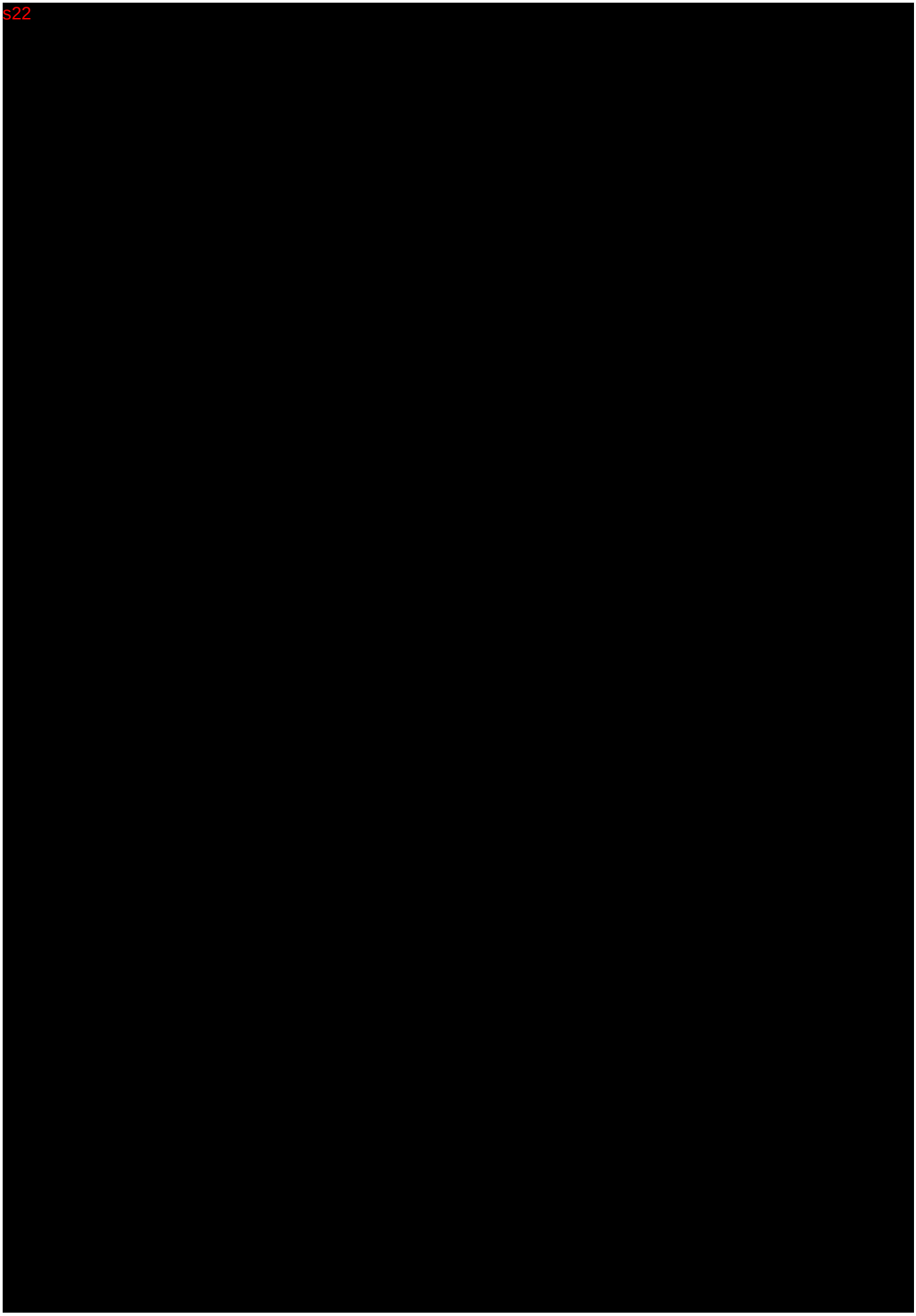

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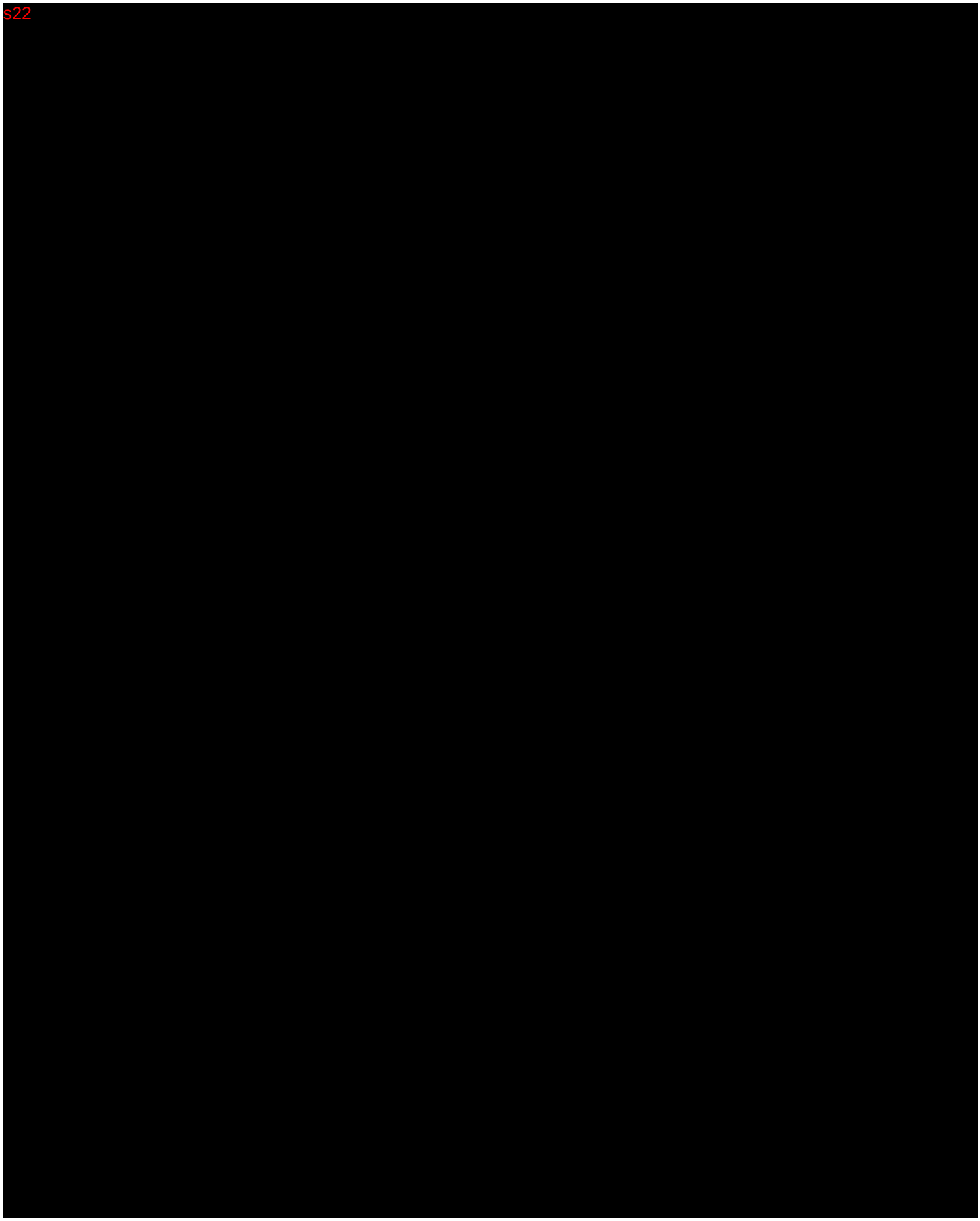

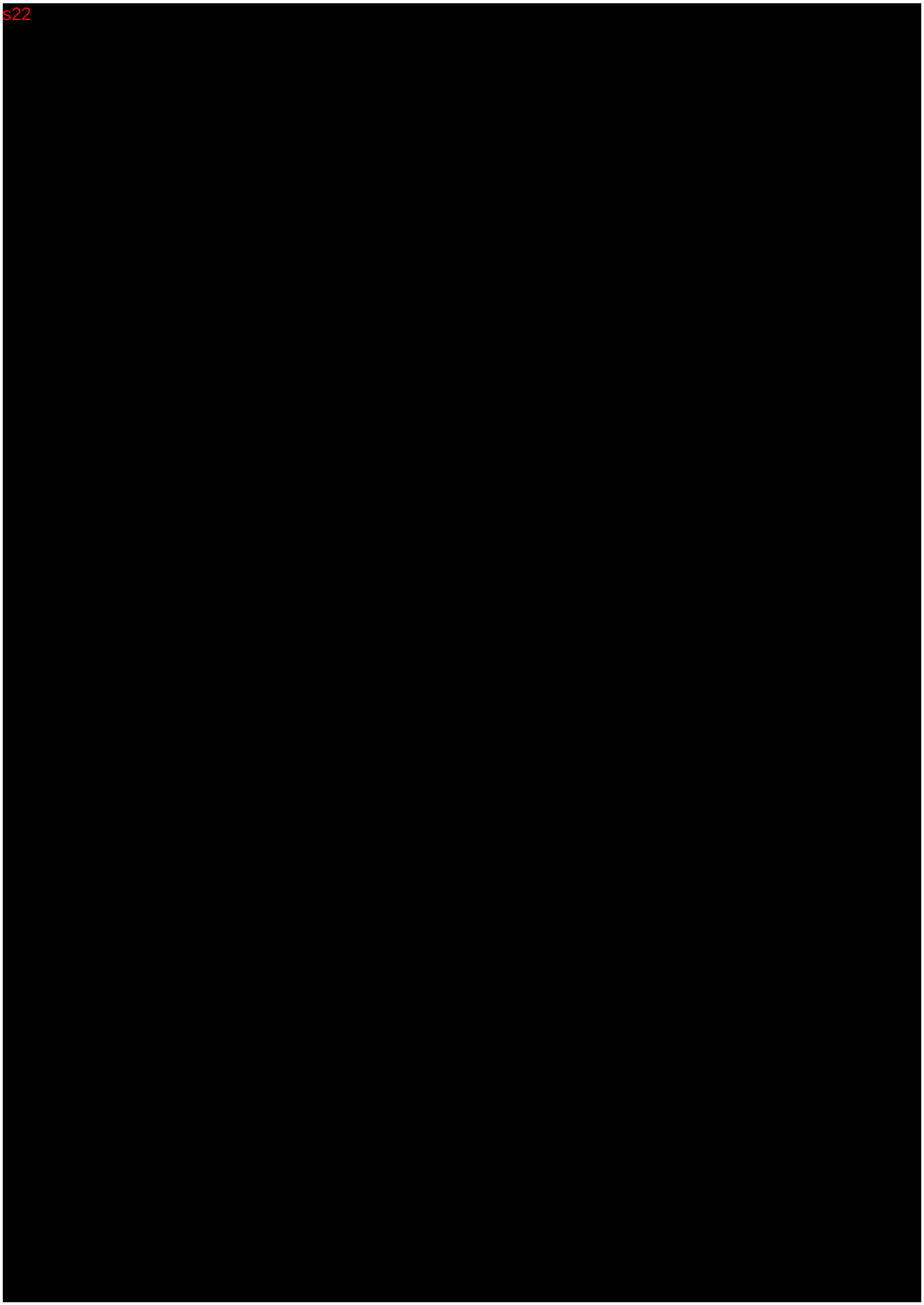

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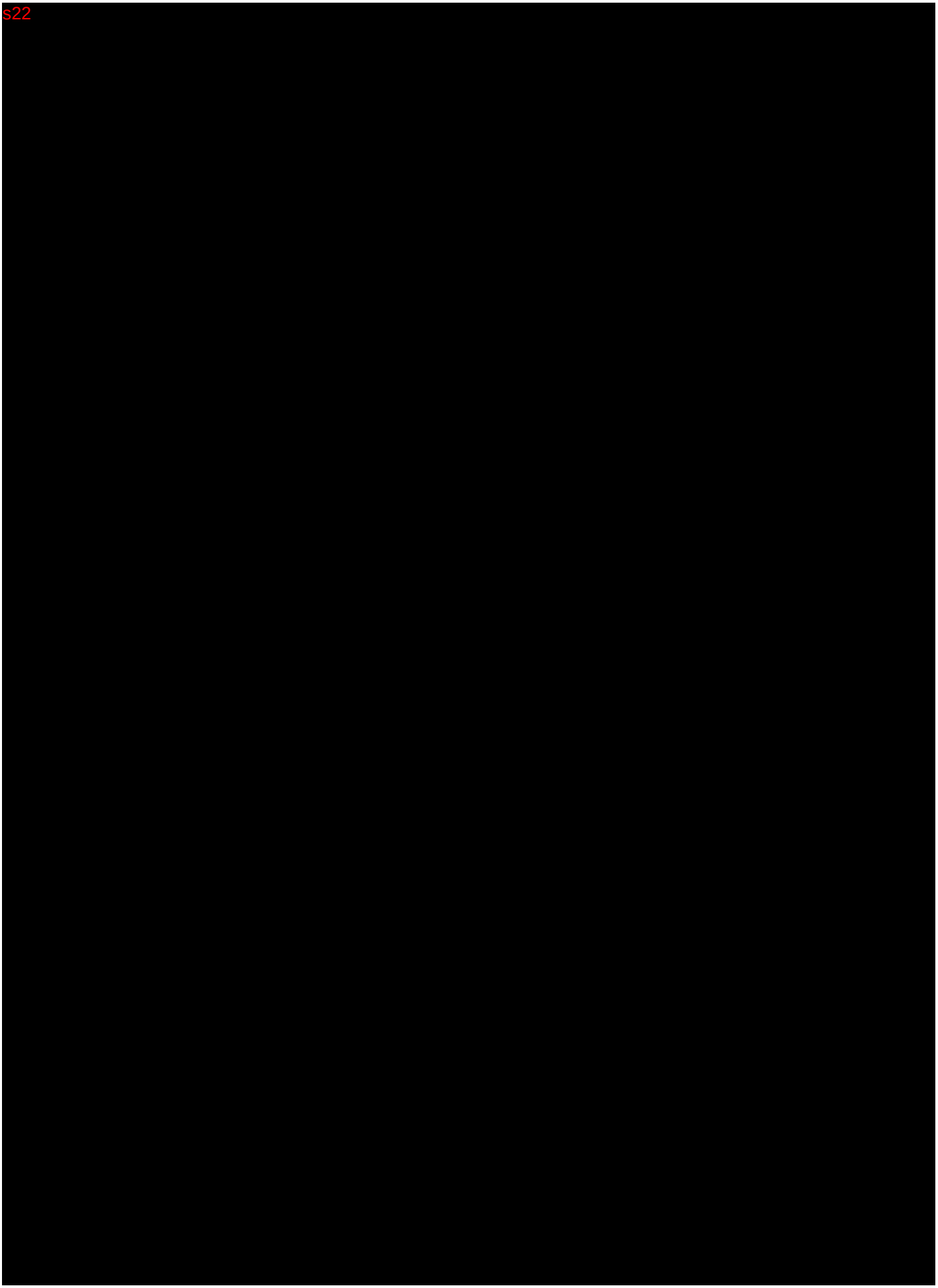

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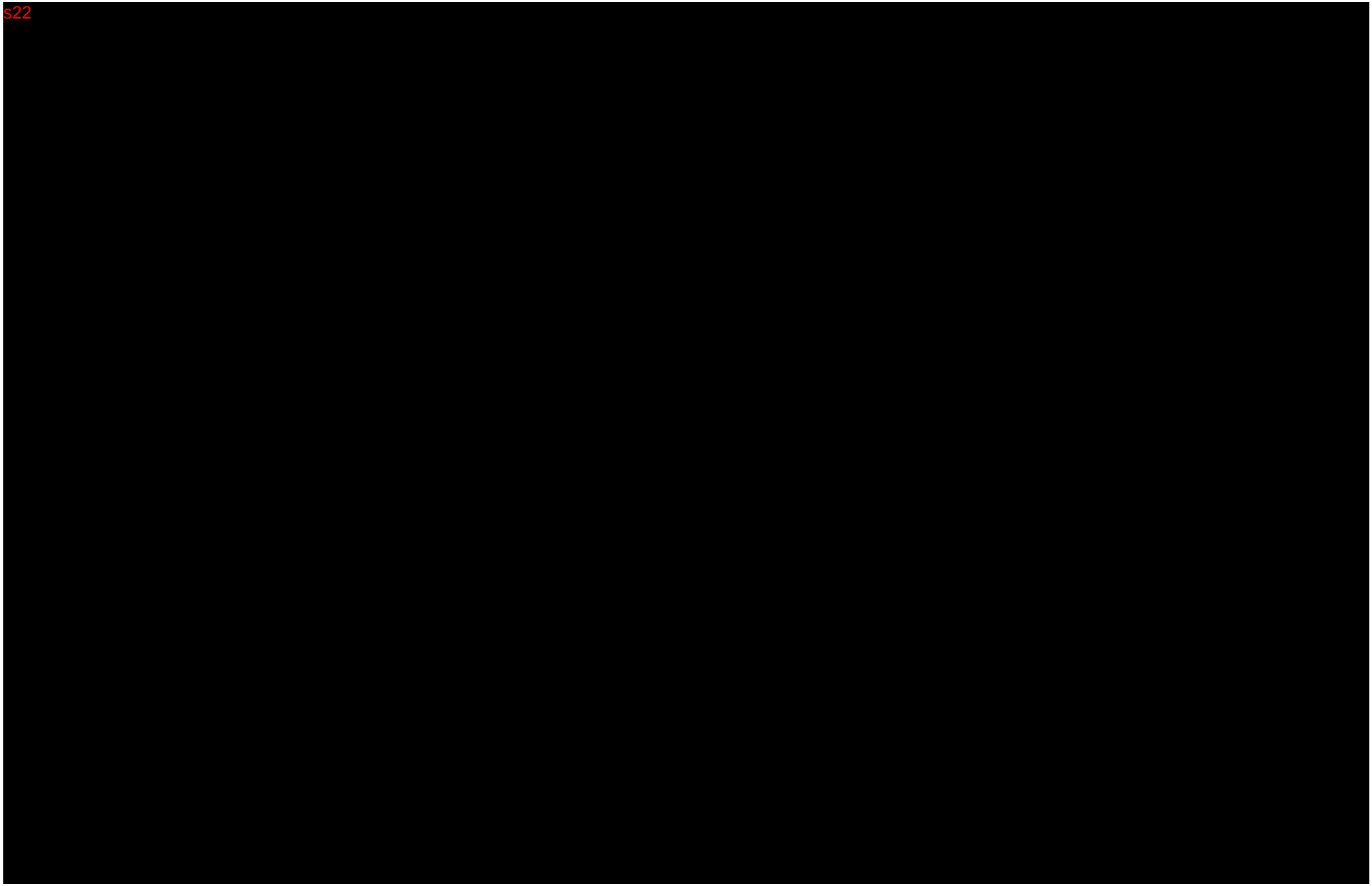
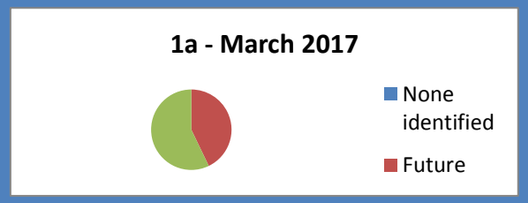
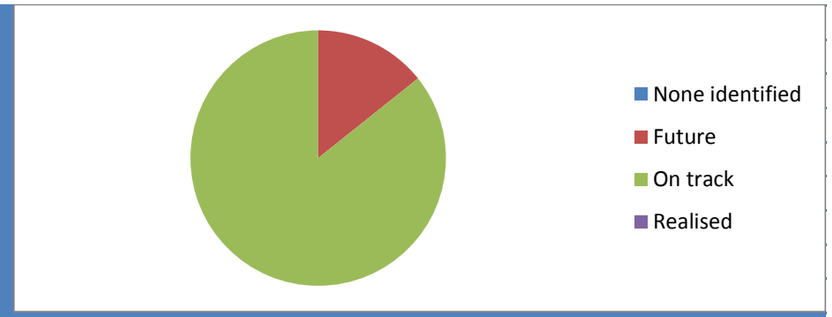


Program Outcome 1a
Parties have better knowledge to assess and manage cumulative impacts on water resources from CSG and coal mining development





Measure / enabler	Rating	Realisation/s	Future opportunities
Decision makers utilise BA technical products	on track	1. Gloucester group 2 products were considered by the Commonwealth regulator in the approval decision for Stratford coal mine. 2. Statement of reasons by C'wealth Minister on approval decision for Watermark reference the BA water-dependent asset register for NAM 3. NSW DPI Water has used hyd. modelling outputs to inform business case for investment in groundwater monitoring infrastructure in HUN and Sydney	1.GAL products defining ZoPHC could be used to inform definition of the future CMA.
Decision makers utilise BA methods	on track	**1. Shenhua Watermark conditions reference the BRAM. "Mining cannot start in the southern mining area until the predicted impacts on groundwater have been updated with more than 10 years of actual groundwater data (Australian Government conditions 2, 7; NSW condition 27 (Schedule 3)), as well as the findings of all of the reports from the Bioregional Assessment. A verification report must be approved by the Commonwealth Environment Minister. If the impacts are predicted to be bigger than those approved, mining cannot start in this area."**	**1. New program - Combined Geological and Bioregional Resource Assessments**
Decision makers utilise BA models	on track	1. Decision makers in Victoria use the DPI 2015 Gippsland Water Study, which was based on a BA model 2. NSW DPI Water has requested access to geological models in CLM and NAM to define placement of monitoring bores under WMF	1. HUN in Upper Hunter Strategic Assessment 2. MBC in Surat CMA 3. GAL models in review process for use in GAL CMA 4. GAL in GAB water resource plan 5. Namoi geological model - NSW Govt have requested access to the Namoi BA geological model to assist with improved mapping of subsurface depths to coal seams in Gunnedah Basin
Decision makers demonstrate improved and consistent understanding of potential impacts, especially cumulative impact	future opportunities identified		1. Opportunity for promulgation of advice through IESC / its guidelines 2. Commonwealth regulators to use BA WAIP page. **3. Analysis of approval conditions relating to cumulative impacts on water resources.**

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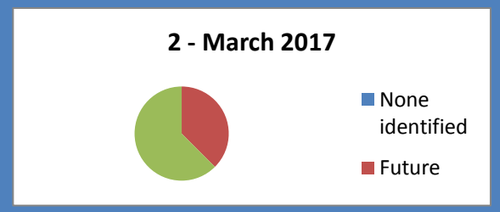
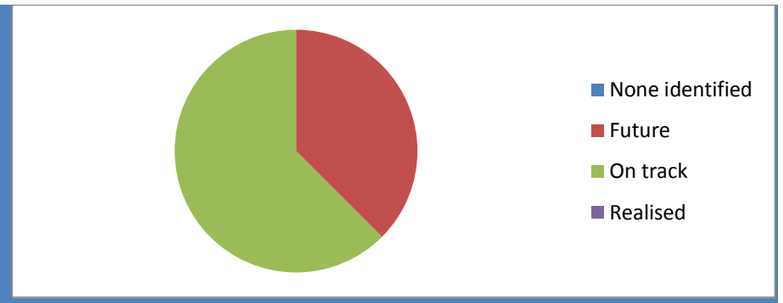
Program Outcome 2
Efficient and effective regulation of cumulative impacts on water resources from CSG and coal mining development





Measure / enabler	Rating	Realisation/s	Future opportunities
IESC advice reflects or directly references bioregional assessment findings	on track	1. Draft MBC GW model results considered (although not referenced) by IESC in development of its advice on the New Acland project. 2. The HUN products were used by the IESC to inform advice on water balance / modelling on Wambo.	1. Santos 2. China Stone
IESC advice reflects or directly references bioregional assessment methods	on track	1. Current IESC information guidelines recommend the use of BAs in a) setting context b) baseline data c) reviewing risk assessments d) modelling of cumulative impacts	1. Future update of IESC guidelines with specifics around uncertainty or other BA methods
Regulatory decisions reflect or directly reference bioregional assessment findings	on track	1. BA products are referenced in Stratford conditions for the protection of water resources (Condition 32(c)(iv) of Schedule 3) - *"prepare a protocol that gives consideration to information products as they arise from the Commonwealth Office of Water Science's Bioregional Assessment for the Gloucester subregion."* 2. Shenhua Watermark statement of reasons reference the Namoi BA water-dependent asset register. *On 23 June 2015, I approved the release of Bioregional Assessment product 1.3, a water-dependent asset register for the Namoi subregion. The register identifies potential groundwater dependent ecosystems within the groundwater model domain. Given the potential for some species and communities to access shallow groundwater, I agreed with the Department's recommendation that further validation is required regarding the groundwater dependence of these communities and species.*	1. Through conditions on development approvals. 2. Through development application guidelines
Regulatory decisions reflect or directly reference bioregional assessment methods	on track	1. Shenhua Watermark conditions reference the BRAM. *"Mining cannot start in the southern mining area until the predicted impacts on groundwater have been updated with more than 10 years of actual groundwater data (Australian Government conditions 2, 7; NSW condition 27 (Schedule 3)), as well as the findings of all of the reports from the Bioregional Assessment. A verification report must be approved by the Commonwealth Environment Minister. If the impacts are predicted to be bigger than those approved, mining cannot start in this area."*	1. Through conditions on development approvals. 2. Through development application guidelines
Bioregional assessments are directly utilised in the management of water resources at a regional scale	on track	1. GIP GW model is being used to assist in the assessment of rehabilitation options for the Latrobe Valley Coal Mines and is expected to inform a water study to be produced by mid 2017.	1. Update of the GAB SMP (GAL)

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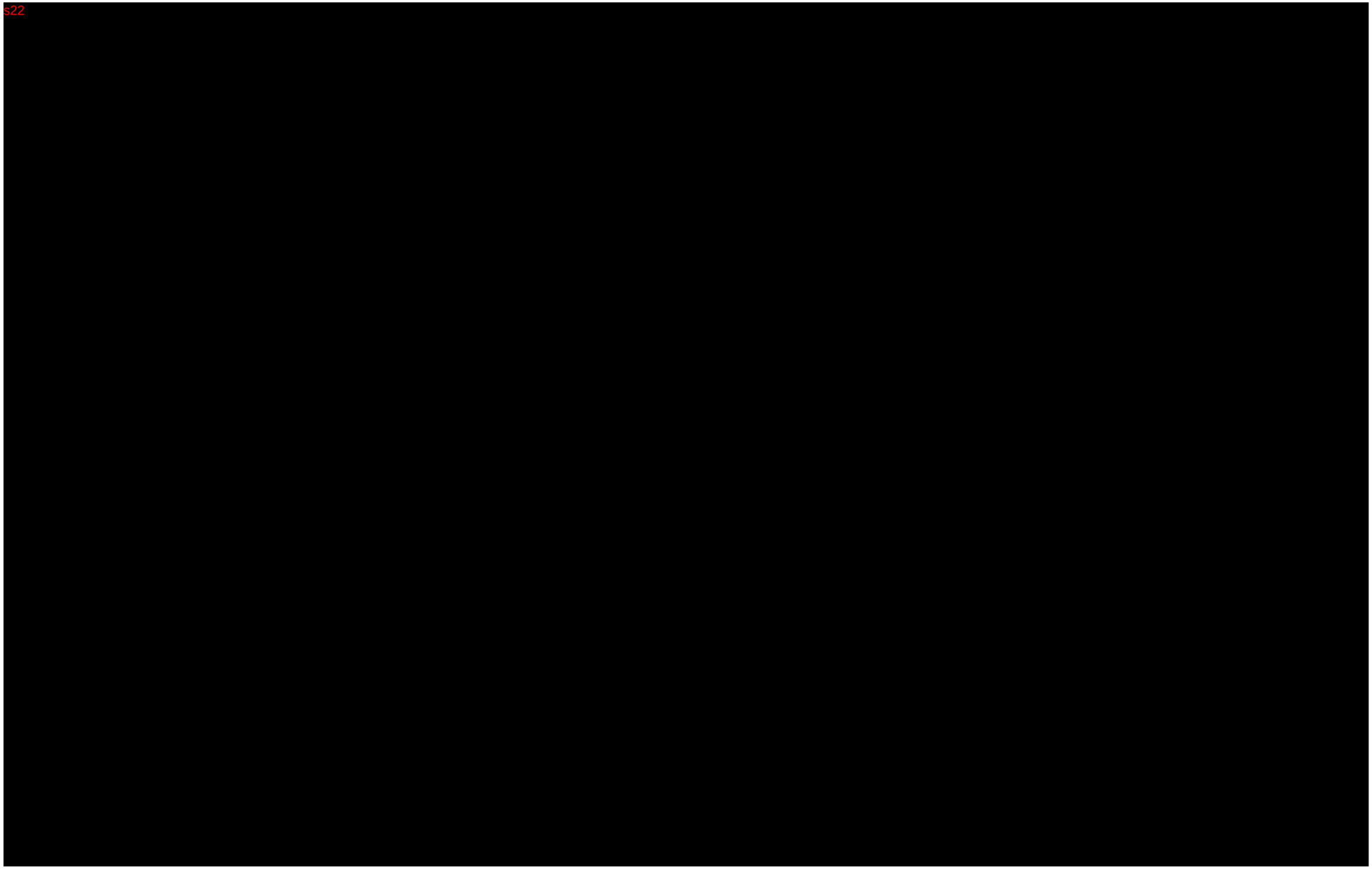

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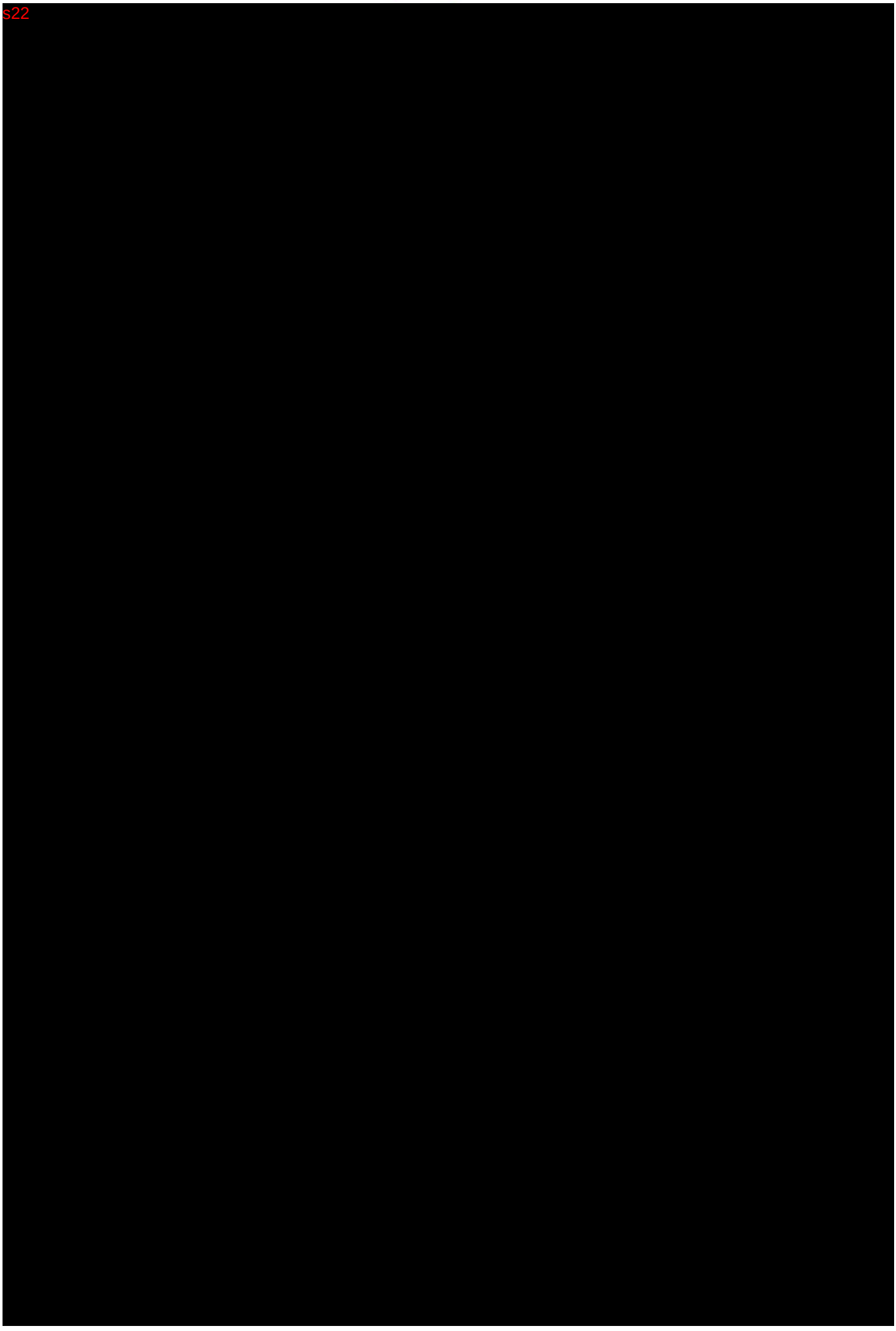

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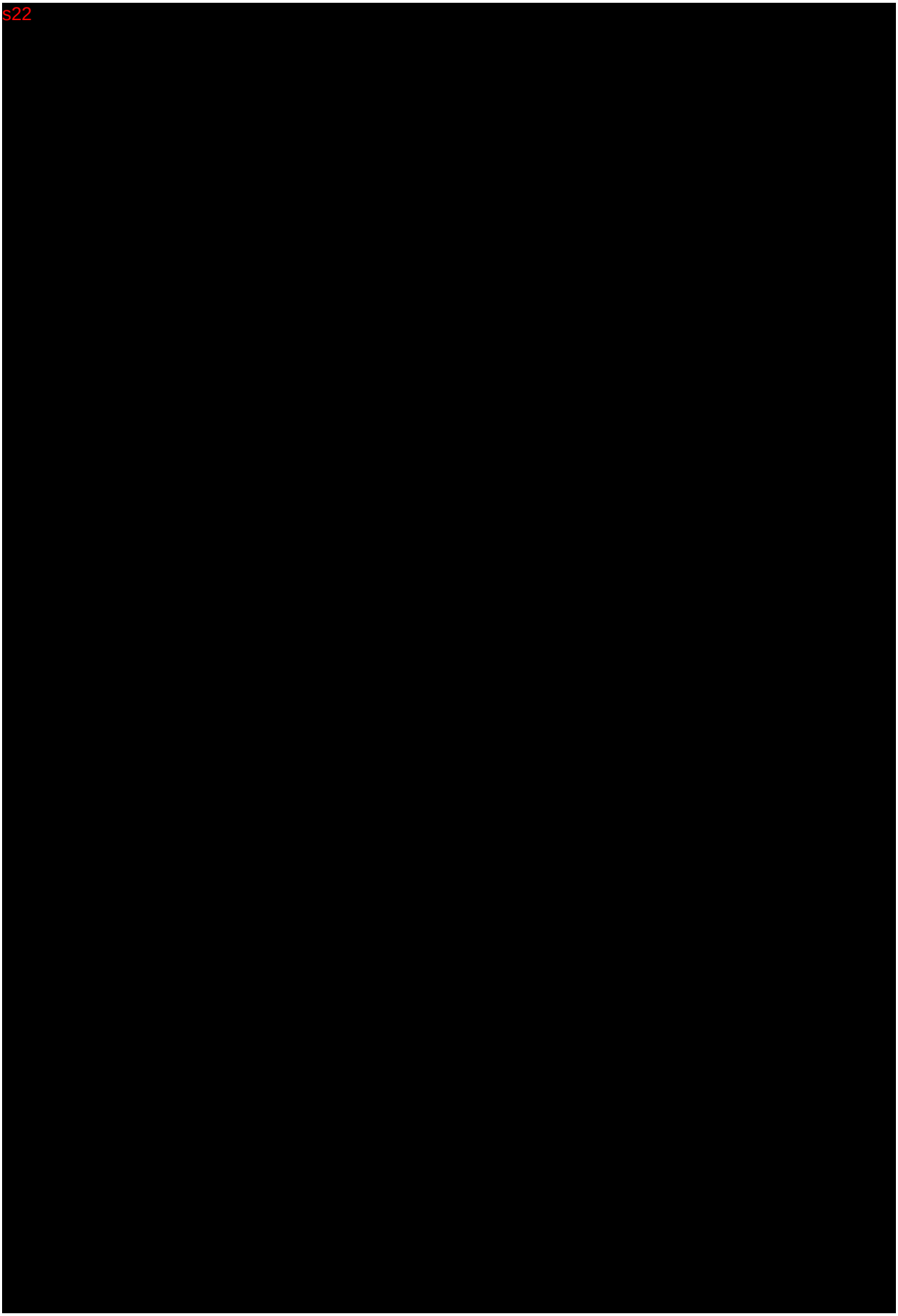

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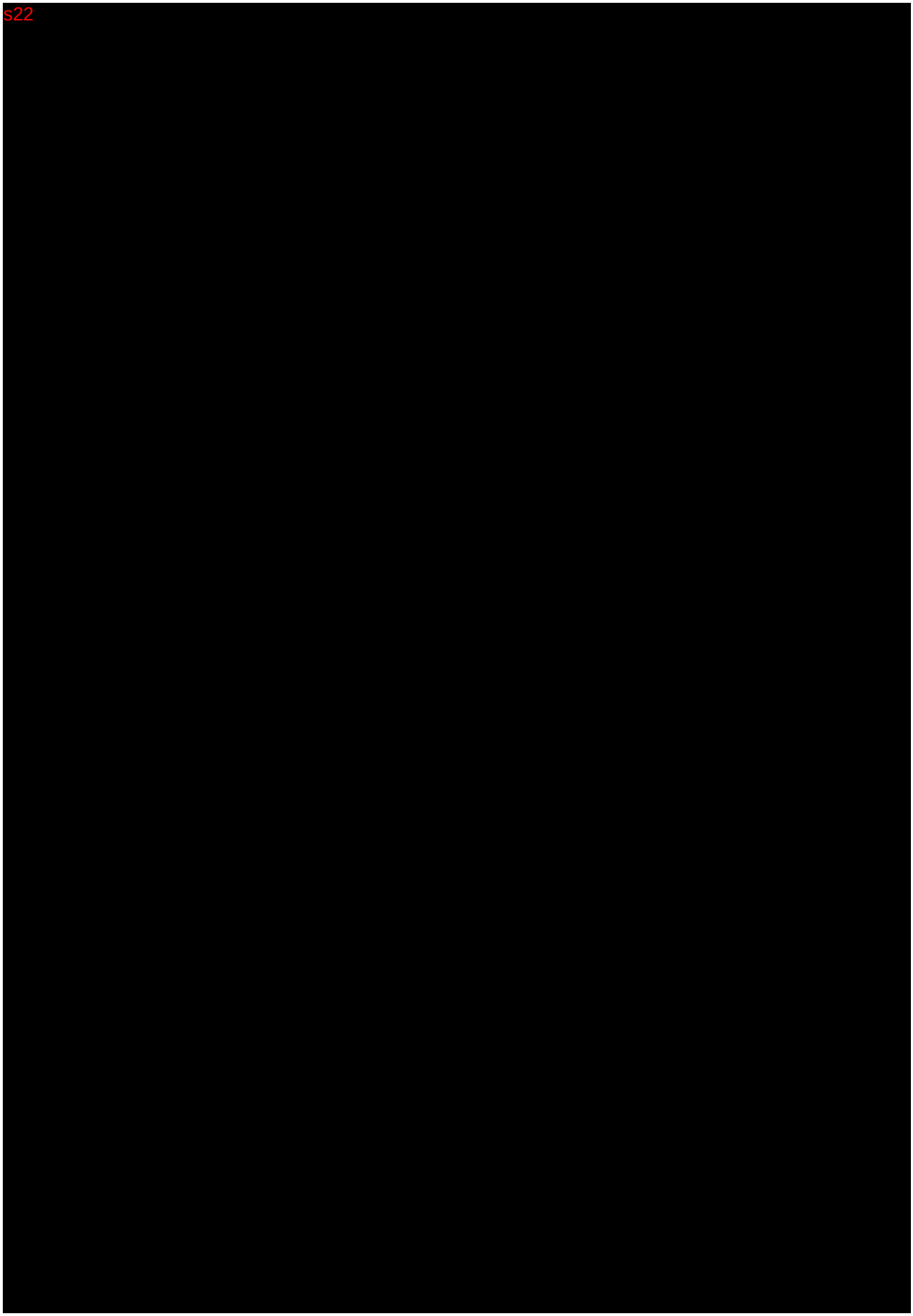

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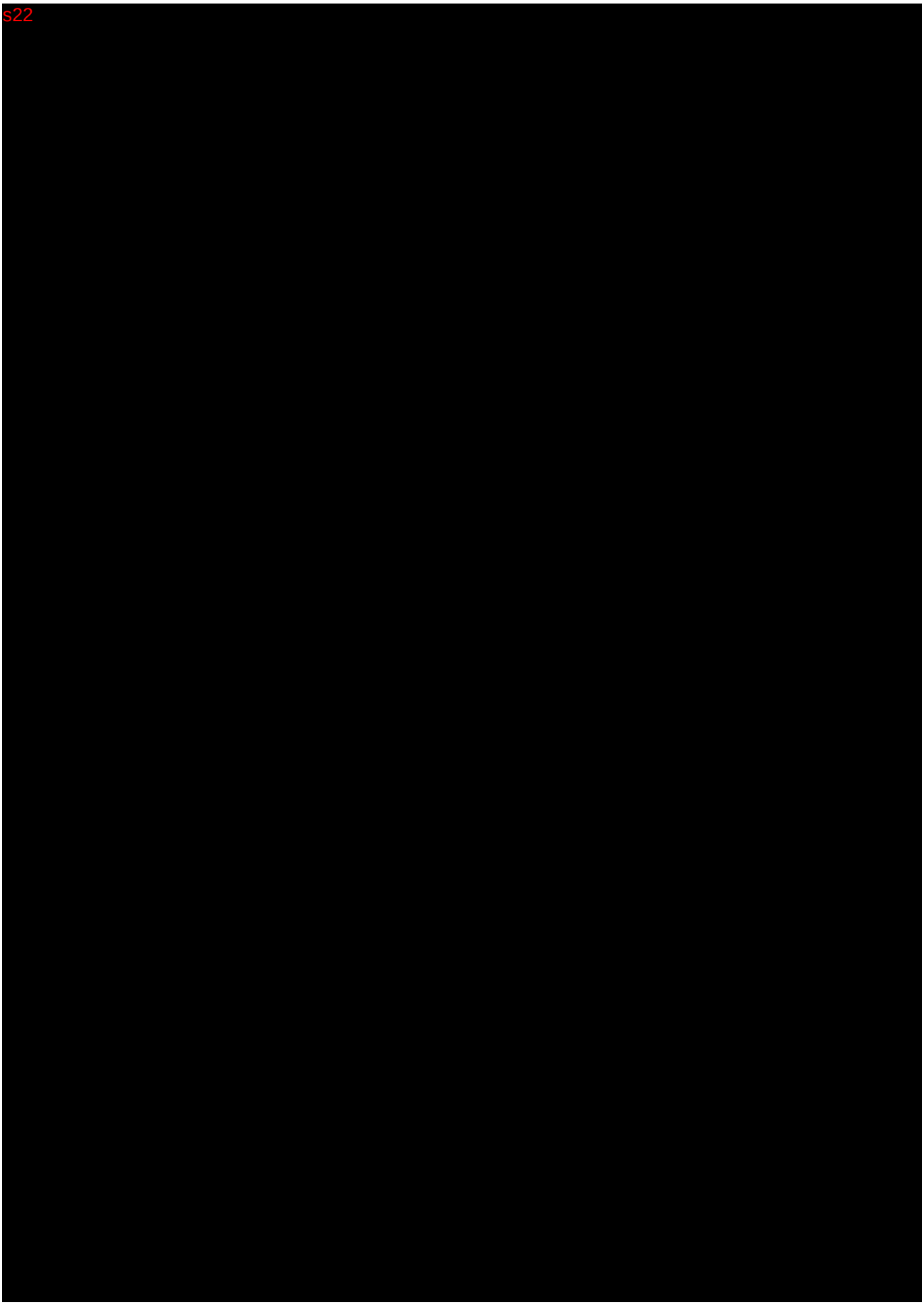

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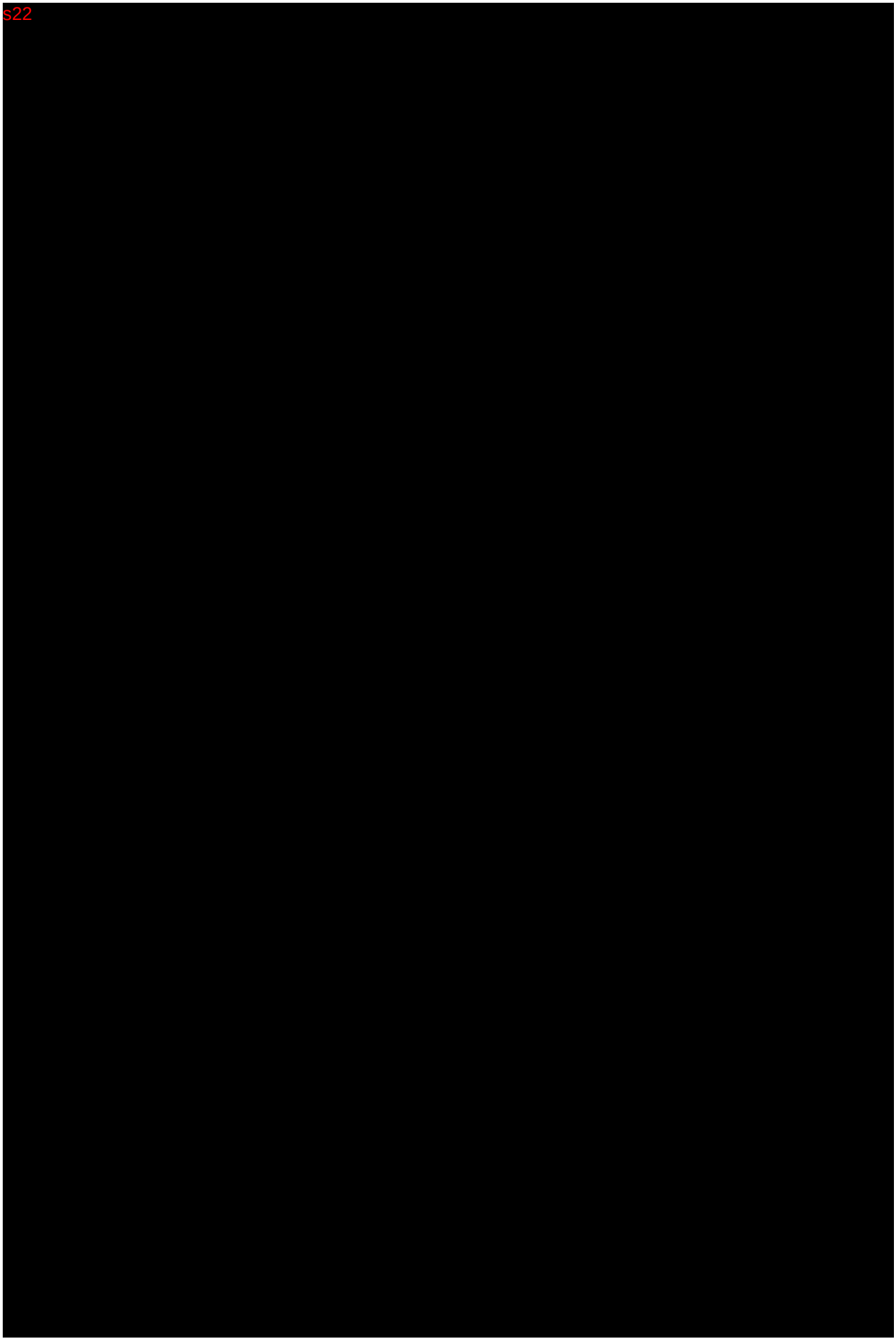

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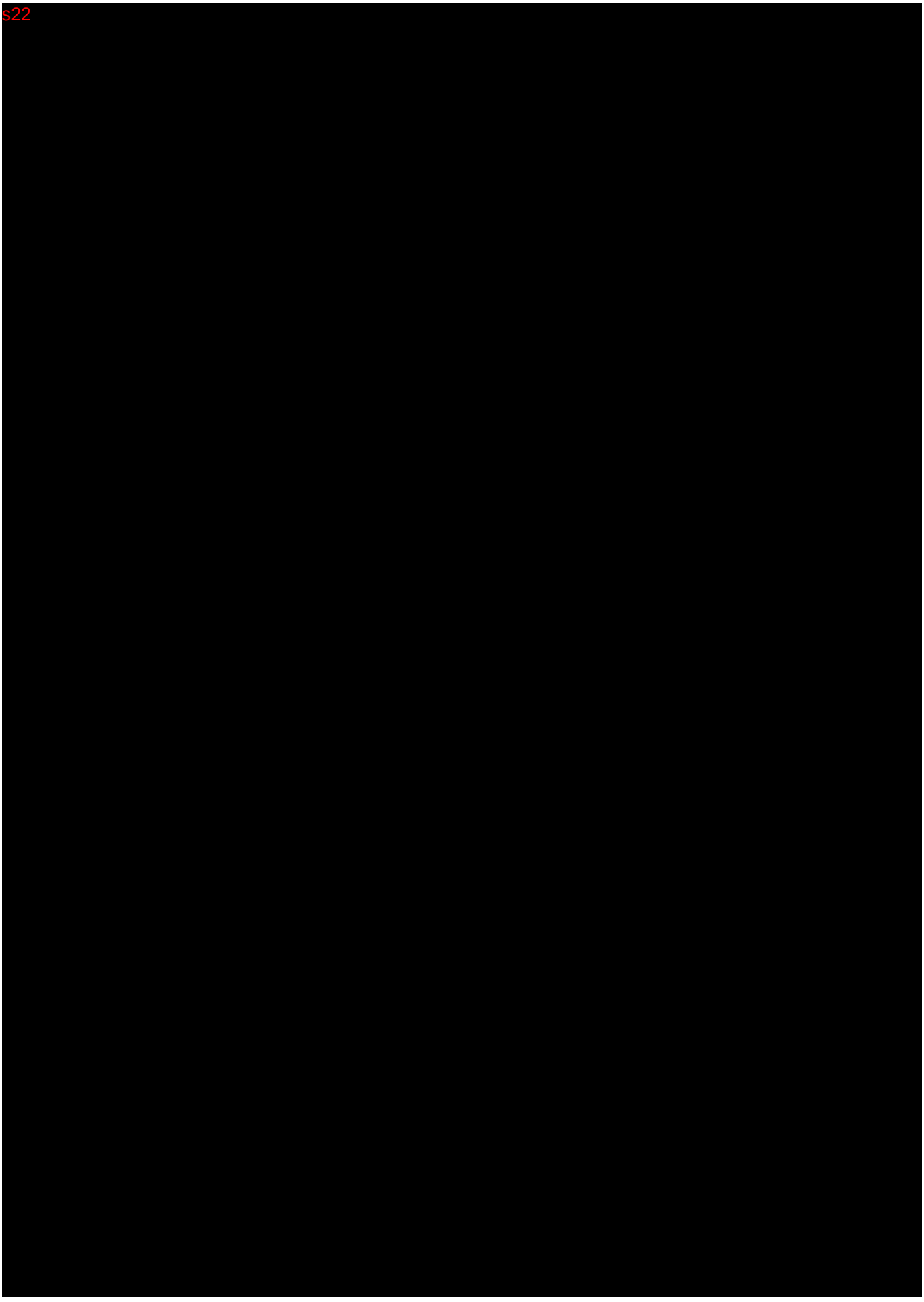

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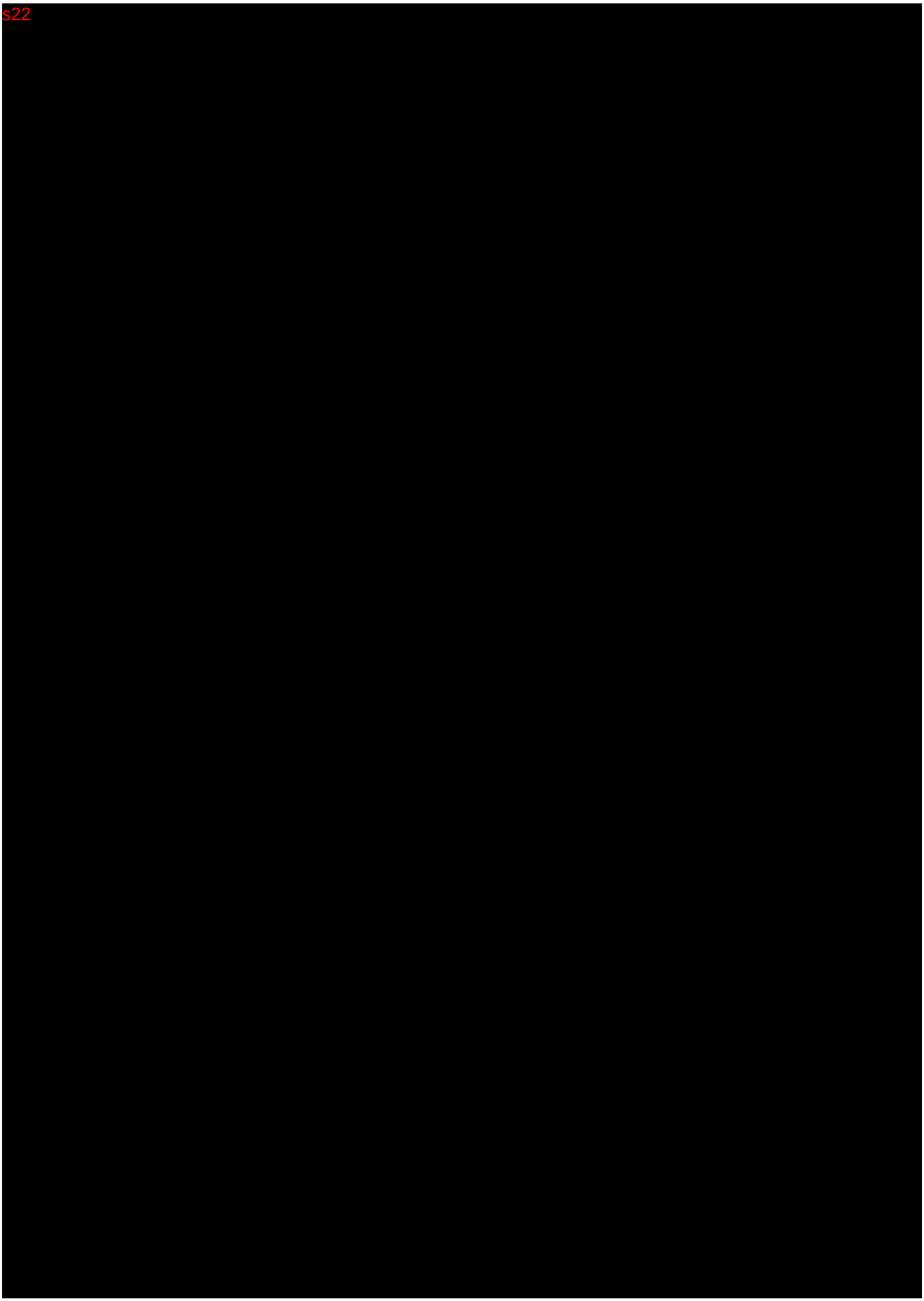

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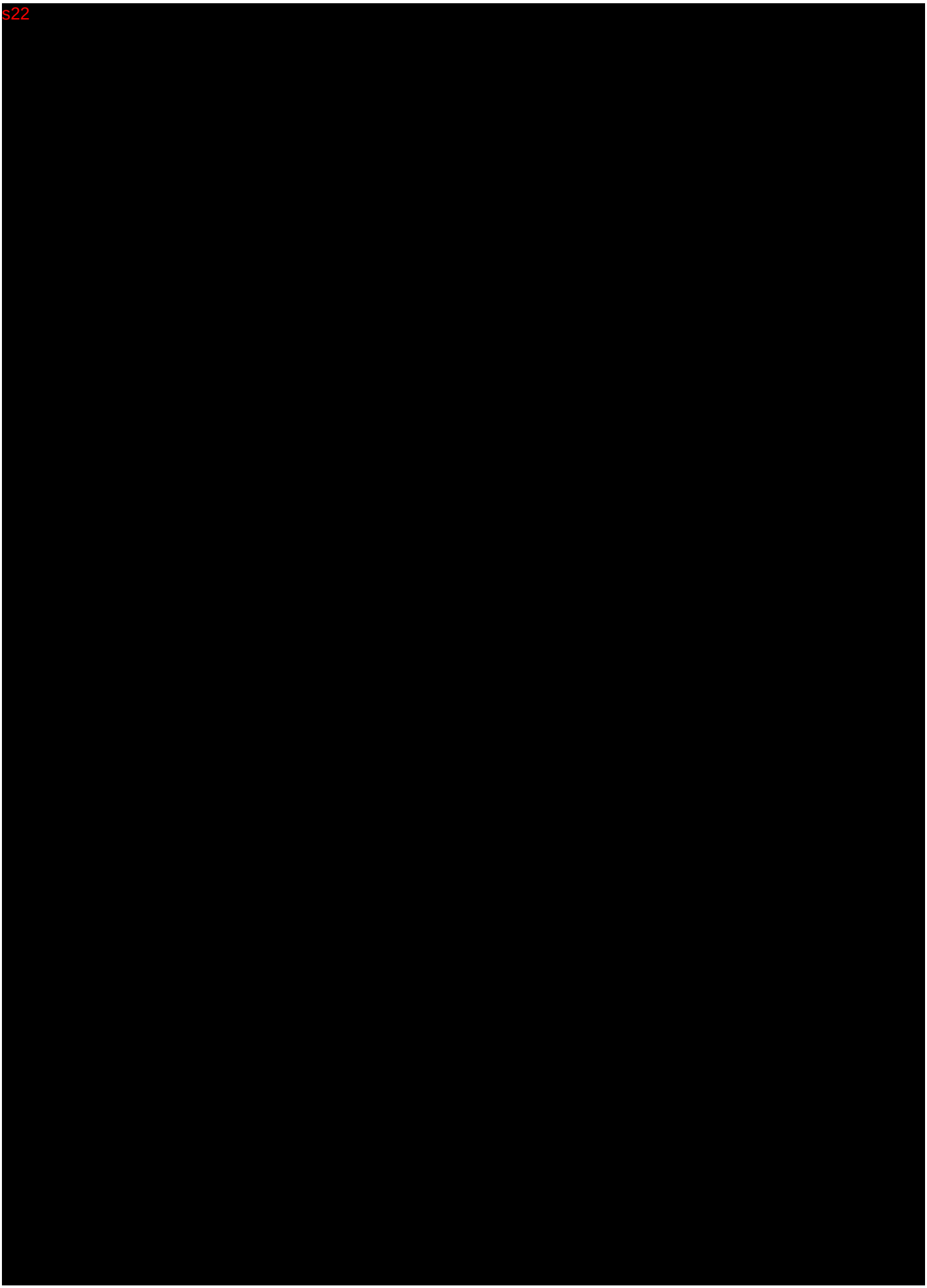

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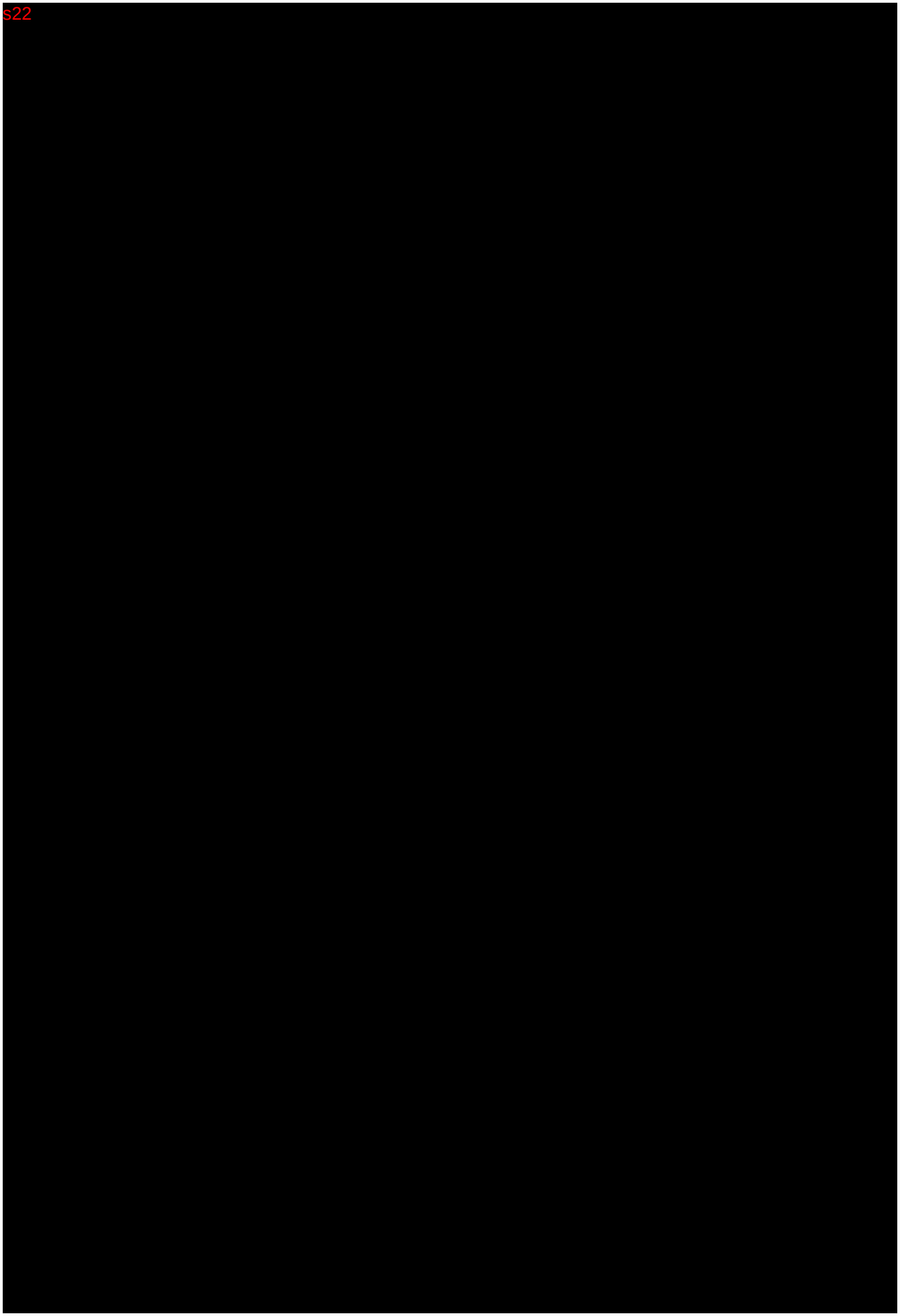

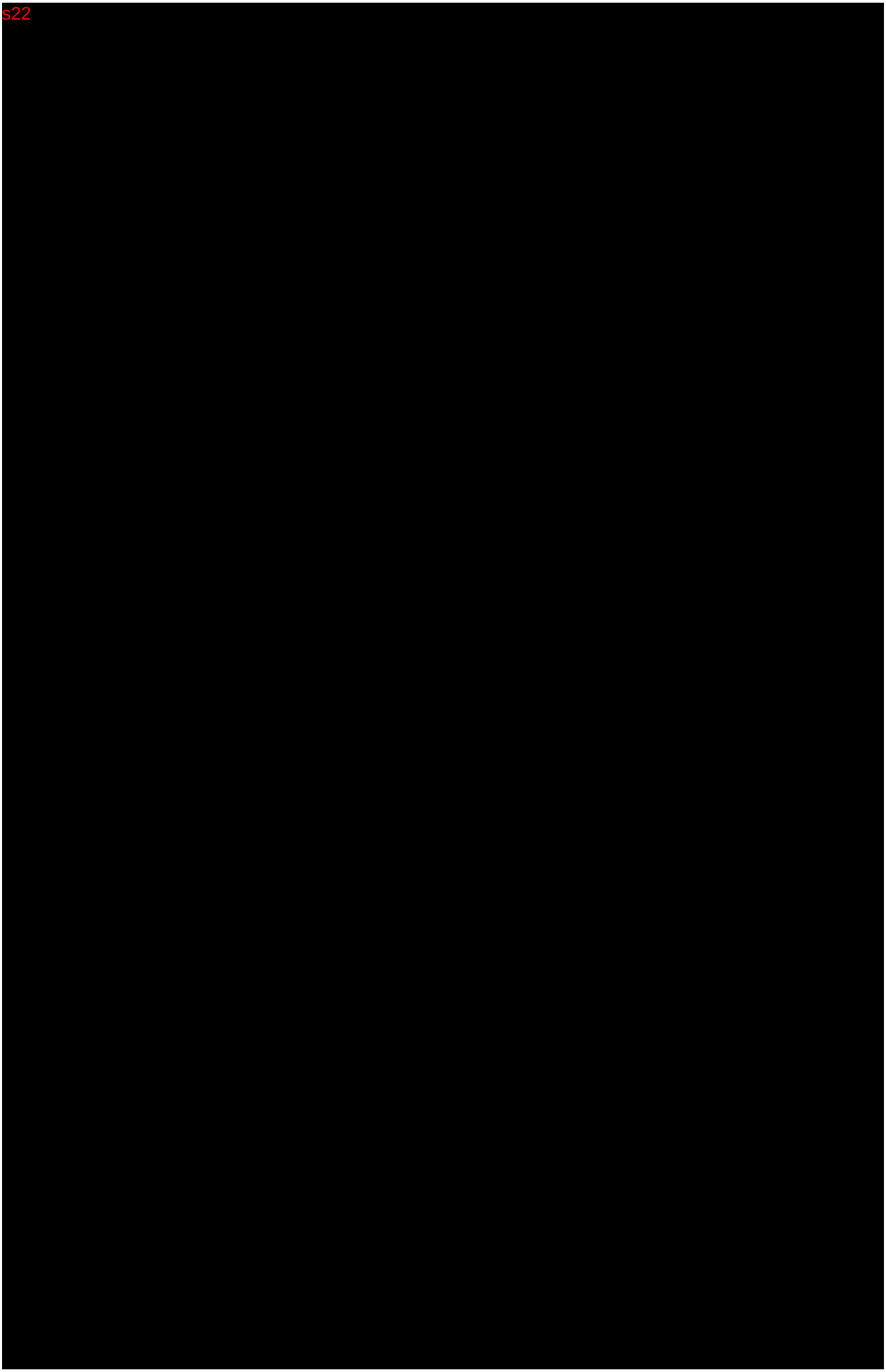

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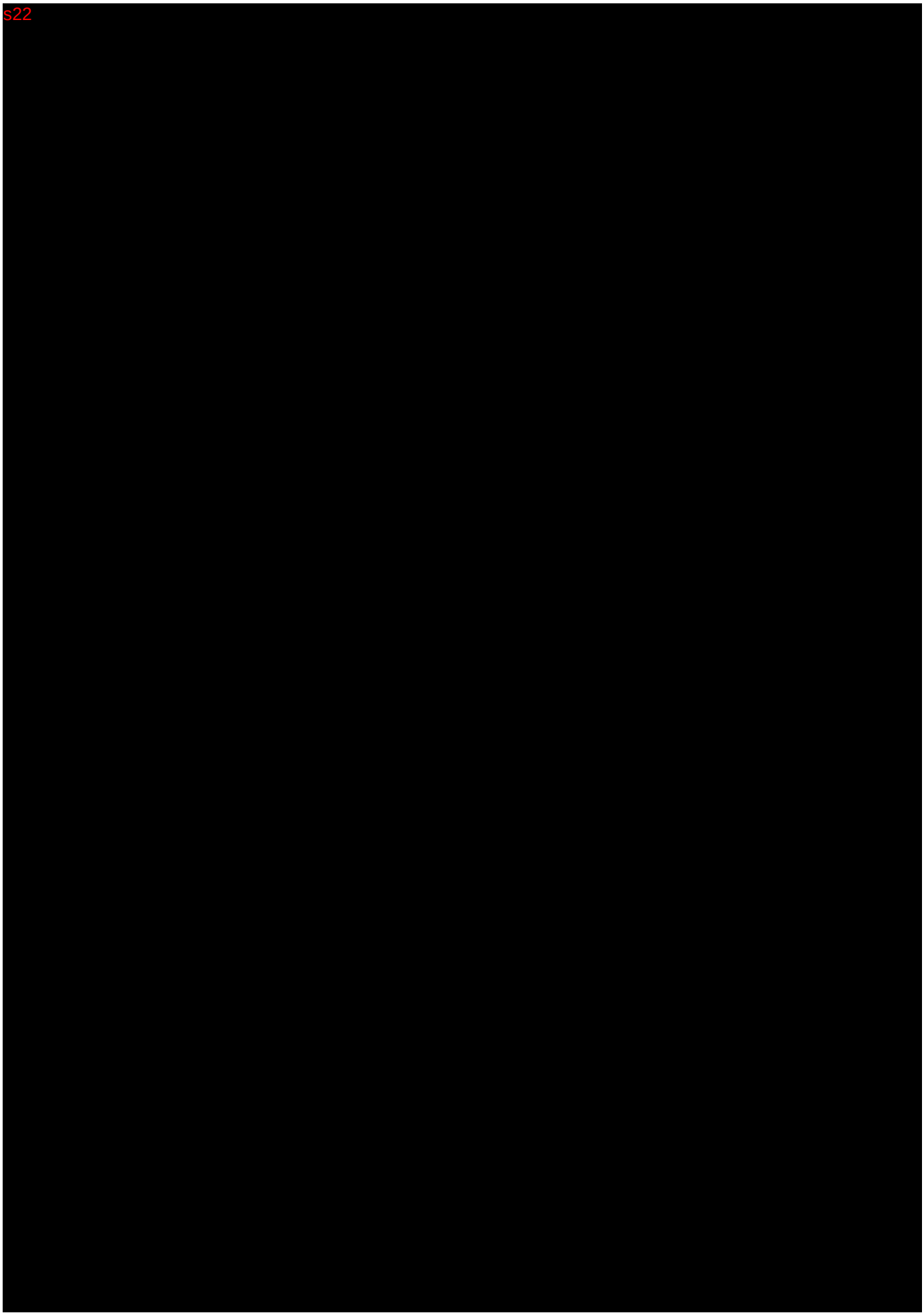

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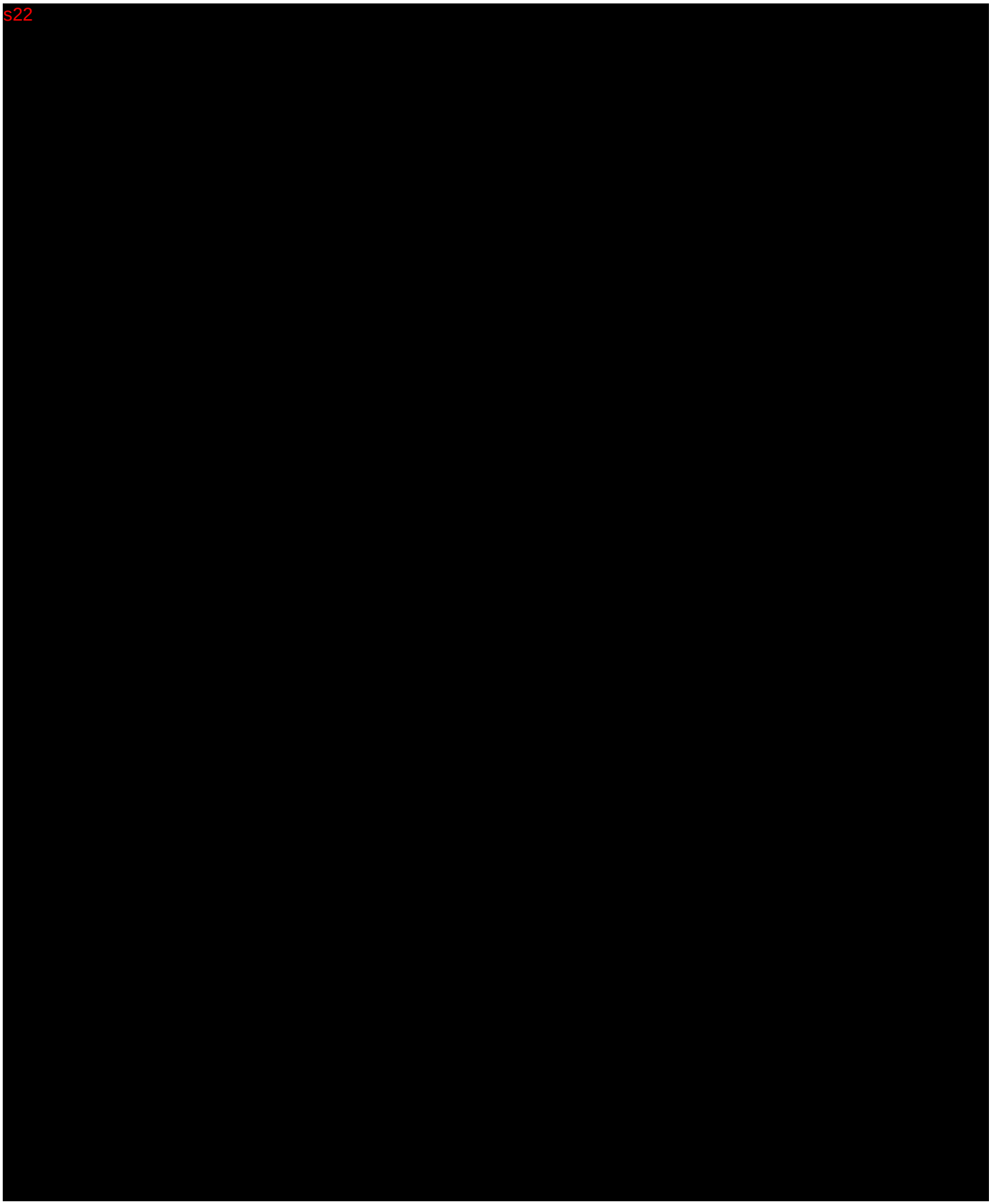

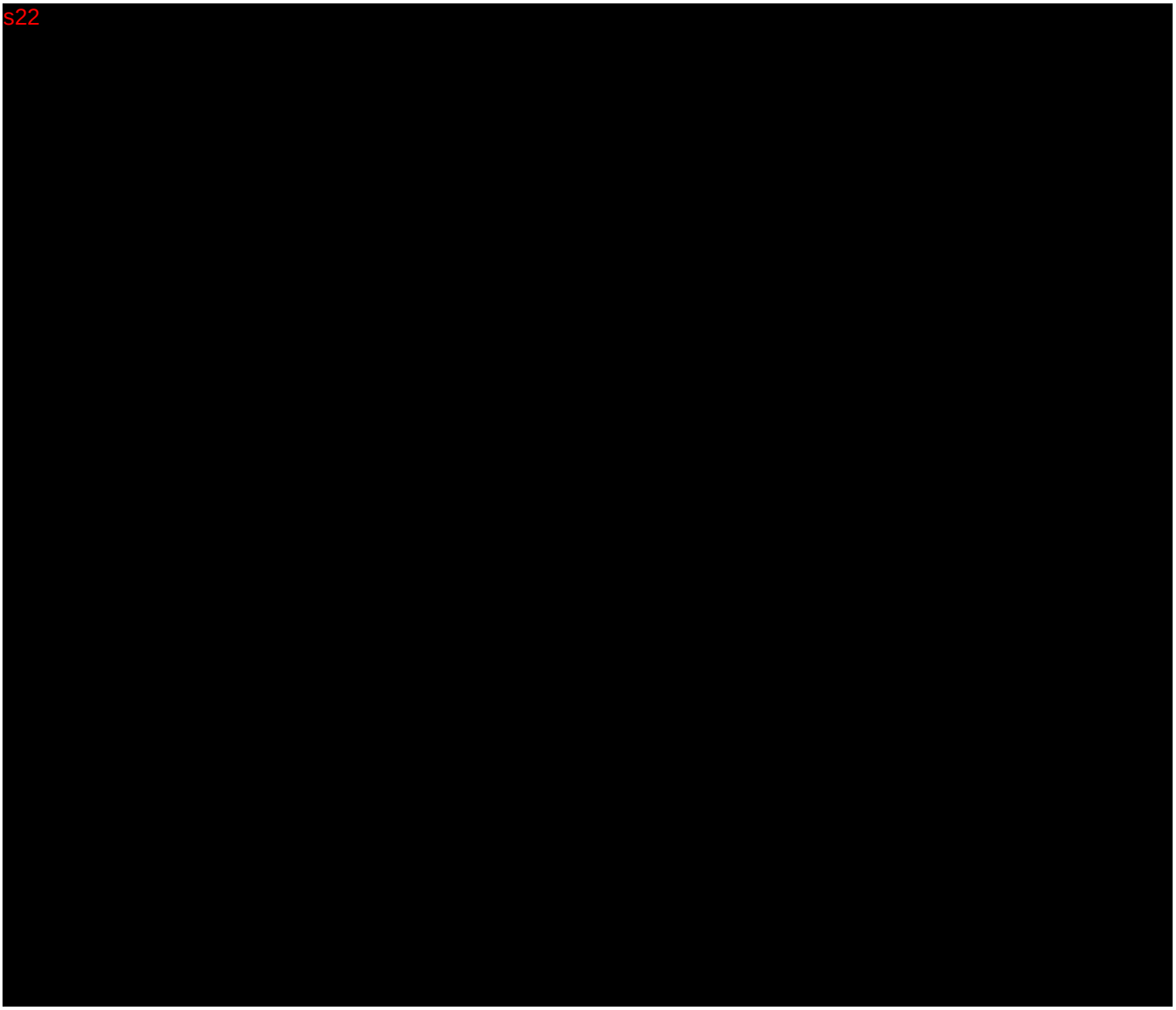

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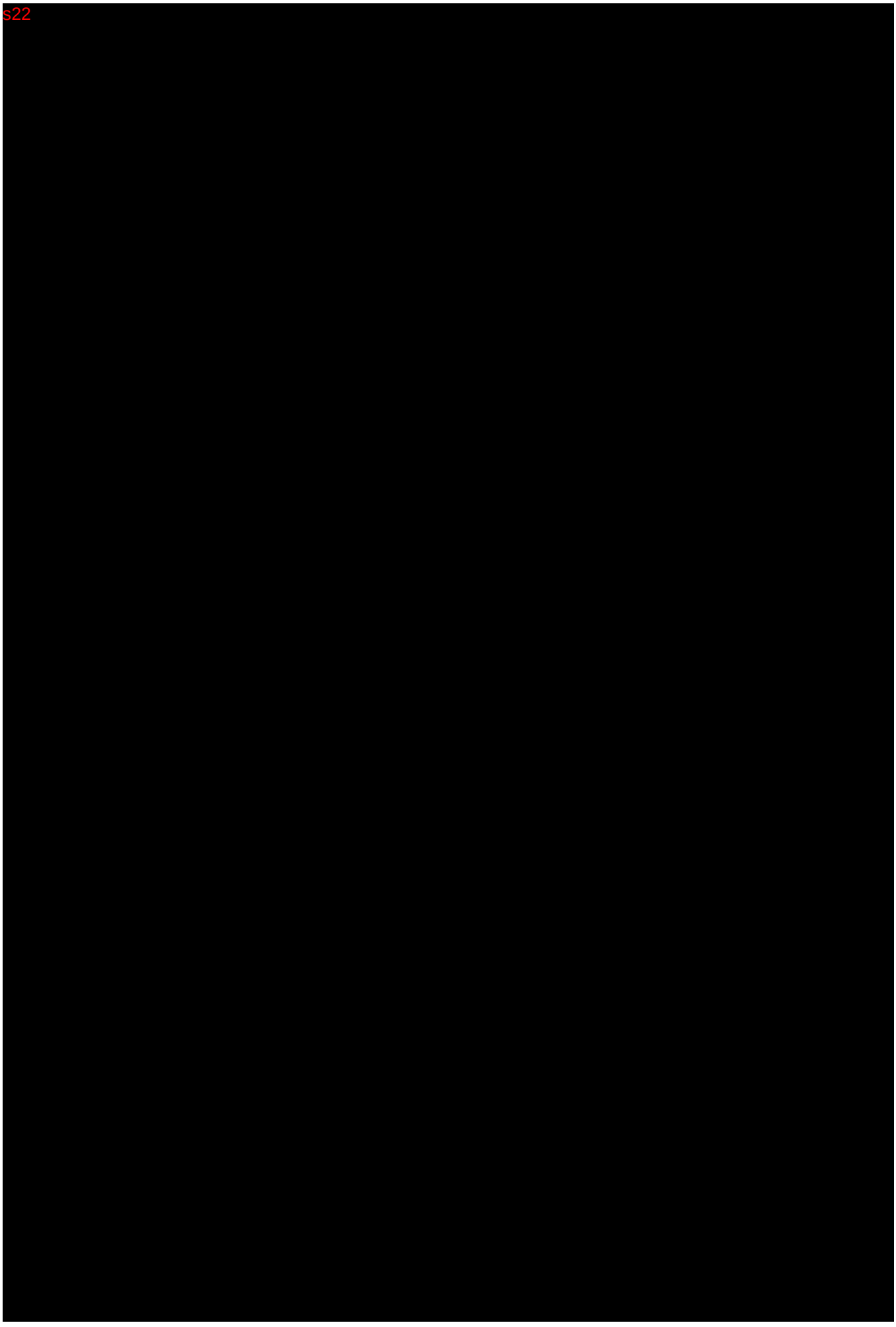

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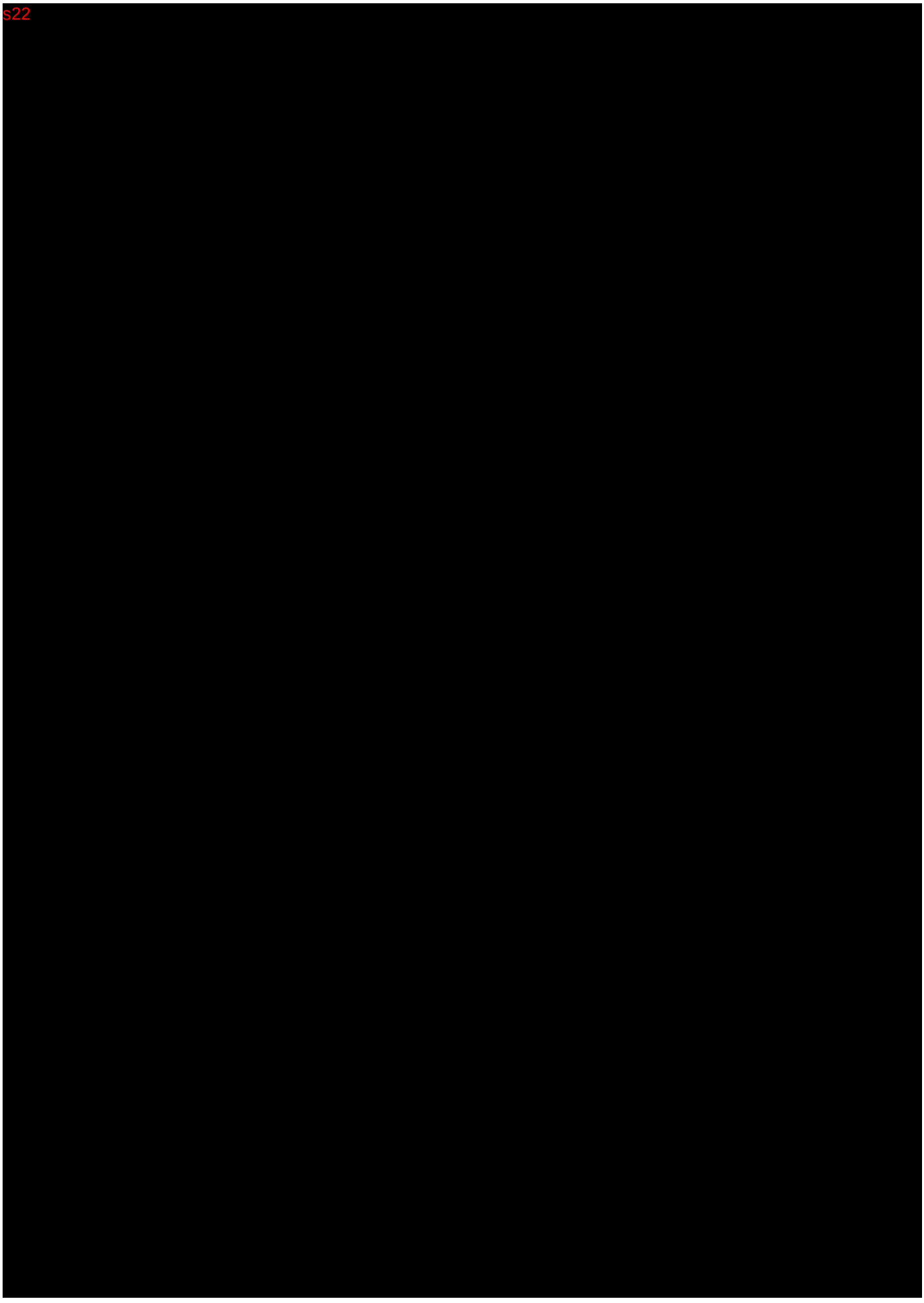

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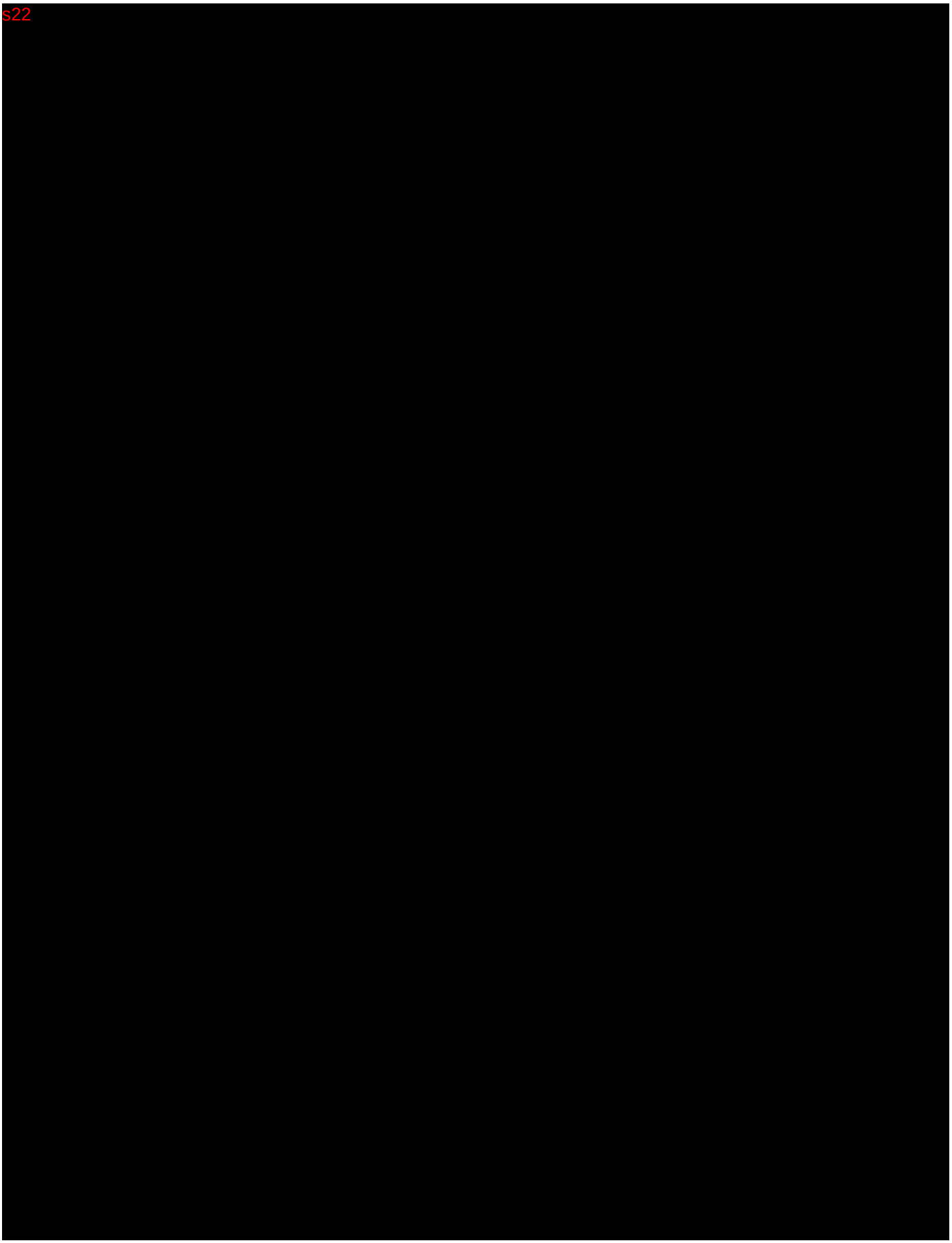

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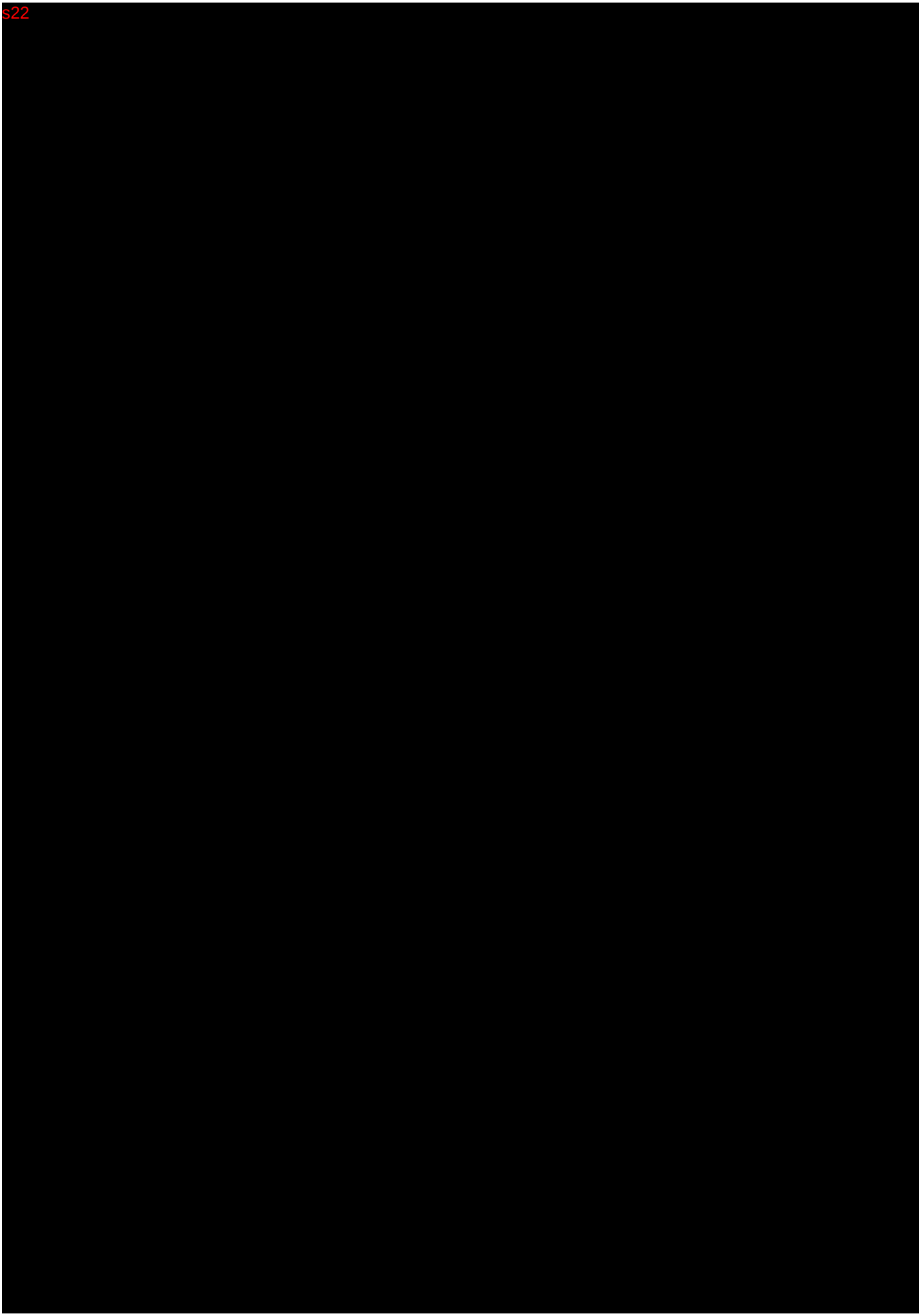

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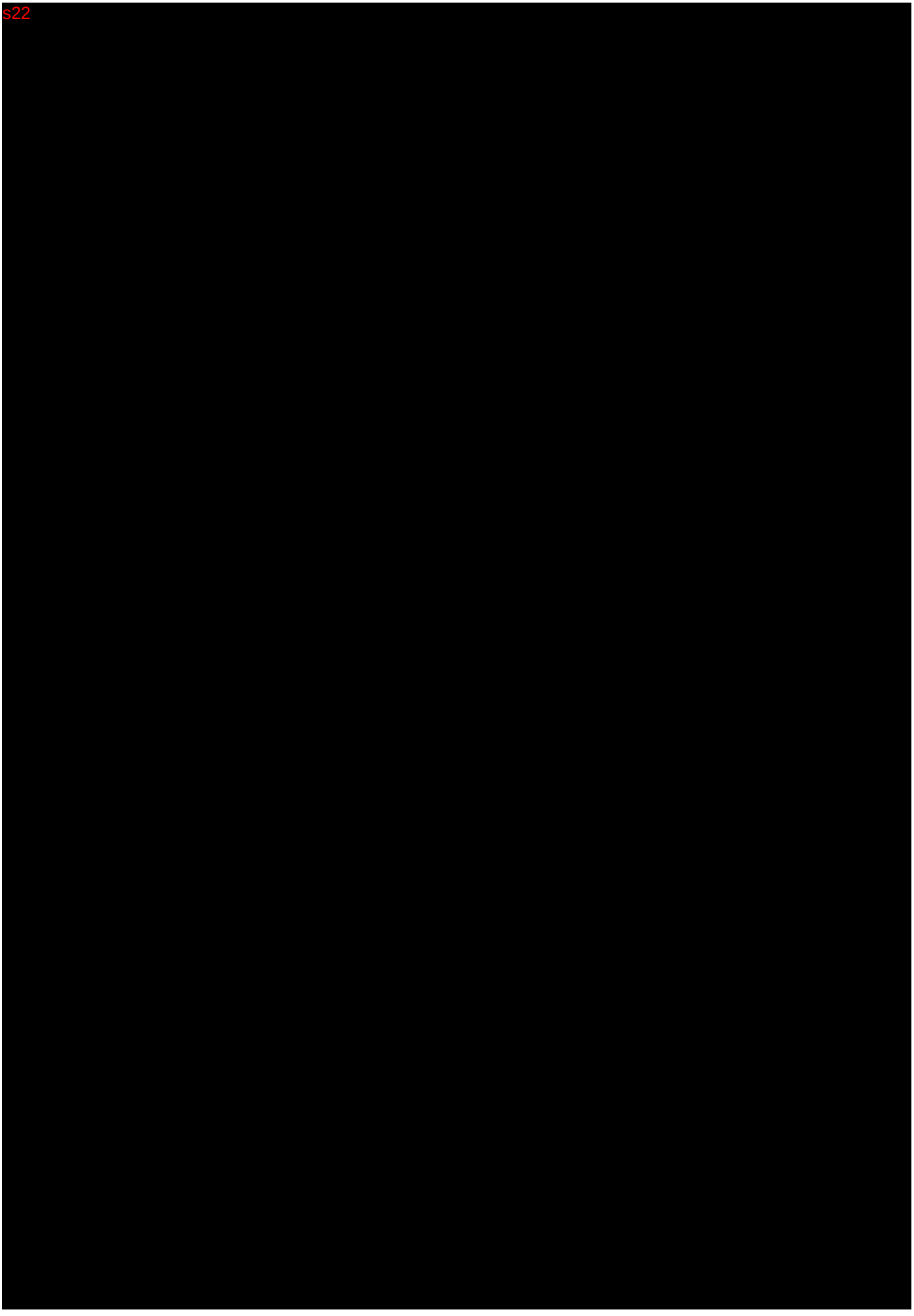

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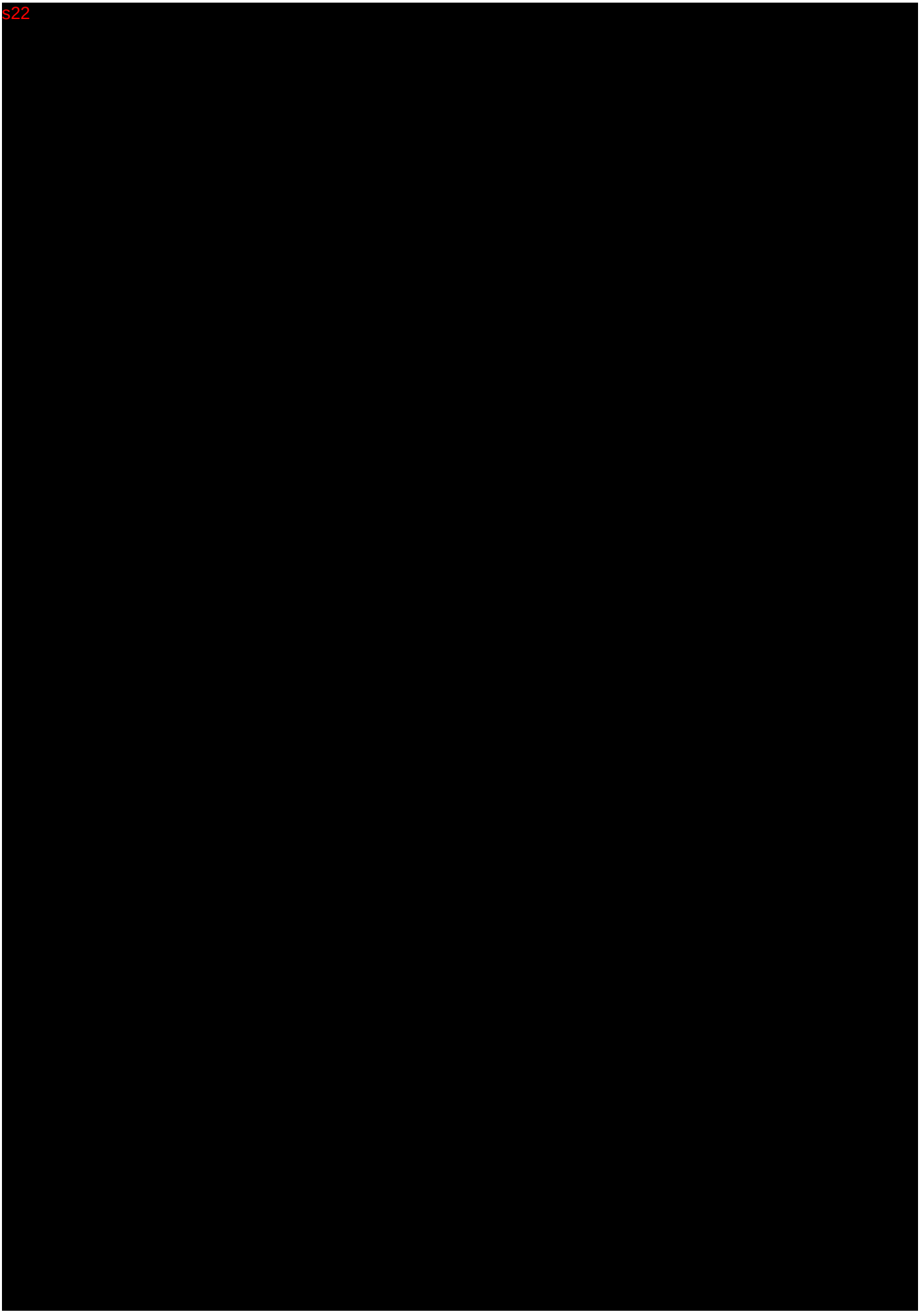

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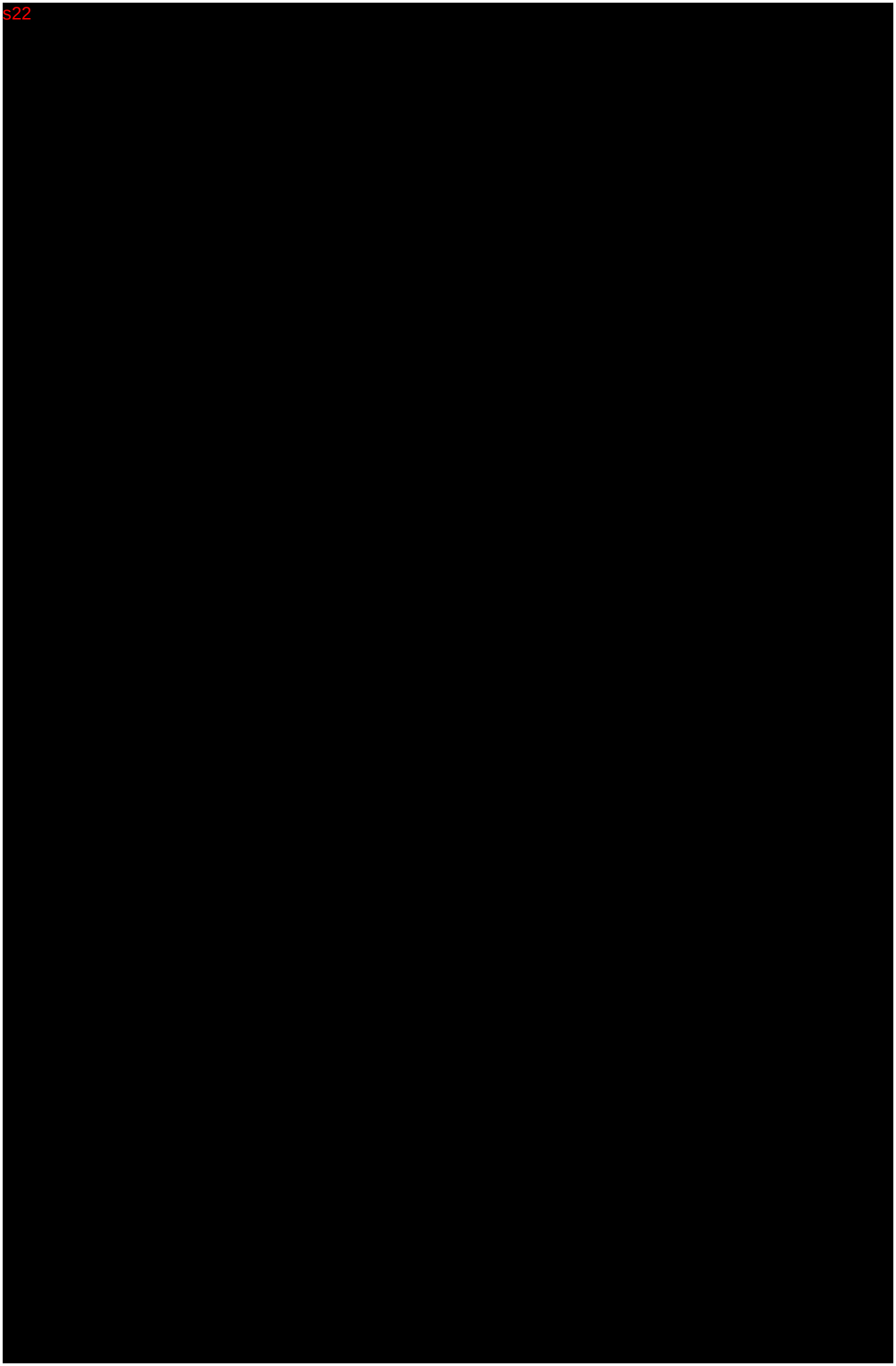

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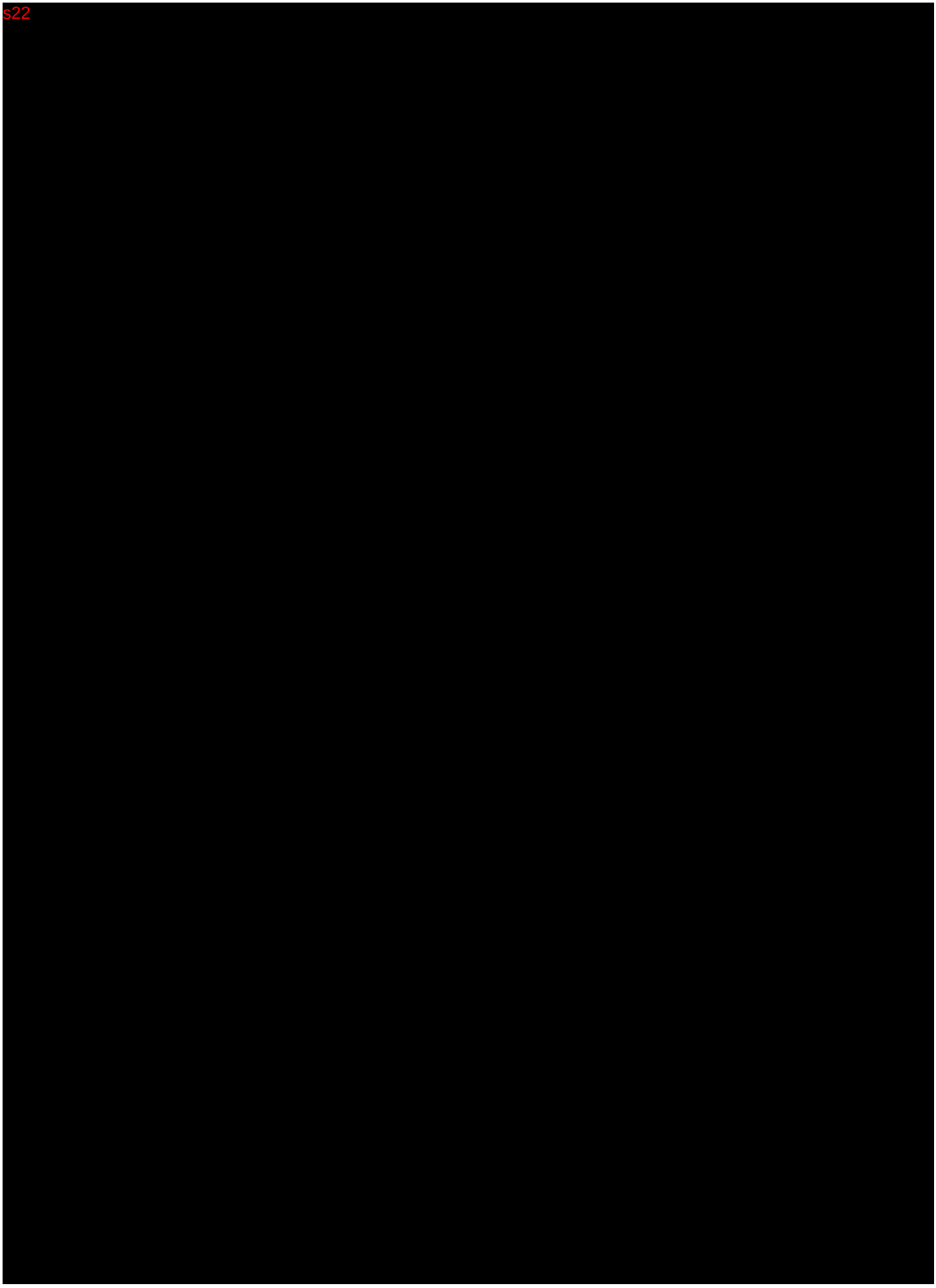

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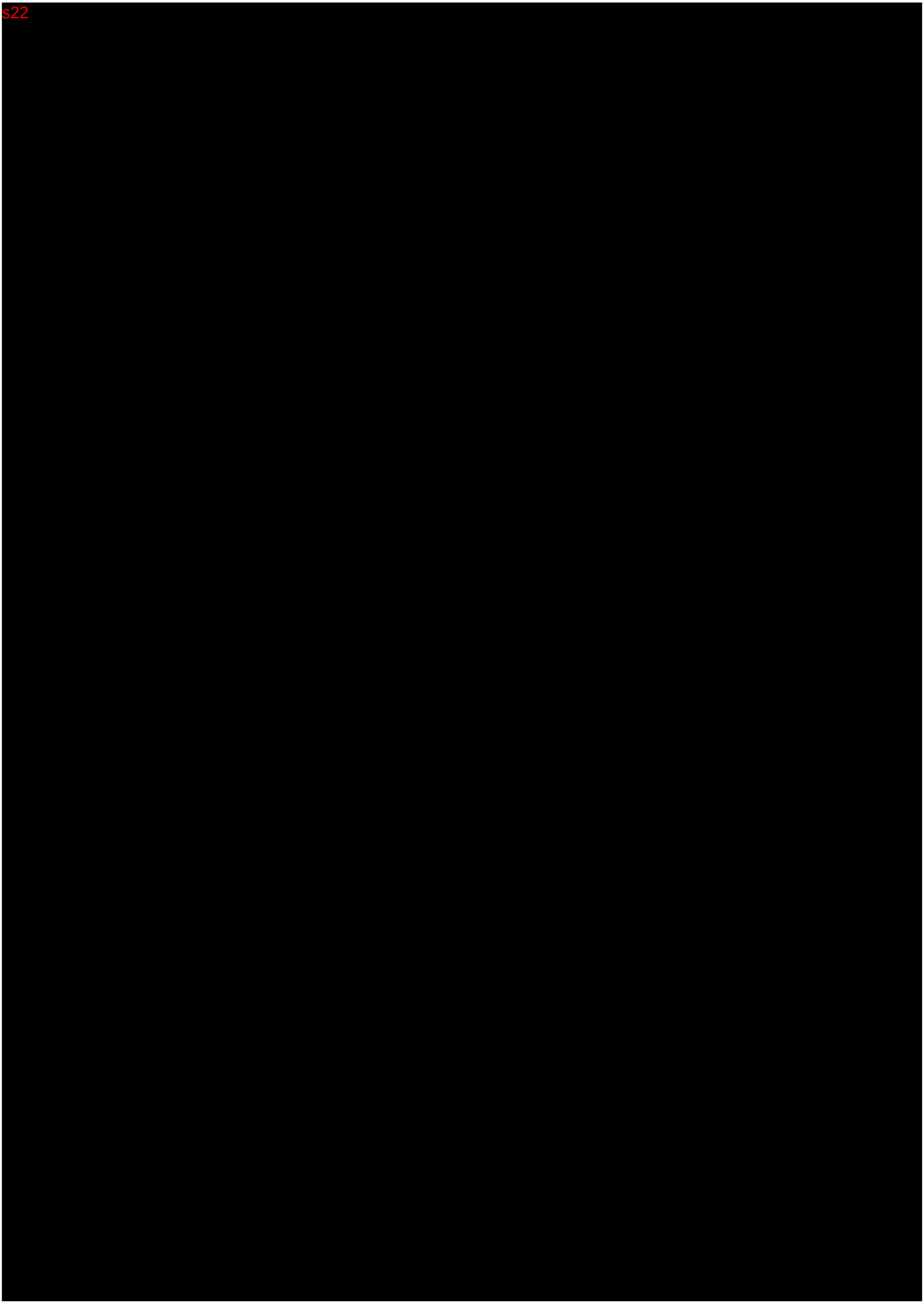

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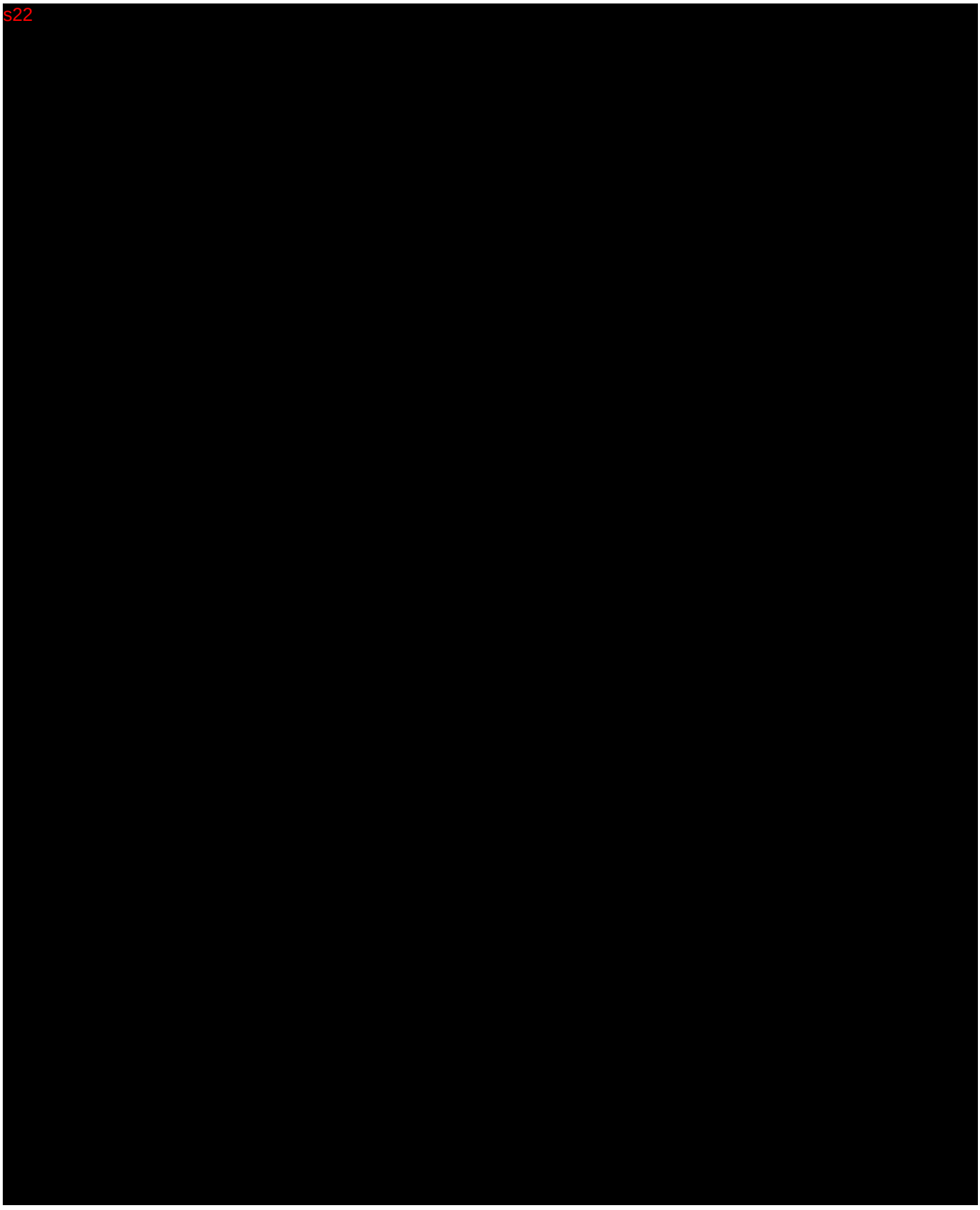

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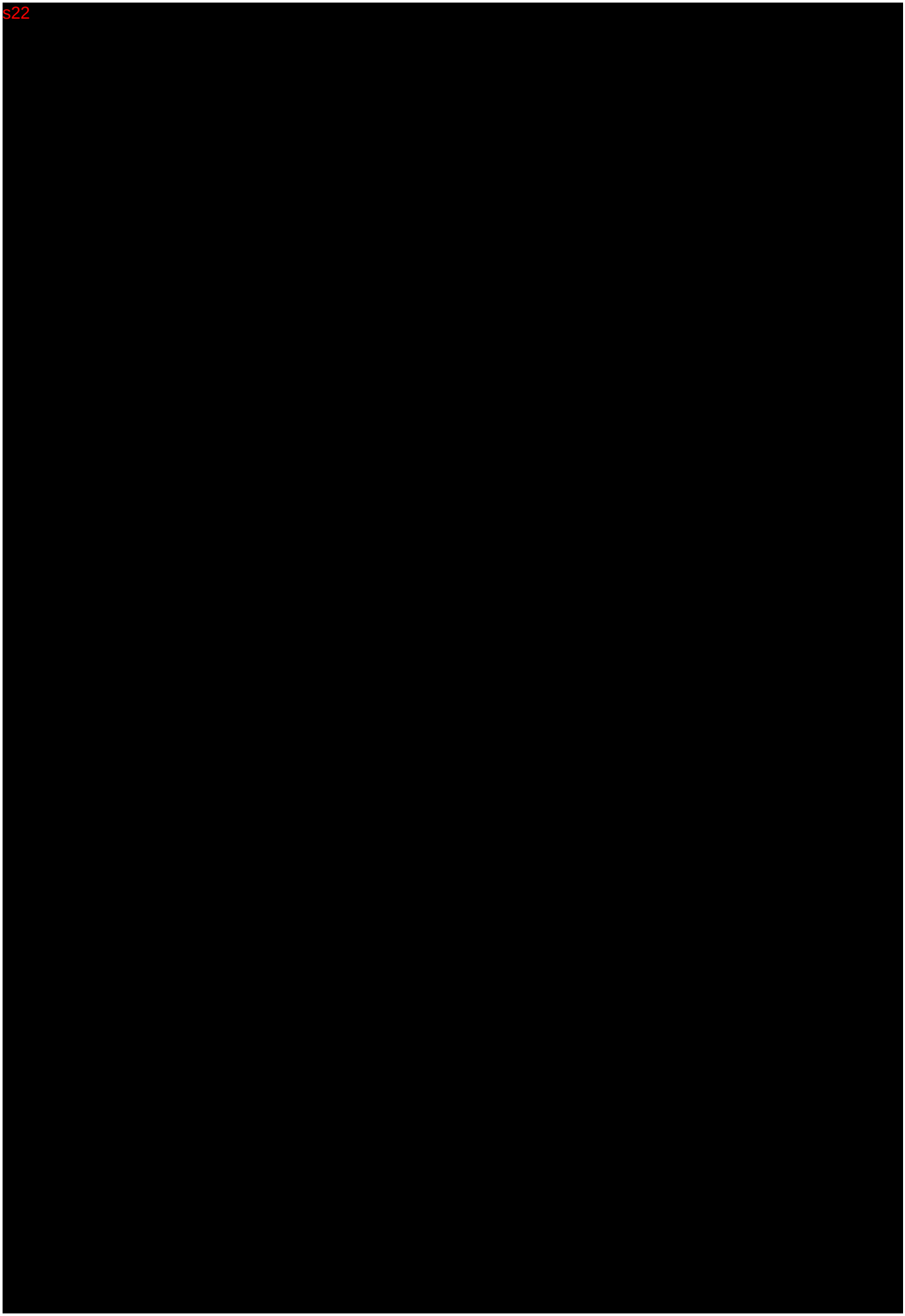

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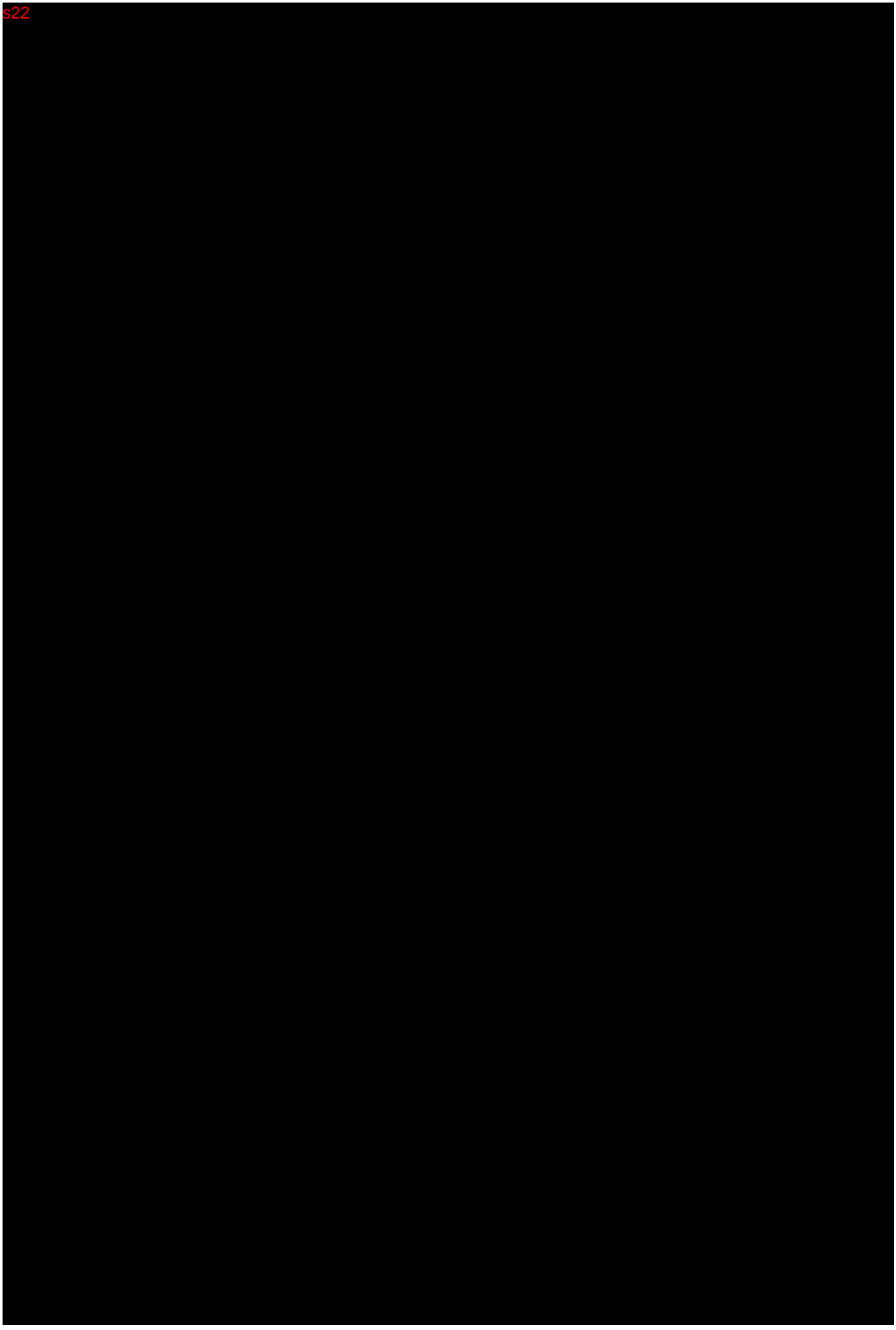

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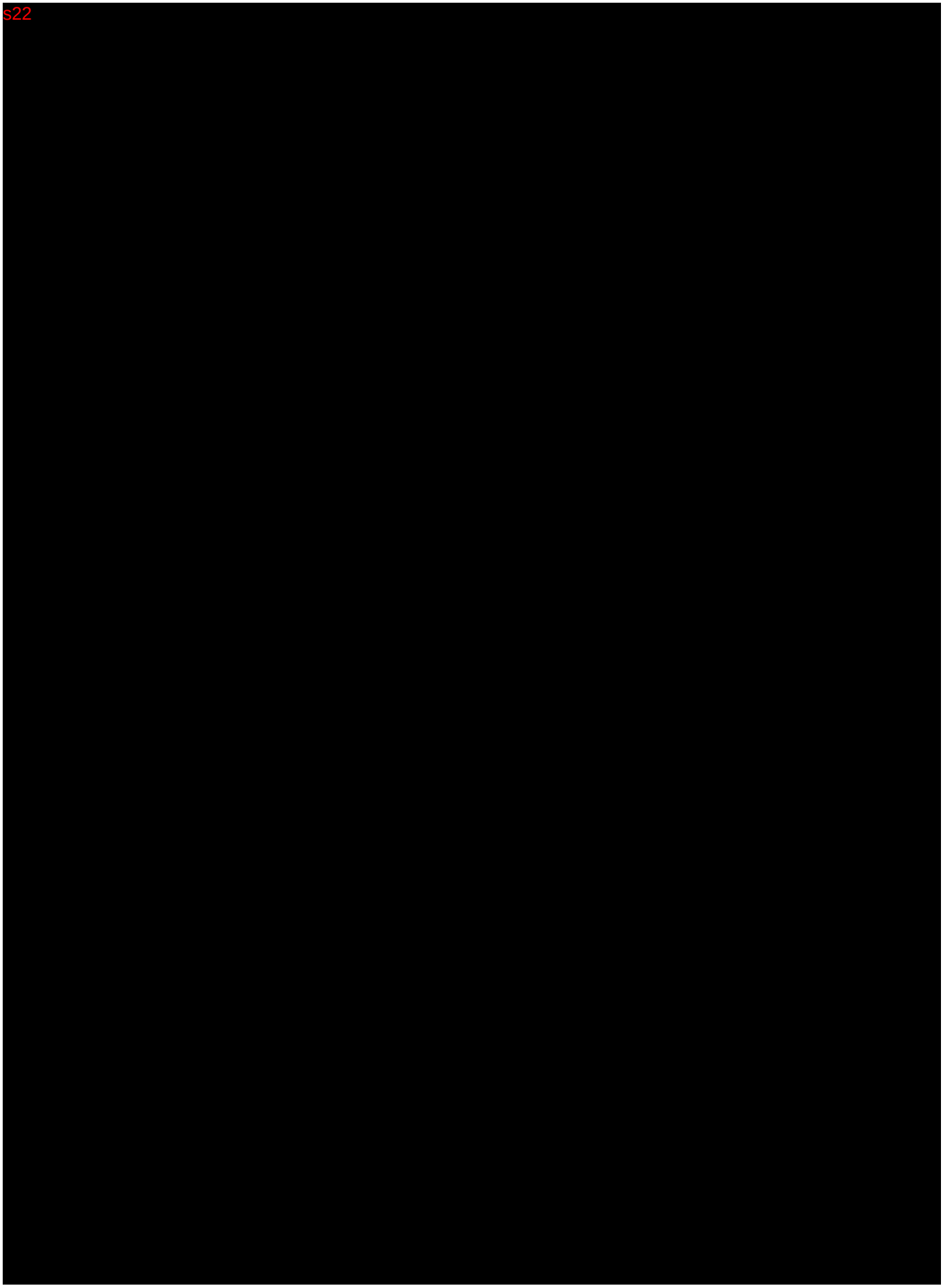

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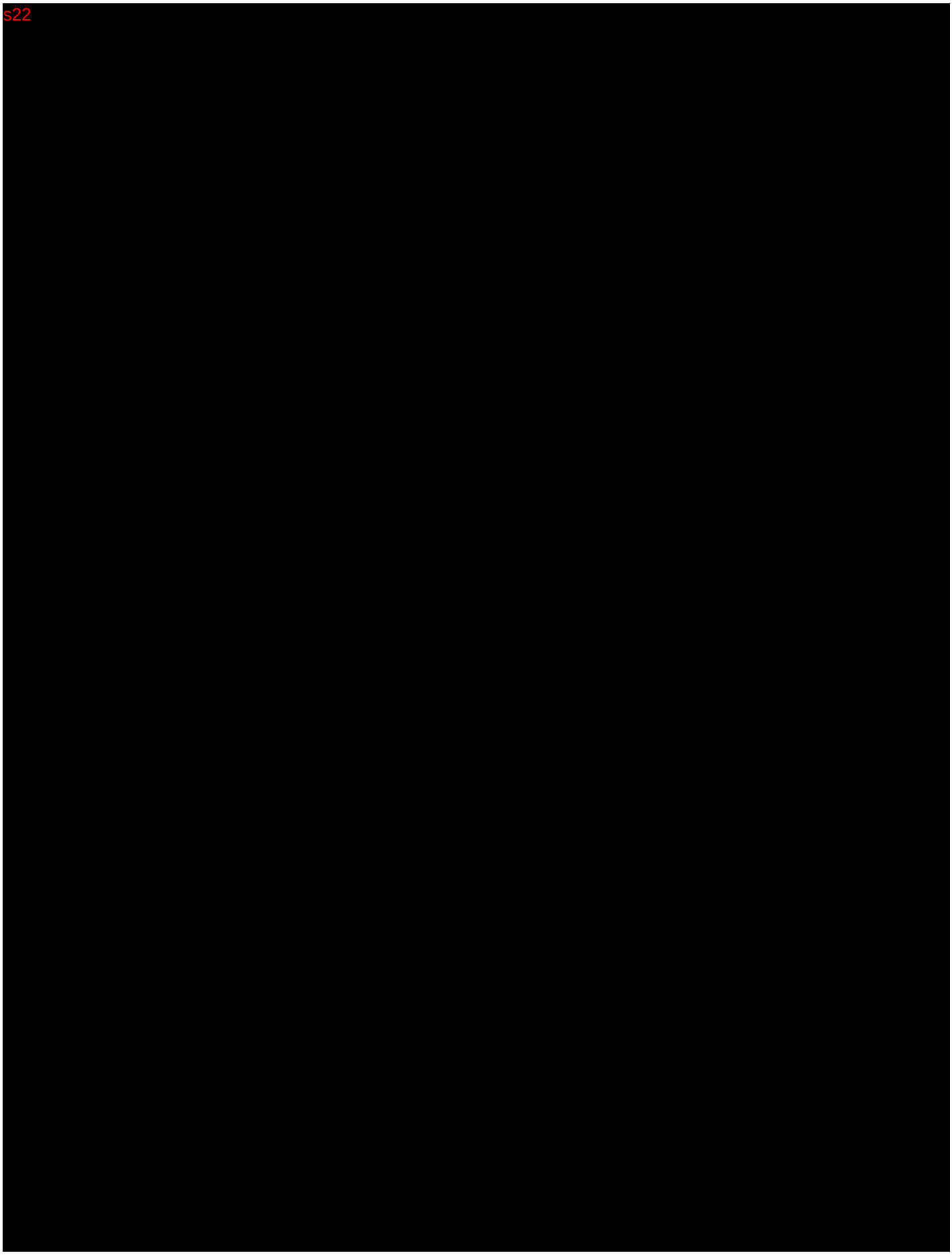

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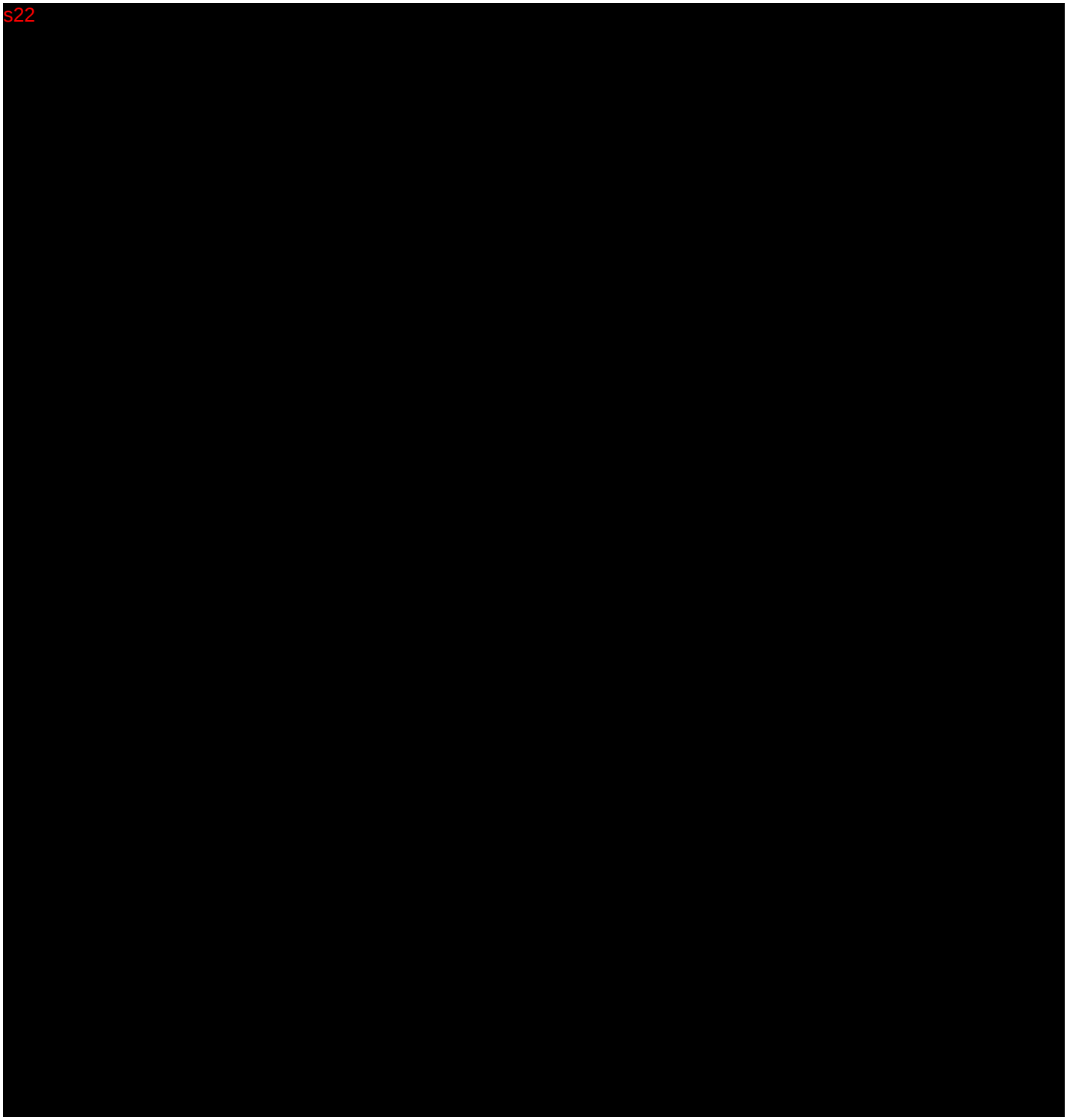

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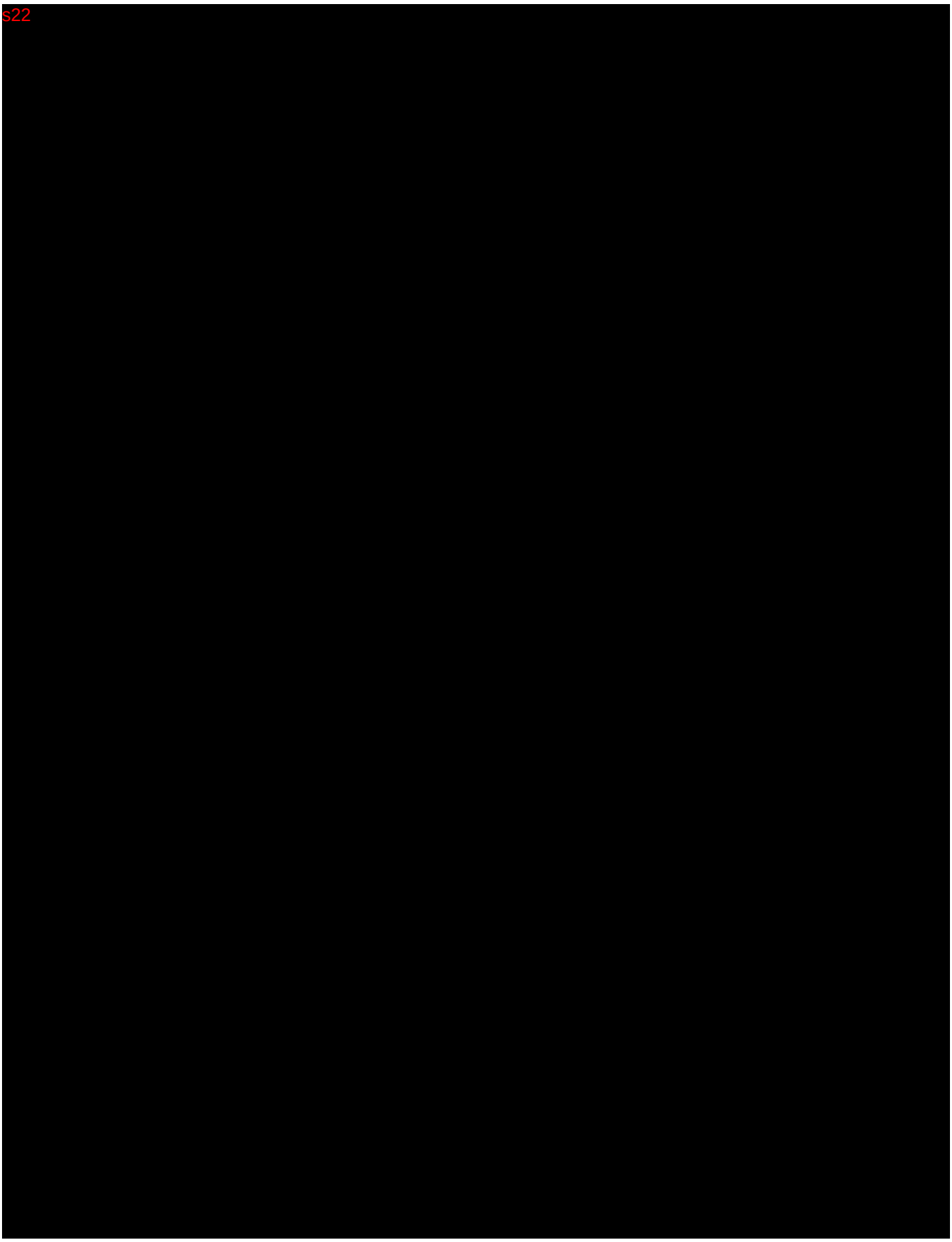

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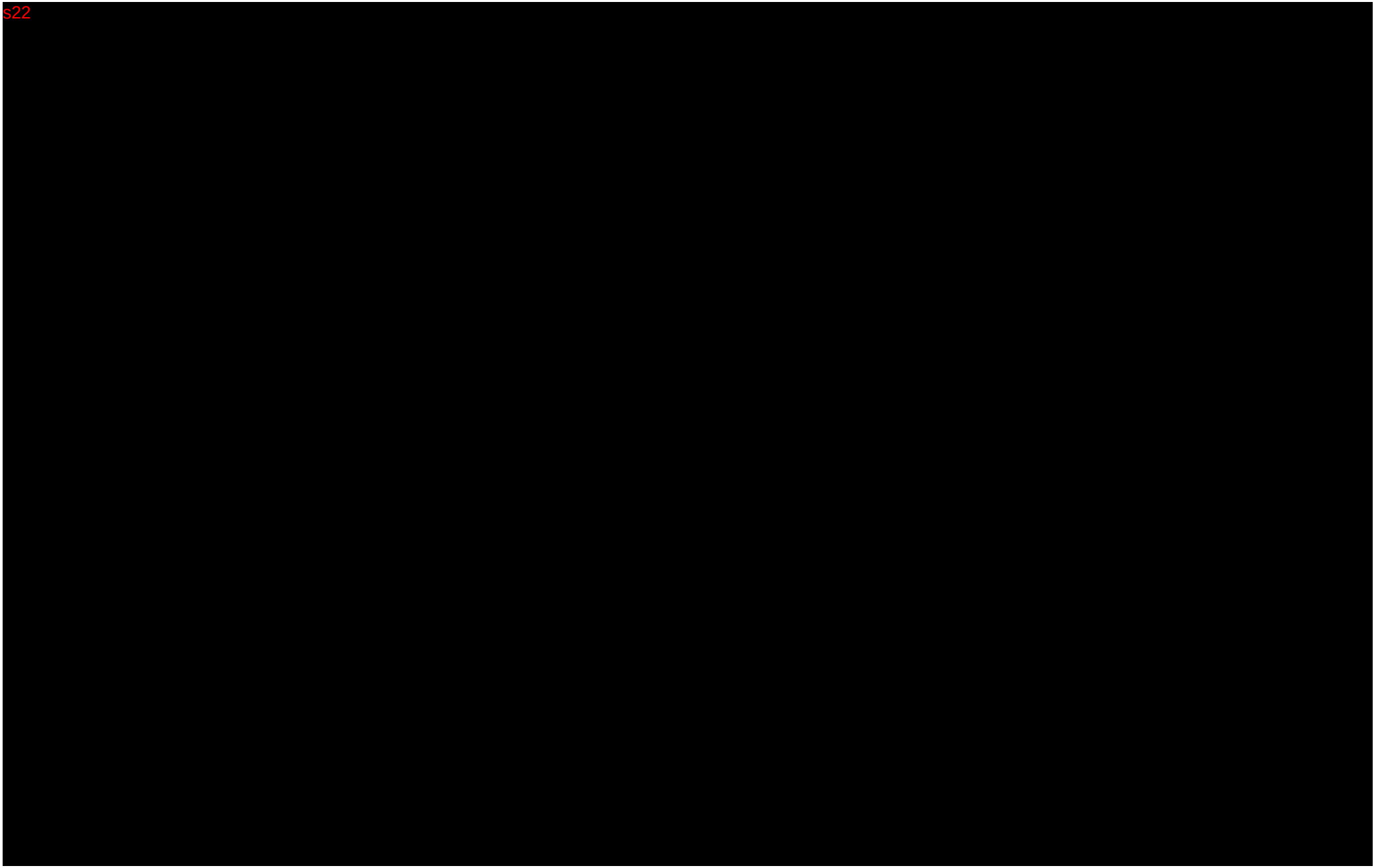
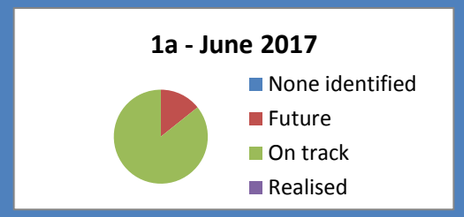
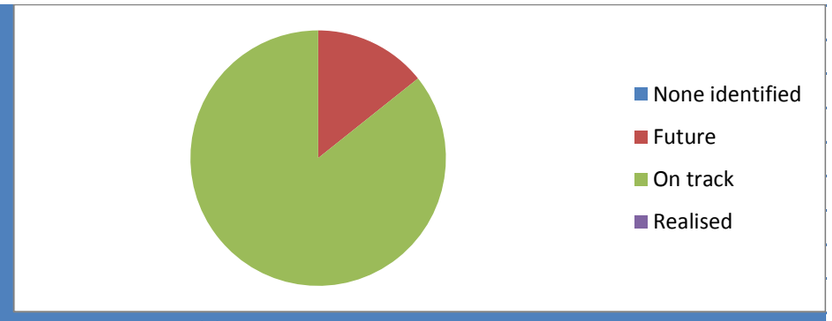


Program Outcome 1a
Parties have better knowledge to assess and manage cumulative impacts on water resources from CSG and coal mining development





Measure / enabler	Rating	Realisation/s	Future opportunities
Decision makers utilise BA technical products	on track	1. Gloucester group 2 products were considered by the Commonwealth regulator in the approval decision for Stratford coal mine. 2. Statement of reasons by Commonwealth Minister on approval decision for Watermark reference the BA water-dependent asset register for NAM 3. NSW DPI Water has used hydrological modelling outputs to inform business case for investment in groundwater monitoring infrastructure in HUN and Sydney	1.GAL products defining ZoPHC could be used to inform definition of the future CMA.
Decision makers utilise BA methods	on track	1. Shenhua Watermark conditions reference the BRAM. “Mining cannot start in the southern mining area until the predicted impacts on groundwater have been updated with more than 10 years of actual groundwater data (Australian Government conditions 2, 7; NSW condition 27 (Schedule 3)), as well as the findings of all of the reports from the Bioregional Assessment. A verification report must be approved by the Commonwealth Environment Minister. If the impacts are predicted to be bigger than those approved, mining cannot start in this area.”	1. New program - Combined Geological and Bioregional Resource Assessments
Decision makers utilise BA models	on track	1. Decision makers in Victoria use the DPI 2015 Gippsland Water Study, which was based on a BA model 2. NSW DPI Water has requested access to geological models in CLM and NAM to define placement of monitoring bores under WMF	1. HUN in Upper Hunter Strategic Assessment 2. MBC in Surat CMA 3. GAL models in review process for use in GAL CMA 4. GAL in GAB water resource plan 5. Namoi geological model - NSW Govt have requested access to the Namoi BA geological model to assist with improved mapping of subsurface depths to coal seams in Gunnedah Basin
Decision makers demonstrate improved and consistent understanding of potential impacts, especially cumulative impact	future opportunities identified		1. Opportunity for promulgation of advice through IESC / its guidelines 2. Evaluation of Commonwealth regulators through BA WAIP page. 3. Analysis of approval conditions relating to cumulative impacts on water resources.

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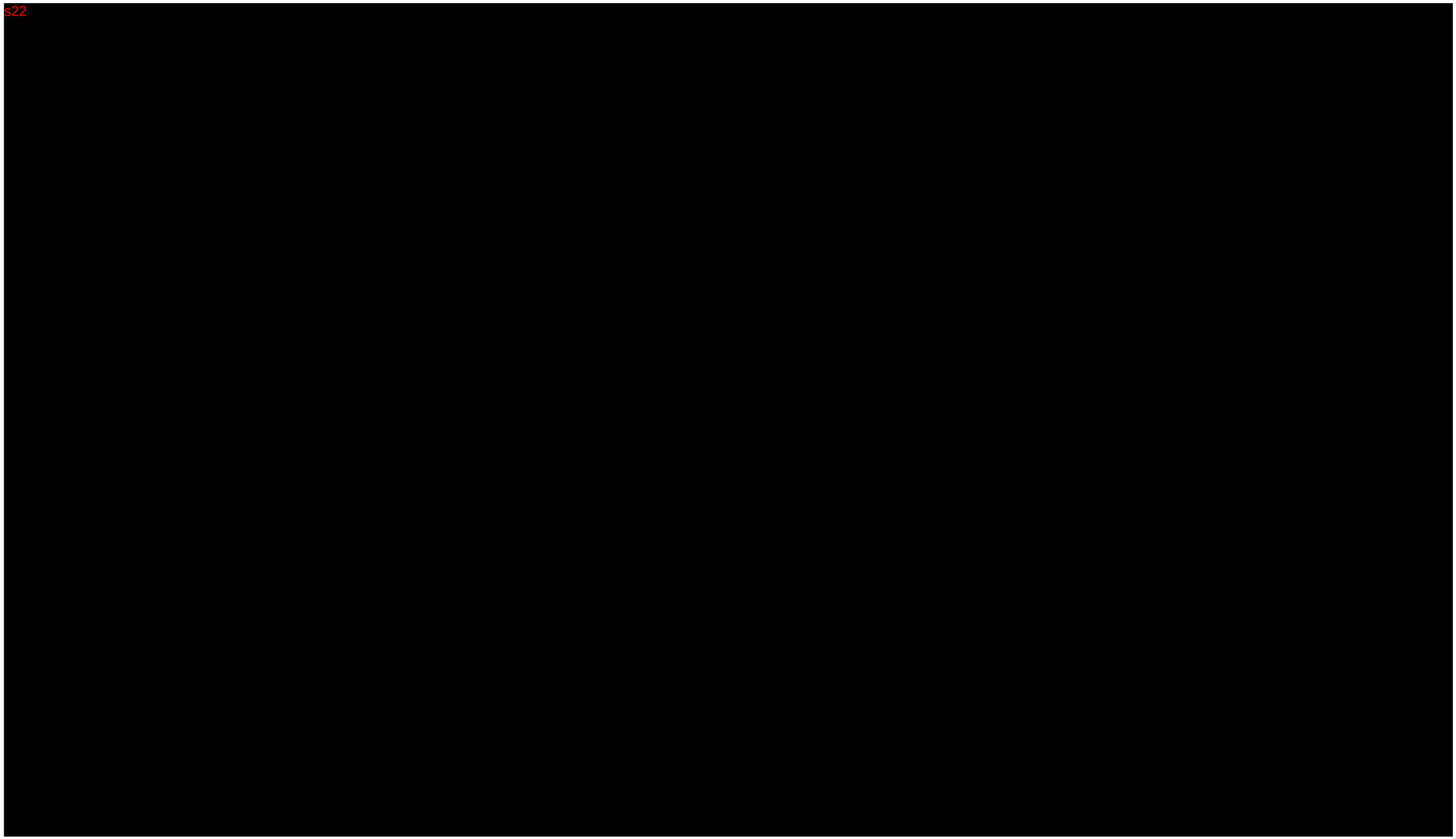

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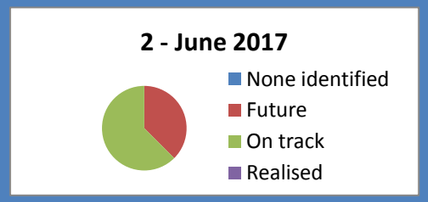
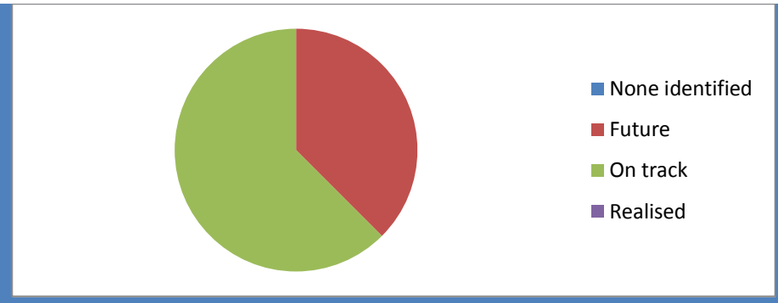
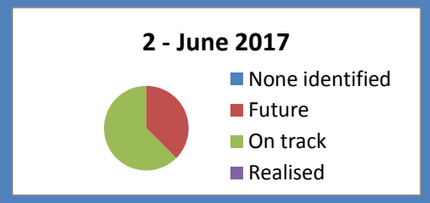
Program Outcome 2
Efficient and effective regulation of cumulative impacts on water resources from CSG and coal mining development

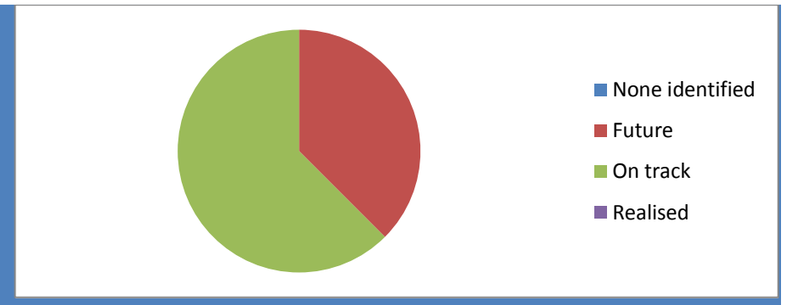




Measure / enabler	Rating	Realisation/s	Future opportunities
IESC advice reflects or directly references bioregional assessment findings	on track	1. Draft MBC GW model results considered (although not referenced) by IESC in development of its advice on the New Acland project. 2. The HUN products were used by the IESC to inform advice on water balance / modelling on Wambo. **3. The NAM context statement was referenced in IESC advice on the Santos Narrabri Gas Project.** **4. The NAM 1.2 and 1.1 referenced in IESC advice on the Watermark Coal Project.**	1. China Stone
IESC advice reflects or directly references bioregional assessment methods	on track	1. Current IESC information guidelines recommend the use of BAs in a) setting context b) baseline data c) reviewing risk assessments d) modelling of cumulative impacts	1. Future update of IESC guidelines with specifics around uncertainty or other BA methods
Regulatory decisions reflect or directly reference bioregional assessment findings	on track	1. BA products are referenced in Stratford conditions for the protection of water resources (Condition 32(c)(iv) of Schedule 3) - *"prepare a protocol that gives consideration to information products as they arise from the Commonwealth Office of Water Science's Bioregional Assessment for the Gloucester subregion."* 2. Shenhua Watermark statement of reasons reference the Namoi BA water-dependent asset register. *On 23 June 2015, I approved the release of Bioregional Assessment product 1.3, a water-dependent asset register for the Namoi subregion. The register identifies potential groundwater dependent ecosystems within the groundwater model domain. Given the potential for some species and communities to access shallow groundwater, I agreed with the Department's recommendation that further validation is required regarding the groundwater dependence of these communities and species.*	1. Through conditions on development approvals. 2. Through development application guidelines

Program Outcome 2
Efficient and effective regulation of cumulative impacts on water resources from CSG and coal mining development





Measure / enabler	Rating	Realisation/s	Future opportunities
Regulatory decisions reflect or directly reference bioregional assessment methods	on track	1. Shenhua Watermark conditions reference the BRAM. *"Mining cannot start in the southern mining area until the predicted impacts on groundwater have been updated with more than 10 years of actual groundwater data (Australian Government conditions 2, 7; NSW condition 27 (Schedule 3)), as well as the findings of all of the reports from the Bioregional Assessment. A verification report must be approved by the Commonwealth Environment Minister. If the impacts are predicted to be bigger than those approved, mining cannot start in this area."*	1. Through conditions on development approvals. 2. Through development application guidelines
Bioregional assessments are directly utilised in the management of water resources at a regional scale	on track	1. GIP GW model is being used to assist in the assessment of rehabilitation options for the Latrobe Valley Coal Mines and is expected to inform a water study to be produced by mid 2017. **2. HUN results are being used by NSW Government to inform management of the Hunter Regulated River.**	1. Update of the GAB SMP (GAL)
Policy at the state or Commonwealth scale references bioregional assessment findings or methods	future opportunities identified		1. Through IESC guidelines 2. Through development application guidelines 3. Through Commonwealth regulator Policy Working Group - adoption of BAs into policy/ guidance for assessment officers
BAs provide for a stable regulatory framework that maximises business and community confidence	future opportunities identified		1. Preliminary discussions have been undertaken on how the MBC GW model which includes additional coal mines for the region may be useful to provide greater cumulative insights for the Queensland regulators. 2. The HUN cumulative model could be part of the EPBC Act Upper Hunter Strategic Assessment 3. The BA findings and models could inform the GAL CMA
BAs influence resource development decisions – both for economic benefit and to reduce environmental cost in the near term	future opportunities identified		1. Mining proponents now look more closely at cumulative impacts when proposing new mines.

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