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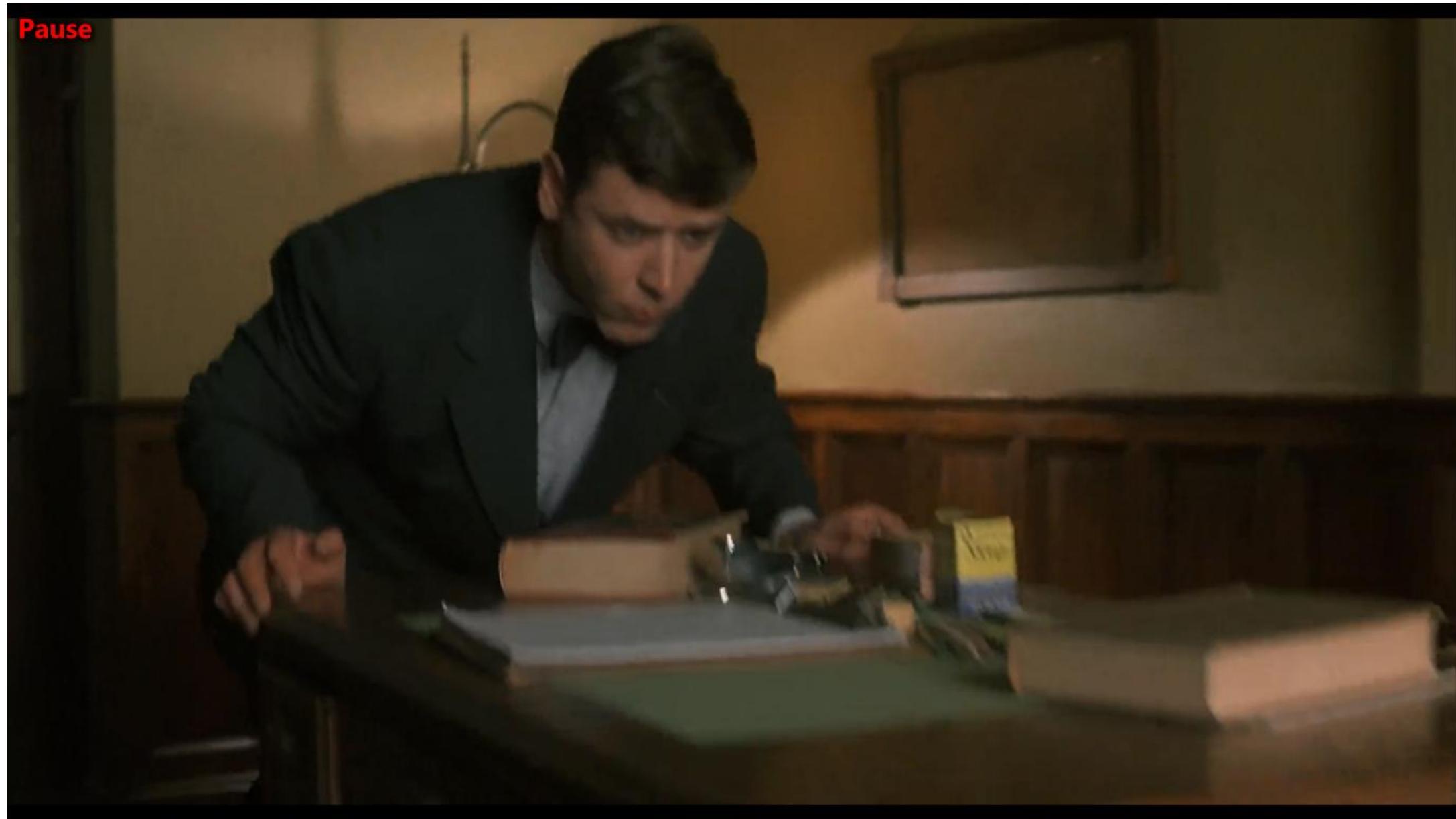
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$$\begin{array}{c} \leftarrow \\ \alpha_i \quad \beta_j \\ i=1..4 \quad j=1..3 \\ \square_3 \quad \triangle_2 \end{array}$$

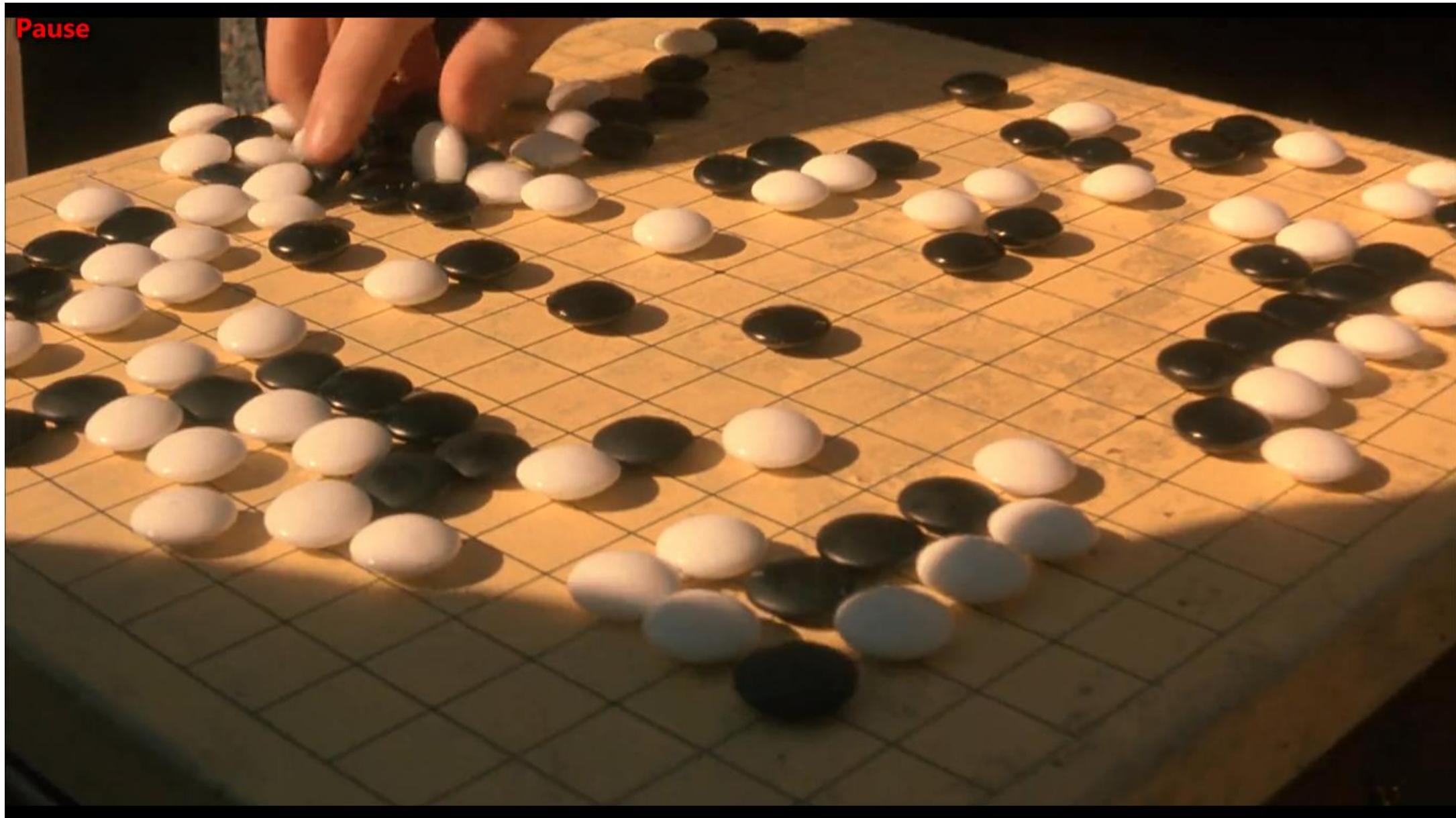
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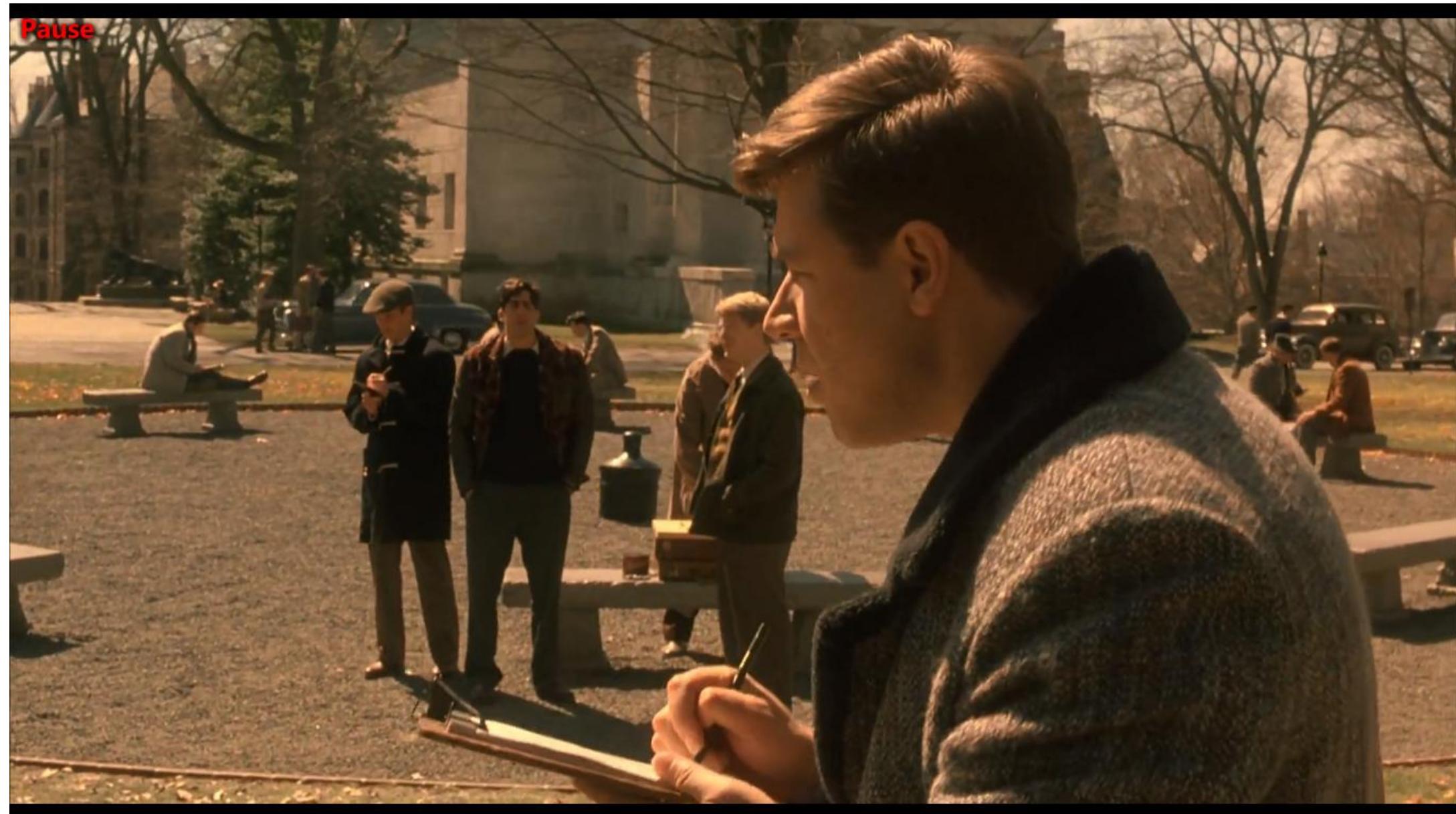
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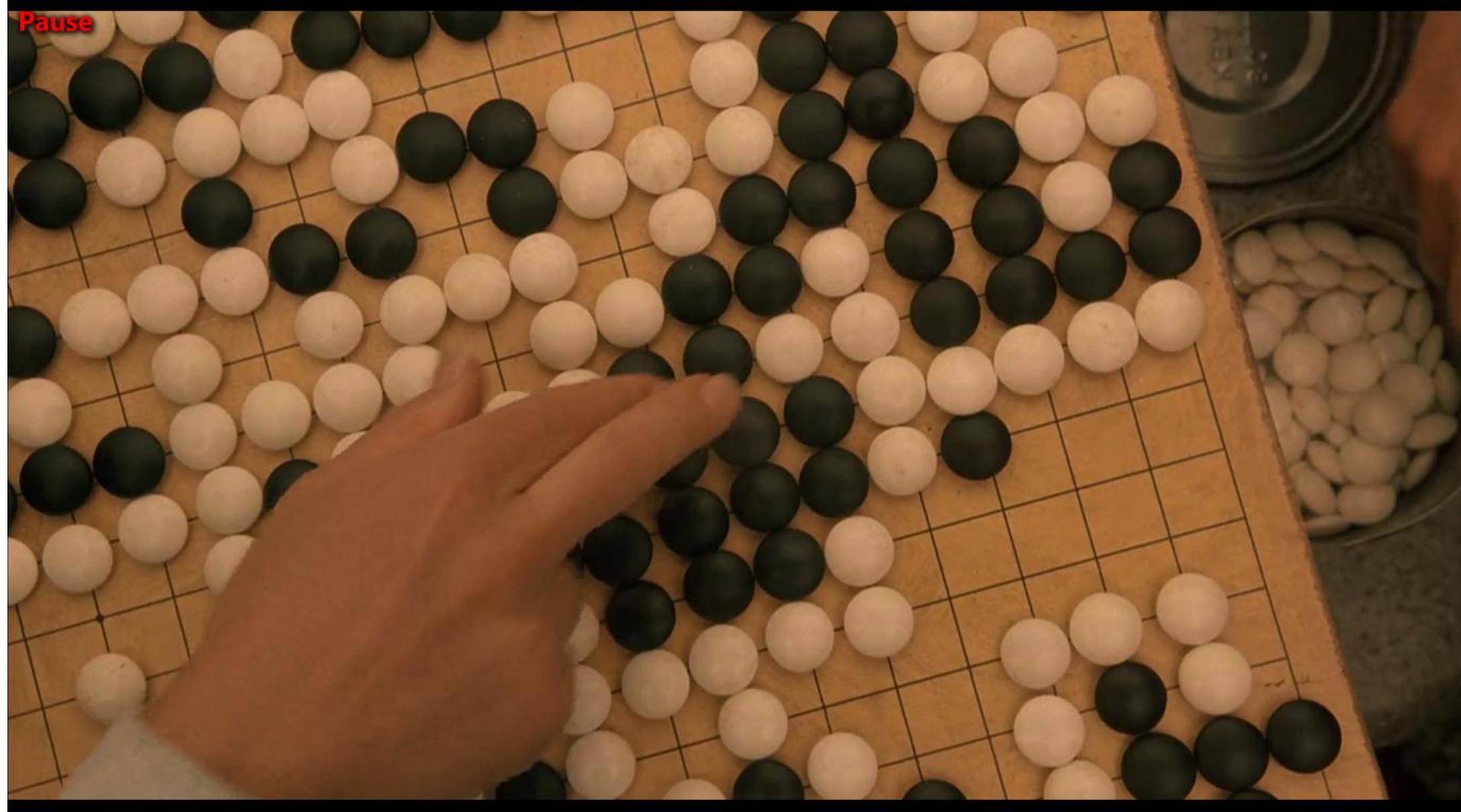
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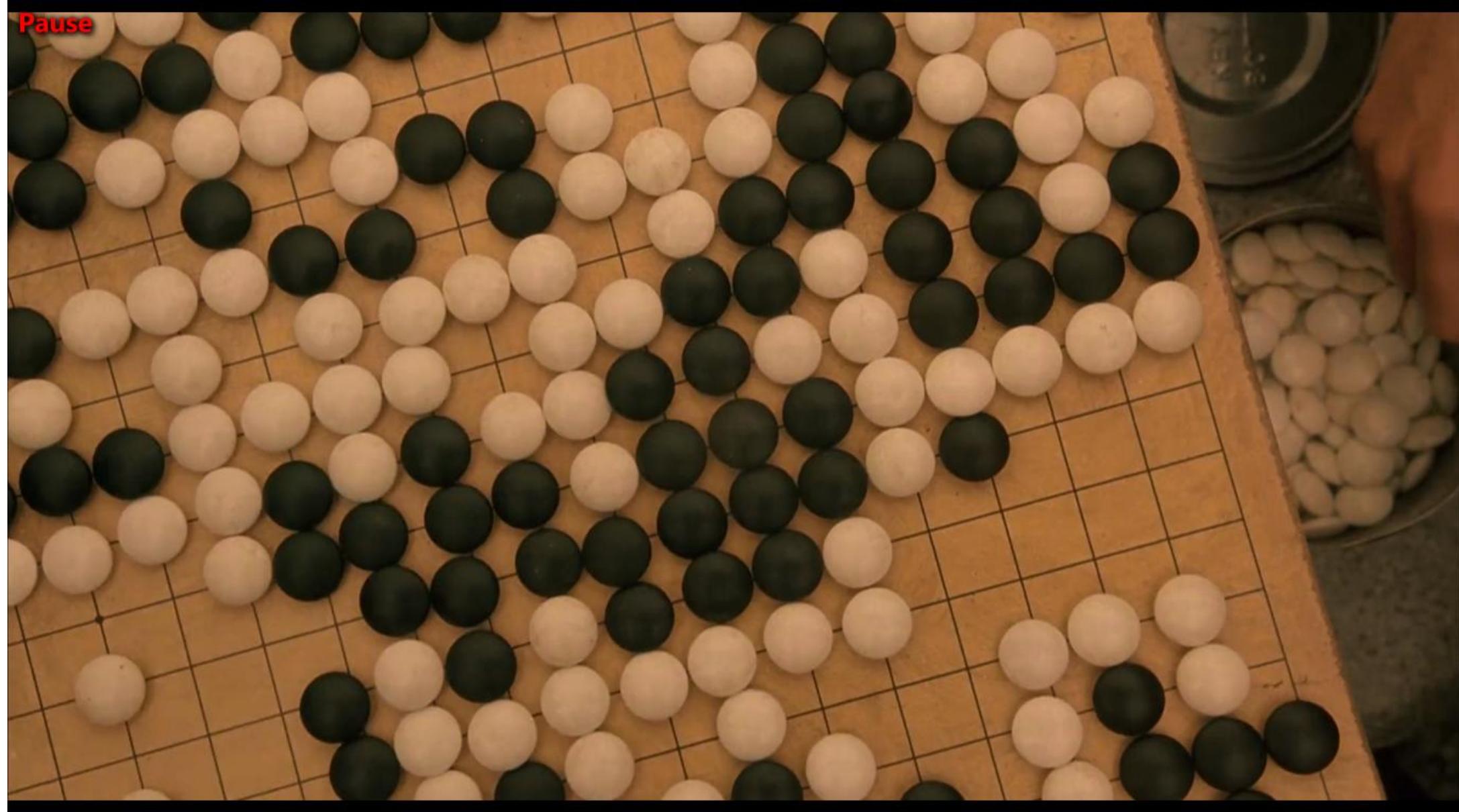
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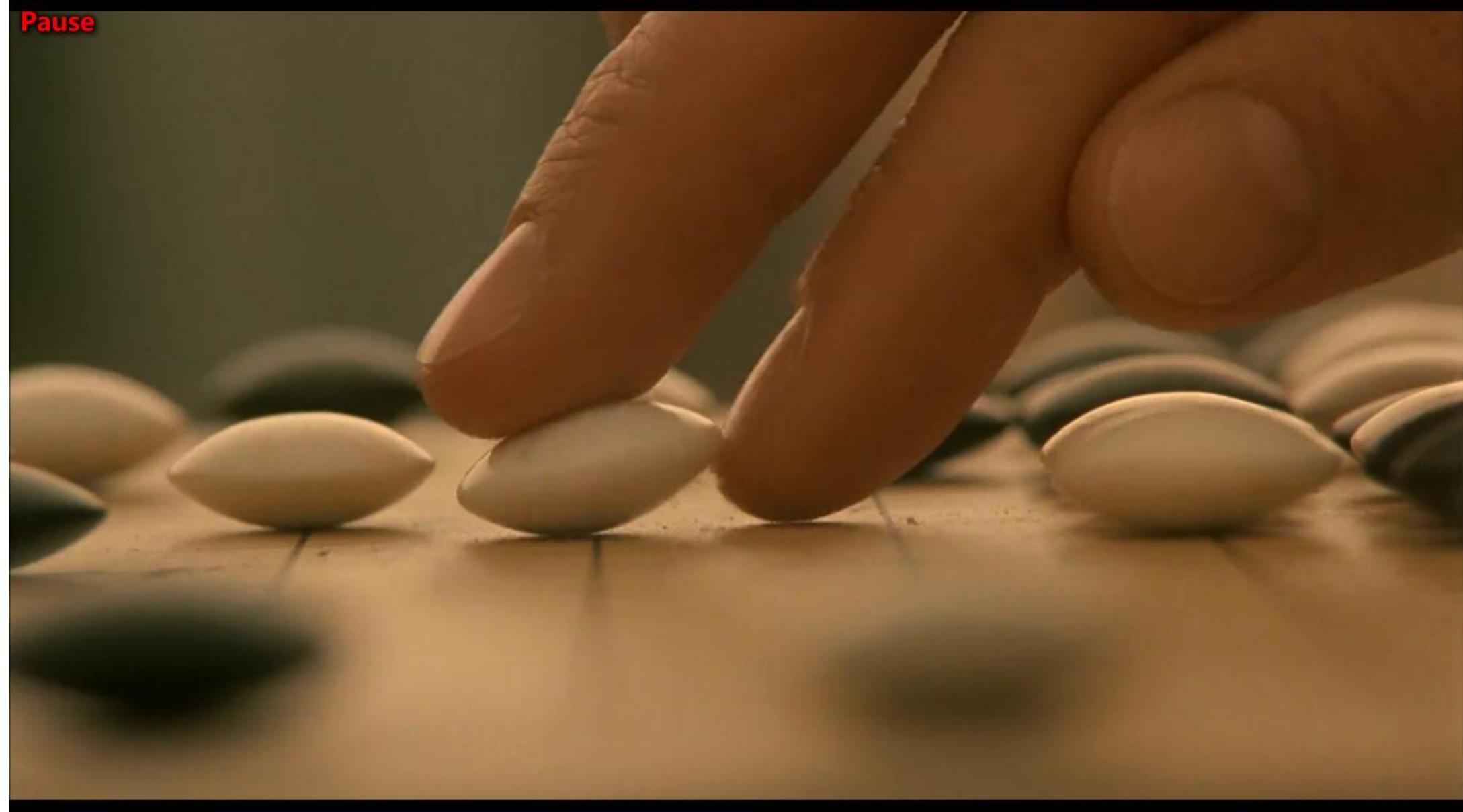
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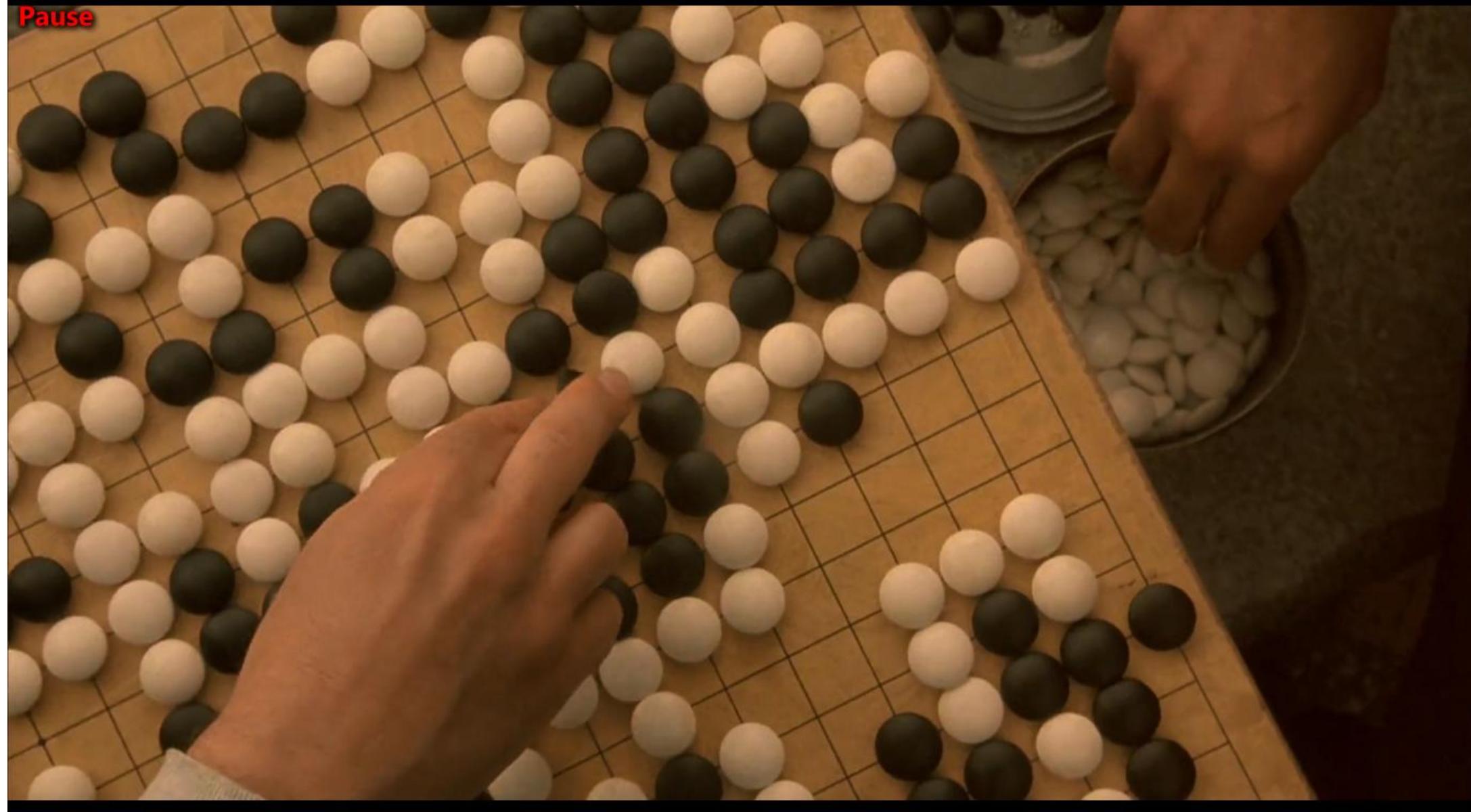
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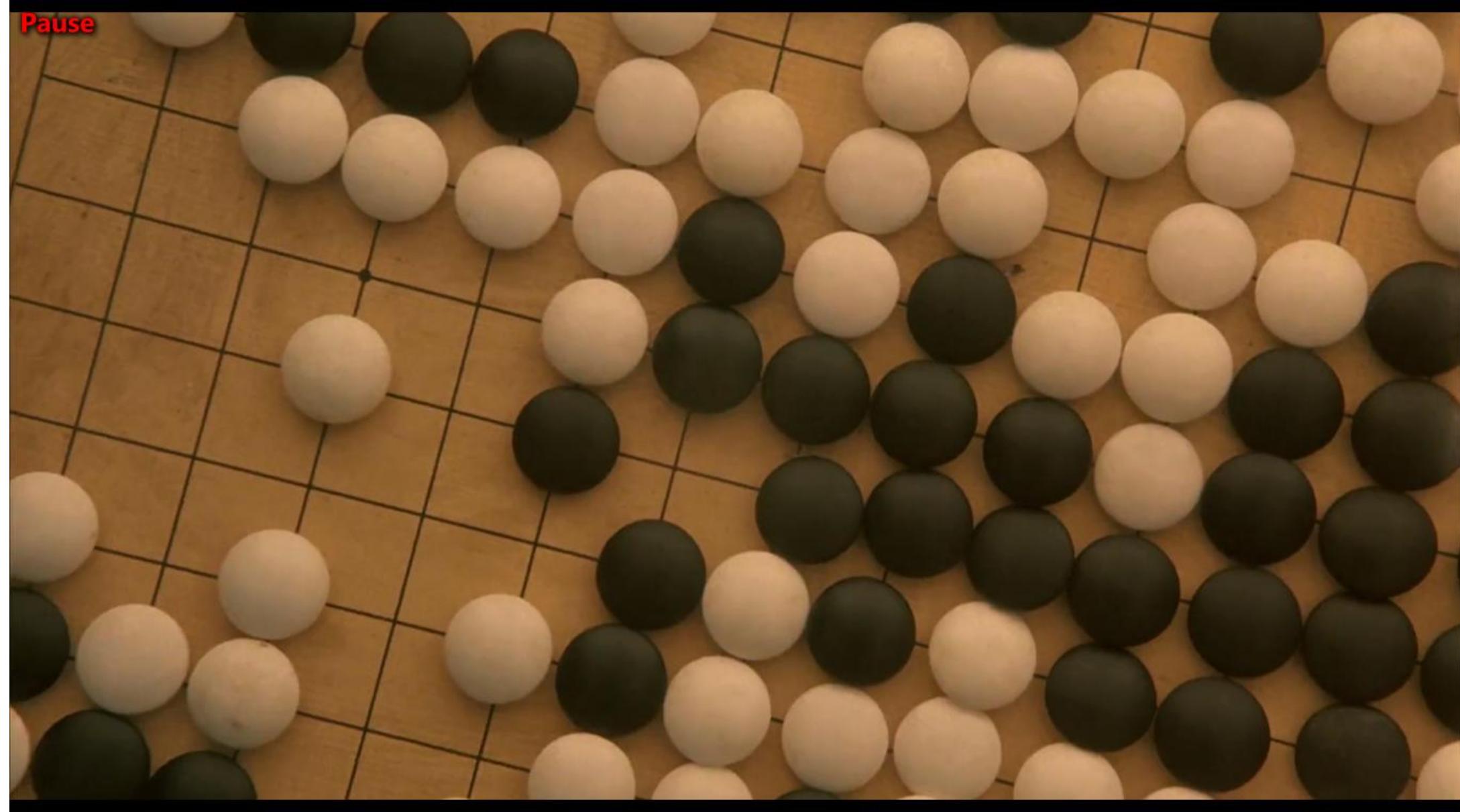
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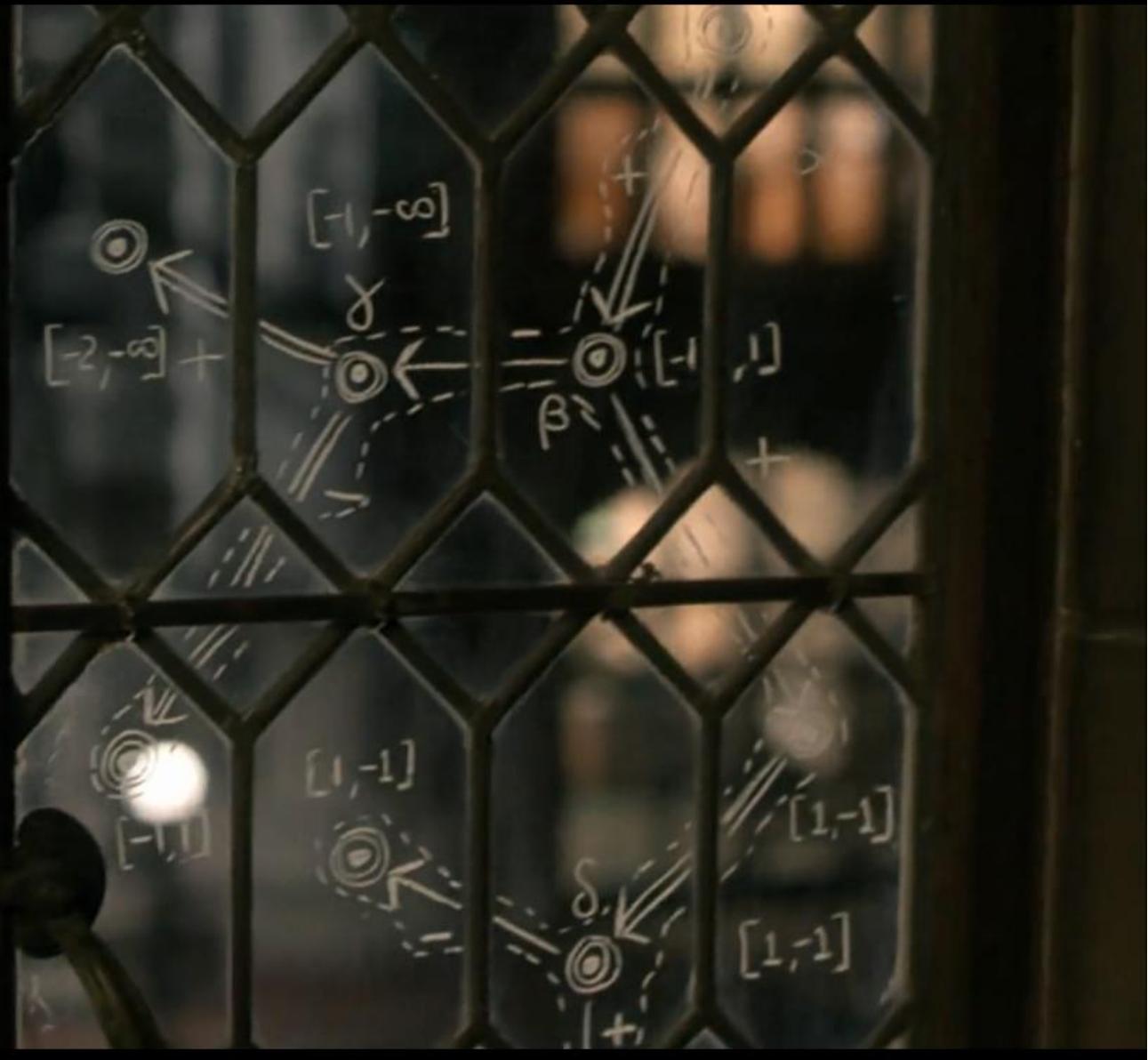
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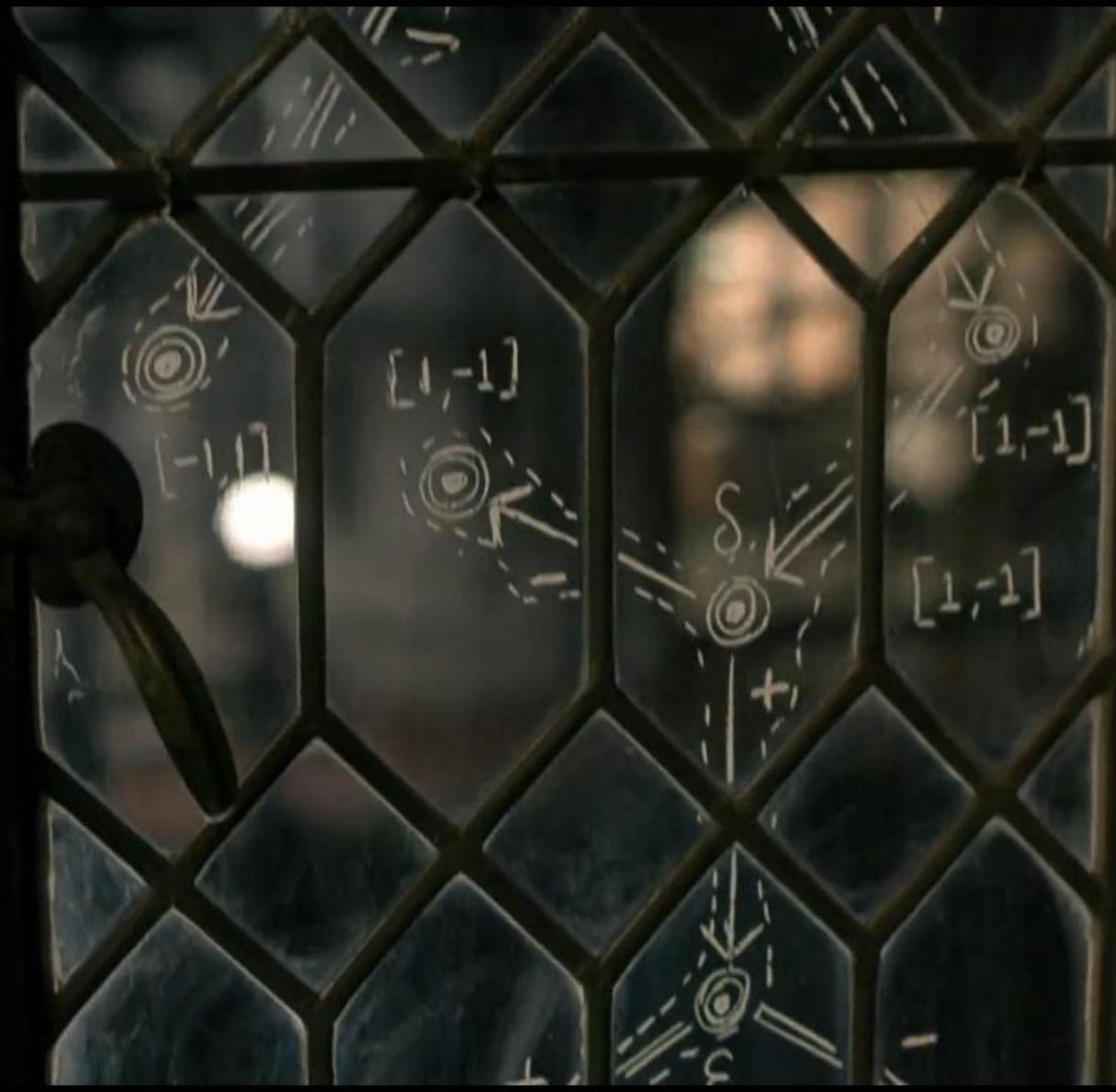
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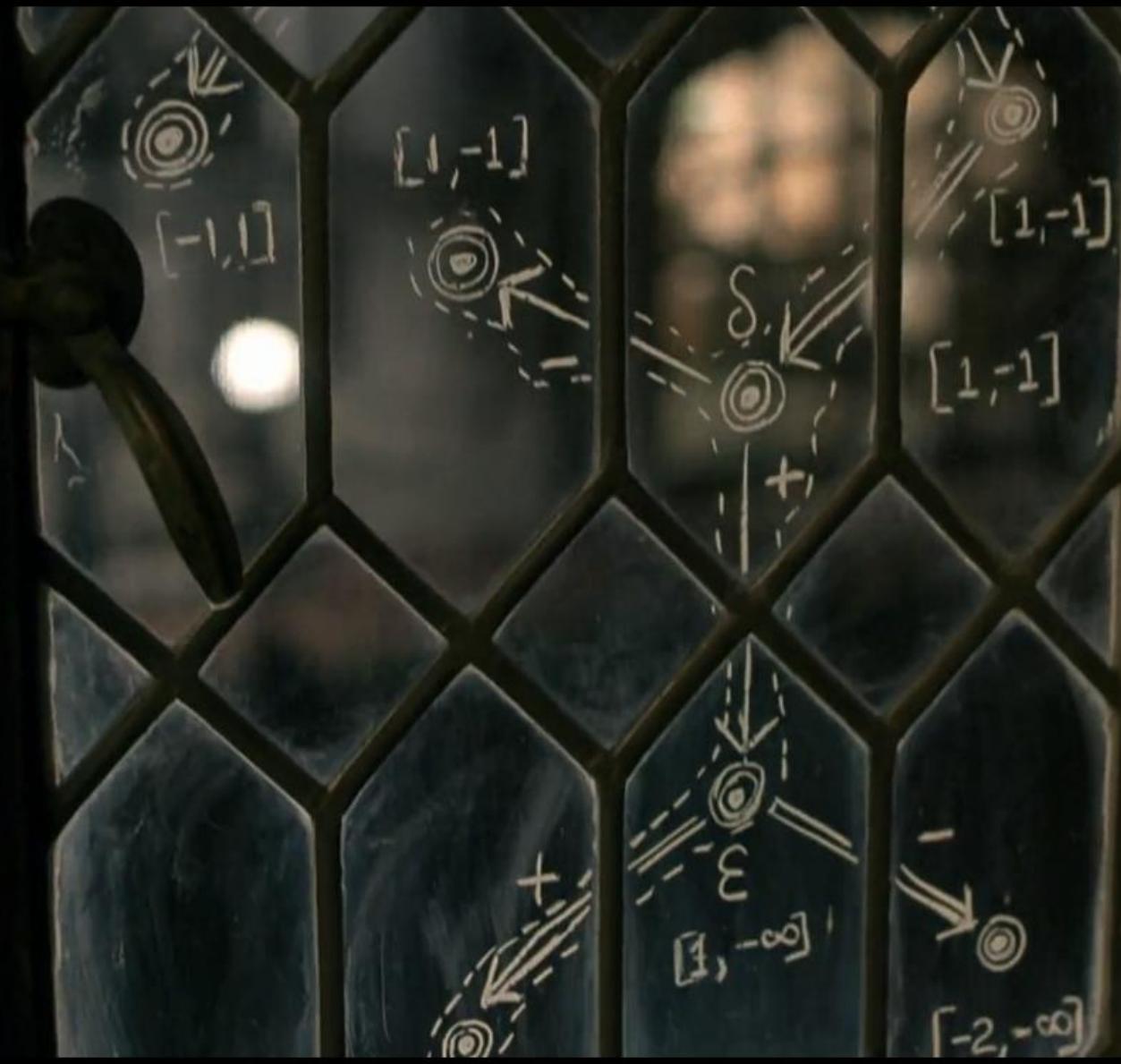
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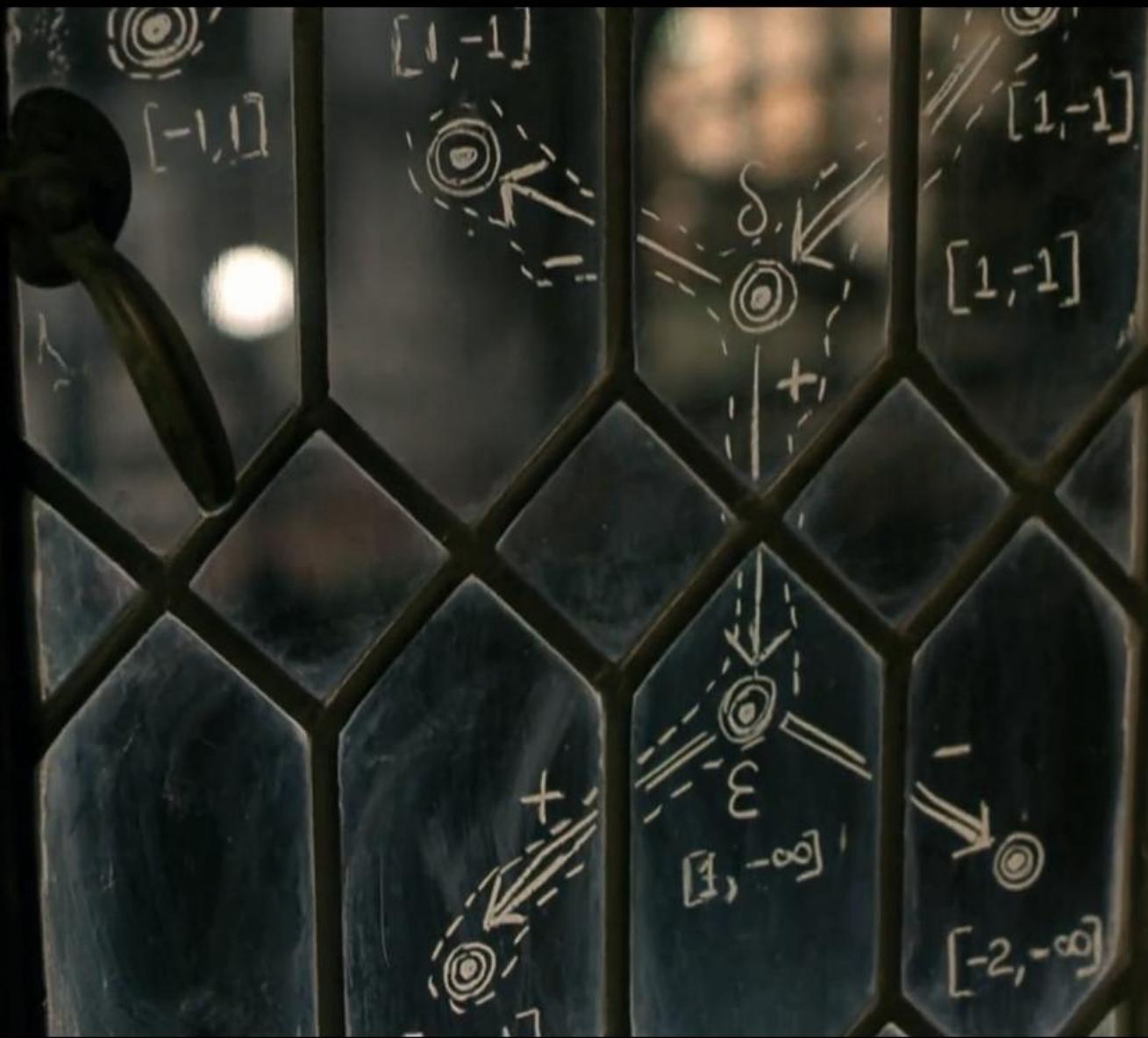
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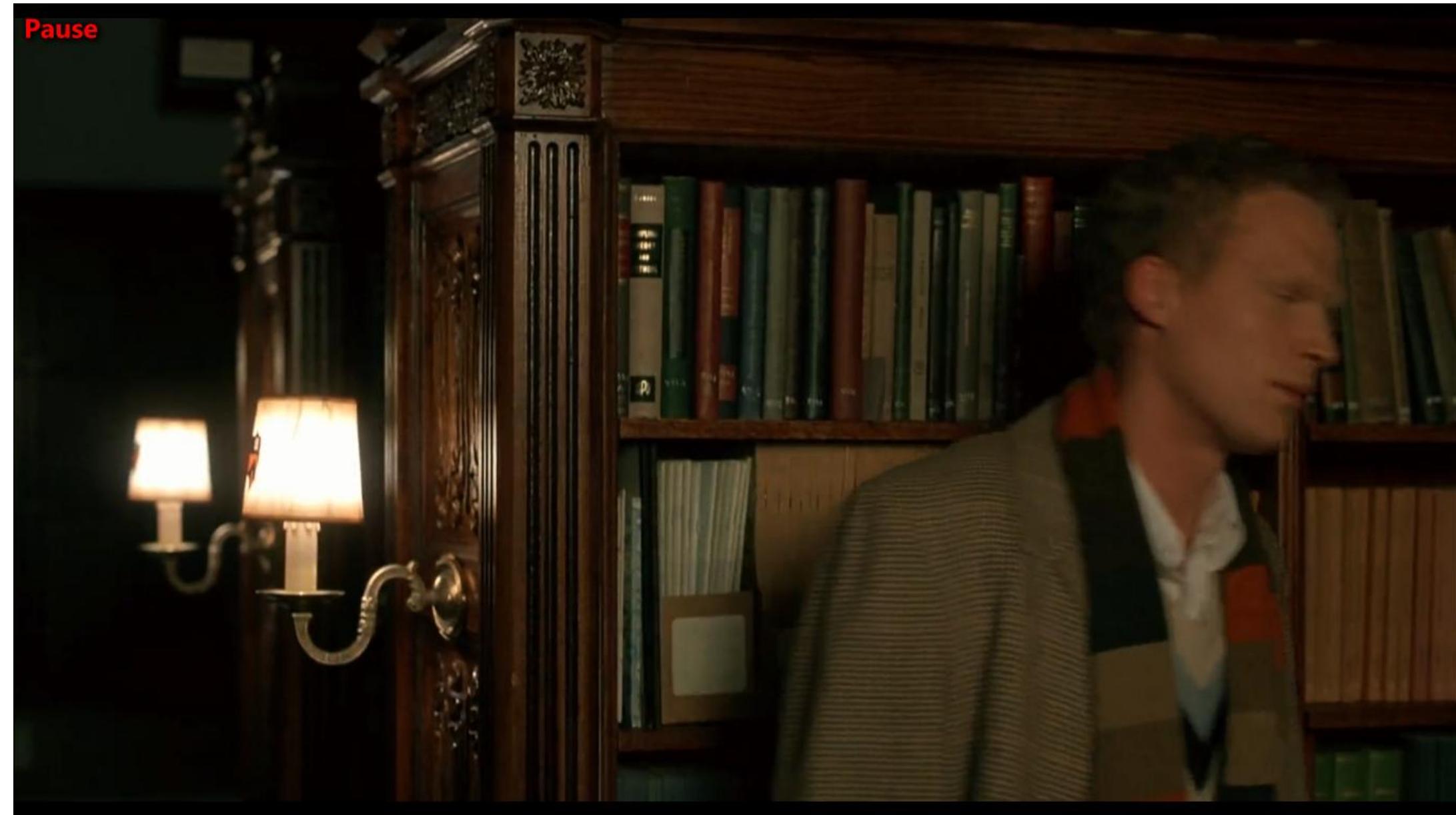
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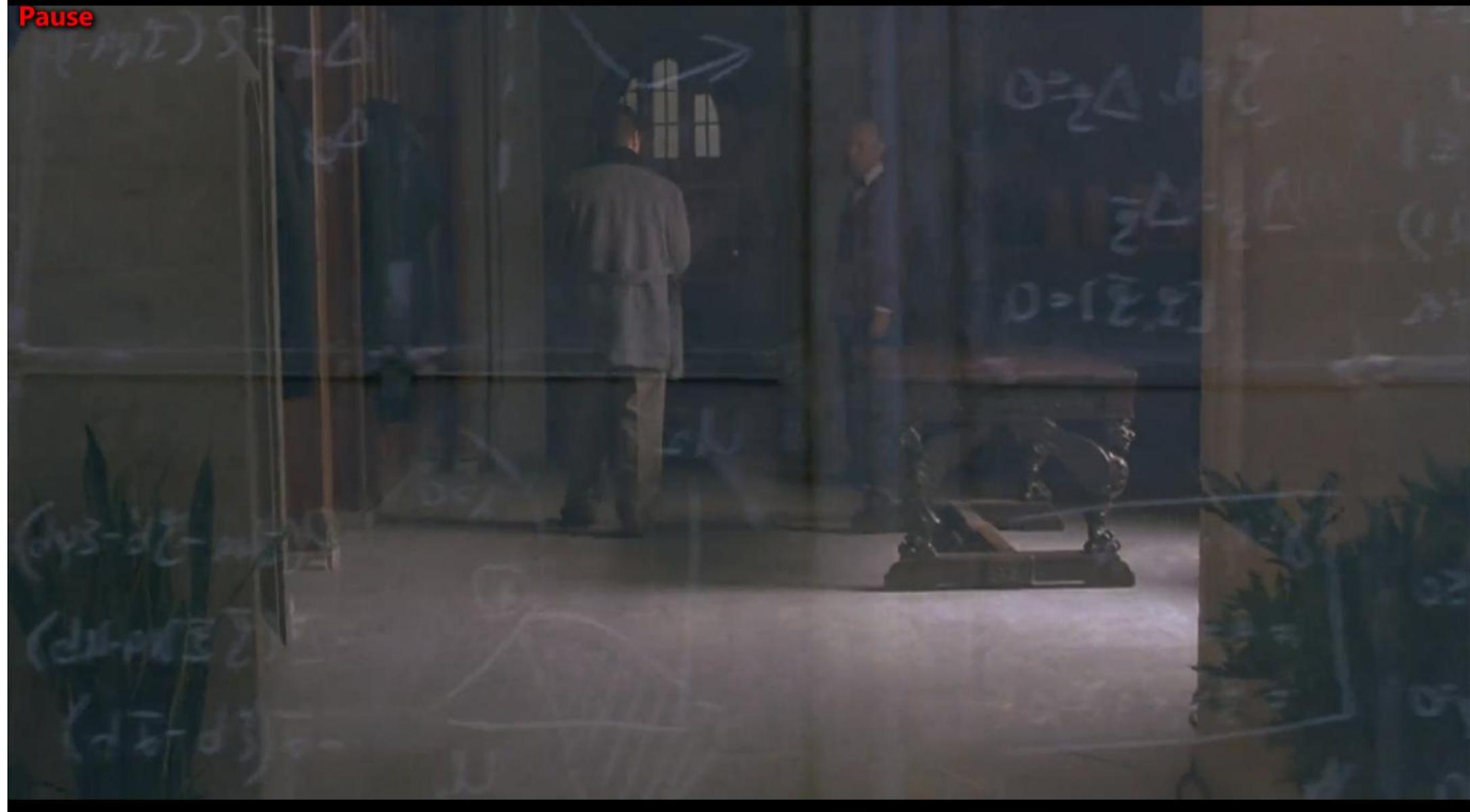


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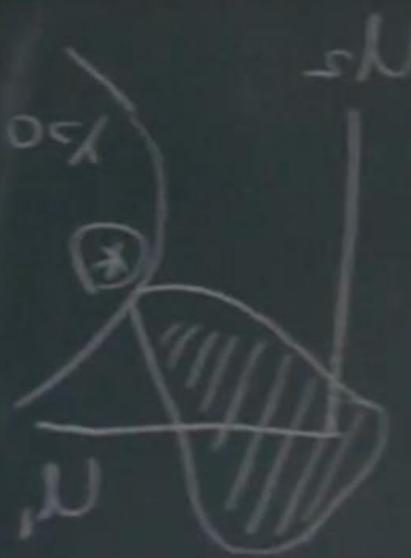




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μ

$$\begin{aligned} k &= \beta = \gamma = \delta \\ r &= q = \alpha = \\ 0 &= x = y = z = \end{aligned}$$

$$\boxed{I = VI}$$

$$\begin{aligned} 0 &\geq \Delta, 0 = \zeta, \\ -\bar{\zeta}\Delta &= \bar{\zeta}\Delta \\ 0 &= [\bar{\zeta}, \zeta] \end{aligned}$$

$$\begin{aligned} I &\geq \lambda \geq 0 \\ 0 &= \zeta\Delta \\ I &\geq \beta \geq 0 \\ (I, \beta) &\geq \Delta \\ \lambda &\geq \theta \geq 0 \end{aligned}$$

$$\begin{aligned} 0 &\geq \Delta \leq 0 = 0 \\ 0 &\leq \Delta \leq \beta \geq 0 \\ 0 &\leq \Delta = 1 = 0 \end{aligned}$$

$$\begin{aligned} \text{Left side} &= \\ (0, \dots, 0) &\in \mathcal{C} \\ (0, \dots, 0) &\in \mathcal{C} \end{aligned}$$

Pause

$$0 \in A, 0 \in C$$

$$\bar{A} = A$$

$$0 = [x, z]$$

$$0 = xA$$

$$1 \geq x \geq 0$$

$$0 = yA$$

$$1 \geq y \geq 0$$

$$(A) \geq A$$

$$C \geq A$$

$$0 \leq x \leq 1$$

$$0 \leq y \leq 1$$

$$(A) \leq (B)$$

$$C \leq B$$

$$0 \leq x \leq 1$$

$$0 \leq y \leq 1$$

$$0 \leq x \leq 1$$

$$(A - B) \leq (C - D)$$

$$(A, B, C, D)$$

$$\begin{array}{l} A = B = C = D \\ Y = Q = S = \\ 0 = X = V = Z = \end{array}$$

$$0 \leq A \leq 0 = 1$$

$$0 \leq B \leq P \leq 0$$

$$0 \leq C \leq 1 = 1$$

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1

2

3

4

$$\left. \begin{array}{l} 0 = \lambda \Delta \\ 1 \geq x \geq 0 \end{array} \right\}$$

(2) $\mu \leq \nu$
বেশি

$$\left. \begin{array}{l} 0 = \beta \Delta \\ 1 \geq z \geq 0 \end{array} \right\}$$

(3) $\mu \leq (\beta \Delta) \nu$
কমে

$$\left. \begin{array}{l} 0 = \gamma \Delta \\ 1 \geq y \geq 0 \end{array} \right\}$$

(4) $\mu \leq \gamma \Delta$
কমে

$$\left. \begin{array}{l} 0 \leq x \leq k \\ 0 \leq y \leq l \end{array} \right\}$$

AF $\in L^{\frac{1}{2}}$

$\mu = \lambda \Delta$

5

$\Rightarrow \lambda \in 0 = 0$

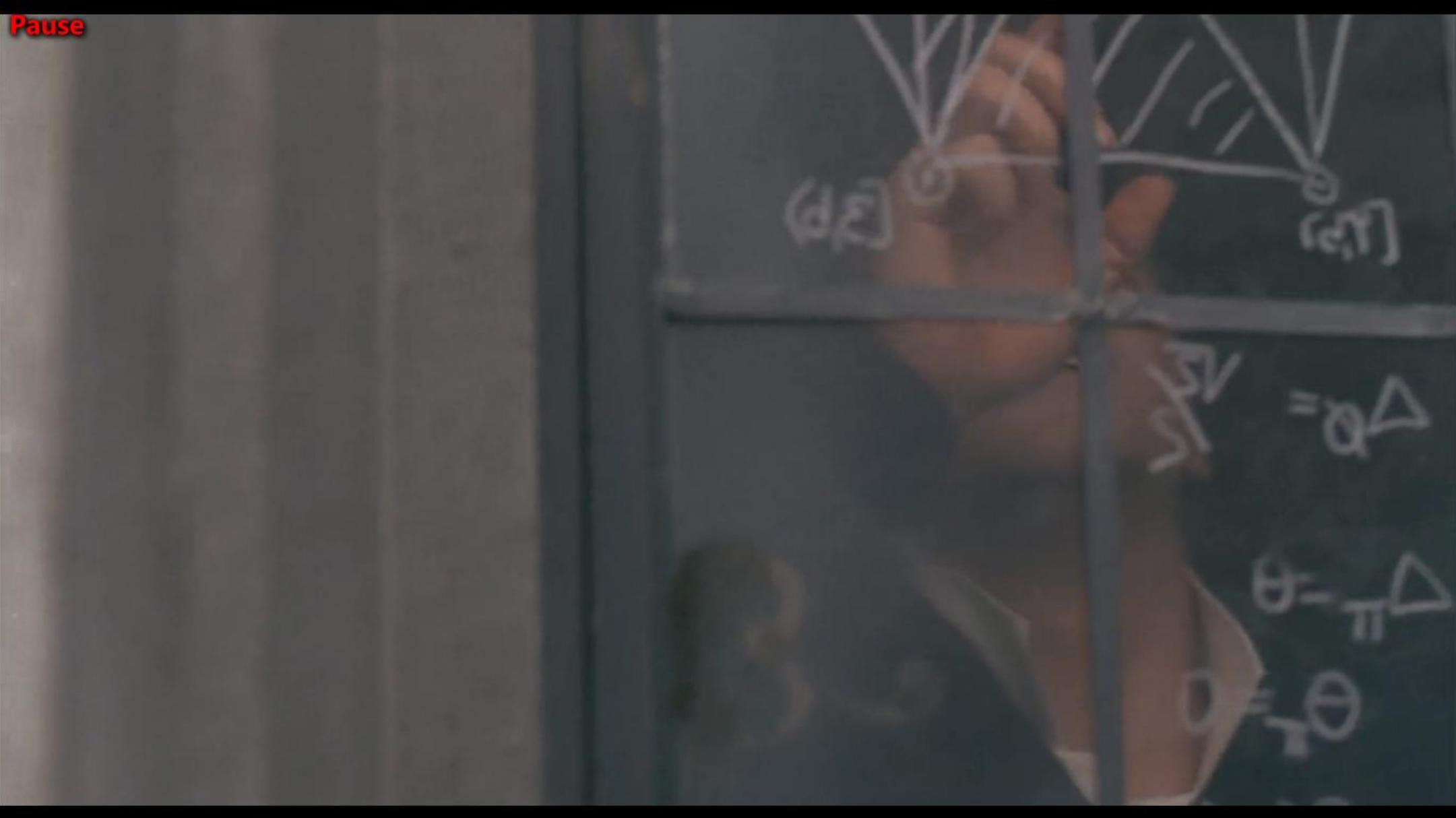
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$$\left. \begin{array}{l} 0 = \lambda \Delta \\ 1 \geq \lambda \geq 0 \\ 0 = \mu \Delta \\ 1 \geq \mu \geq 0 \\ (\lambda, \mu) \in \Delta \\ \lambda \geq \mu \geq 0 \end{array} \right\} (I)$$

$$\begin{aligned} & (\mathcal{L}_1) \mu \leq (\mathcal{L}_2) \mu \\ & \{ \mathcal{L}_1 \geq \mathcal{L}_2 \} \\ & (\mathcal{L}_2) \mu \leq (\mathcal{L}_1) \mu \\ & \{ \mathcal{L}_2 \geq \mathcal{L}_1 \} \\ & \overline{\mu} \in (\mathcal{L}_1)^* \mu \\ & (\mathcal{L}_1)^* T \geq \mathcal{L}_2 V \end{aligned}$$

$$T \in \mathcal{L}_1^* \mu \Delta$$

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$$\sqrt{y^2} = \Delta$$

$$\theta = \pi - \frac{\Delta}{\pi} = \Theta$$

$$\frac{|x|}{|x|} = (d)$$
$$\frac{|x|}{|x|} =$$
$$\frac{|x|}{|x|} =$$

$$(p, q)$$

$$(2\pi -$$

$$(w, v)$$

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$$S^V = \partial \Delta$$

$$\theta - \pi \Delta$$

$$D = \theta$$

$$J = 1/2 O$$

$$(2\pi/3 - \pi) S$$

$$(2\pi/3 - \pi) \bar{S} =$$

$$(\omega, g, \alpha) T +$$

$$O \geq$$

$$(J_{\mu \nu})^{1/2}$$

Pause

$$(d, \bar{d})$$

$$(\bar{d}, d)$$

$$(\bar{u}, u)$$

$$(u, \bar{u})$$

$$(\bar{s}, s)$$

$$(\bar{c}, c)$$

$$= Q\Delta$$

$$\Theta = \pi \Delta$$

$$O = -$$

$$O =$$

$$(1 + 8\% - 2\%)S$$

$$(8\% - 1\%)E =$$

$$(\omega, \theta, \alpha)T^+$$

$$O \geq$$

$$(1 + 7\%)T^+$$

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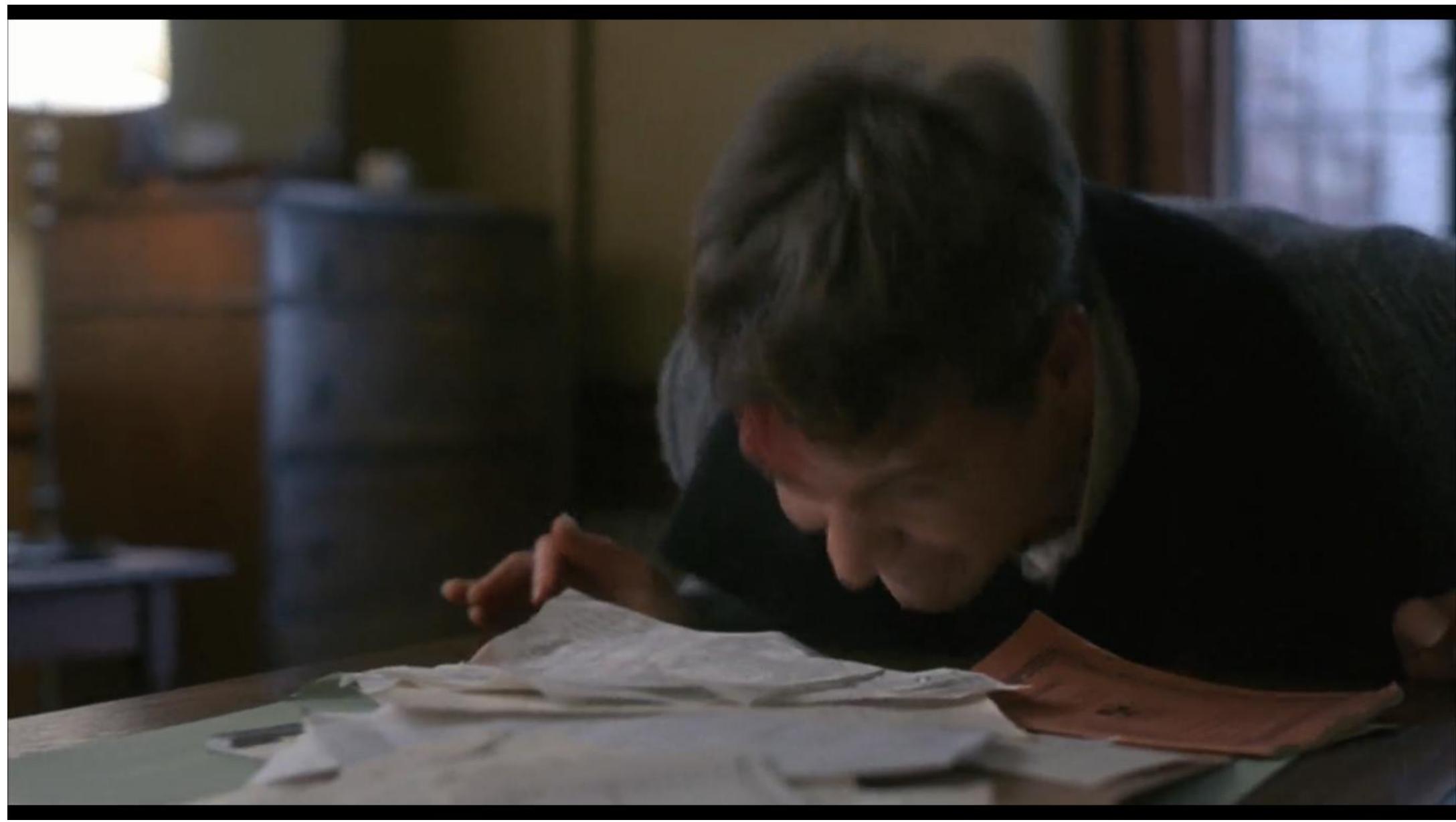


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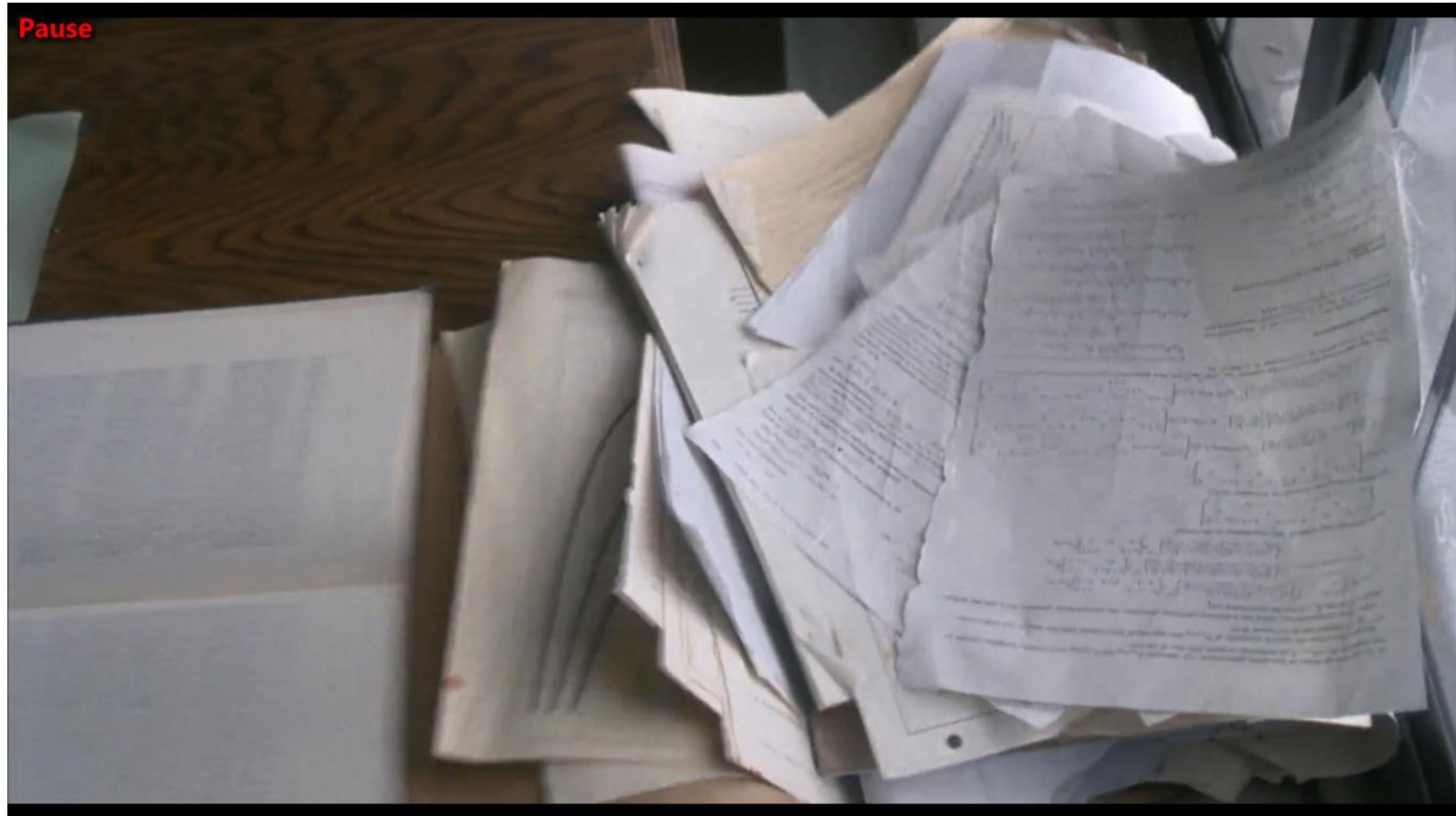


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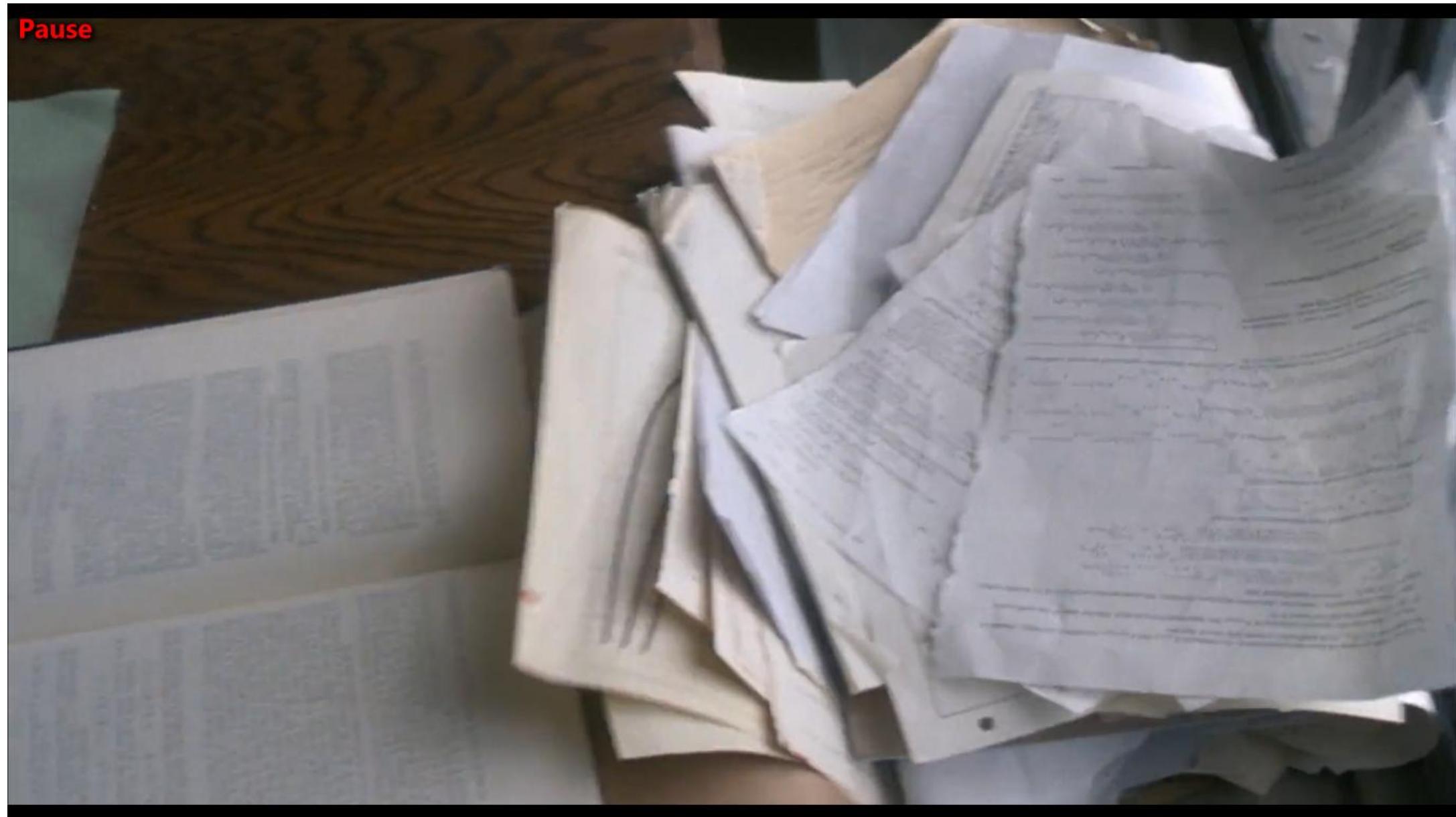




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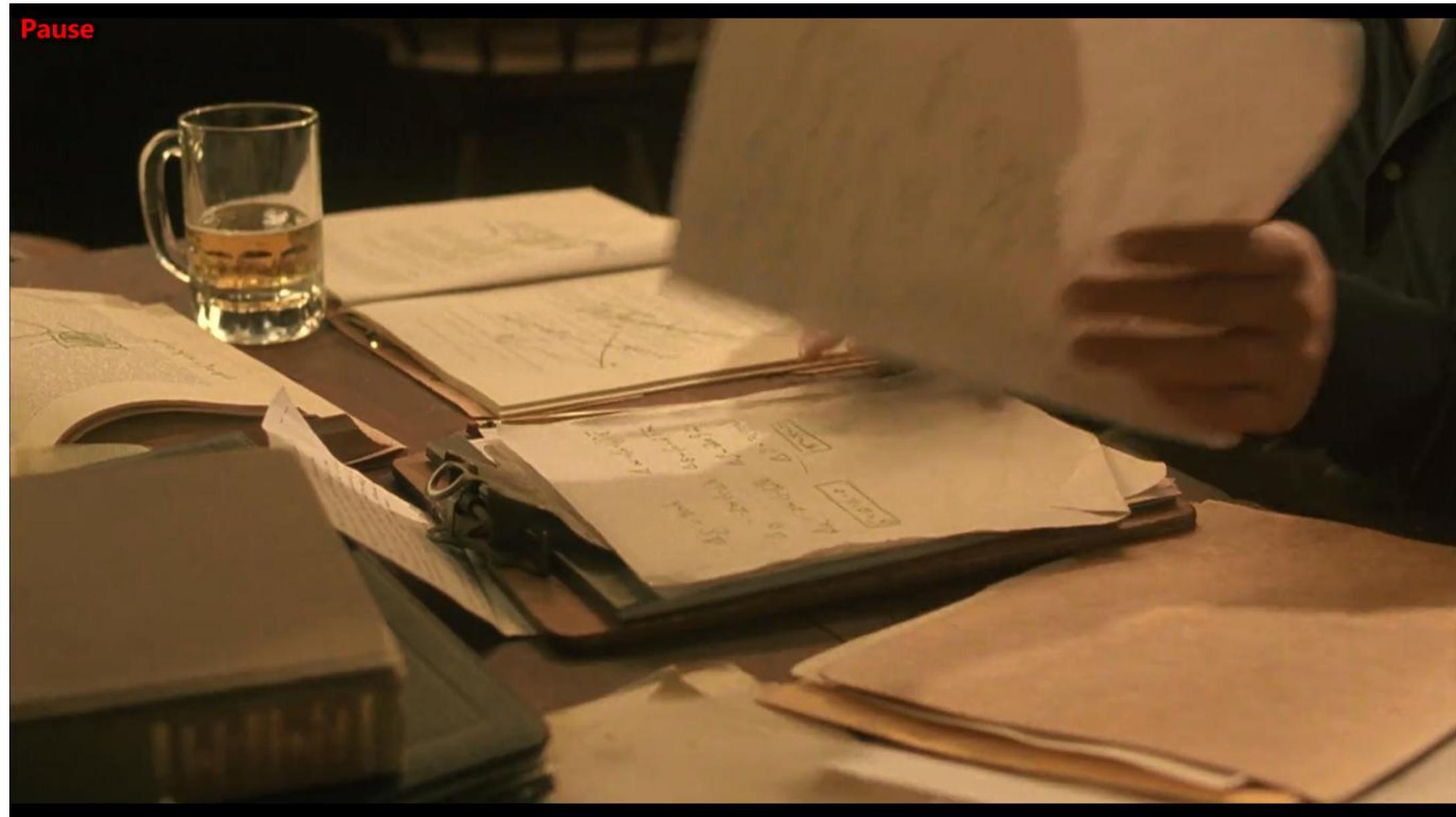


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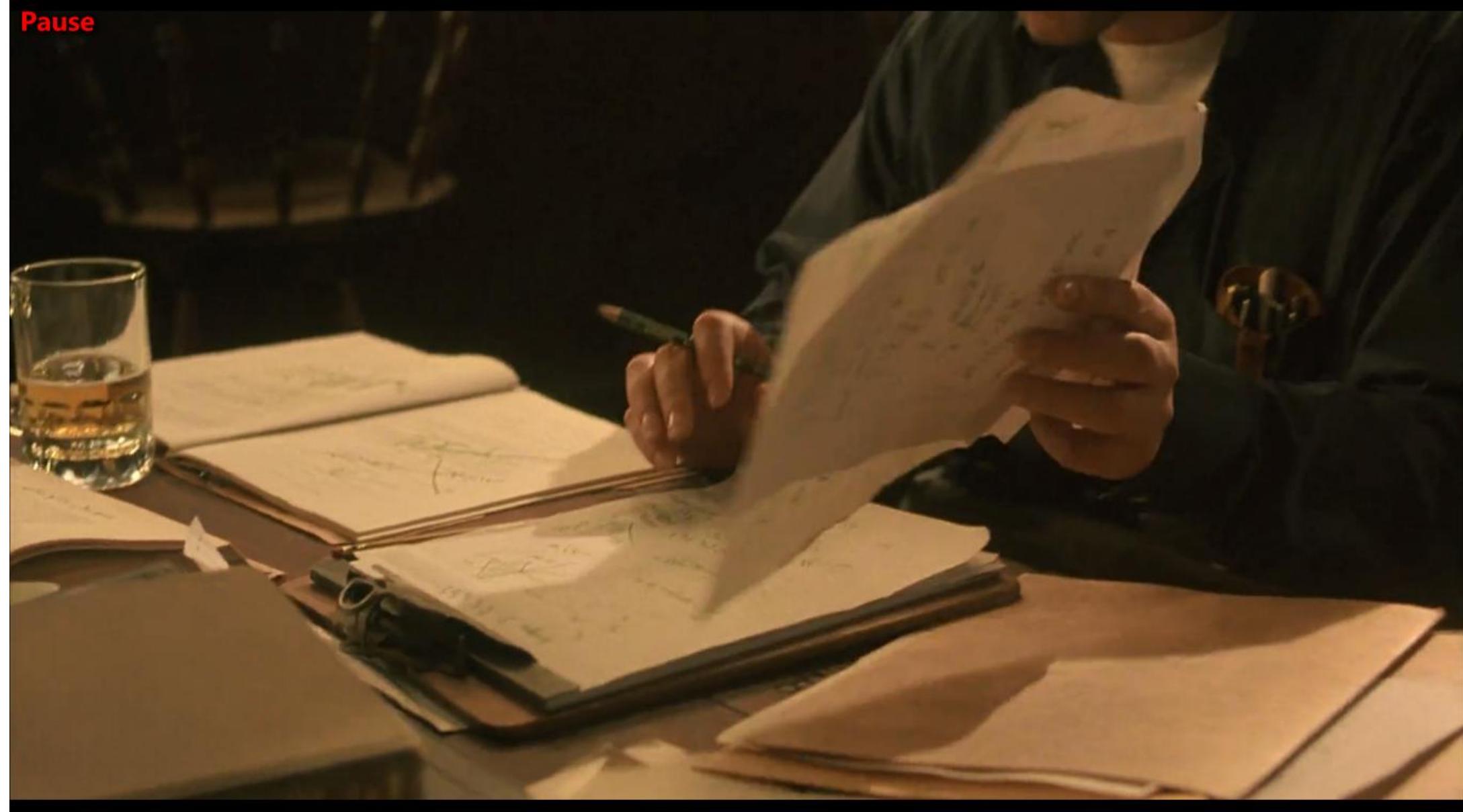




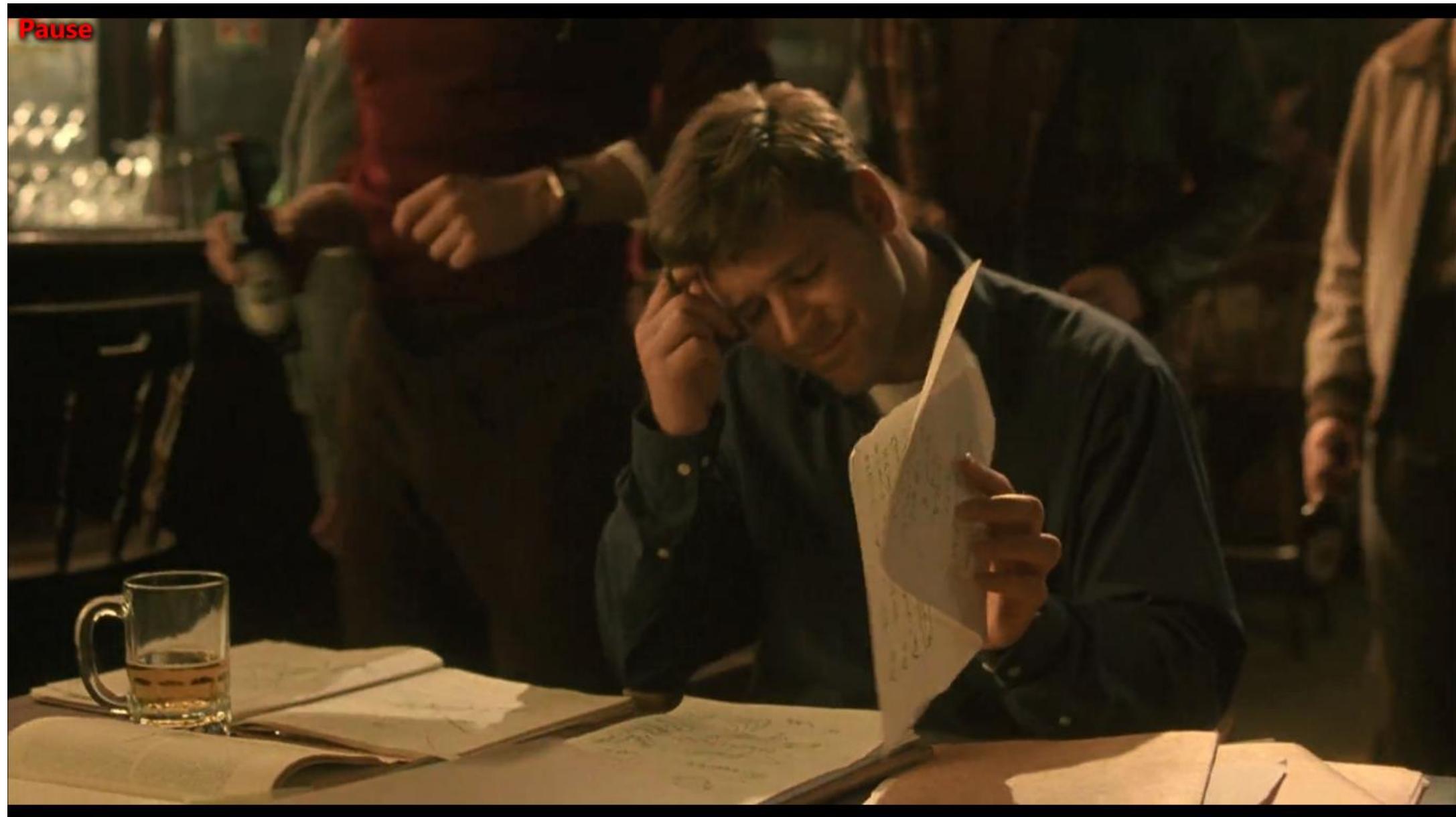
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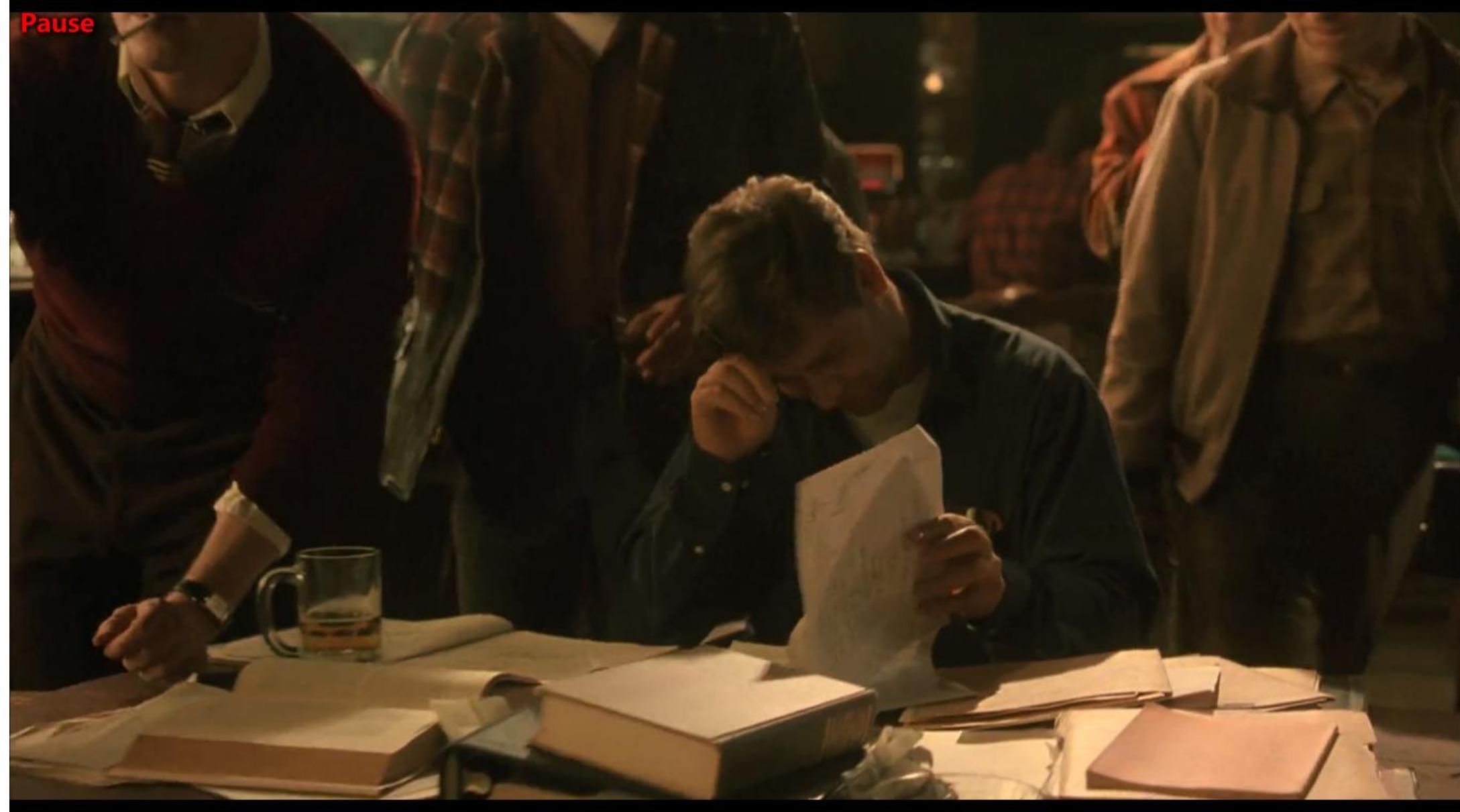
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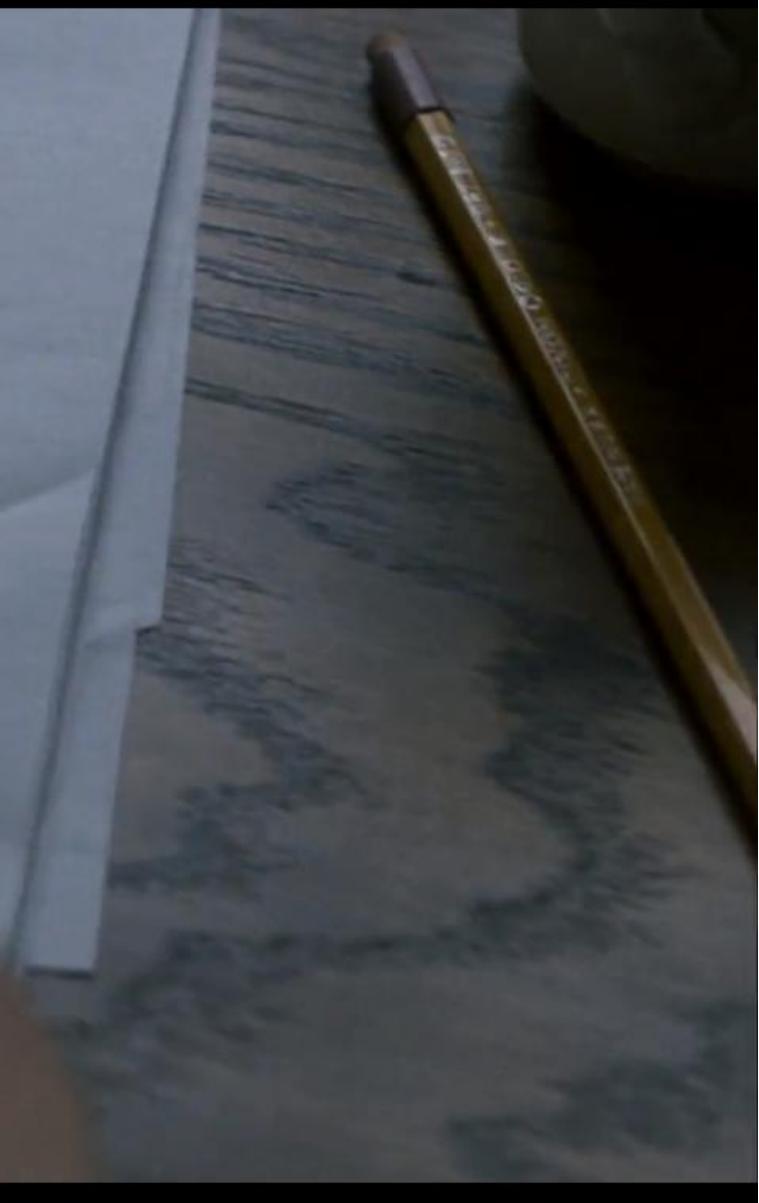
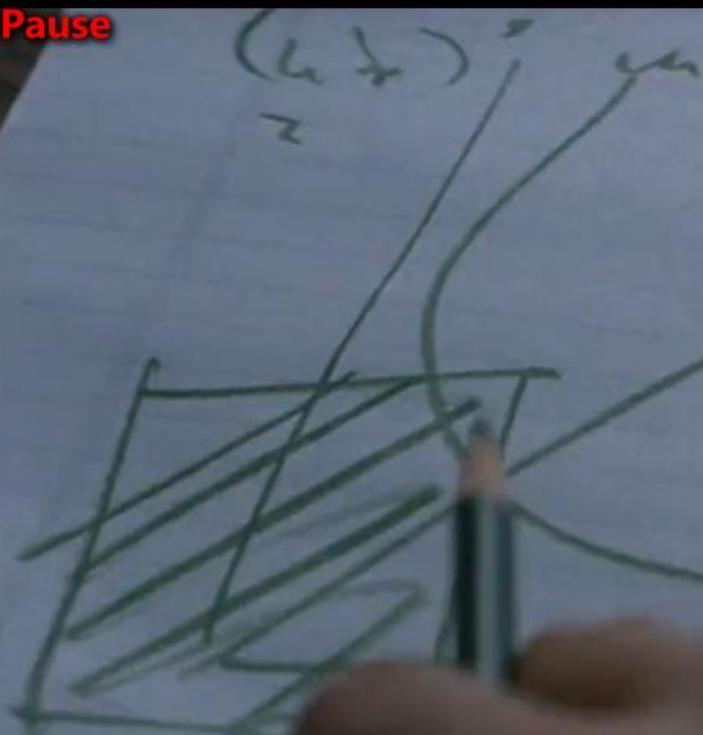


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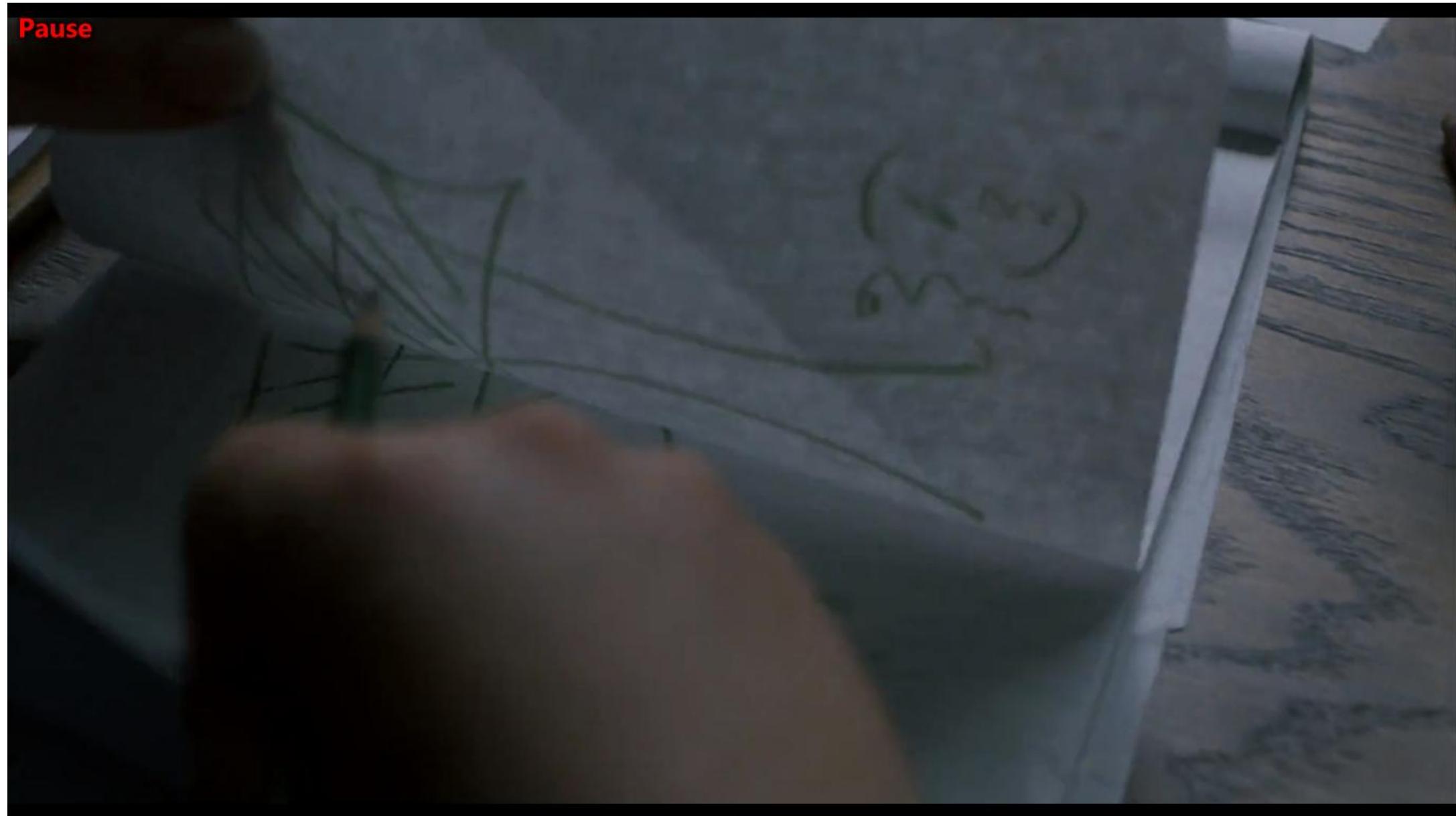
$$\begin{aligned}B > C &\Rightarrow A > C \\P = PA + (1-P)A &\Rightarrow \\ \Rightarrow B = P A + (1-P)C &= P B + (1-P)C \\(1-P)C &= P B - P C\end{aligned}$$

$$\begin{aligned}B > P(B) &\Rightarrow \alpha = \alpha(B) \\P(B) &> \alpha(B)\end{aligned}$$

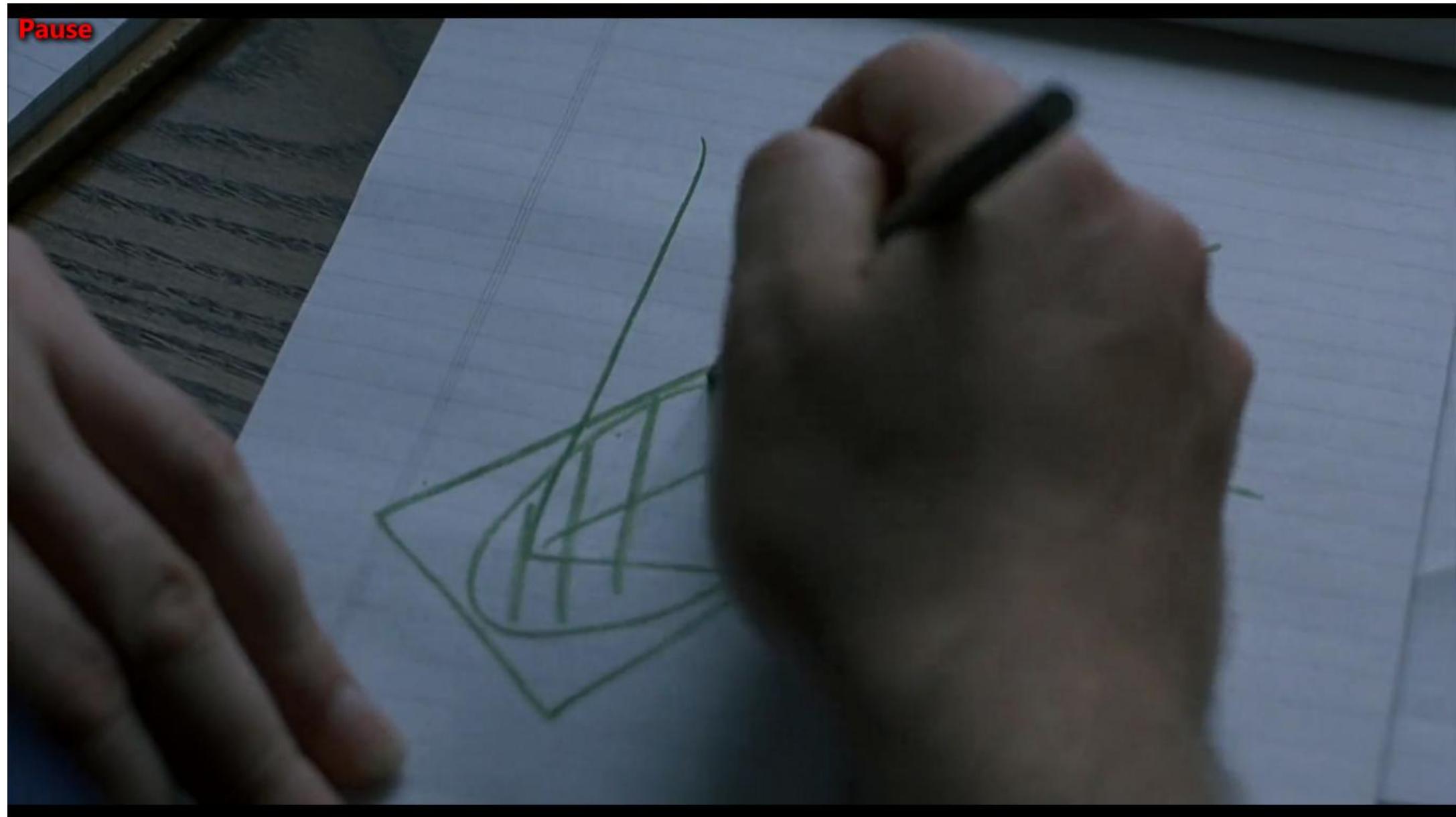
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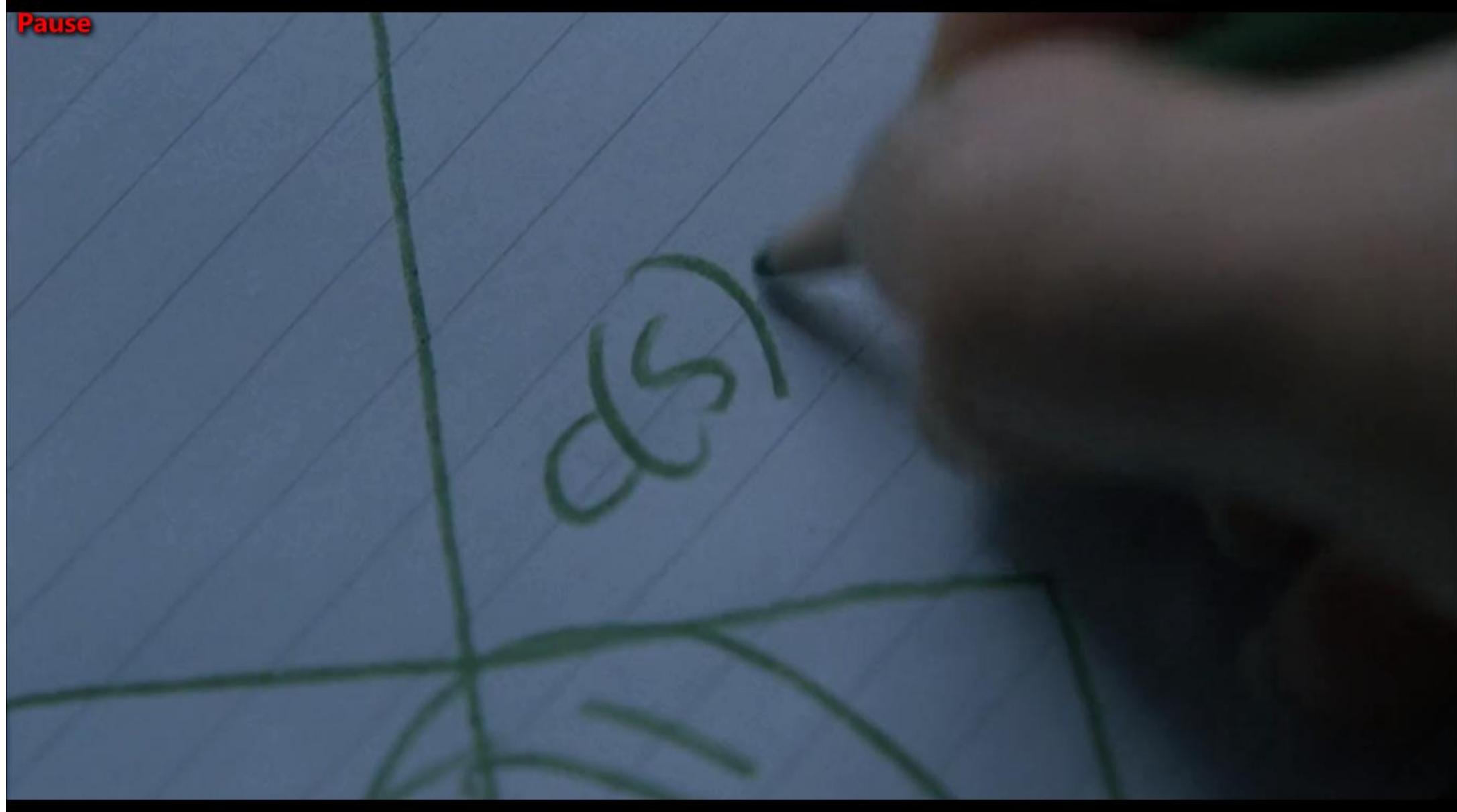
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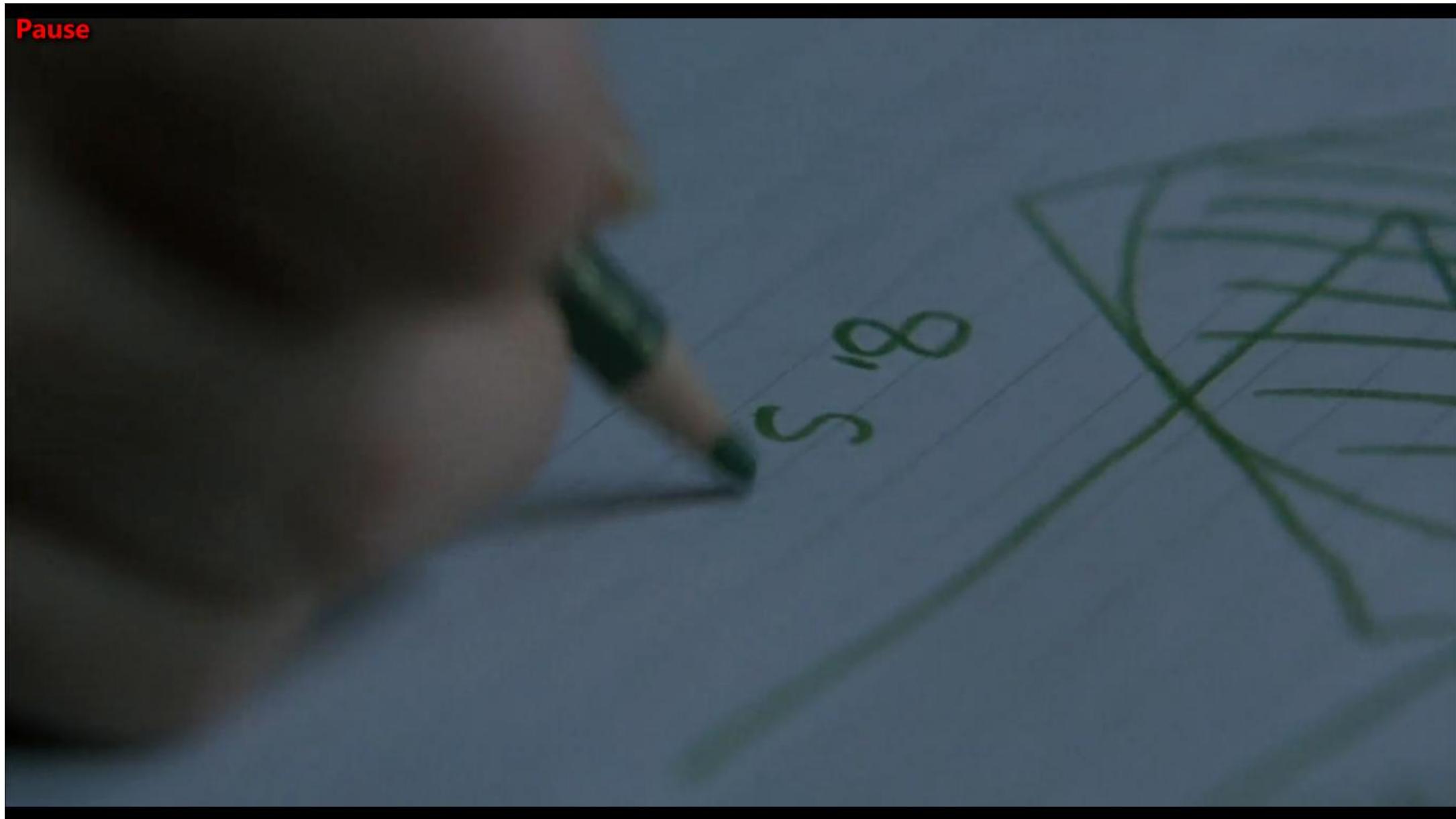
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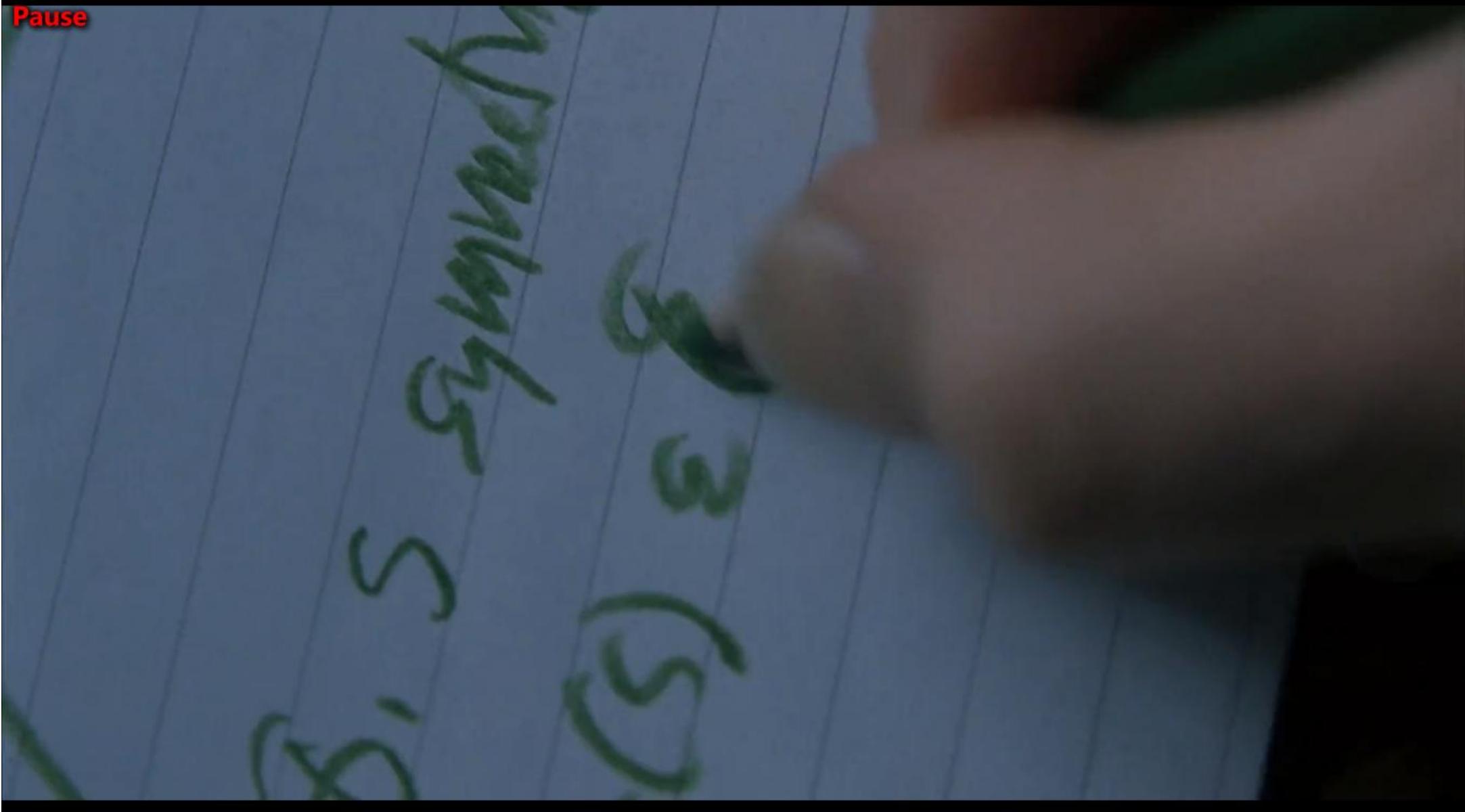
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all
the
time
and
I
will
be
there
for
you

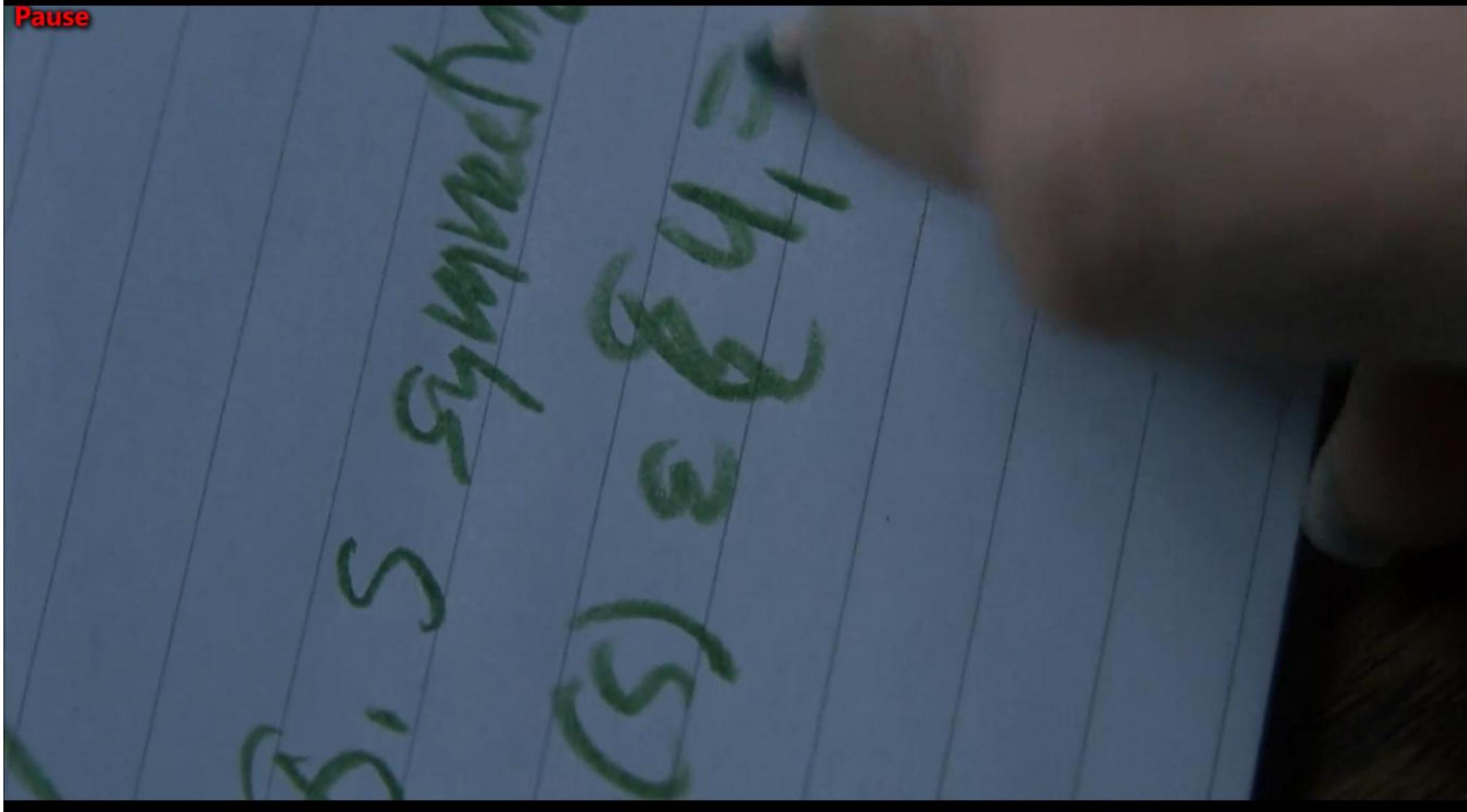
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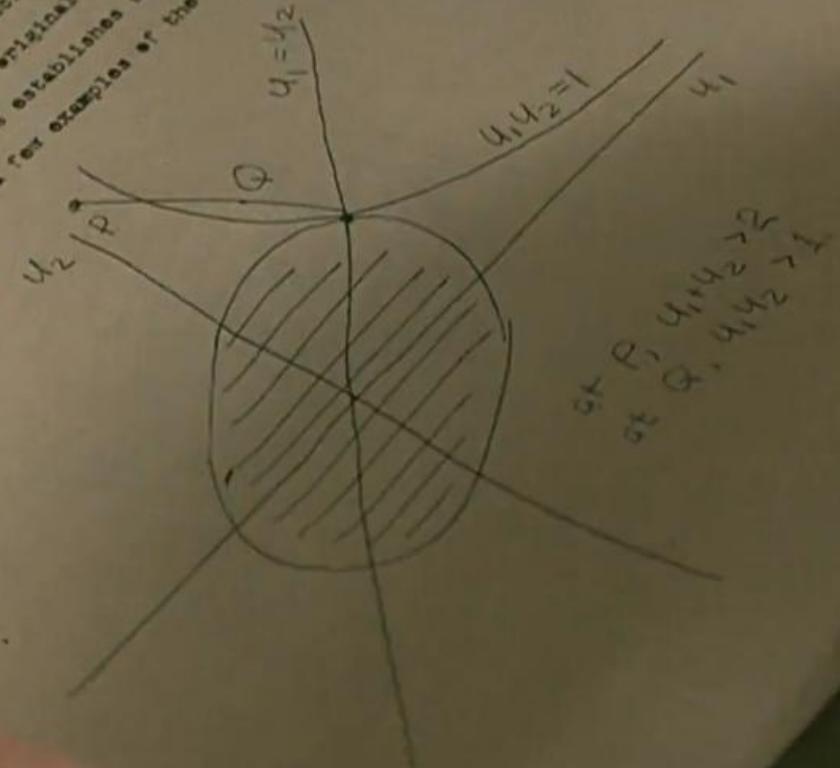


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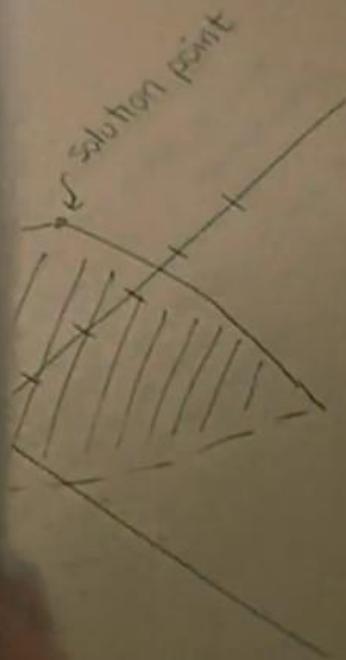
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set of sets
less than set ω
older set, it is class
satisfying assumptions (c) and
we may conclude that (\mathbb{N}, \in) will
then our original (transferred) set is
true. This establishes the assertion.
we give a few examples of the application.



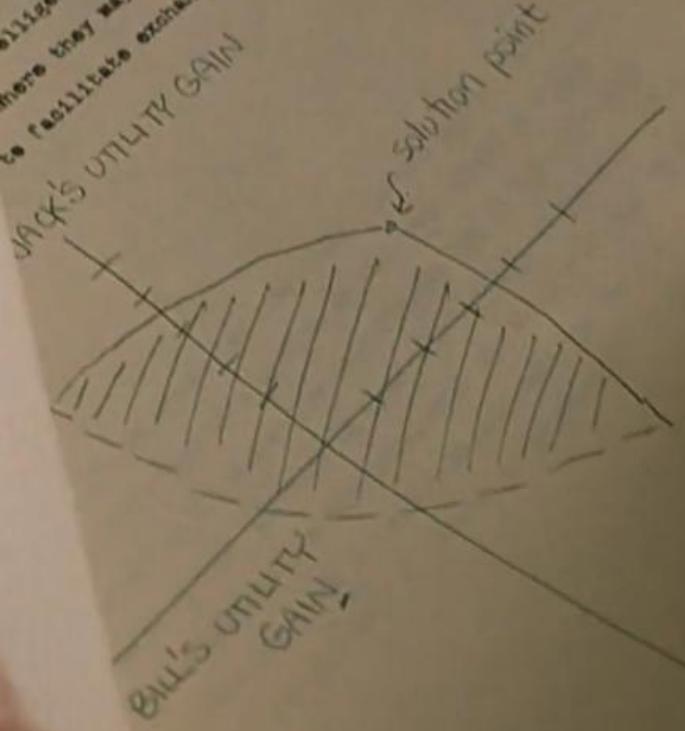
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INTERACTIONS
OF TWO ORGANISMS
Individuals of one species
mutually benefit each other
which is the basis of mutualism

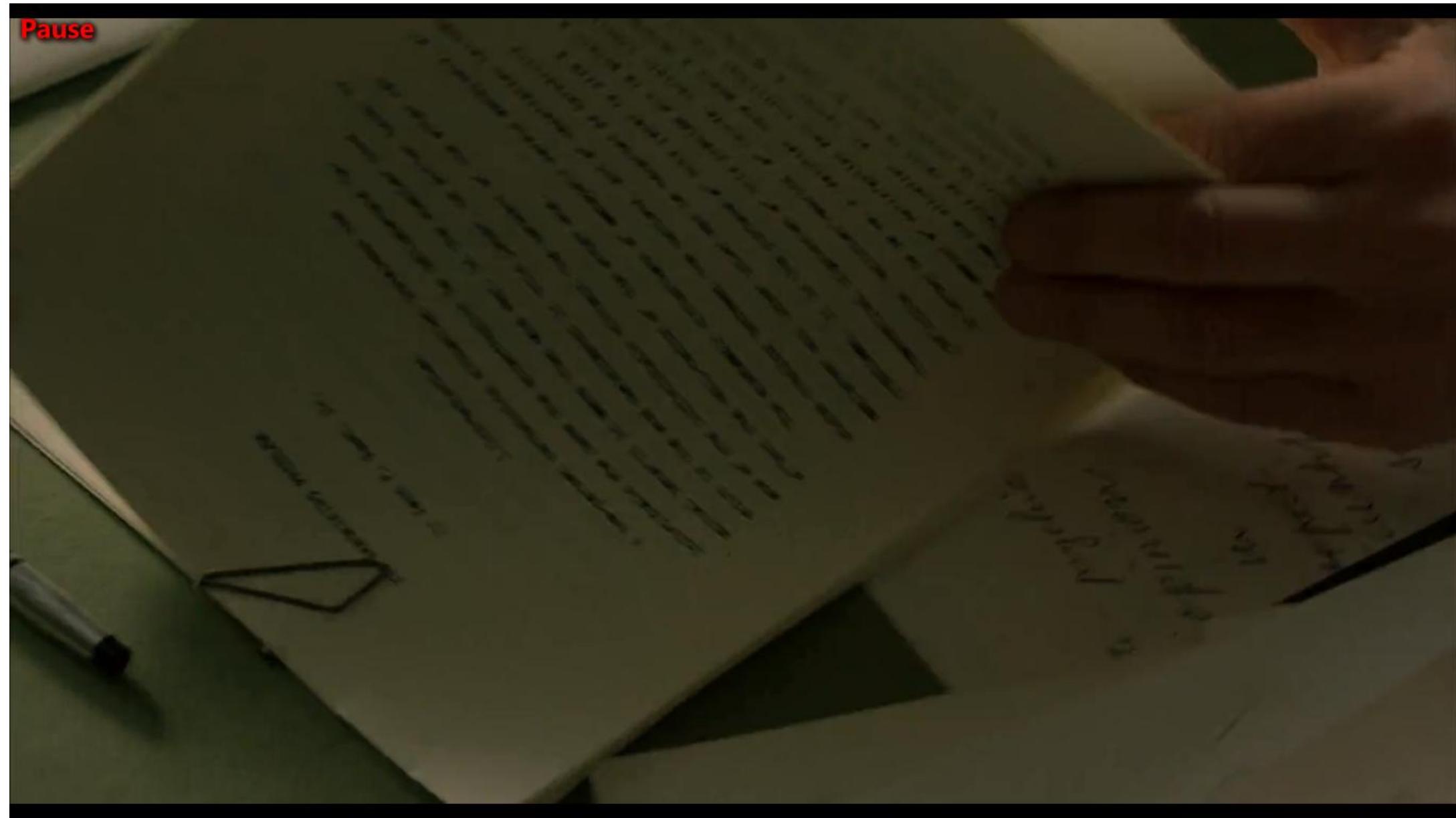


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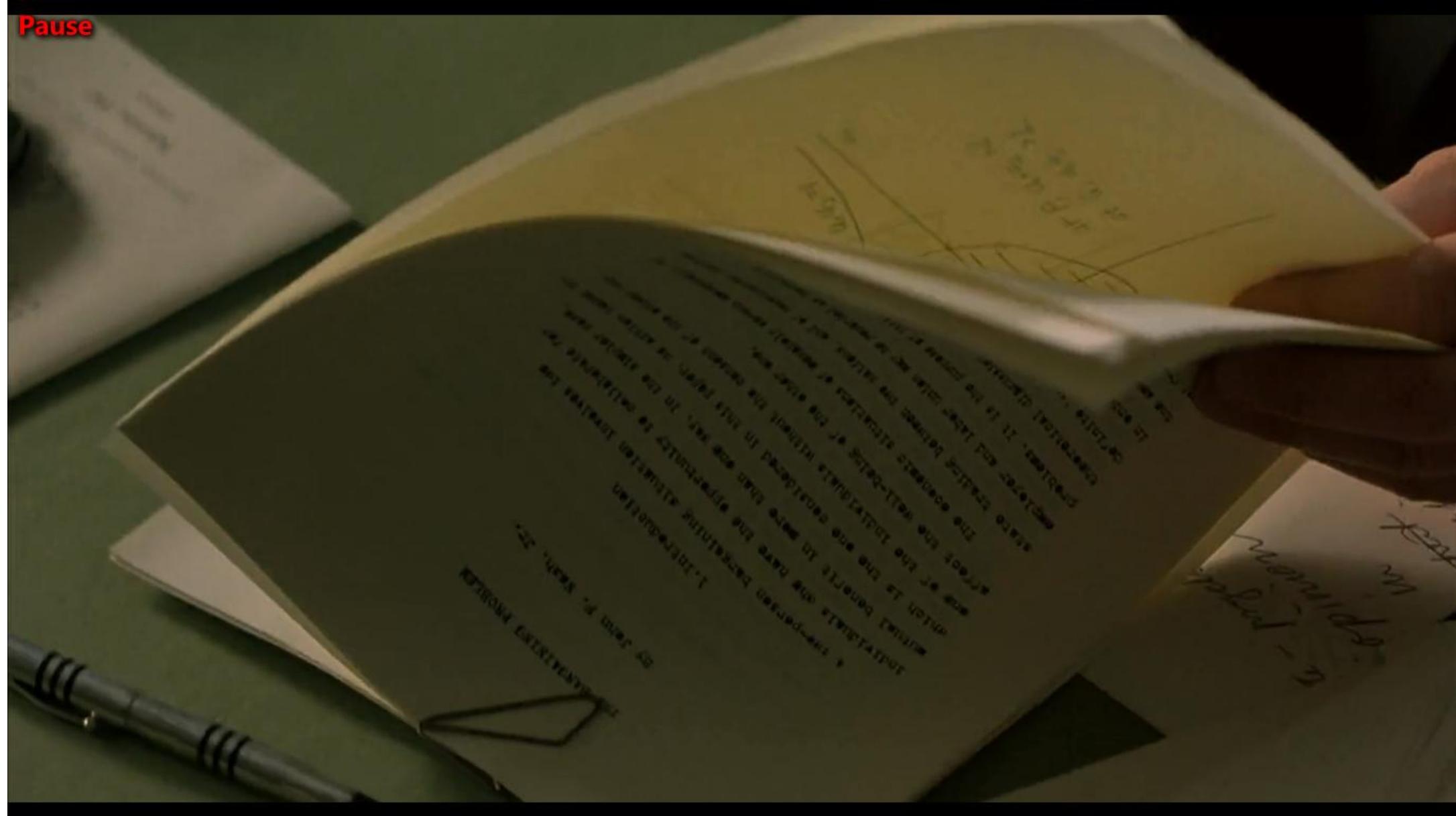
intelligent individuals
where they may barter goods
to facilitate exchange.



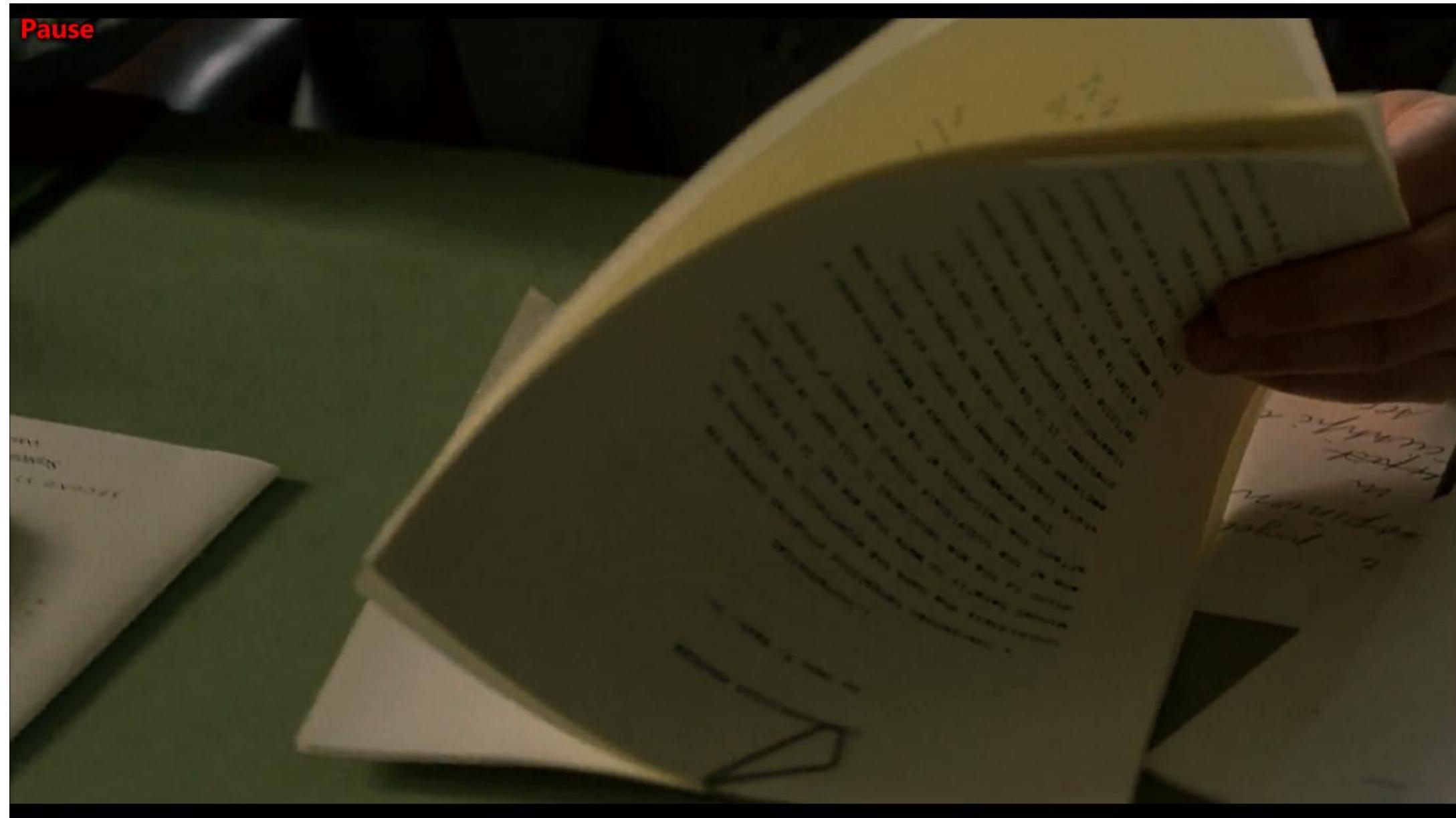
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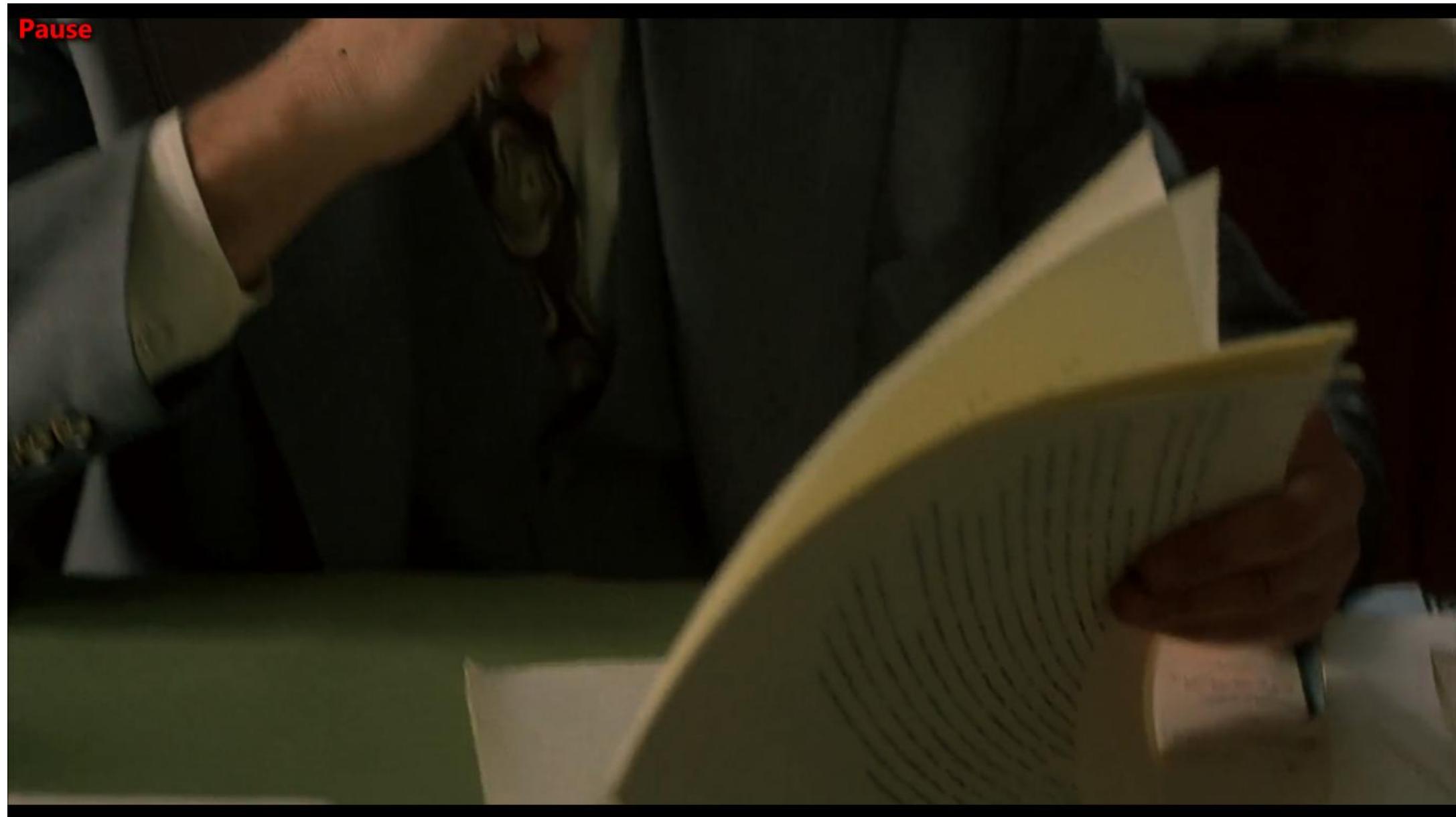
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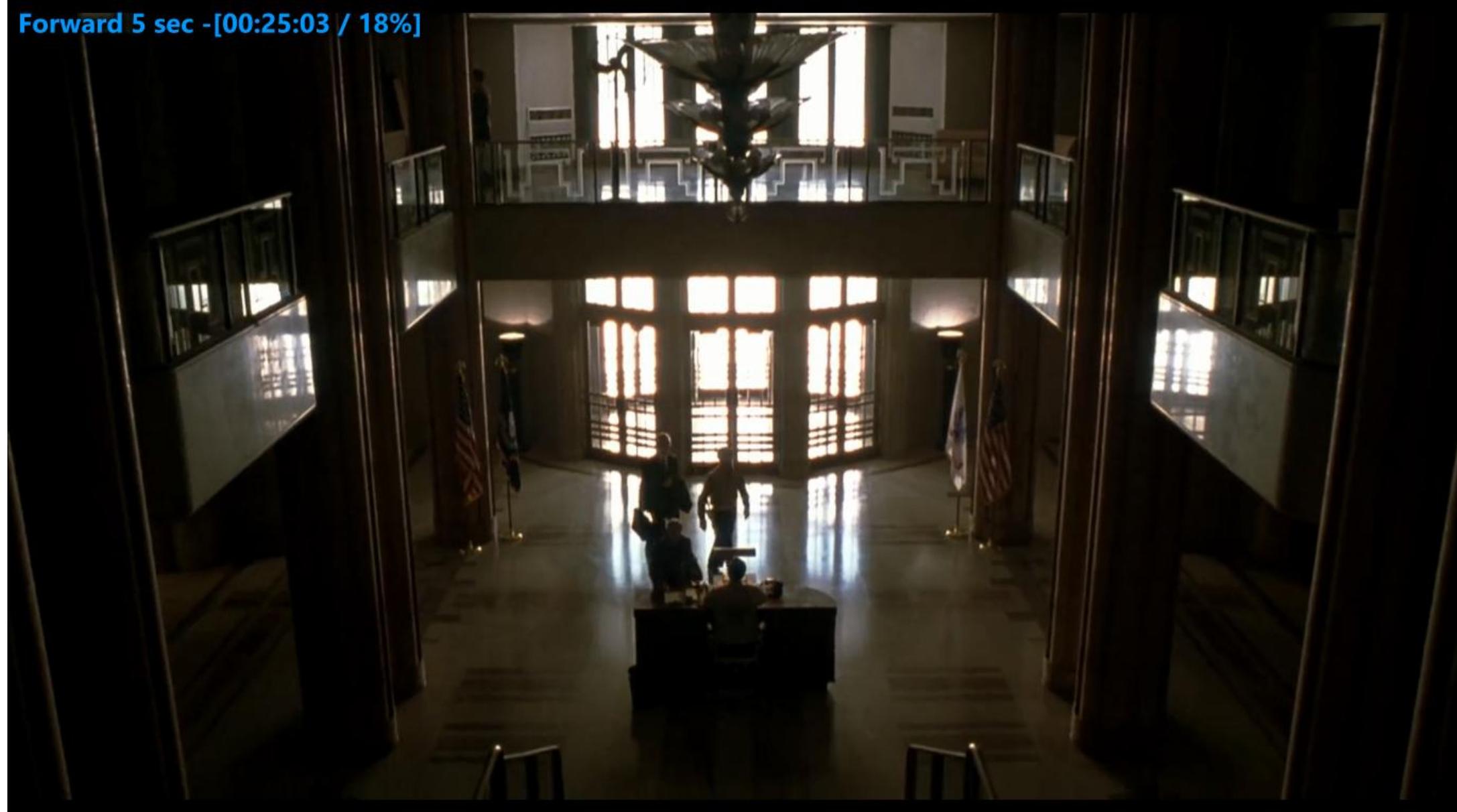
THE PENTAGON 1953
FIVE YEARS LATER

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THE PENTAGON 1953
FIVE YEARS LATER

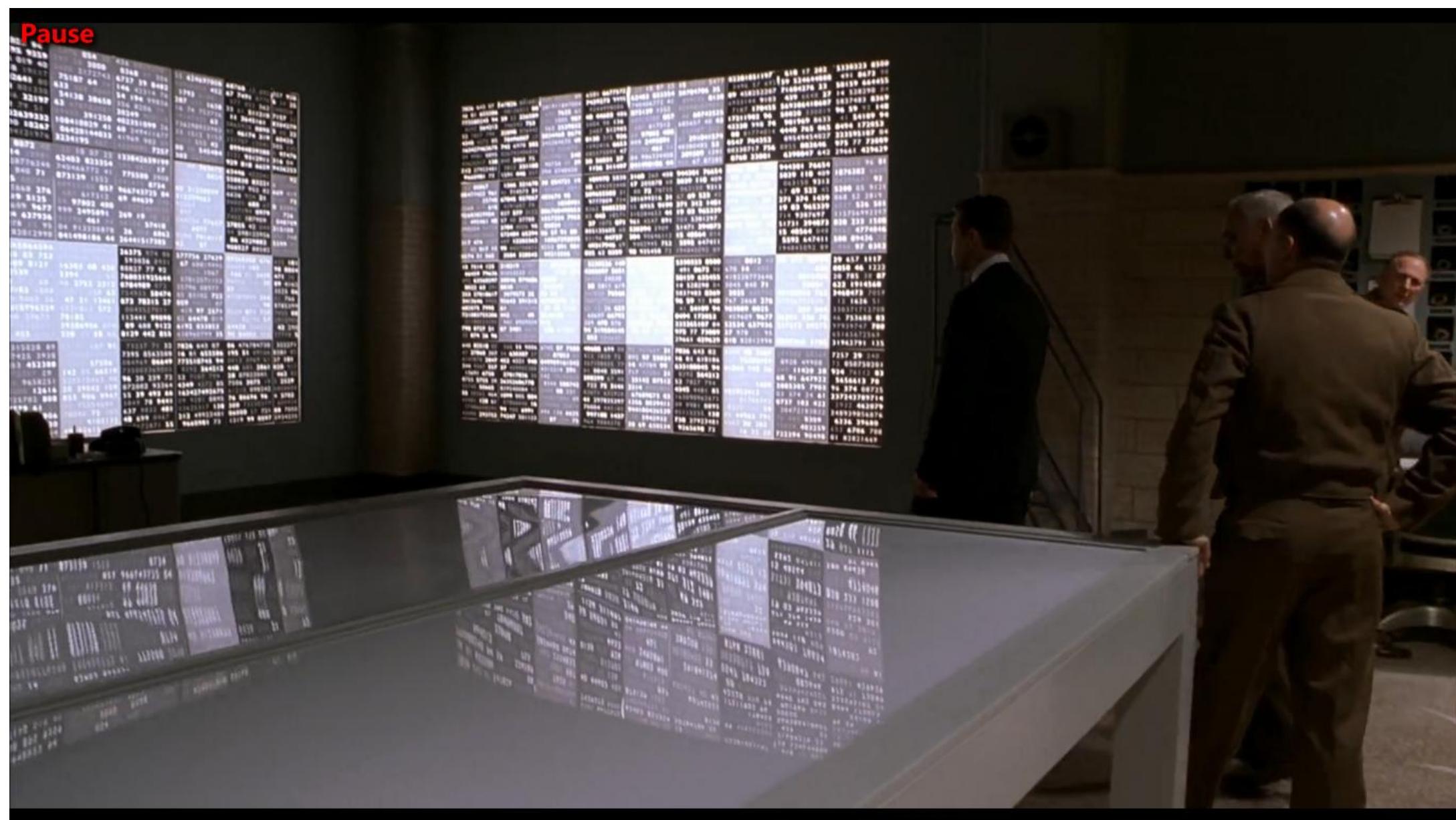
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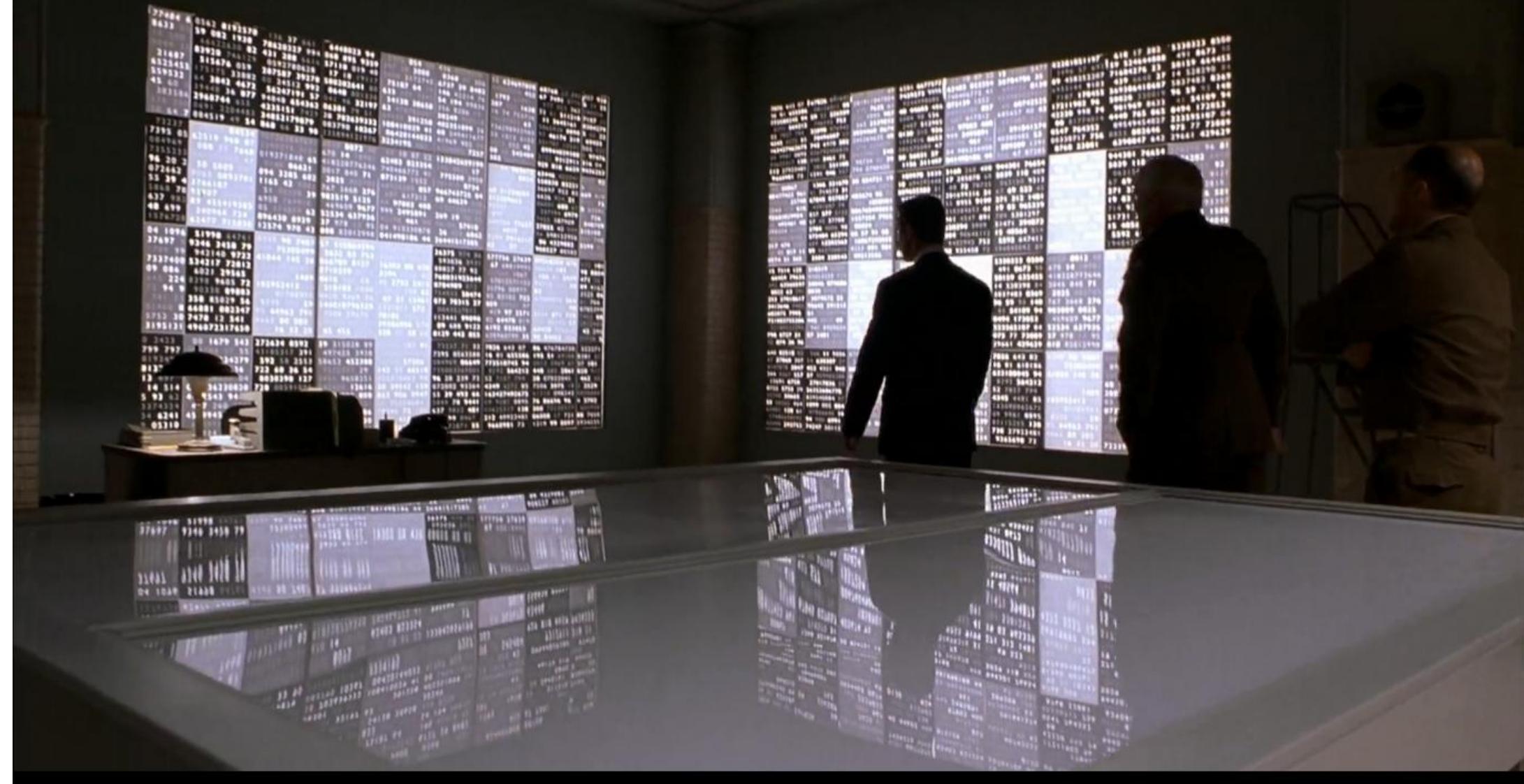
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64 724		896430	8939		37	978	13	95	04	986334408	26	058	6862	
715830		12574	970	43	808	82012998	041498186	44	26441517385					
8 64761		4349	90	7487	57	555864594	5353	0868966	26375	974	86			
3458 79		349	75300499		5632	03	753	826378	99115	593036	8931			
40 9722		41044	145	26	066789	8127	16303	08	430	88827	77	92		
7 72812		25649762497			2710339	8273	3394	0516	62	768031925644				
29565		4168321	1489		4616	914	68	46	2752	2312	0784989	072		
9605 72		102952413	98		210103	1888	12817	158	62	754933	58474			
8 09883		345	81788993		4410	9469	36	47	21	13461	073	78315	27	
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12 541		4663	80	002	584396268737		39386906	074		09	688	9122		
2317650		875	16	32	85	455	5169	328	33	58	66	8129	442	855
679 543		272634	0592		39	315028	89	57191	187	91	73237	71	32	
4 27 55		43185317	391		497425	3938	02820359812			7395	0563588			
5334279		592	58	2553	58653	452388	14300	57506		084969	06649			
99536		722	60	36	7572357	29	142	55	66519	735003369005				

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9	75300499			5632	03	753	826378	5930
2	41044	145	26	066789	8127	16303	08	430
2	15667497			2710339	8273	3394	05	62
		1489		4616	14	68	46	2752
2	102952413			210103	1888	12817	158	62
3	81788993			4410	9469	36	47	21
6	8335	85	59	144010796329		1521811	572	00
7	95	44963	791	7306	29675	78185		11344
	4663	80	002	6843	39637	39386906	074	09
0	16	32	20	85	455	328	58	66
3	272634	0592		39	315028	89	187	91
5							7323	7305

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4 724	896430	8939		37	978	13	95	04	986334408	26 058 6862
715830	12574	970	43	808	82012998	041498186	44		26441517385	
64761	4349	90	7487	57	555864594	5353	0868966		26375	974 86
458 79	349	75300499		5632	03	753	826378	99115	593036	8931
0 9722	41044	145	26	066789	8127	16303	08	430	88827	77 92
72812	25649762497			2710339	8273	3394	0516	62	768031925644	
29565	9168321	1489		4616	914	68	46	2752	2312	0784989 072
605 72	102952413	98		210103	1888	12817	158	62	754933	58474
09883	345	81788993		4410	9469	36	47	21	13461	073 78315 27
029 56	8335	285	59	144010796329		1521811	572		0043527011	
082347	95	44963	791	7306	29675	78185	032711		113441	99090
2 541	4663	80	002	584396268737		39386906	074		09	688 9122
317650	675	16	32	85	455	5169	328	58	66	8129 442 855
79 543	272634	0592		39	315028	89	57191	187	91	73237 71 32
27 55	43185317	391		497425	3938	92820359812			7395	0563588
334279	592	58	2553	58653	452388	14300	57506		084969	06649
99536	722	60	36	7572357	29	142	55	66519	735003369005	

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90 7487	57 555864594	5353 0868966
75300499	5632 03 753	826378 99115
4 145 26	066789 8127	16303 08 430
49762497	2710339 8273	3394 0516 62
321 1489	4616 914 68	46 2752 2312
52413 98	210103 1888	12817 158 62
81788993	4410 9469 36	47 21 13461
5 285 59	144010796329	1521811 572
4963 791	7306 29675	78185 03271
80 002	584396268737	39386906 074
16 32 20	85 455 5169	328 33 58 66

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44010796329

7306 29675

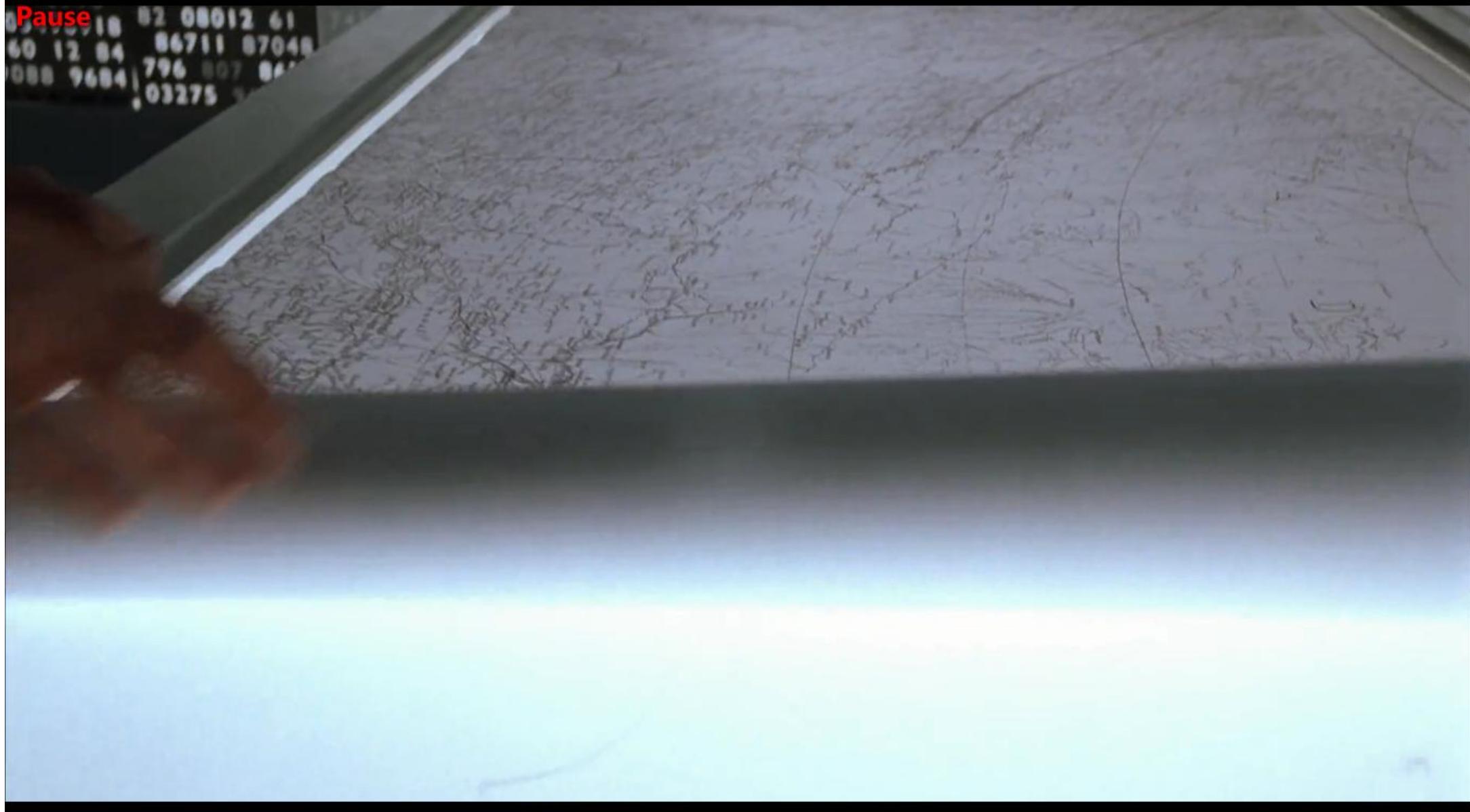
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010 211	01	01 0840 3591	52698 549 00	2010028 2885	33 29915 25	073139 1552 3193
453 546 142	034	200260				
86						
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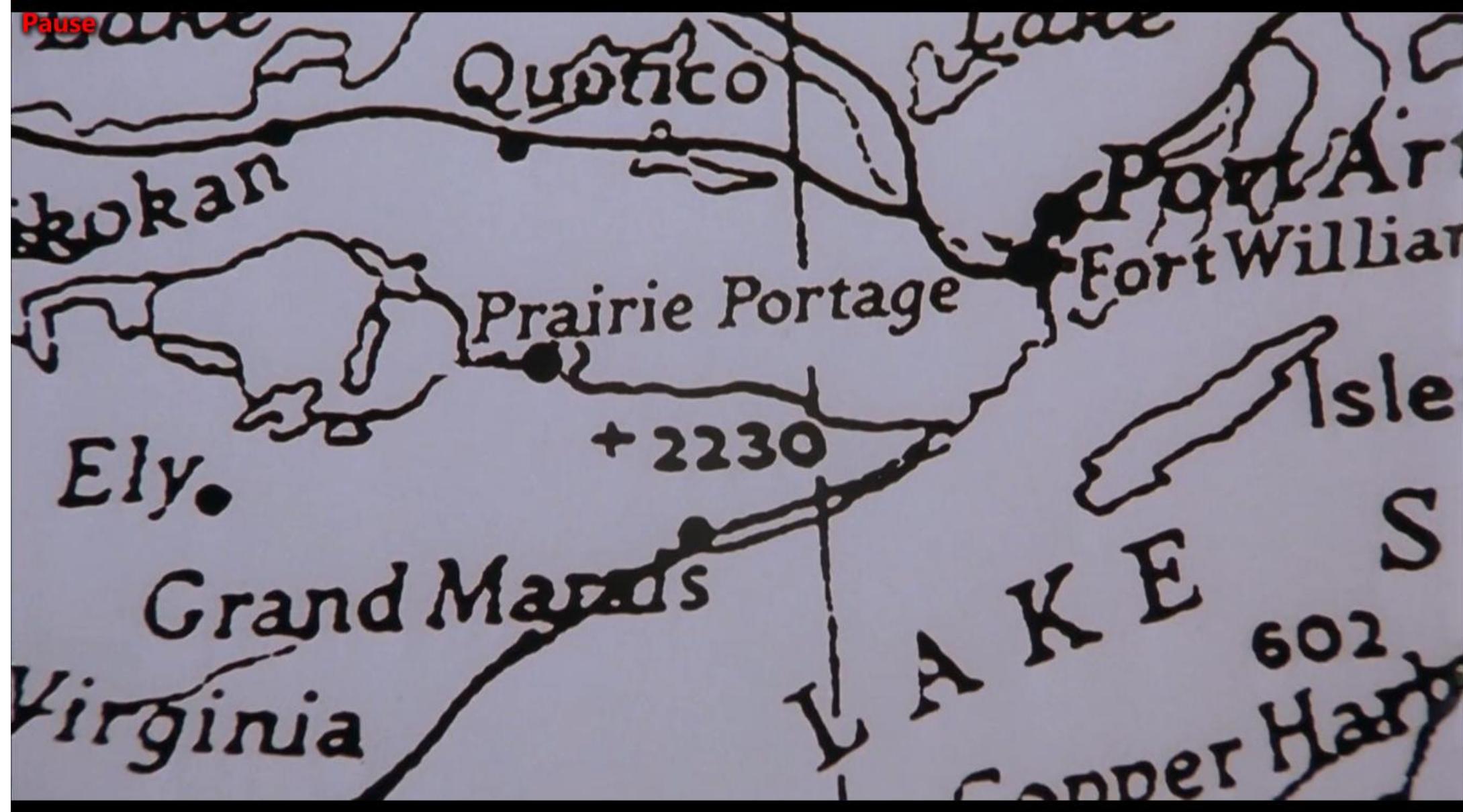
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60 12 04 86711 87048
088 9684 796 007 841
03275



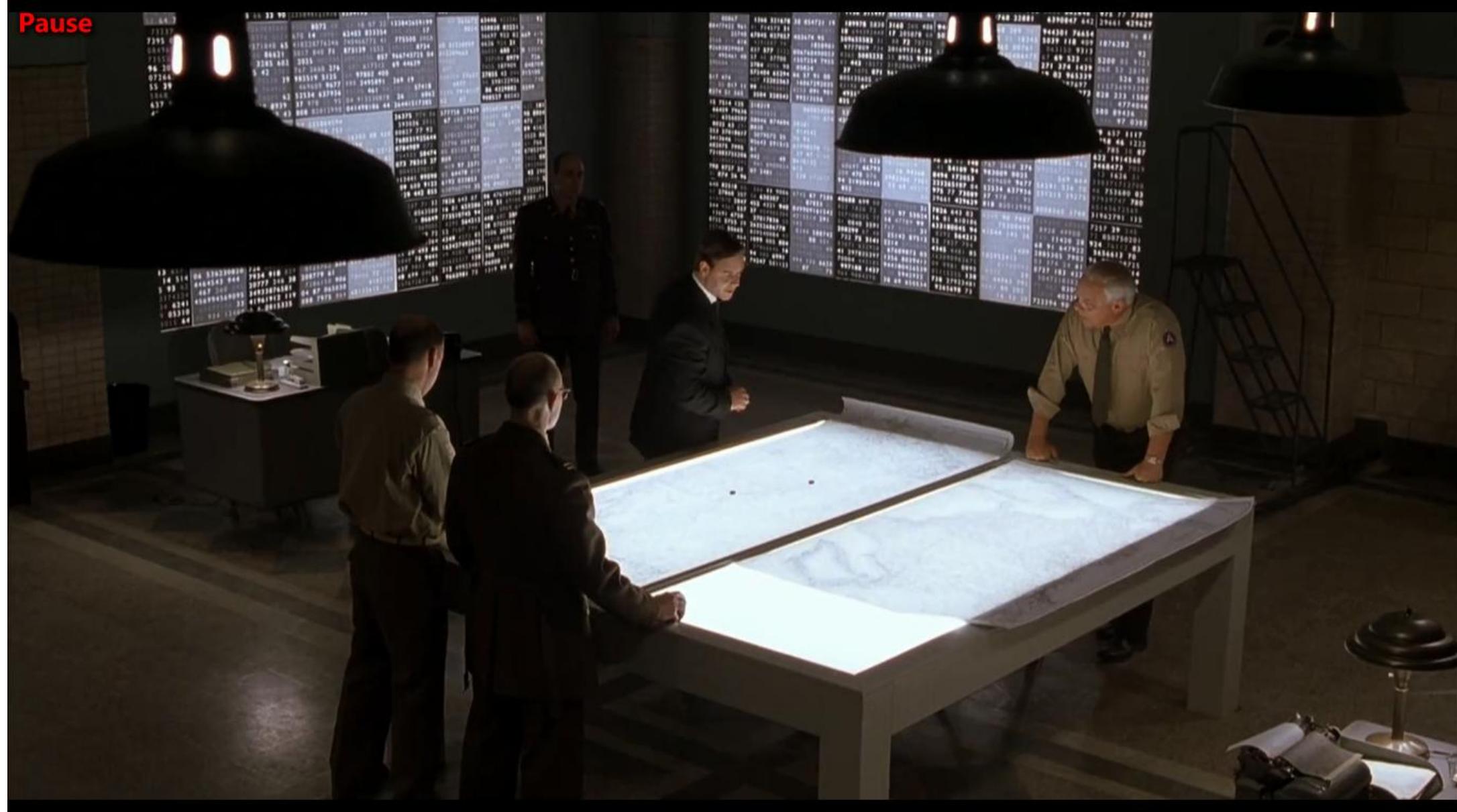
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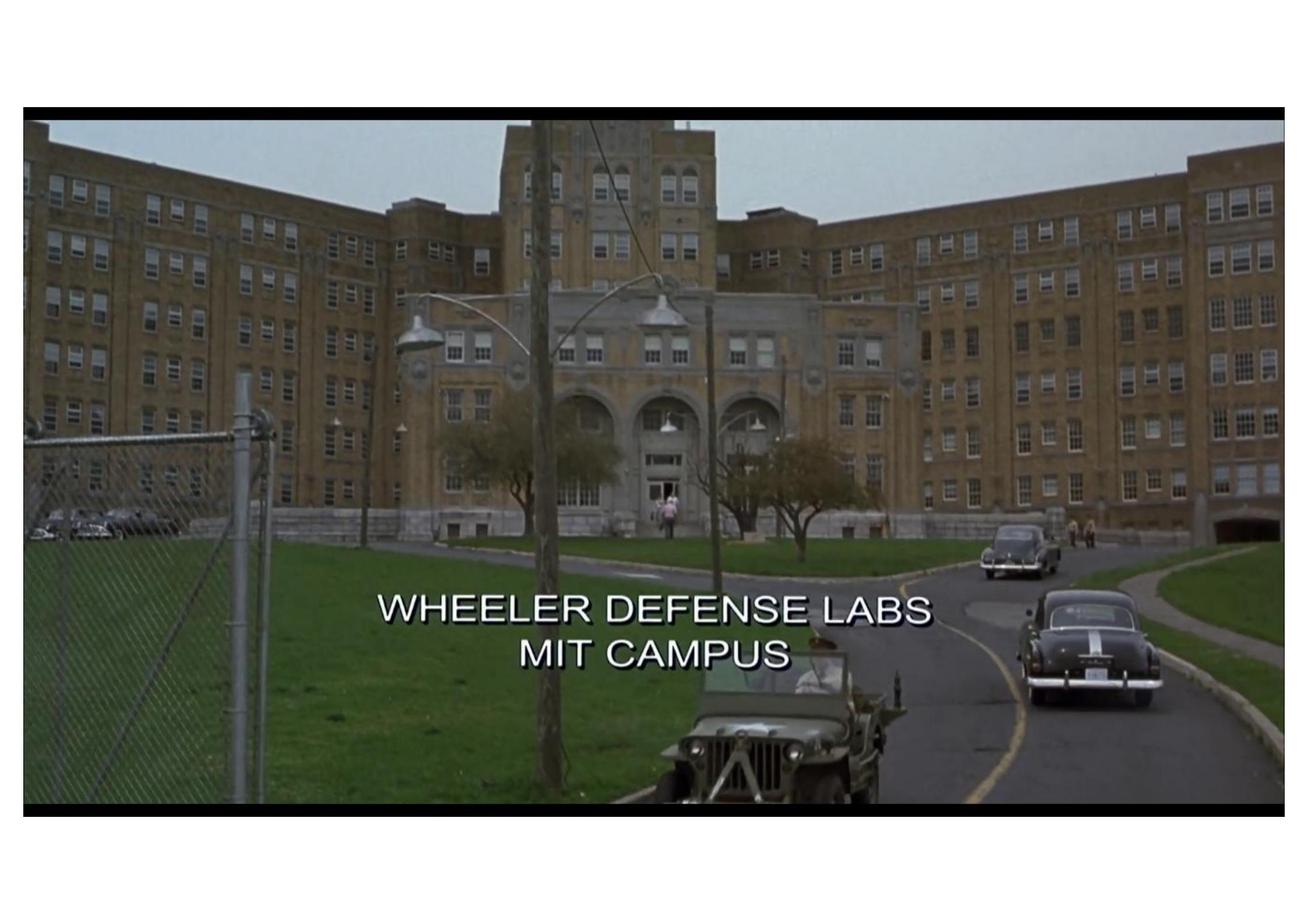
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**WHEELER DEFENSE LABS
MIT CAMPUS**

Backward 5 sec -[00:28:28 / 21%]



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Pause



Pause



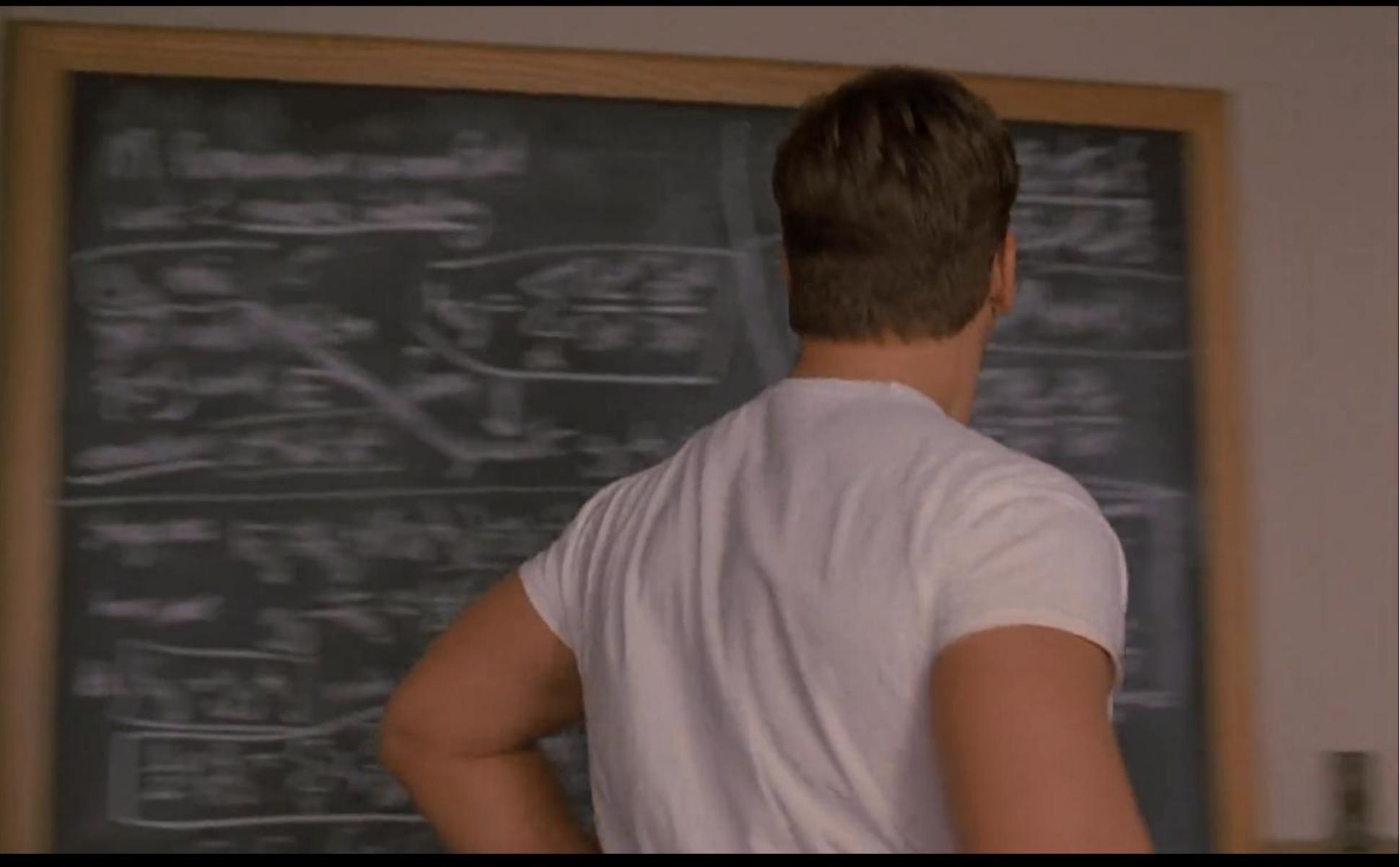
Pause



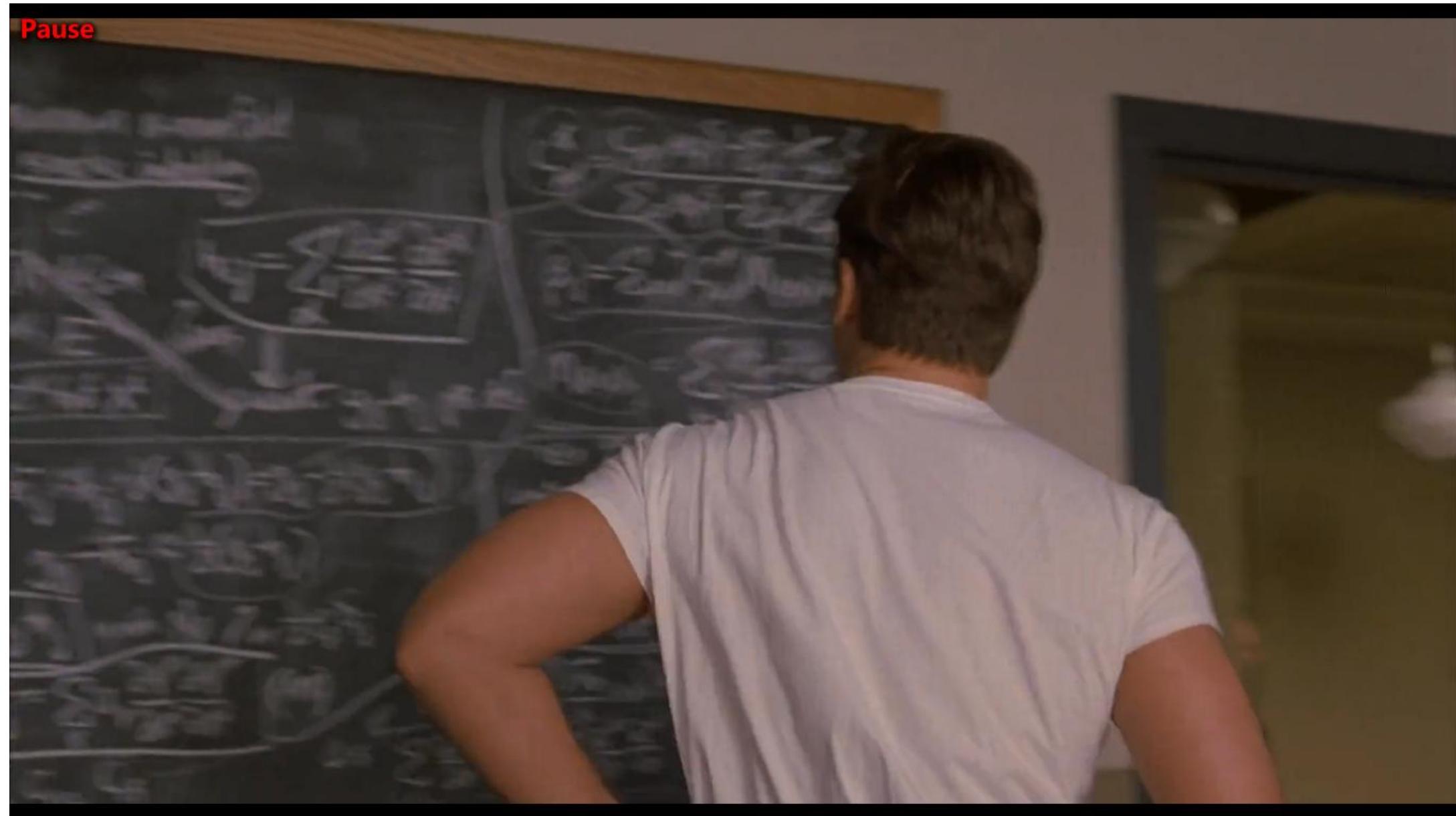
Pause



Pause



Pause



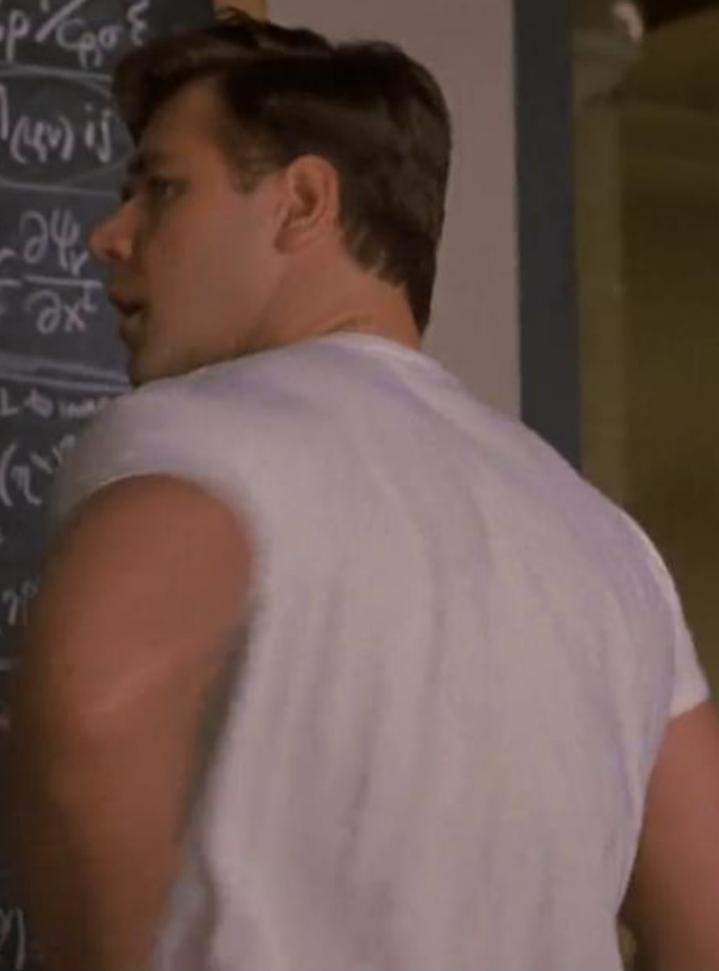
Pause

$$h_{ij} = \sum_k \frac{\partial z^k}{\partial x^i} \frac{\partial z^k}{\partial x^j}$$
$$\Rightarrow \text{want } g_{ij} - h_{ij} \text{ pos. def}$$
$$g_{ij} = g_{ij} - \frac{1}{2}(g_{ij} - h_{ij})$$
$$= \frac{1}{2}g_{ij} + \frac{1}{2}h_{ij}$$
$$\frac{\partial \Psi}{\partial x^i} \cdot \frac{\partial \Psi}{\partial x^j}$$
$$\Delta S = \sum_k \frac{\partial z^k}{\partial x^i} \frac{\partial z^k}{\partial x^j} - \sum_k \frac{\partial h_{ij}}{\partial x^k} \frac{\partial h_{ij}}{\partial x^k}$$
$$\text{sum to}$$
$$\sum_k \frac{\partial z^k}{\partial x^i} \frac{\partial z^k}{\partial x^j} - \sum_k \frac{\partial h_{ij}}{\partial x^k} \frac{\partial h_{ij}}{\partial x^k}$$
$$C_{HV}^* = C_{HV} \exp \left\{ - \sum_k \frac{1}{C_{HV}} \zeta_k \right\}$$
$$\sum_p \exp \zeta_p - \exp \frac{1}{C_{HV}}$$
$$\beta_{ij} = \sum_{HV} C_{HV}^* M_{(HV)ij}$$
$$M_{(HV)ij} = \sum_r \frac{\partial \Psi_r}{\partial x^i} \frac{\partial \Psi_r}{\partial x^j}$$

need ζ^*, π^* $\in \mathbb{R}^{n \times n}$

want $\sum (\zeta^*)^2 = 1 = \sum (\pi^*)^2$

$$\sum \zeta^* \pi^* = 0$$
$$\sum \frac{\partial \zeta^*}{\partial x^k} \frac{\partial \pi^*}{\partial x^k} = 0 = \sum \Gamma^k$$



Pause

$$g_{ij} = \sum_{\alpha} \frac{\partial z^{\alpha}}{\partial x^i} \frac{\partial z^{\alpha}}{\partial x^j}$$
$$C_{\mu\nu} = \tau_{\mu\nu} \exp i - \sum_{\alpha} \frac{c_{\mu\nu}}{c_{\alpha\alpha}} \xi^{\alpha}$$
$$\sum p \exp i - \sum p / c_{\alpha\alpha} \xi^{\alpha}$$
$$\beta_{ij} = \sum_{\mu\nu} C_{\mu\nu}^* M_{(\mu\nu)ij}$$

↓ want $g_{ij} - h_{ij}$ pos. def

$$(g_{ij} - h_{ij}) = g_{ij} - \frac{1}{2}(g_{ij} - h_{ij})$$
$$P_m \frac{1}{2} c_p \delta_{ij}$$

(**)

$$\Delta S = \sum_{\alpha} \frac{\partial z^{\alpha}}{\partial x^i} \frac{\partial z^{\alpha}}{\partial x^j} - \sum_{\alpha} \frac{\partial z^{\alpha}}{\partial x^i} \frac{\partial z^{\alpha}}{\partial x^j}$$

sums to

$$\sum_{\alpha} \frac{\partial z^{\alpha}}{\partial x^i} \sqrt{a_{\alpha}} (-\sin \lambda \psi) \frac{\partial x^{\alpha}}{\partial x^j} + \sum_{\alpha} \frac{\partial z^{\alpha}}{\partial x^i} \sqrt{a_{\alpha}} (\cos \lambda \psi) \frac{\partial \psi}{\partial x^j}$$



Pause

$$\sum_{\alpha} \frac{\partial z^{\alpha}}{\partial x^c} \frac{\partial z^{\alpha}}{\partial x^j}$$

$$\sum_p \epsilon p \delta_i - \epsilon p / c_{pq} \delta_j$$
$$\beta_{ij} = \sum_{\mu\nu} C_{\mu\nu}^* M_{(\mu\nu)ij}$$

int $g_{ij} - h_{ij}$ ps. def

$$M_{(\mu\nu)ij} = \sum_r \frac{\partial \psi_r}{\partial x^i} \frac{\partial \psi_r}{\partial x^j}$$

$$\text{want } \int^x_s \eta^{\alpha}, \eta^{\mu} \subset^0 \text{ int, L to manif.}$$
$$\sum (\eta^{\alpha})^2 = 1 = \sum (\eta^{\mu})^2$$

$$\sum \int^x_s \frac{\partial \eta^{\alpha}}{\partial x^k} = 0^2$$
$$\sum \int^x_s \eta^{\alpha} \frac{\partial z^k}{\partial x^k} = 0 = \sum \eta^{\alpha} \frac{\partial z^k}{\partial x^k}$$

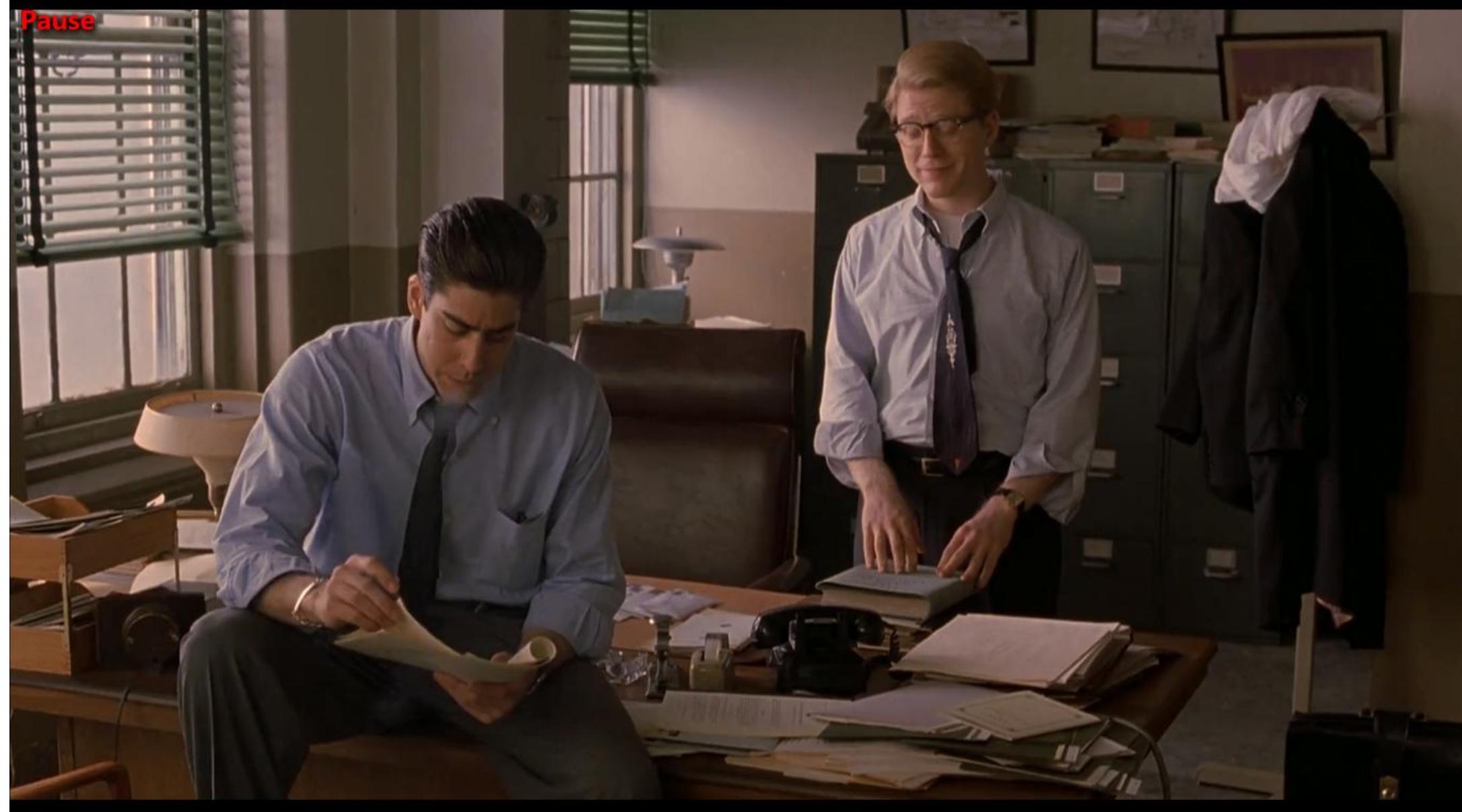
$$\vec{z}^k = \vec{z}^k + \int^x_s \sqrt{g_{\alpha\mu}} \cos \lambda \psi^{\mu} + i \sqrt{g_{\alpha\mu}} \sin \lambda \psi^{\mu}$$
$$\Delta S = \sum_k \frac{\partial \vec{z}^k}{\partial x^i} \frac{\partial \vec{z}^k}{\partial x^i} - \sum_k \frac{\partial \vec{z}^k}{\partial x^i} \frac{\partial \vec{z}^k}{\partial x^i}$$

$$\left(\sum_k \frac{\partial \vec{z}^k}{\partial x^i} \right) \sqrt{g_{\alpha\mu}} (-\sin \lambda \psi^{\mu}) \frac{\partial \psi^{\mu}}{\partial x^i} + \sum_k \frac{\partial \vec{z}^k}{\partial x^i} \sqrt{g_{\alpha\mu}} (\cos \lambda \psi^{\mu}) \frac{\partial \psi^{\mu}}{\partial x^i}$$

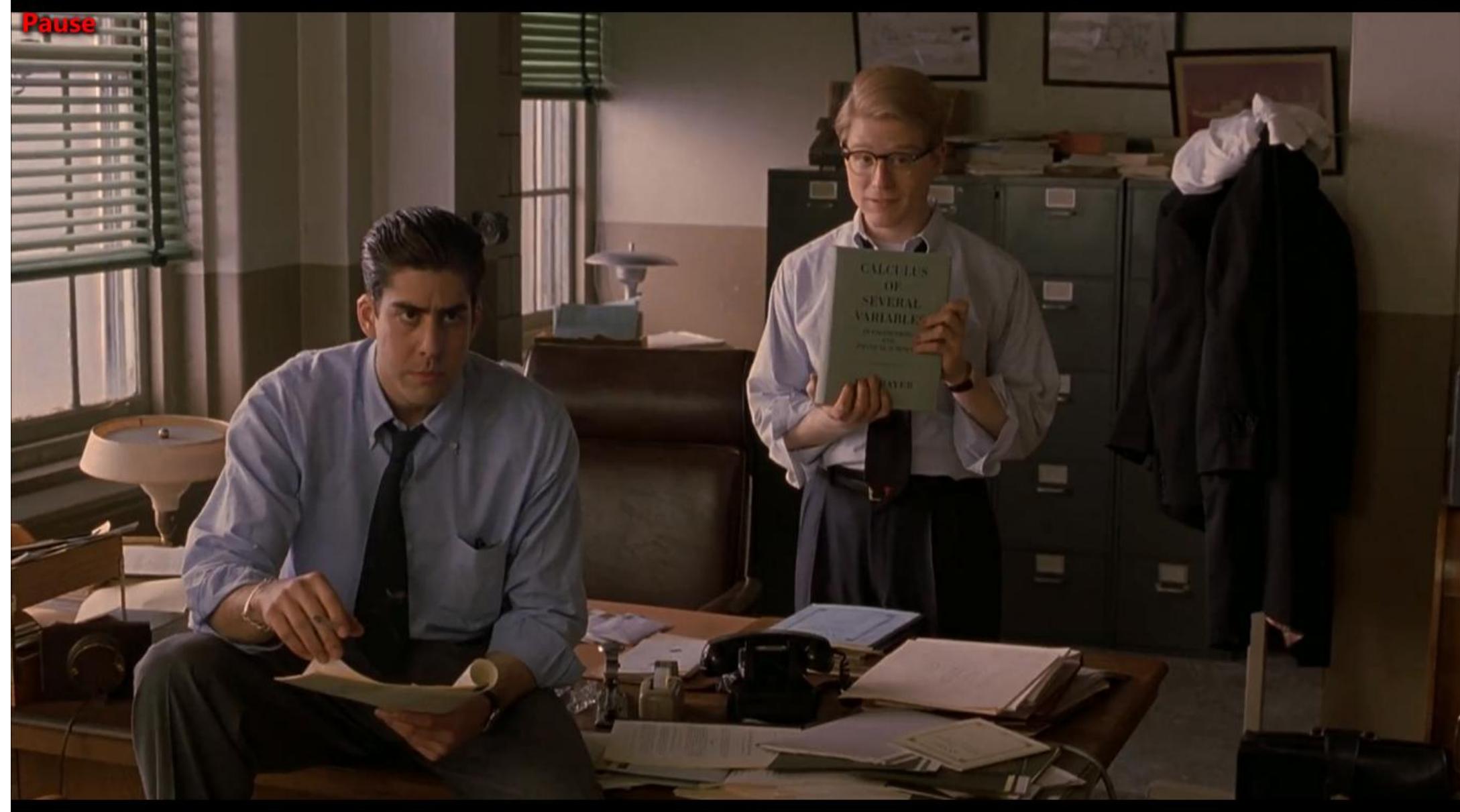
↓ total



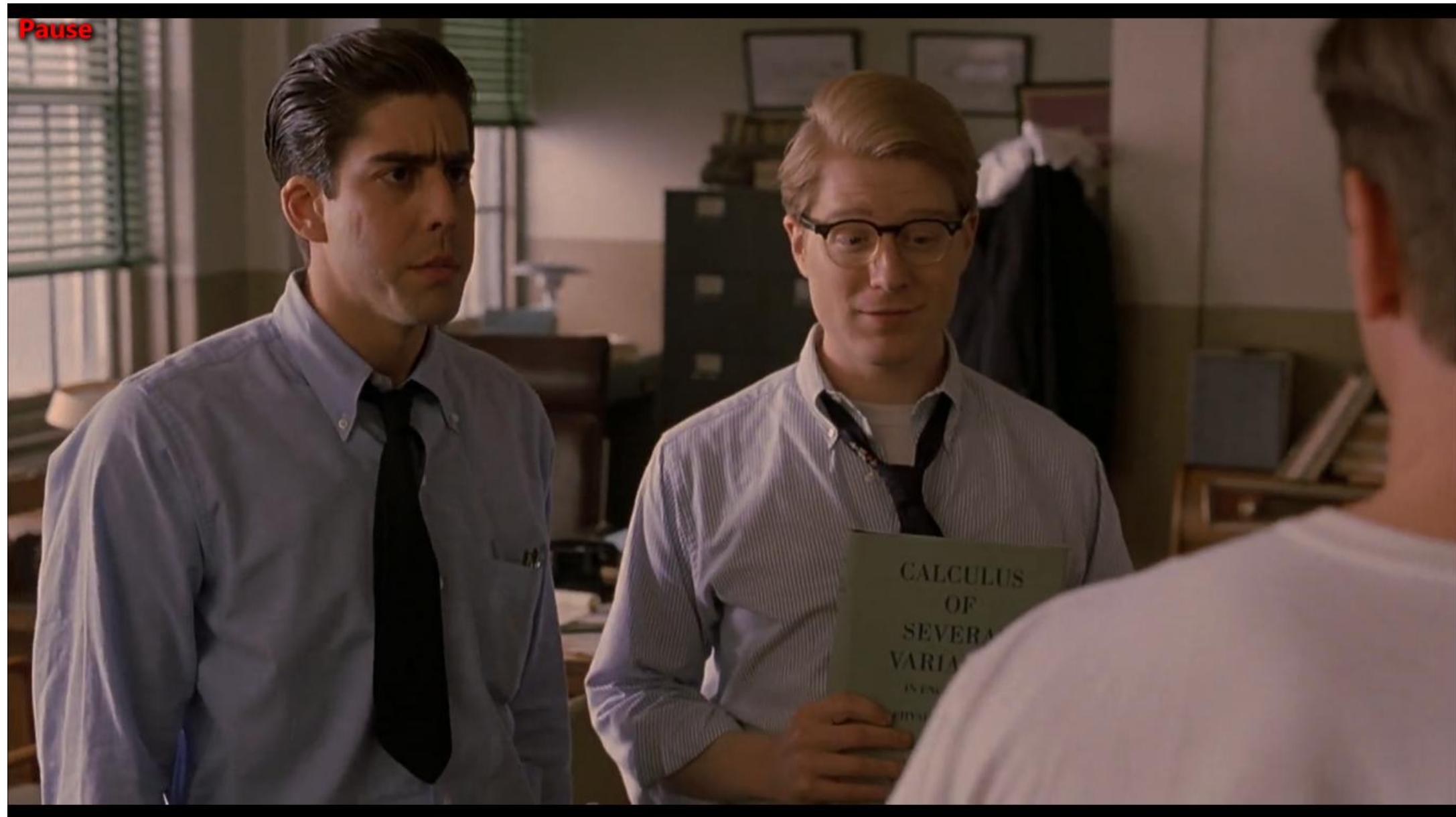
Pause



Pause

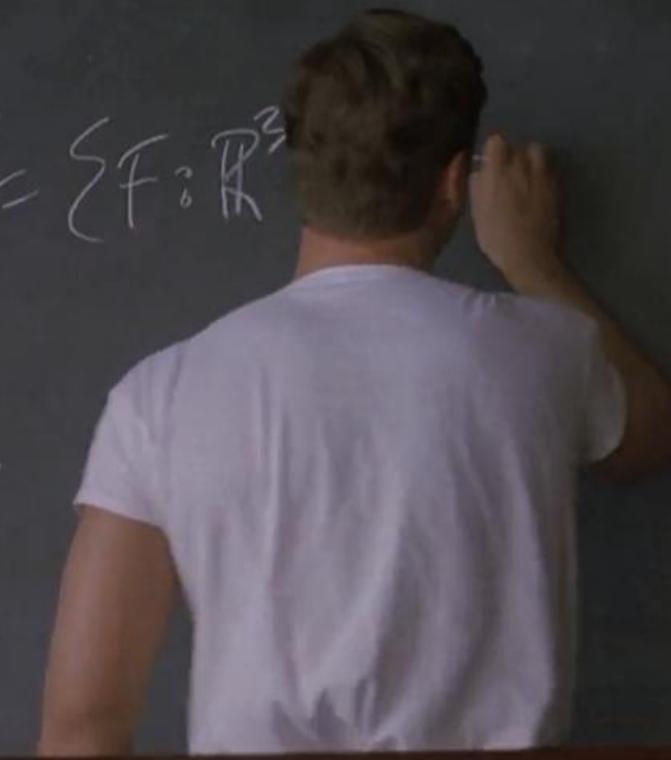


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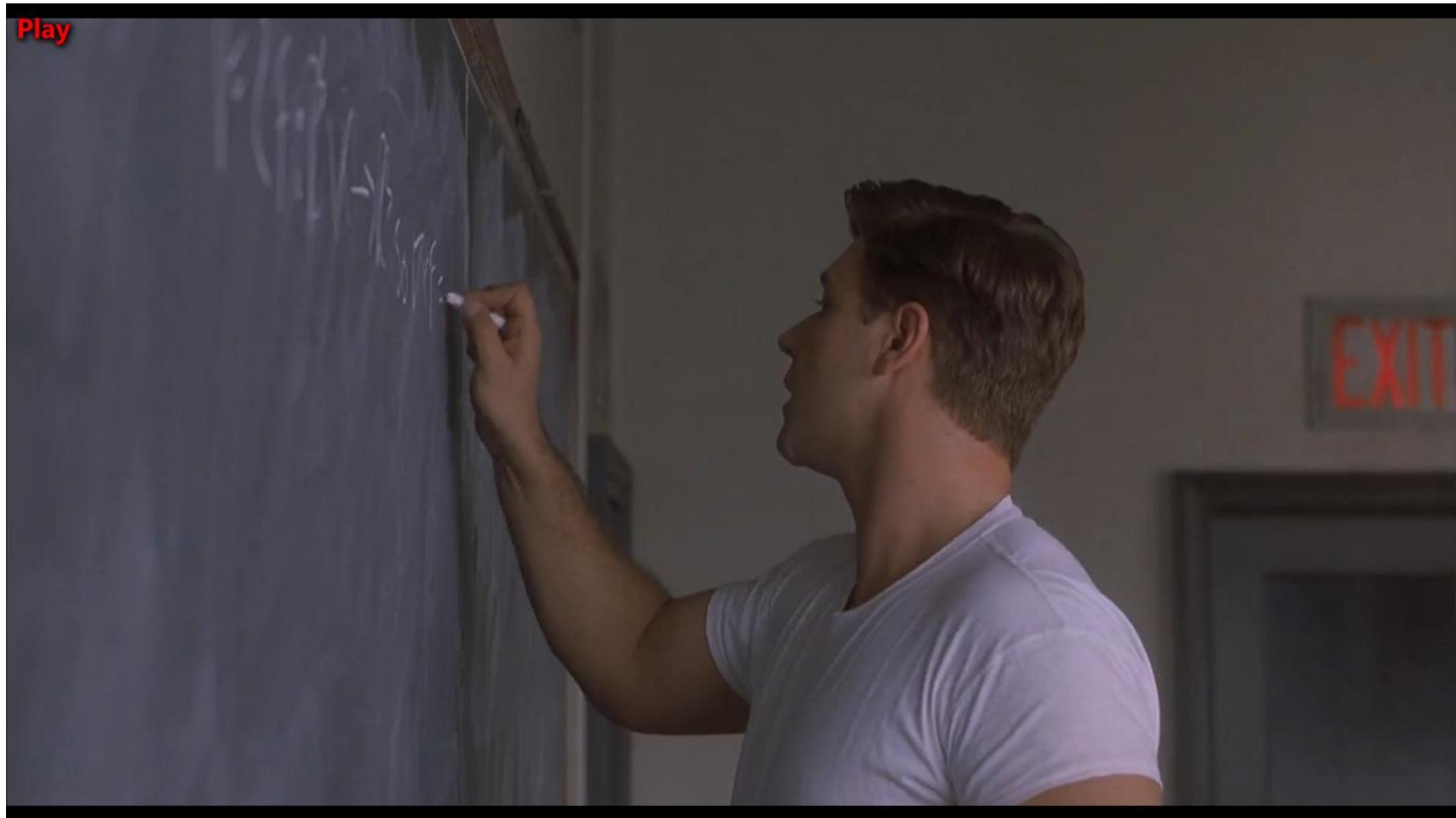


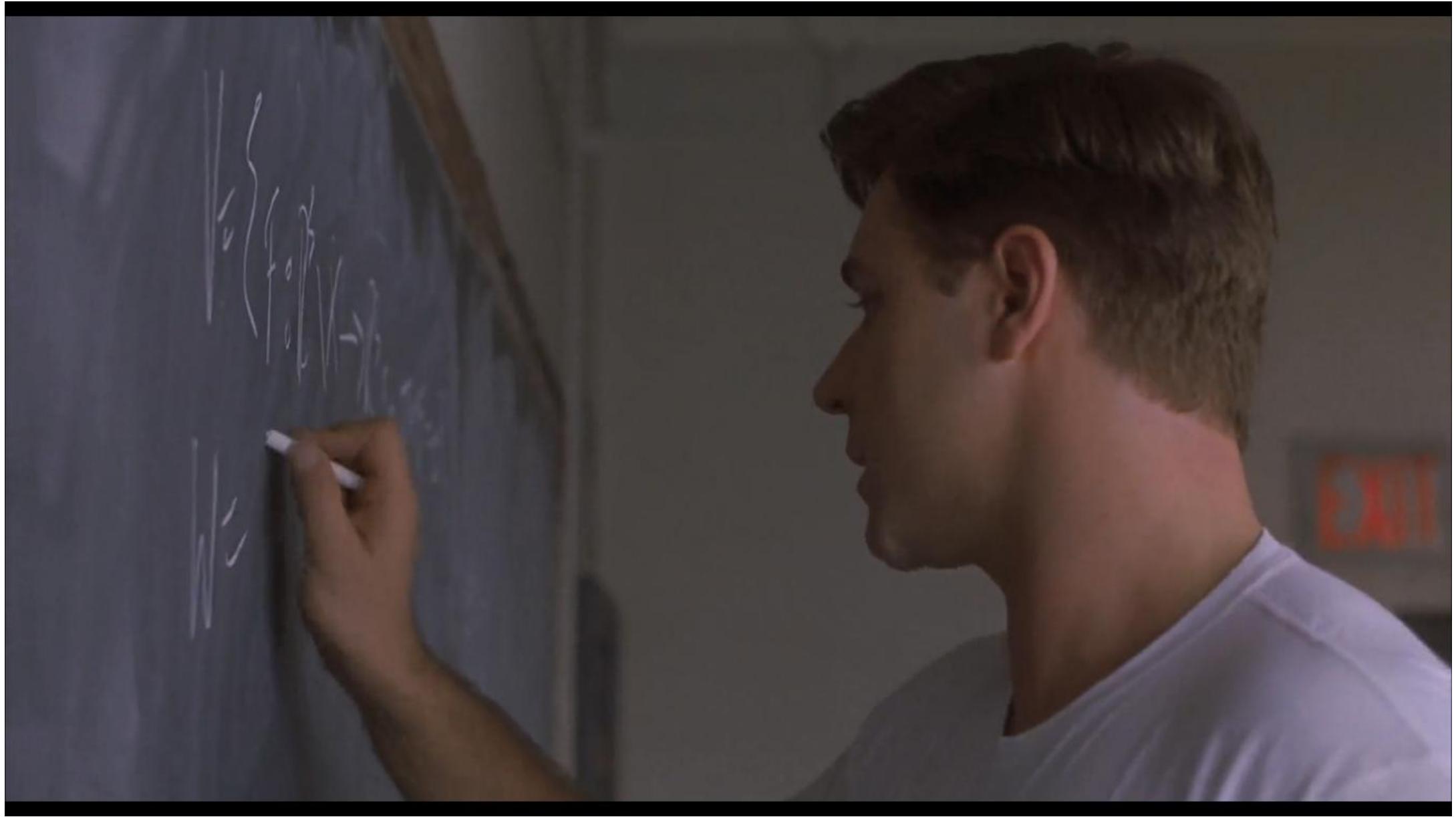
Pause

$$V = \{F : \mathbb{R}^3$$



Play





A man with short brown hair, wearing a white t-shirt, is shown in profile from the right side of the frame. He is facing left and appears to be writing or drawing on a dark chalkboard with a piece of chalk. The chalkboard has some faint, illegible markings. In the background, there is a red exit sign on a wall.

W { f o } V ->

Play

$$\begin{aligned}V: \mathbb{R}^n \times \mathbb{R} &\rightarrow \mathbb{R} \text{ so } \nabla_x F = 0 \\W = D_g V \\&= ?\end{aligned}$$



$V = \mathbb{R}^3 \setminus X \rightarrow \mathbb{R}^3$ so $\nabla_X F = 0 \}$

$W = \{ \nabla g \}$

$(\cdot) = \beta$



$$V = \{f : \mathbb{R}^n \rightarrow \mathbb{R} \mid$$
$$W = \{f : \mathbb{R}^n \rightarrow \mathbb{R} \mid$$

$$\nabla_x f = 0\}$$

Pause

$$V = \{F: \mathbb{R}^3 \setminus X \rightarrow \mathbb{R}^3 \text{ such that } F = 0\}$$

$$W = \{F = \nabla g\}$$

$$\dim(V/W) = 3$$



Forward 5 sec - [00:32:29 / 24%]



Pause



Pause



Pause



Backward 5 sec -[00:35:04 / 25%]

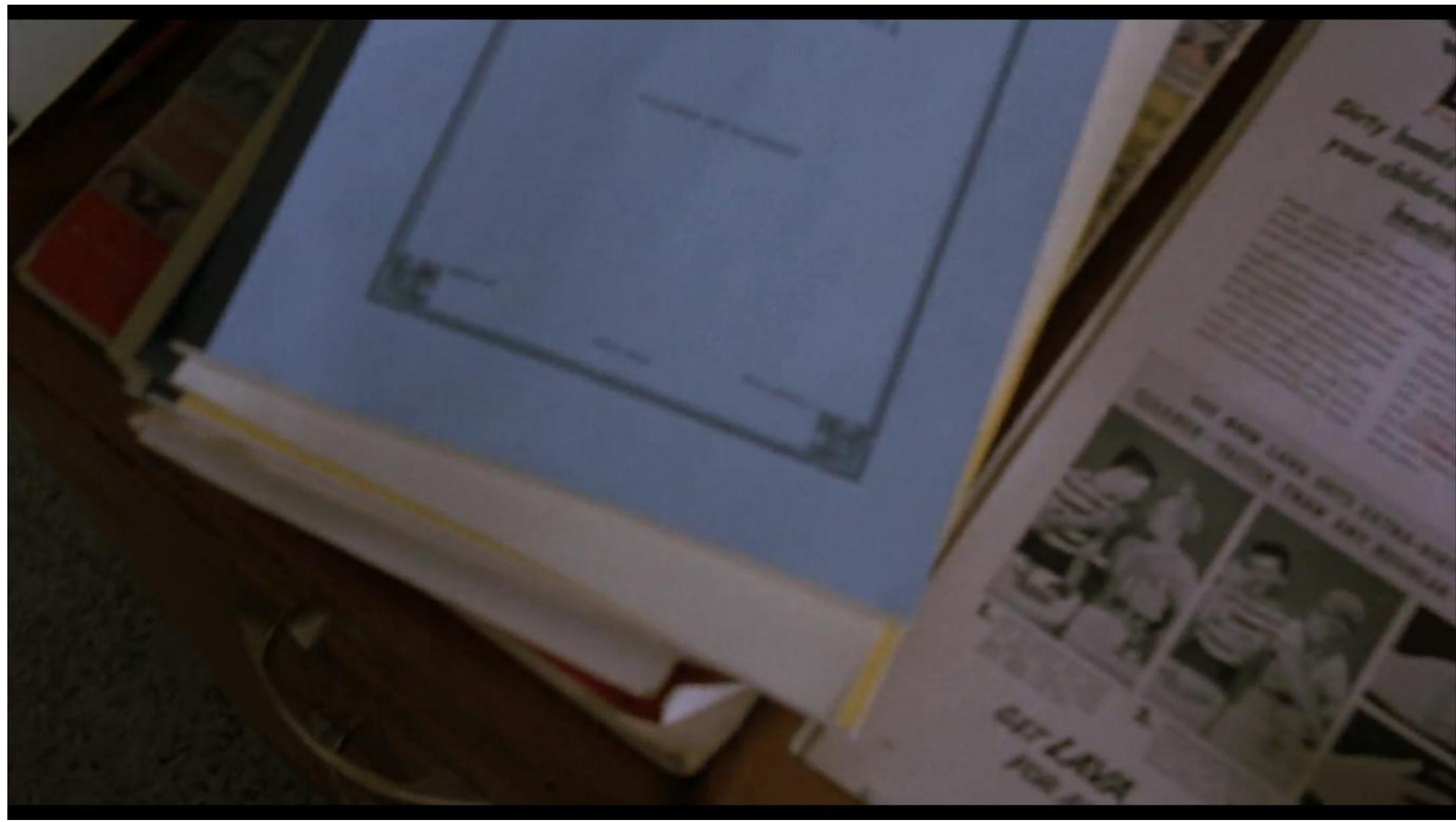


Forward 5 sec -[00:35:06 / 25%]



Pause





ANNALI
DELLA
CUOLA NORMALE
SUPERIORE DI PISA

MOTHER! GUARD AGAINST "DIRT DANGER" DAYS!

*Dirty hands can be dangerous to
your children—Clean hands are
healthy hands!*

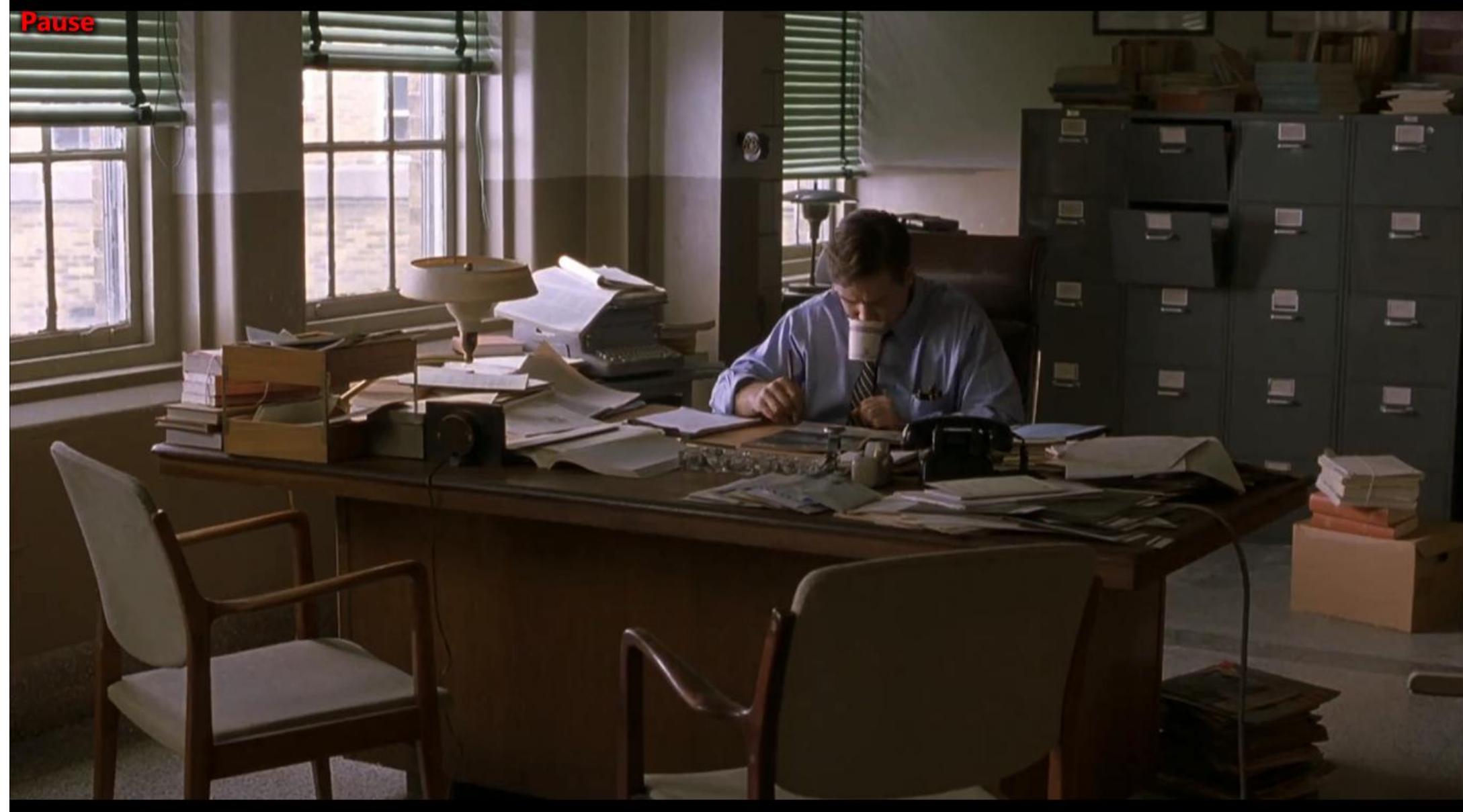
Right now—"dirt danger" days are here. Whether it's the dirt from the beach or the dirt from the garden, there's dirt all around us. And dirt means germs—germs that can make your children sick. So it's important to keep your children's hands clean. That's why we've developed a special new soap—Lava Soap. It's a soap that's especially good for children. It's gentle, so it won't dry out their skin. And it's strong, so it can remove dirt and germs without irritating their skin. So if you want to keep your children healthy and happy, make sure they use Lava Soap. It's the best way to protect them from "dirt danger" days.

DON'T LET SUMMER
DANGER GO FROM
HAND TO MOUTH

SEE HOW LAVA GETS EXTRA-DIRTY HANDS
CLEANER—FASTER THAN ANY REGULAR TOILET SOAP



Pause





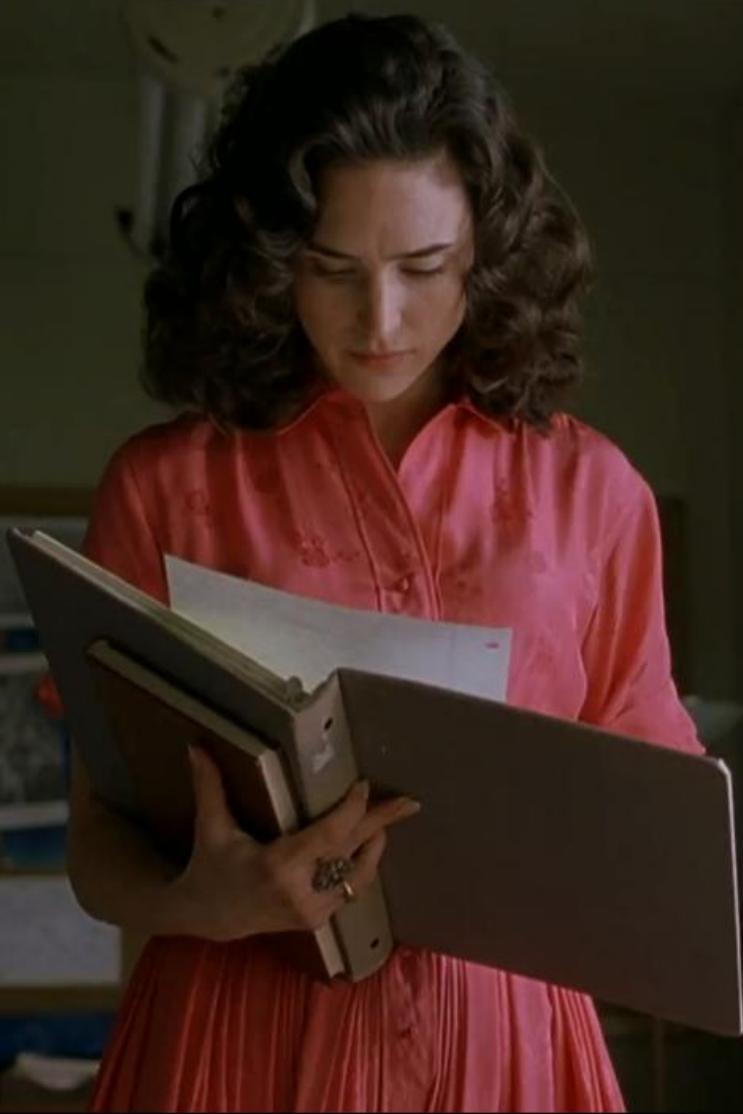






Pause





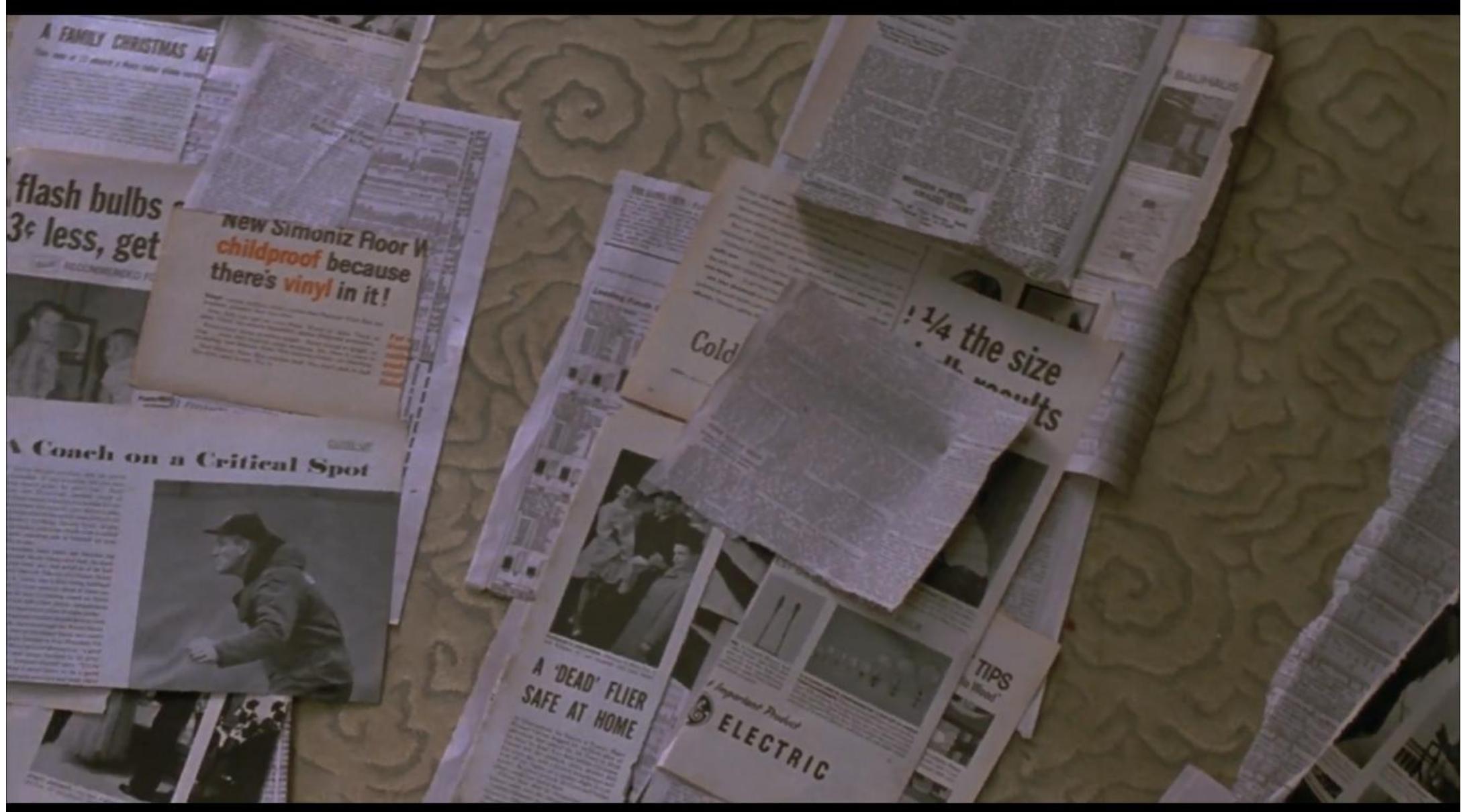


Play











MURINE
for your eyes

ARTIFICIAL LIFE, THREE DAYS OLD

The first complete embryo of a rabbit has been created in a laboratory by Dr. Robert L. Edwards, a British scientist who has been working on the problem for 10 years. The embryo was created by the Lancashire Research Institute of Fertilization and Embryology at Merton Park, London.

Milk of Magnesia
gives more complete
relief

... those medicines which have no effect on the mind, magnesia gives complete relief.

... those medicines which have no effect on the mind, magnesia gives complete relief.

PASSING
at 26 days

SPRI

Pause



BRAIN'S CHILDREN -Parents, R. Mann-Evans, 30, left, and 12-year-old son, with their father.

'DEAD' FLIER SAFE AT HOME

By Associated Press
Stress on Fluors, Steroids
and Colds Suggest New Confidence After
Years That Caused You All Fright and Woe
for Yourself and Your Children.

or colds

- good
- better
- best

IF THE SHOTS MOST PEOPLE TAKE

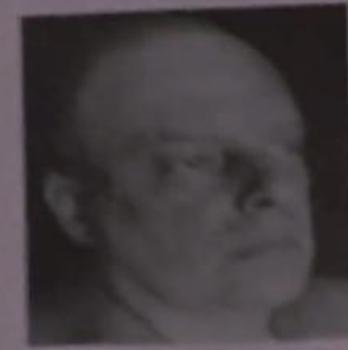
MODERN

BERLIN —

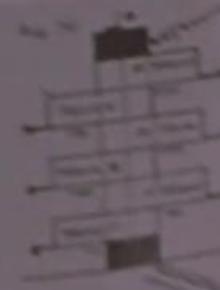
LEADERS OF BAUHAUS



JOHANNES ITTEN, Swiss painter, teacher, theorist and designer, has opened his studio to the public. Right: Colors composed by students under his direction.



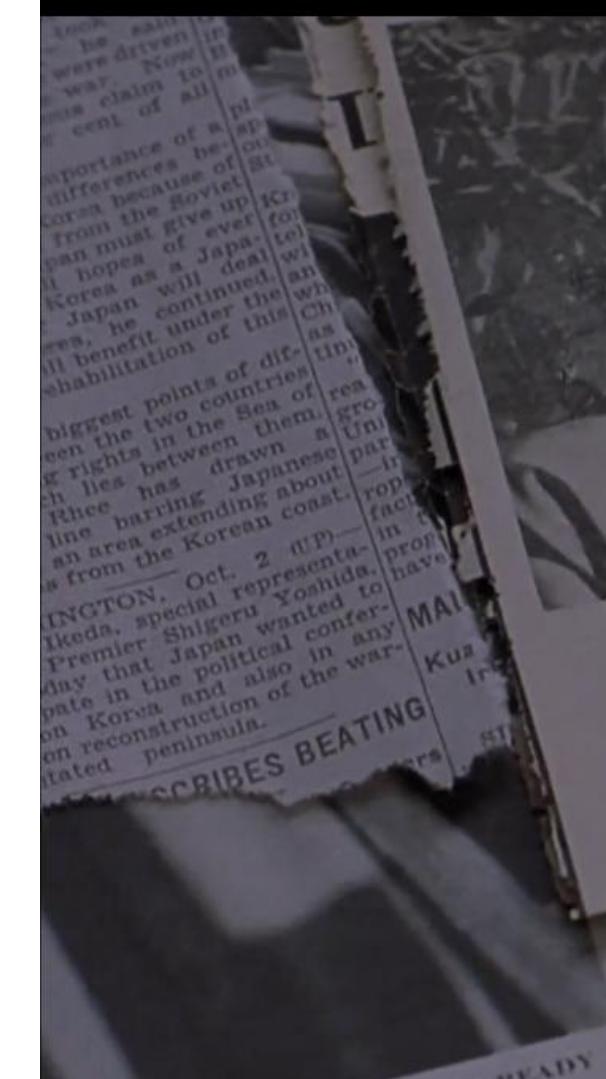
PAUL KLEE, Swiss painter, teacher, theorist and designer, has opened his studio to the public.





How we retired in 15 years with \$300 a month

COLLECTION OF ART





New Simoniz Floor childproof because there's vinyl in it!

Vinyl—tough, brilliant vinyl—makes new Simoniz® Floor the toughest, glossiest floor wax ever.

Now, kids can spill on your vinyl and it won't hurt them. Vinyl, the most durable floor covering ever made, is now available in a new Simoniz® Floor wax.

MAGNIFIED 2,100 TIMES, HAS 32 CELLS CLUSTERING AROUND CENTRAL CAVITY (DARK AREA)

ARTIFICIAL LIFE, THREE DAYS OLD

The grape-like cluster of cells above is science's nearest approach so far to a test-tube baby: a three-day-old human embryo artificially cultivated from a fertilized ovum.

They were grown by Dr. Landrum Shettles of Columbia University's College of Physicians and Surgeons, who succeeded in raising an embryo two days old.

ova removed from operations, has been trying to produce larger ones. By keeping it at the proper temperature and humidity in a glass dish he got his latest embryo to multiply to 32 cells before it disintegrated. Dr. Shettles, whose aim is to explore the

Pause

ARTIFICIAL LIFE, THE

The grapelike cluster of cells above is science's nearest approach so far to a test-tube baby. A fertilized

Vinyl—tough, brilliant vinyl
toughest, glossiest floor wax
Now, kids can spill on you
them. Vinyl, the micro-

MAGNIFIED 2,100 TIMES, HAS 32 CELLS

Pause

ARTIFICIAL LIFE, T 2,100 TIMES, HAS 32 CEL

The grape-like cluster of cells above is science's nearest approach so far to a test-tube baby: a three-day-old human embryo artificially cultivated from a fertilized ovum.

They were grown by Dr. Landrum Shettles of Columbia University's College of Physicians and Surgeons, who succeeded in raising a four-celled embryo two years ago (LIFE, Sept. 21, 1952).

Play

ARTIFICIAL LIFE

a i

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r a i i three

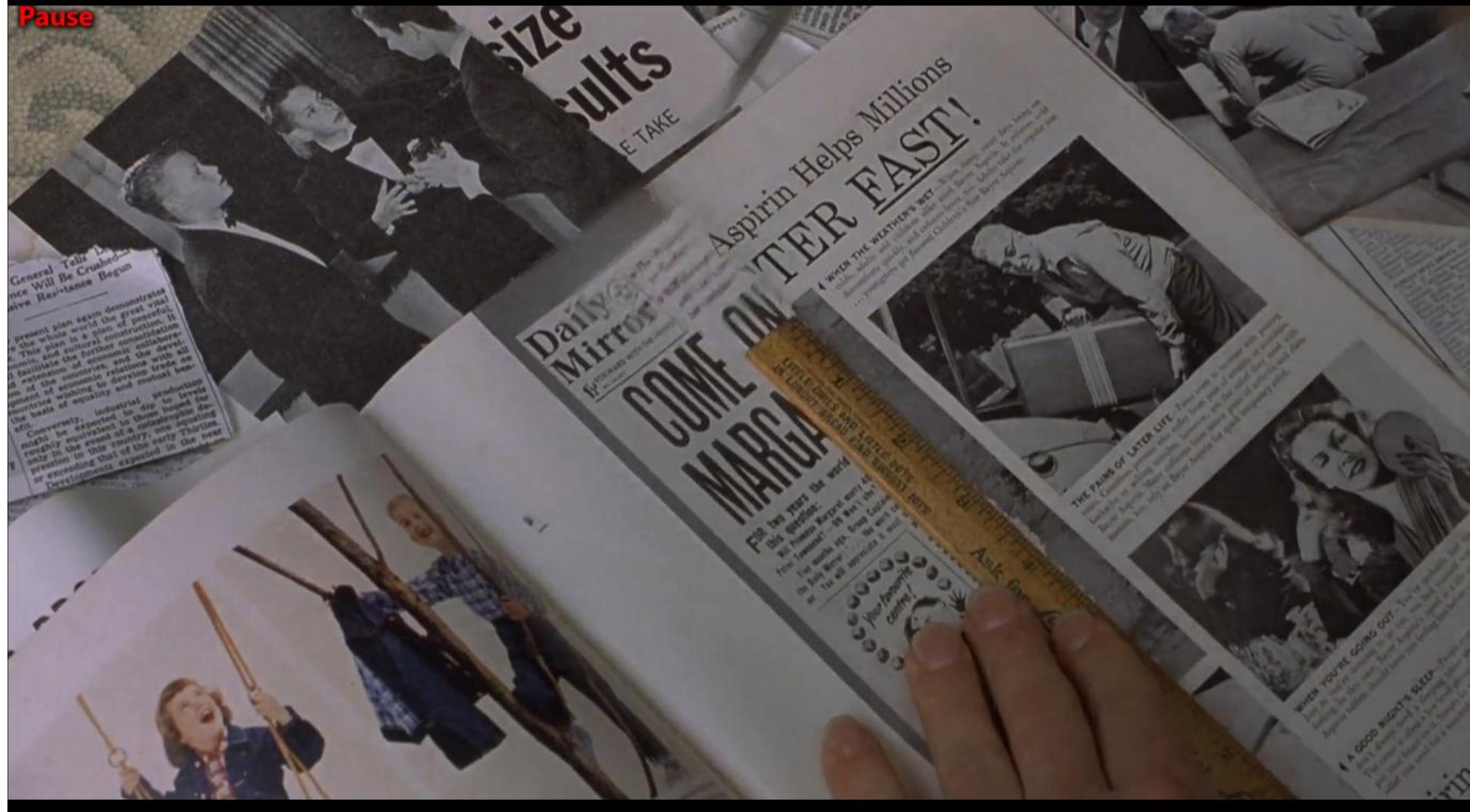
two i y D a r
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2

Pause





Pause



Pause

Two "don't forgets"

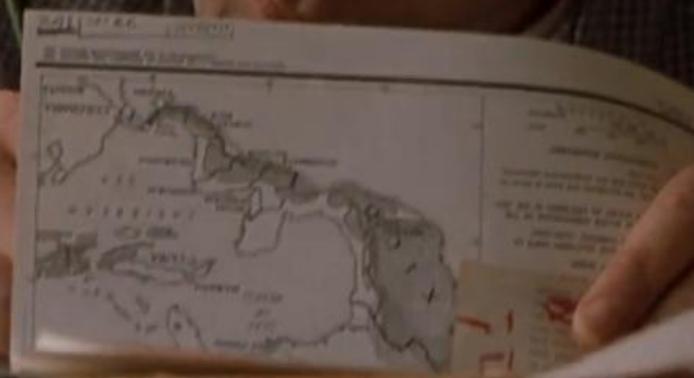


Kellogg's Kids move
your neighborhood

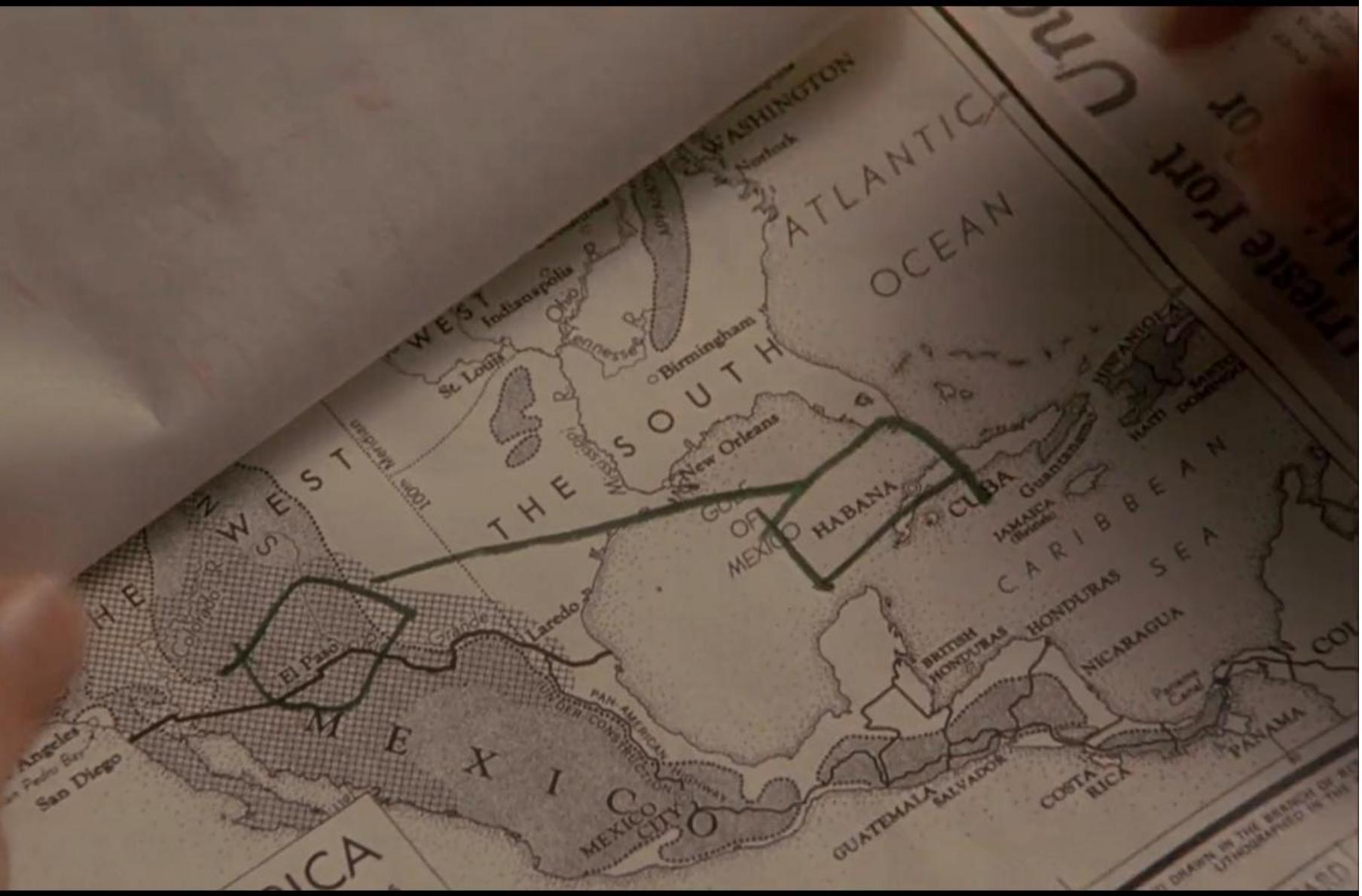
Young youngsters have a special kind
of "happy reminders" or "don't-forget"
things to point out that everybody's
got to eat Kellogg's Corn Flakes.

Kellogg's
CORN FLAKES

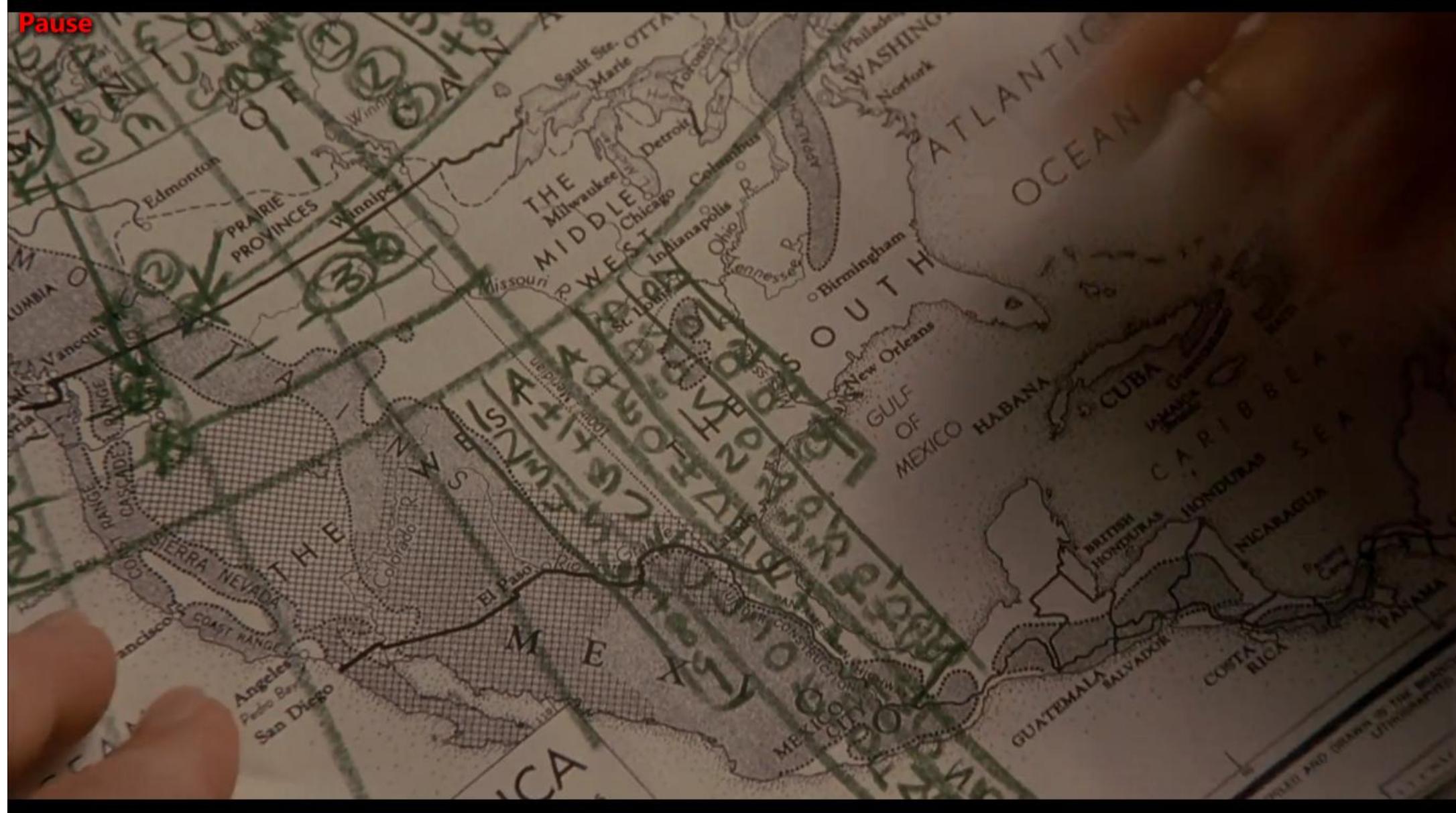
Kellogg's
CORN FLAKES



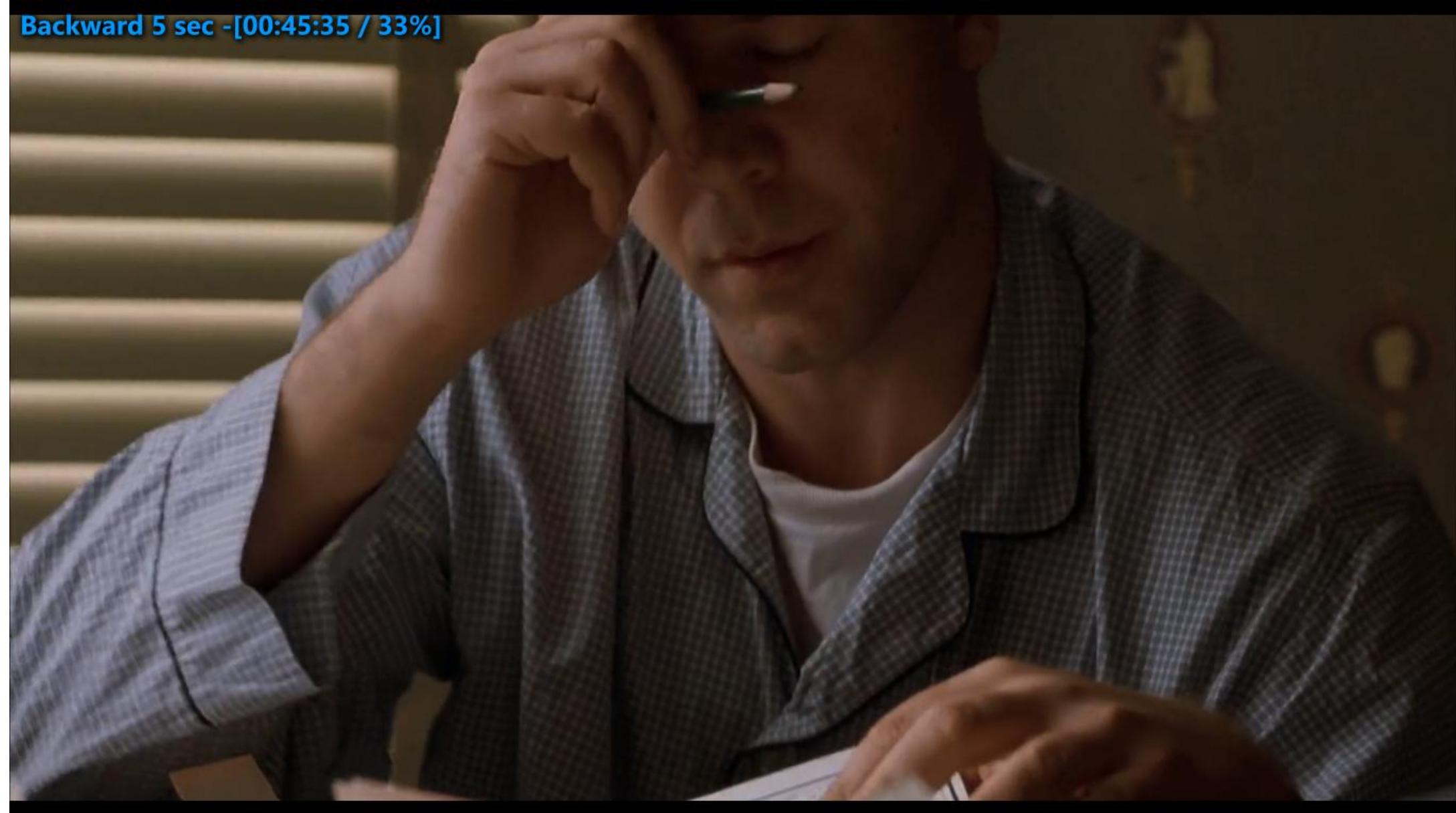
Pause

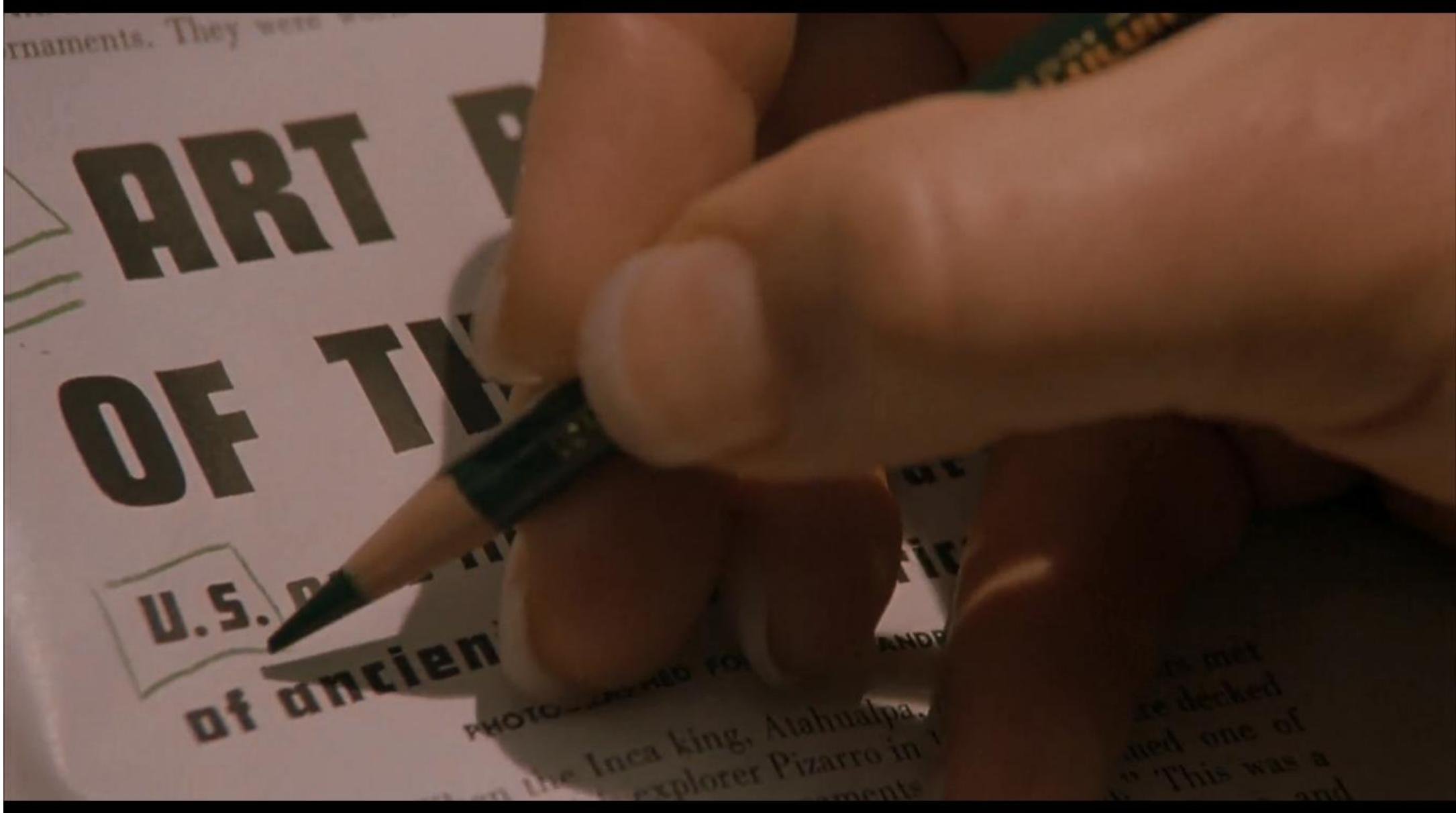


Pause



Backward 5 sec -[00:45:35 / 33%]

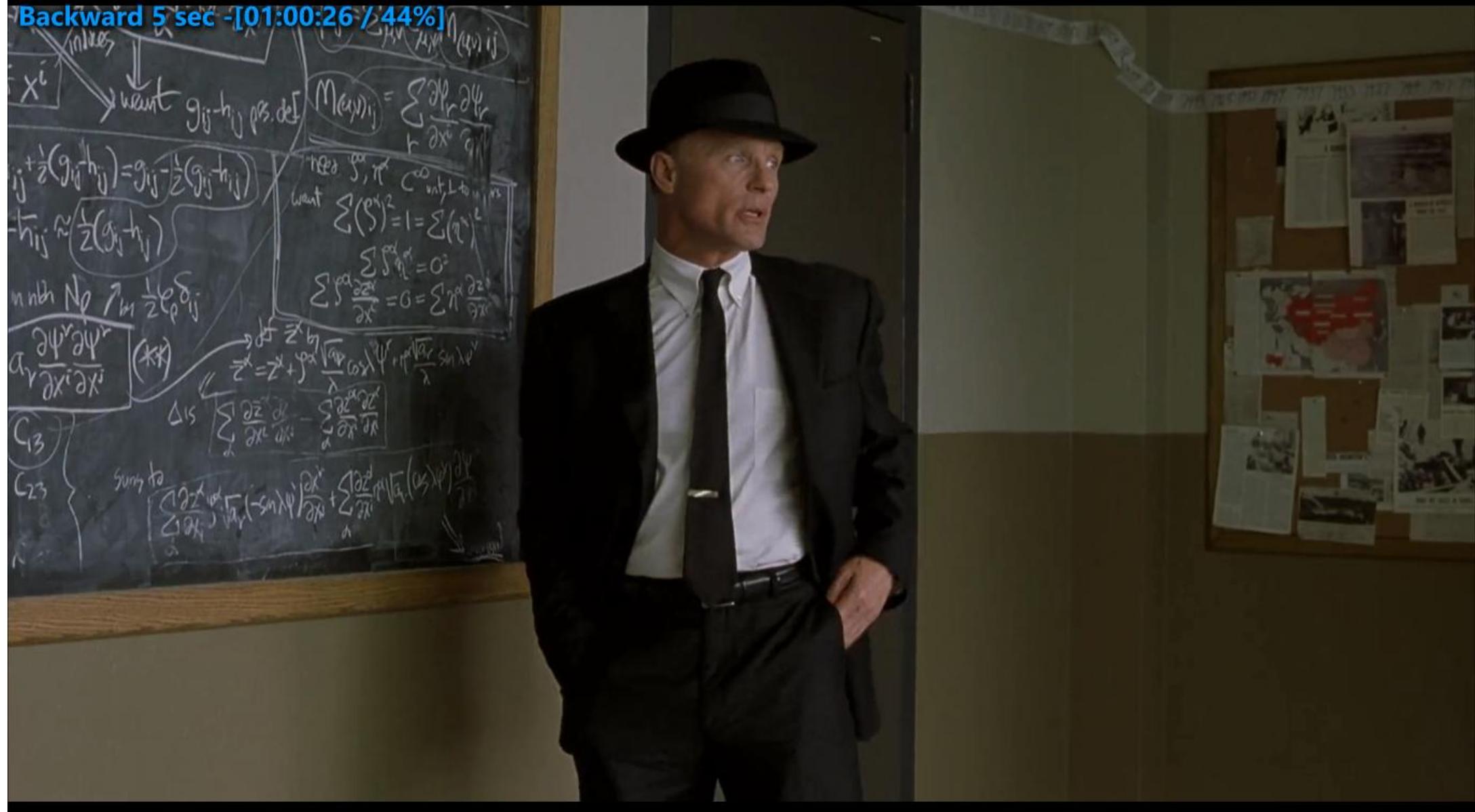




Pause



Backward 5 sec - [01:00:26 / 44%]



Pause





Forward 5 sec - [01:03:43 / 47%]

$$\begin{aligned} S(s) &= \sum_{n=1}^{\infty} \frac{1}{n^s} = \prod_{p \text{ prime}} \left(1 - \frac{1}{p^s}\right)^{-1} \quad s = \sigma + it \quad \sigma > 1 \\ \text{further} \quad \prod_{p \leq 2} \left(1 - \frac{1}{p^s}\right) &\rightarrow \prod_{p \leq 2} \left(1 - \frac{1}{p^{s-1}}\right) \quad \text{from } \frac{1}{p^s} \rightarrow \frac{1}{p^{s-1}} \\ \frac{1}{S(s)} &= \sum_{n=1}^{\infty} \frac{\mu(n)}{n^s} = \frac{1}{(s-1)} \sum_{n=1}^{\infty} \left(\log \frac{1}{n} + \frac{a_n(s-1)}{n} + o(n)\right) \\ \frac{(a_1, a_2, a_3, a_4, \dots)}{\prod_{p \leq 2} \sum_{n=1}^{\infty} q_n^{2pn}} &\rightarrow \frac{1 + a_2(s-1)}{1 + a_3(s-1)} \end{aligned}$$

$$\begin{aligned} \text{P.H.} \Leftrightarrow \psi(x) &= x + O\left(x^{\frac{1}{2}} \log x\right) \\ \pi(x) &= \frac{x}{\log x} + O\left(\sqrt{x}\right) \\ \text{where } \psi(x) &= \sum_{p \leq x} \log p = \log \prod_{p \leq x} p \\ \pi(x) &= \sum_{p \leq x} 1 = \log \prod_{p \leq x} p \\ \text{P.H.} \Leftrightarrow \psi(x) &= \log \prod_{p \leq x} p \end{aligned}$$

$$\begin{aligned} \text{P.M.V.} \quad P(t) &= x + O\left(x e^{-c|\log x|}\right) \\ \pi(t) &= \frac{x}{\log x} + O\left(x e^{-c|\log x|}\right) \\ \text{DEF. of} \quad \Theta \text{-functions} \quad P, P_1, P_2, P_3 &\\ \Leftrightarrow \pi(t) &= (x + O\left(x e^{-c|\log x|}\right))^2 \\ \text{where } \pi(t) &= \frac{x}{\log x}, \quad \bar{\pi}(t) = \frac{x}{\log x} \left(1 - \frac{1}{\log x}\right)^2 \\ \bar{\pi}(s+it) &= O_1 \quad \sigma > 1 \quad \text{P.H.} \quad \log \bar{\pi}(s+it) = \left(\int_2^s \frac{1}{\log t} dt\right)^2 \end{aligned}$$



Pause



Pause

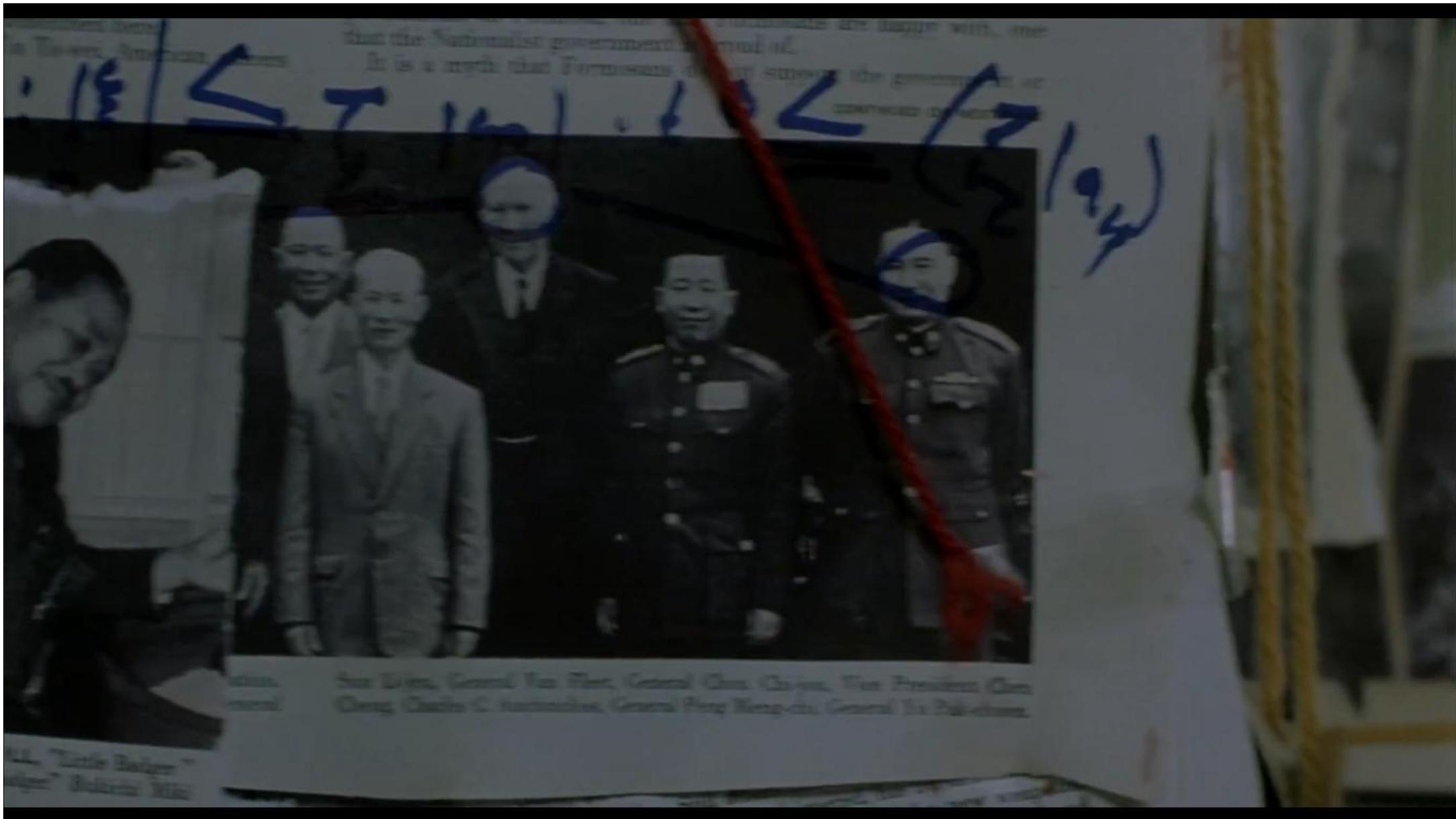


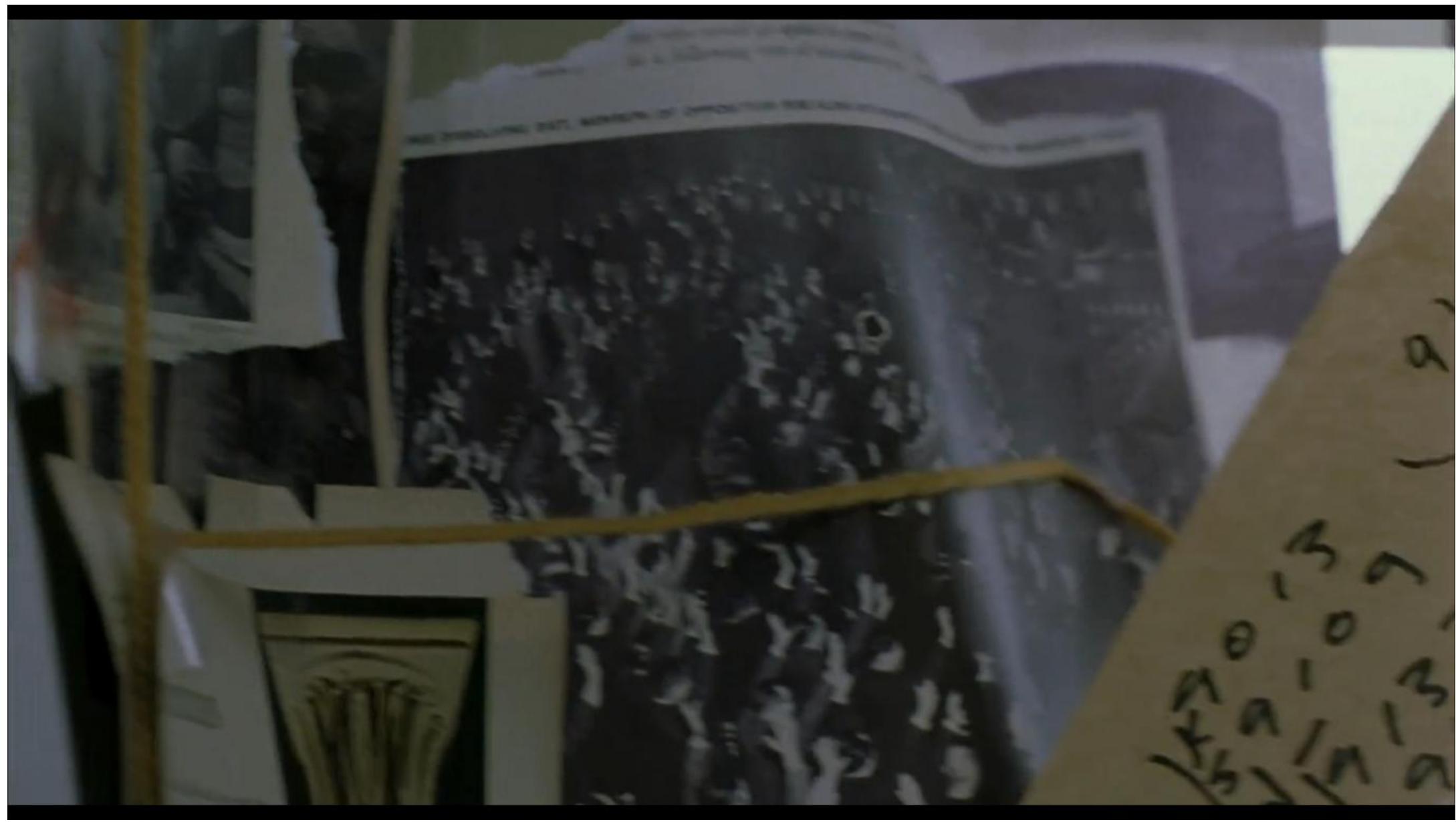
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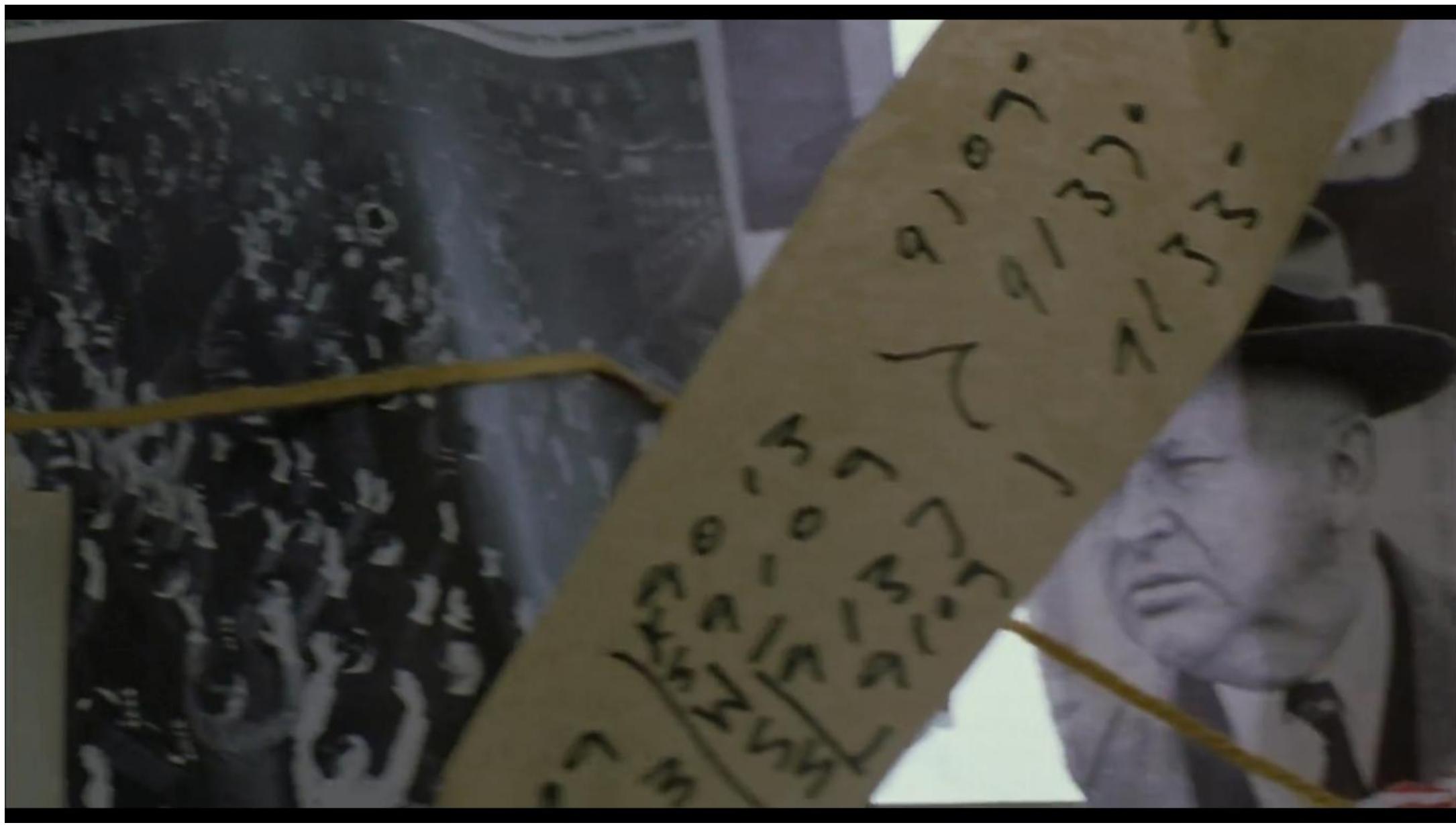


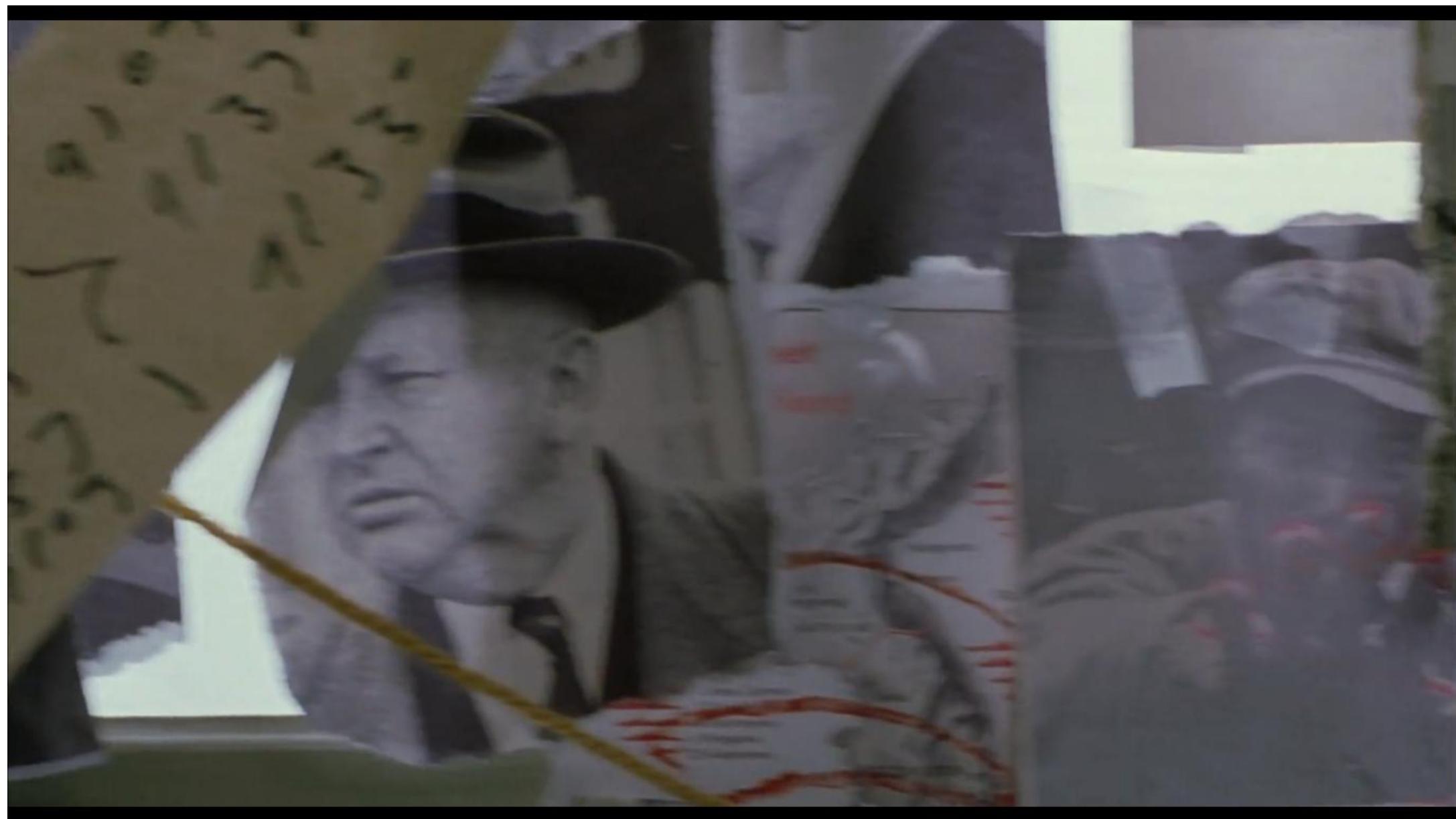
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ETHYL
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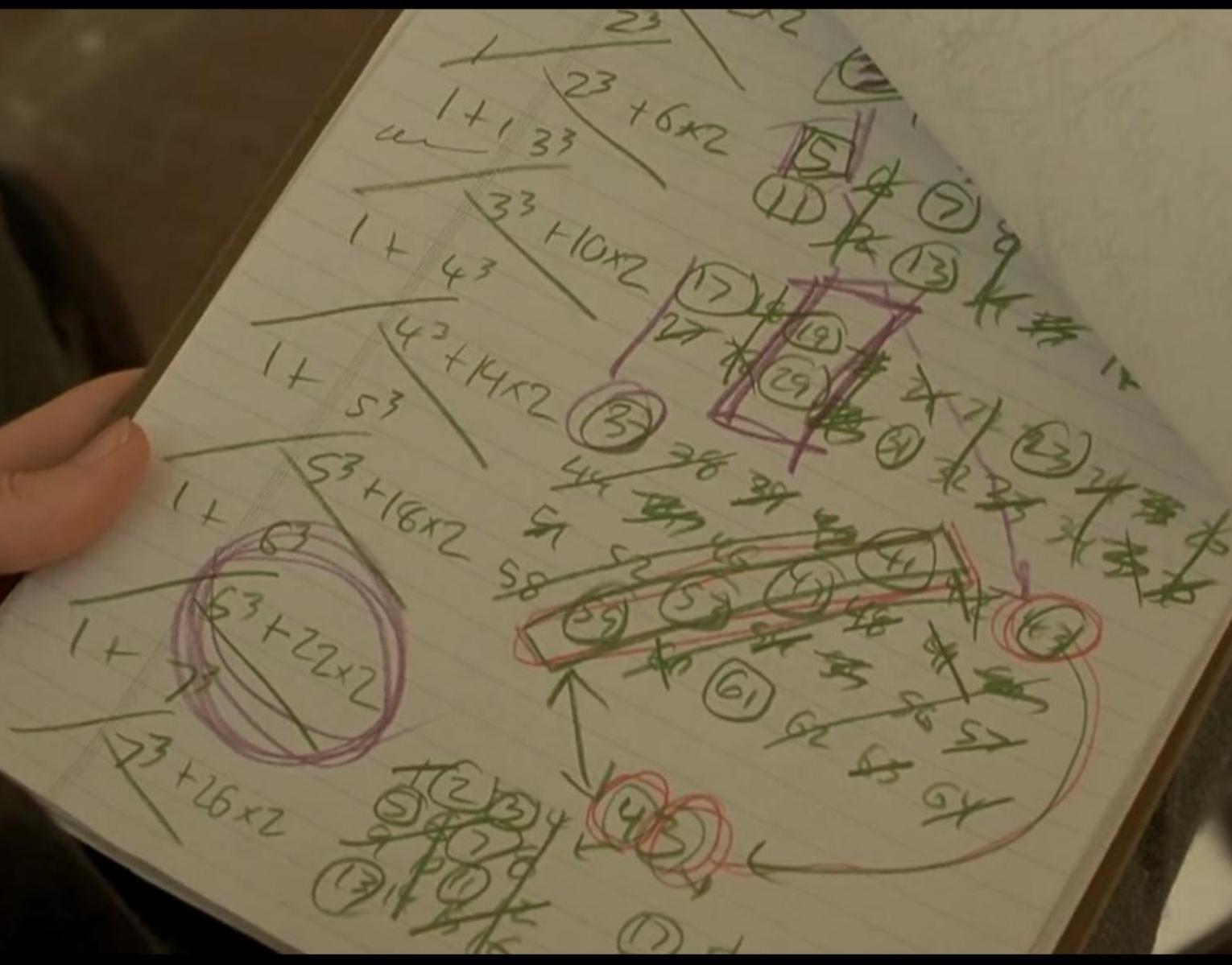
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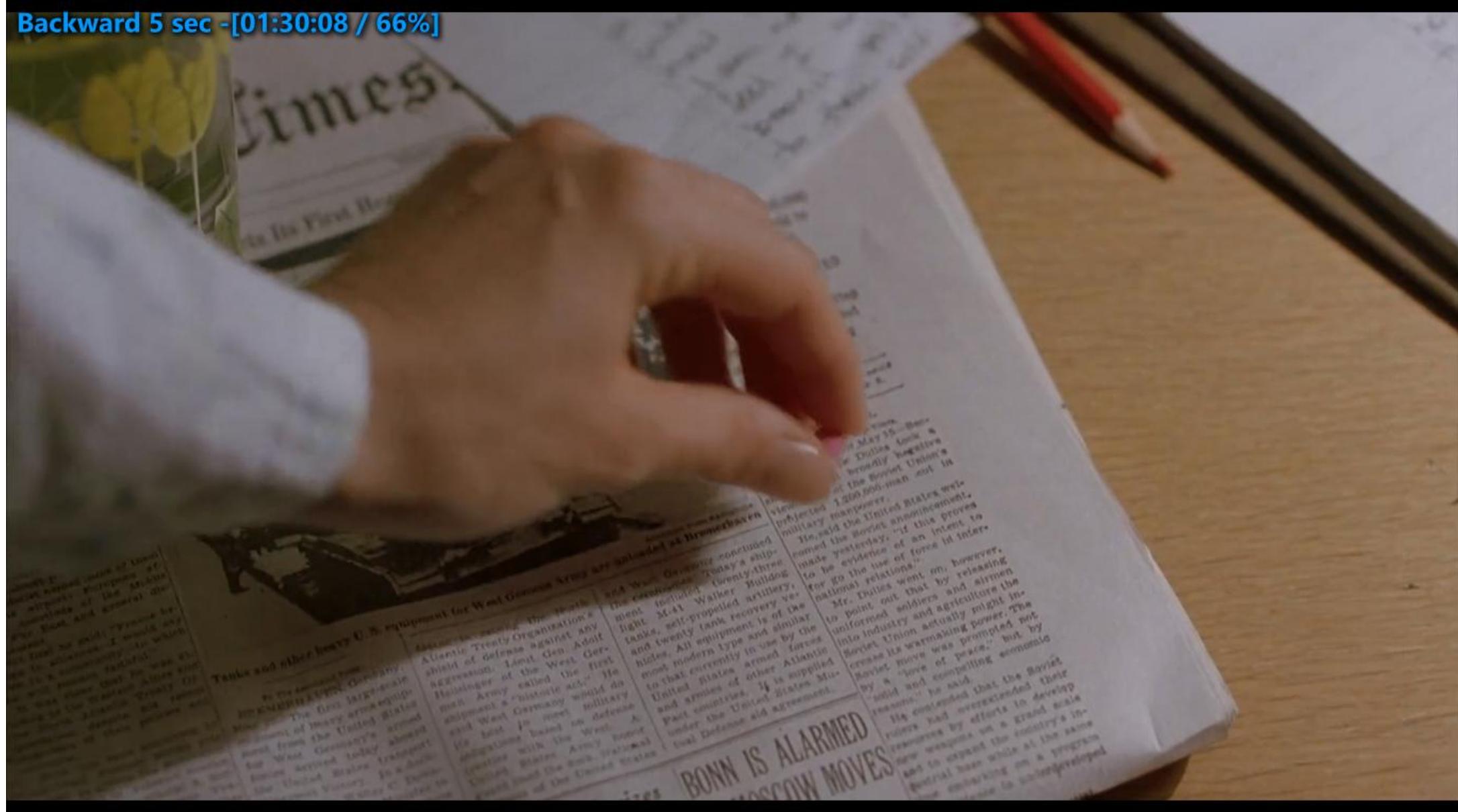
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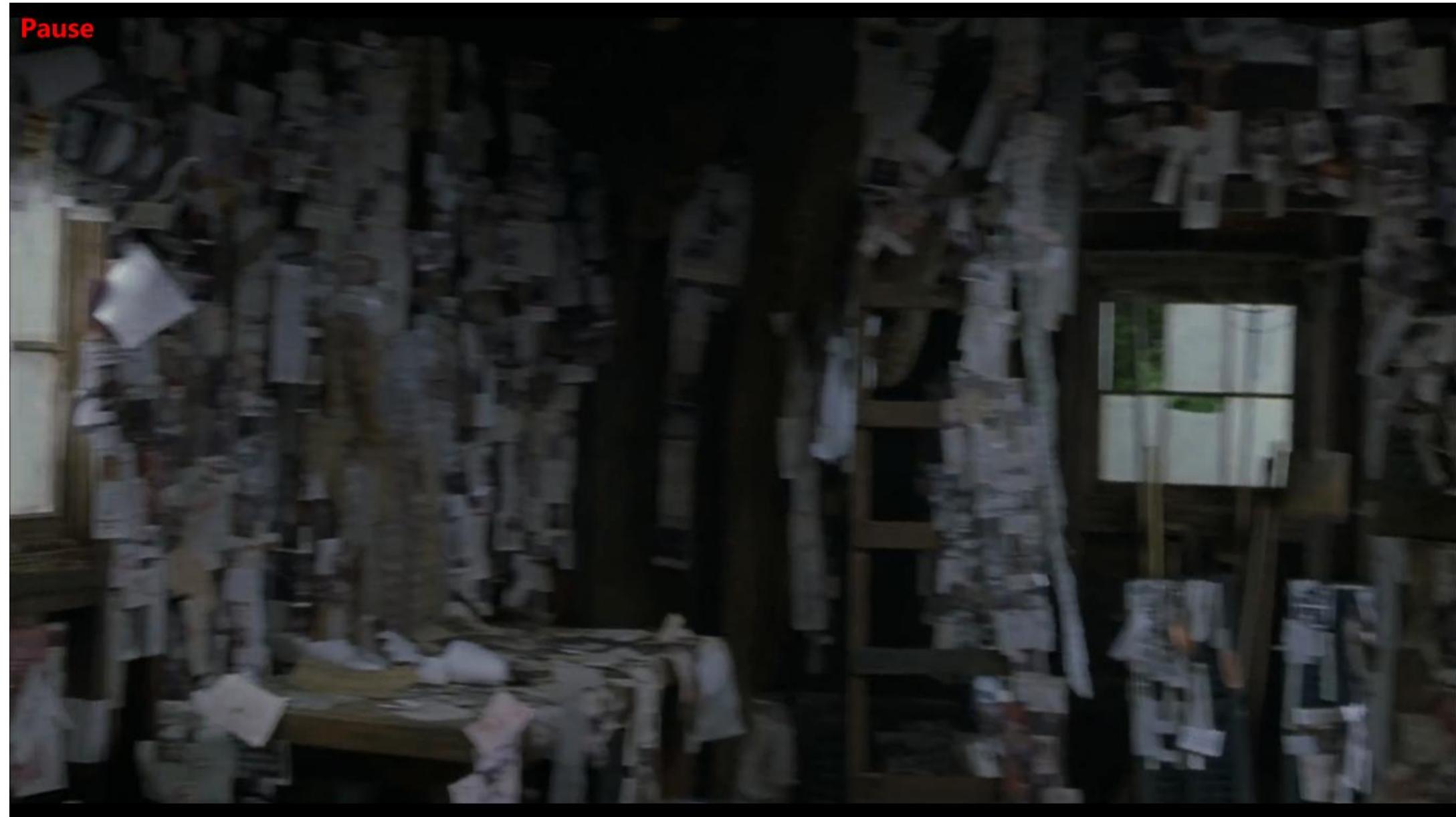
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Backward 5 sec -[01:30:08 / 66%]



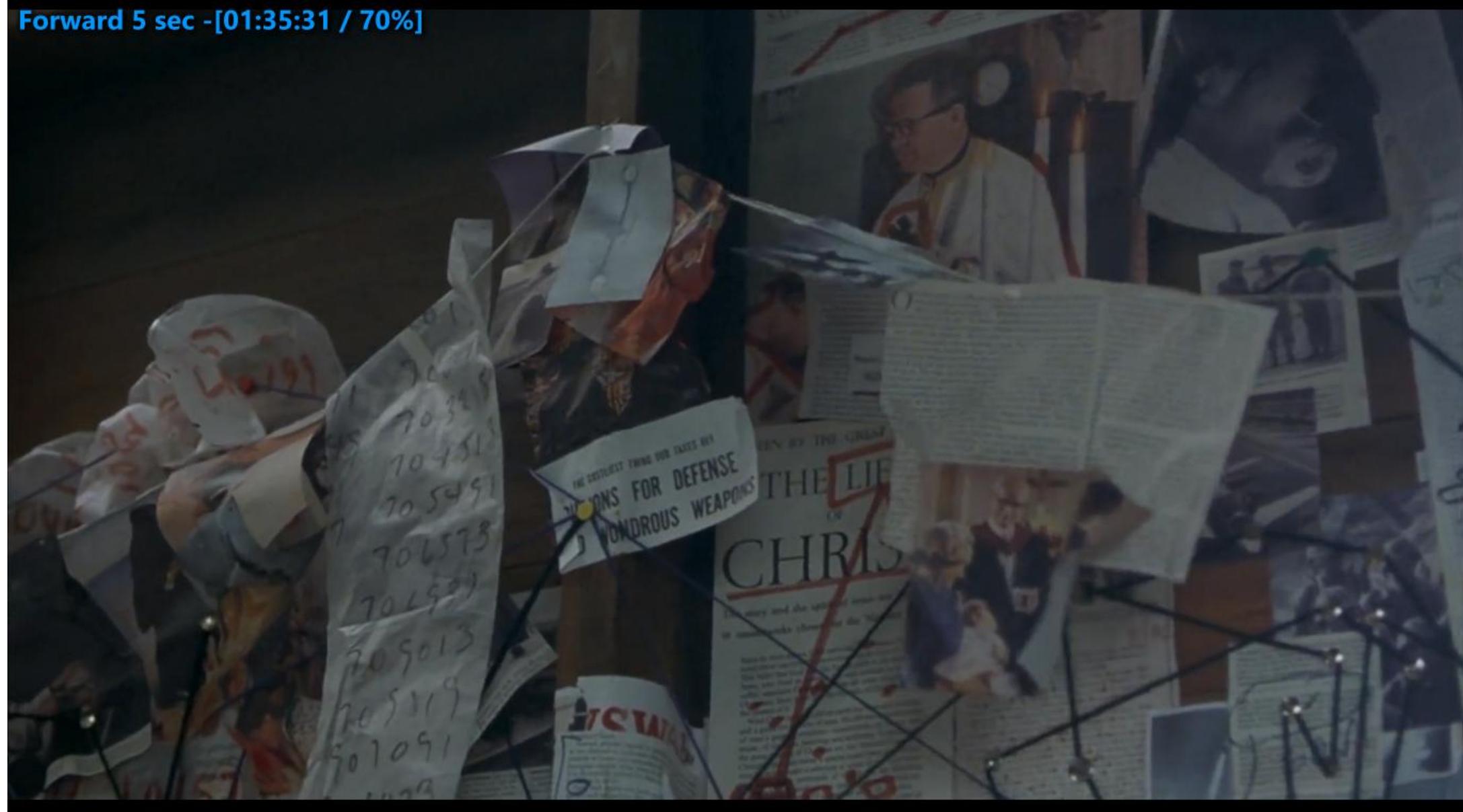
Pause



Pause



Forward 5 sec -[01:35:31 / 70%]



Pause



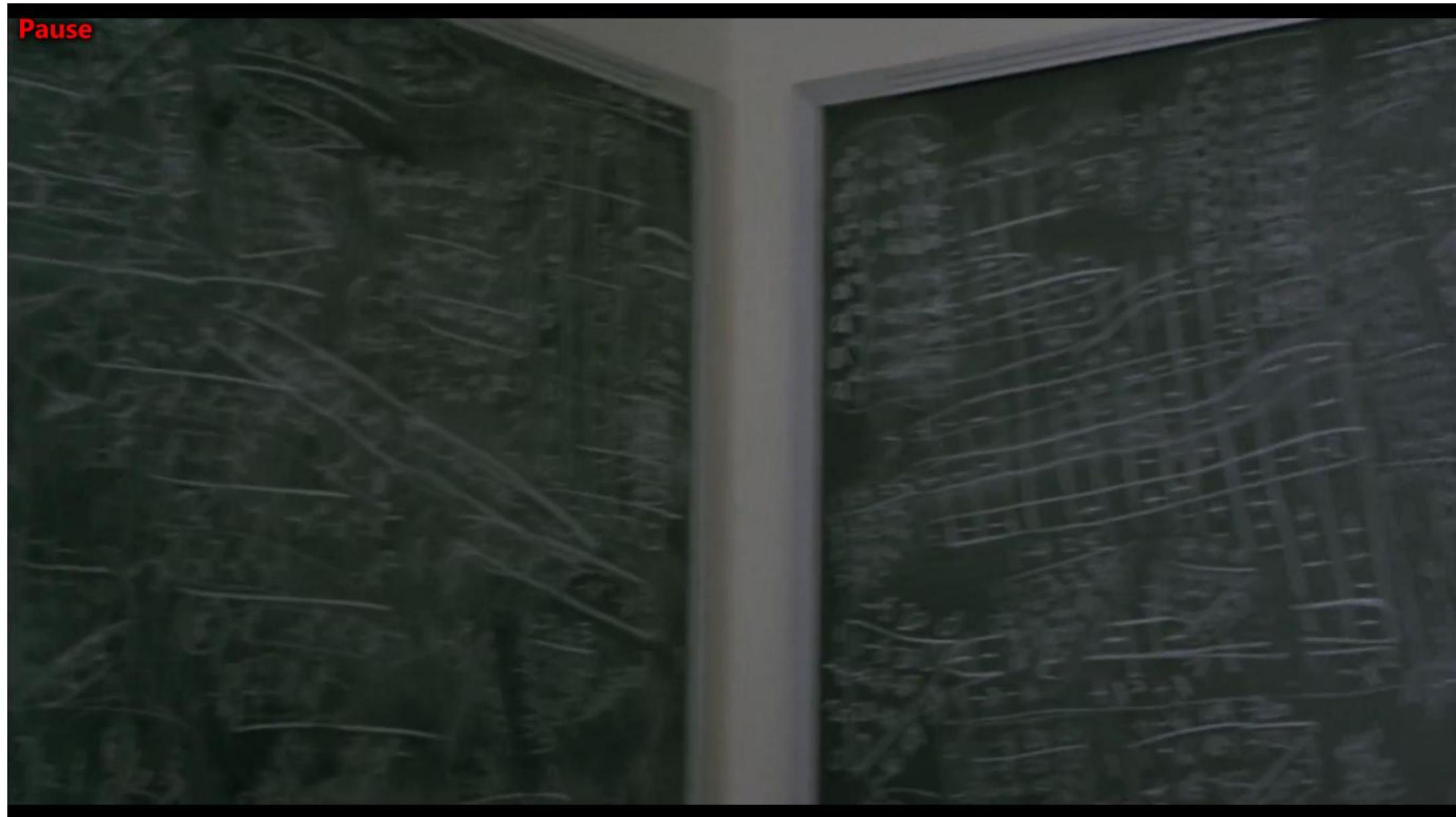
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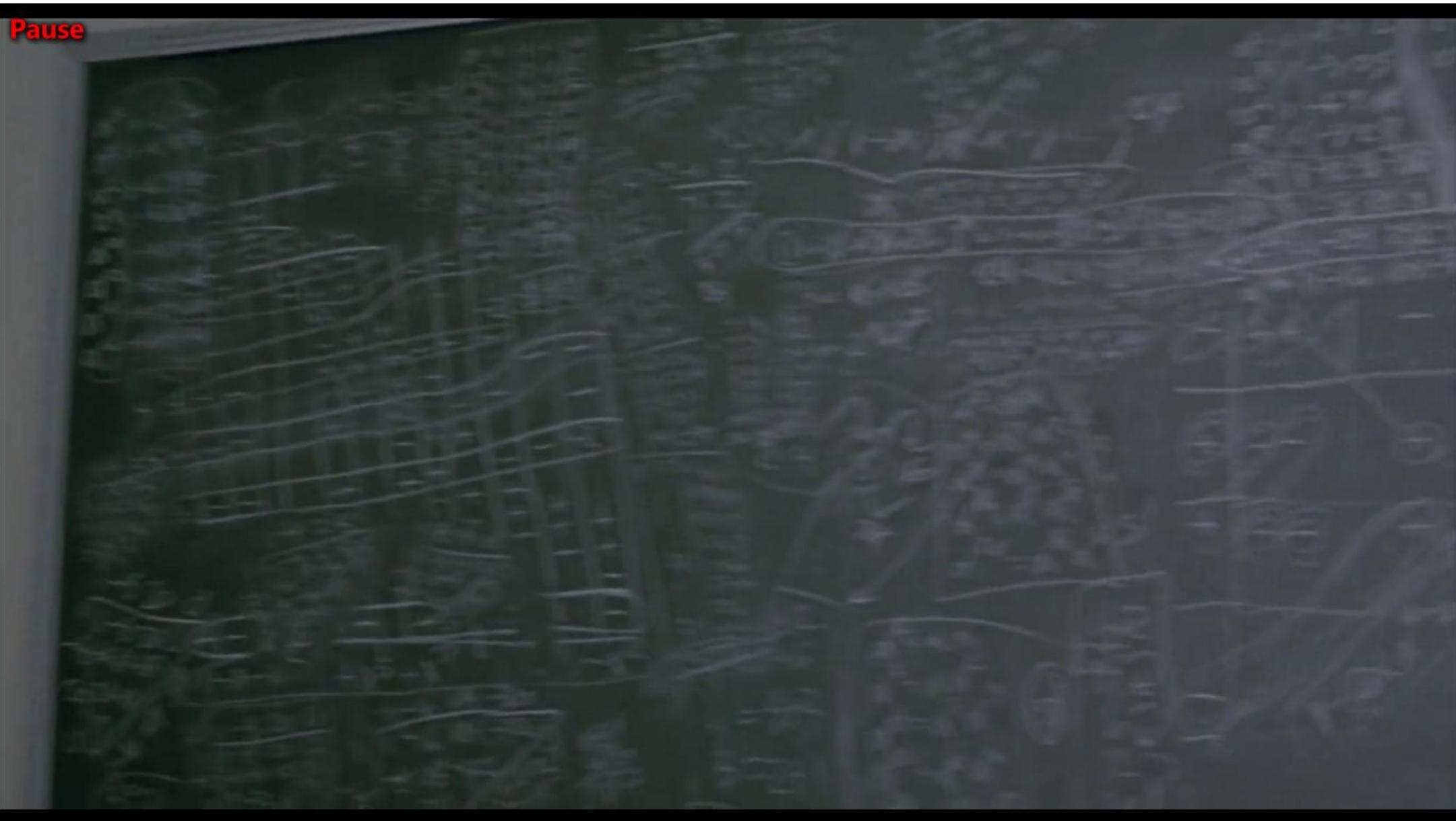
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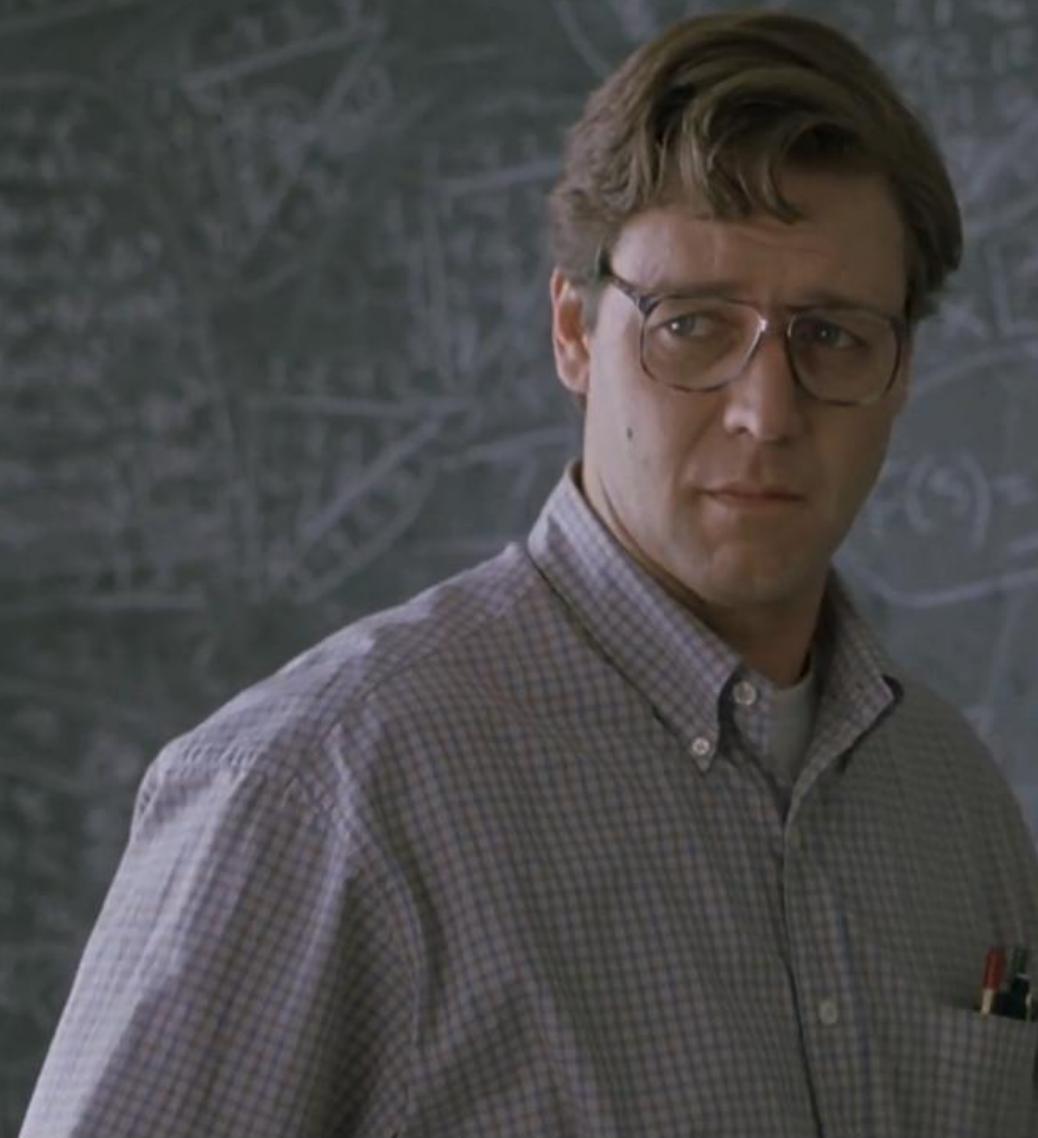
Pause



Pause



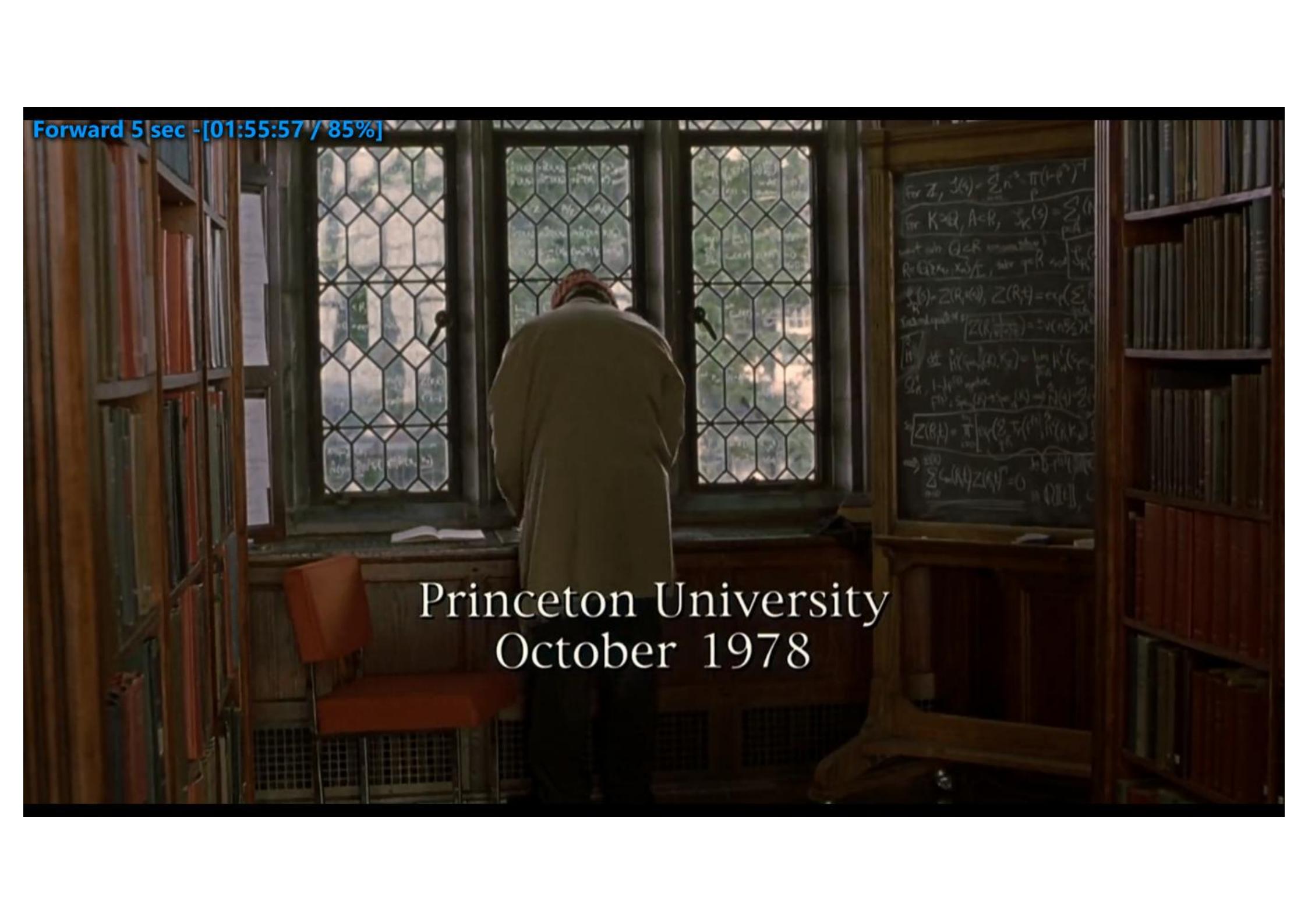
Play



Forward 5 sec -[01:55:50 / 85%]

$$\sum_{i=1}^n x_i \cdot \rho(x_i) = \rho(\sum_{i=1}^n x_i)$$
$$(\frac{6}{-5})(\rho)\hat{H} = \hat{H}\rho(\sum_{i=1}^n x_i)$$

Forward 5 sec -[01:55:57 / 85%]

A photograph of a man in a library, seen from behind, looking out through a large window with a diamond-patterned leaded glass. He is wearing a light-colored jacket and a dark cap. To his left are tall wooden bookshelves filled with books. To his right is a chalkboard with mathematical equations written on it. The scene is dimly lit, with light coming from the window.

Princeton University
October 1978

$$\text{For } Z, Z(s) = \sum_{n=1}^{\infty} n^{-s} \pi(-\rho^n)^{-1}$$

$$\text{For } K \geq Q, A \in R, \quad \chi_K(s) = \sum_{\rho \in A}$$

$$\text{with } Q \in R \text{ non-zero},$$
$$R = G(\mathbb{K}_Q, X_Q), \text{ where } \mathbb{K} \in \mathcal{K}$$

$$\chi_K(s) = Z(R, s), \quad Z(R, t) = \exp\left(\sum_{\rho \in R} \frac{t}{-\rho}\right)$$

$$\text{and similarly, } Z(R, s) = \sum_{\rho \in R} \frac{1}{-\rho} e^{-\rho s}$$

$$\text{Now, } \chi_K(s) = \lim_{t \rightarrow 0} \chi_K(s+t)$$

$$\text{So, } \lim_{t \rightarrow 0} \chi_K(s+t) = \chi_K(s) + \sum_{\rho \in R} \frac{1}{-\rho} e^{-\rho s}$$

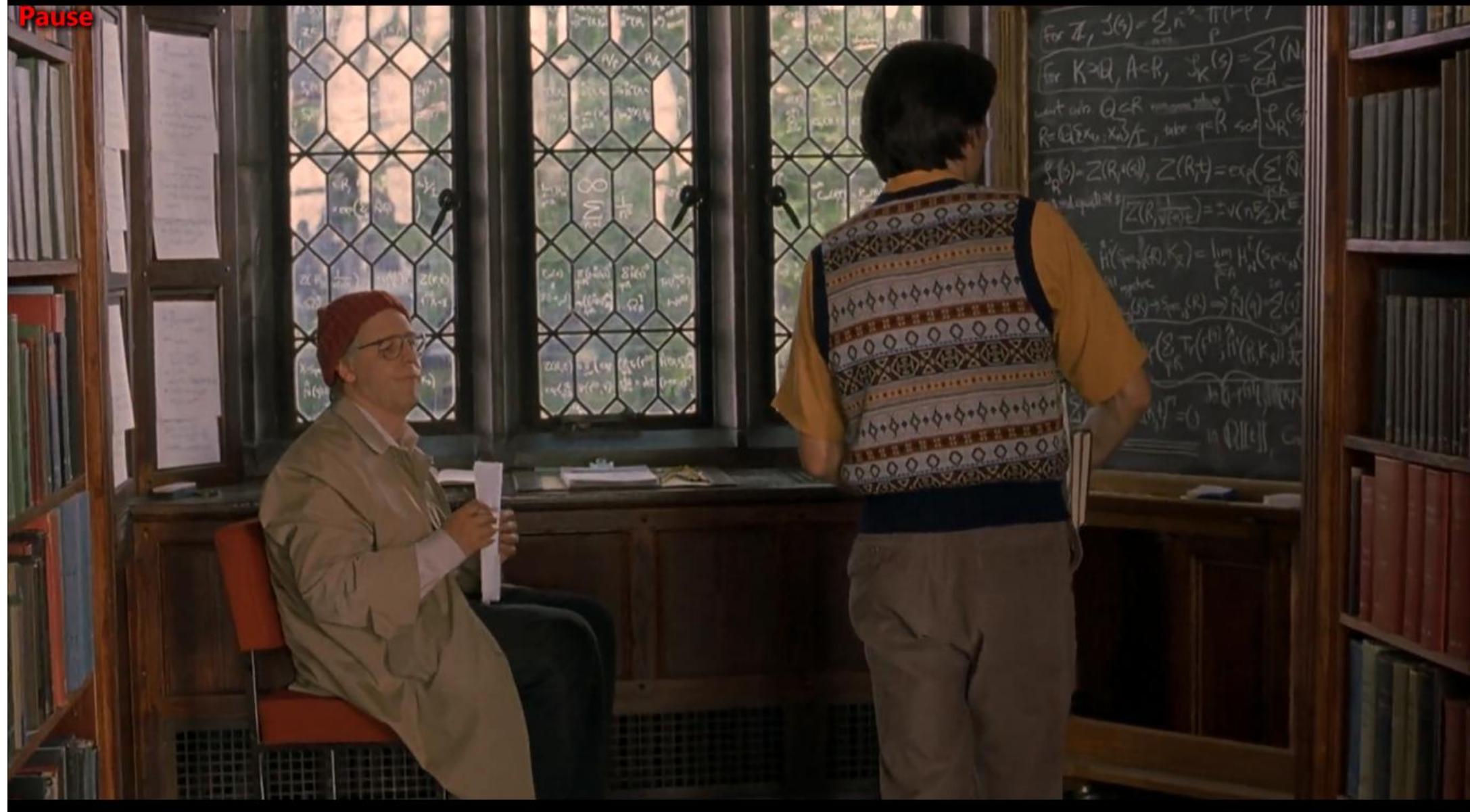
$$\Rightarrow Z(R, s) = \prod_{\rho \in R} \exp\left(\sum_{n=1}^{\infty} \frac{s}{-\rho^n}\right)$$

$$\Rightarrow \sum_{n=1}^{\infty} \left(\sum_{\rho \in R} \frac{1}{-\rho^n} \right) Z(R, s) = 0$$

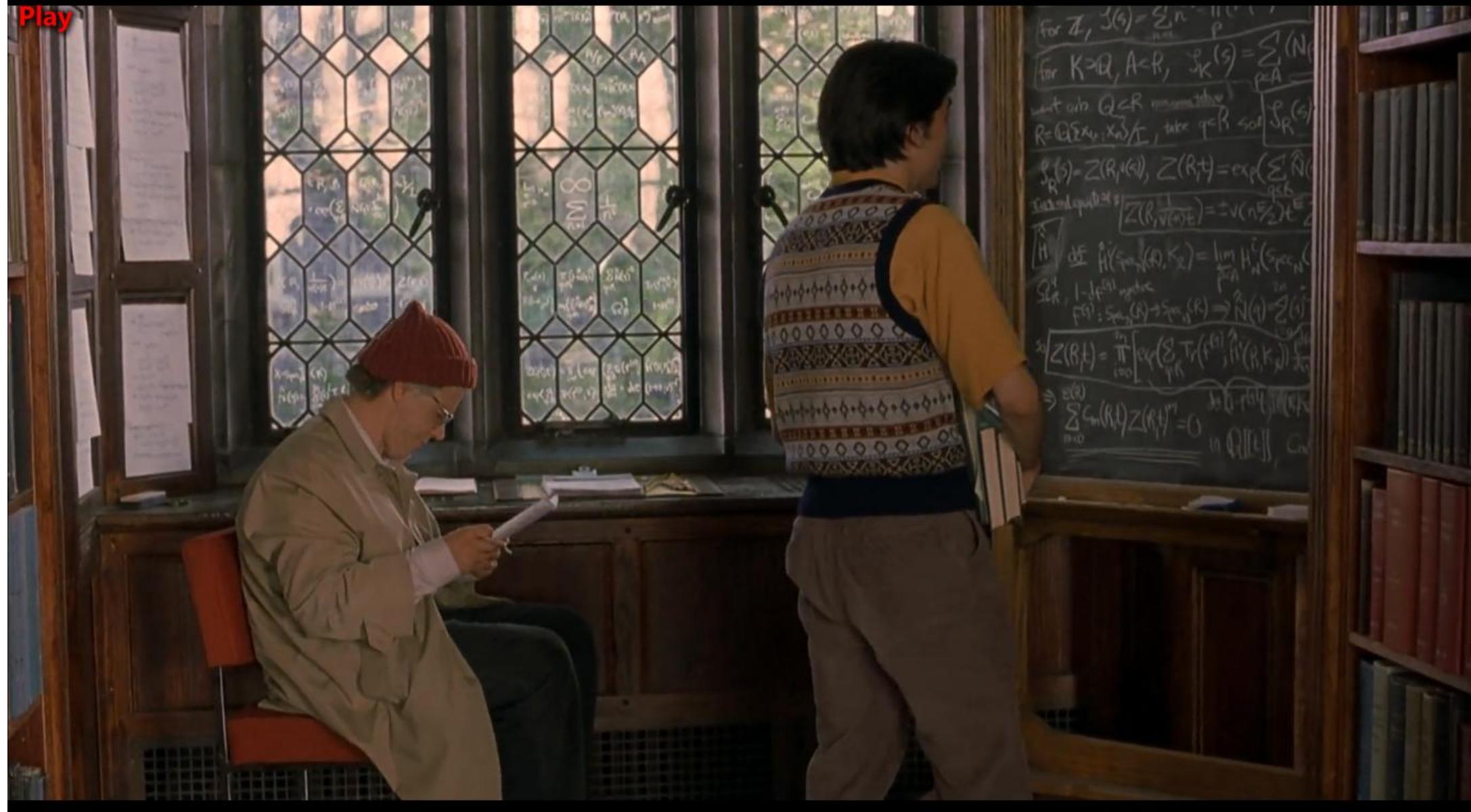
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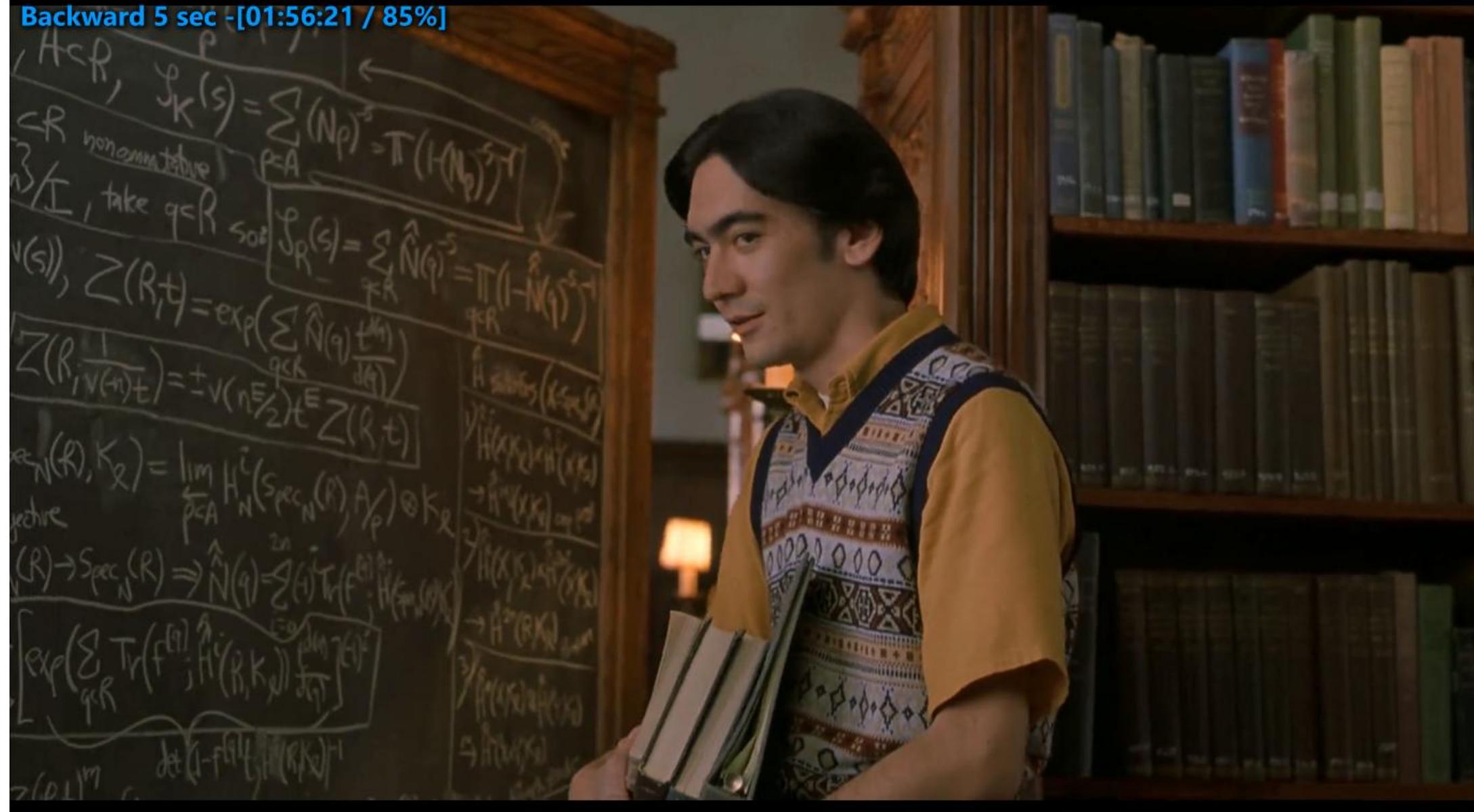
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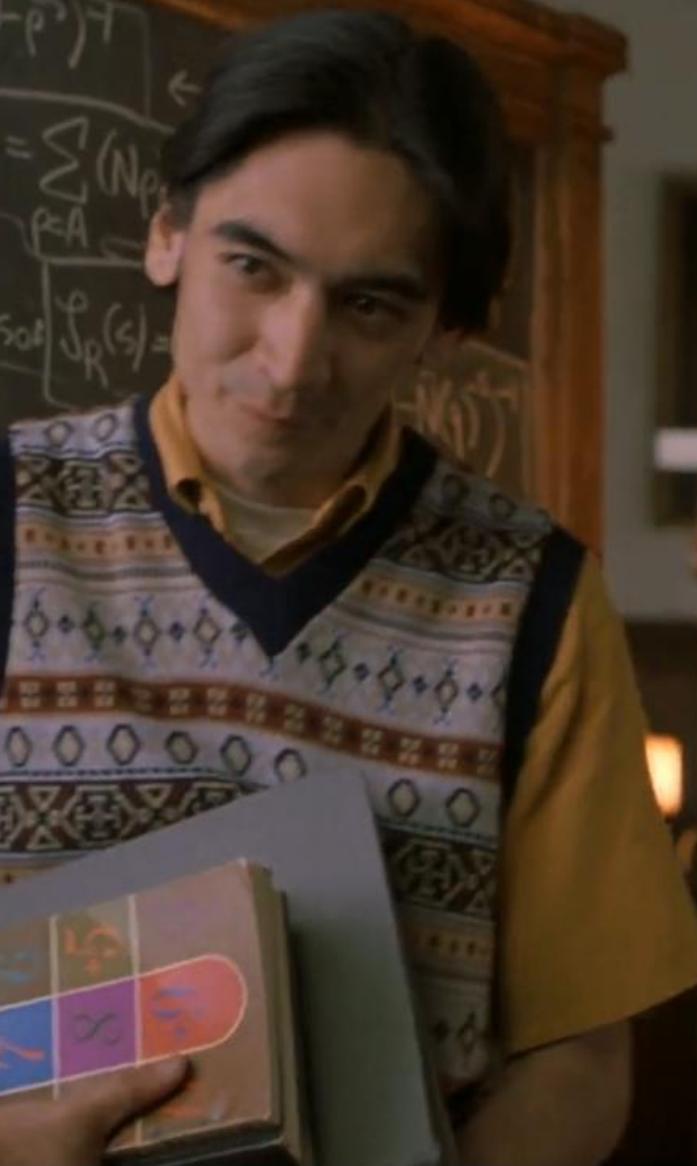


Backward 5 sec -[01:56:21 / 85%]

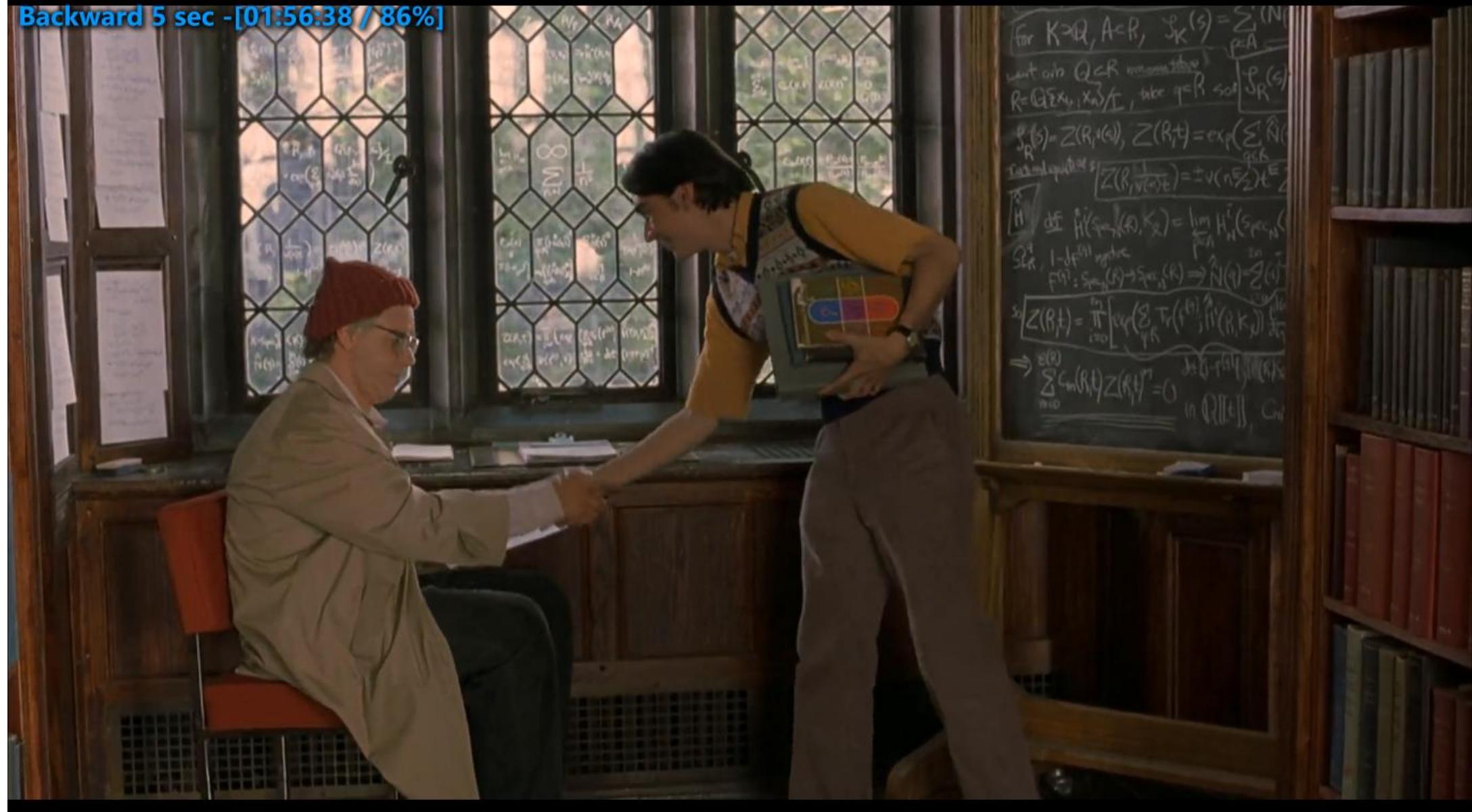


Forward 5 sec -[01:56:31 / 86%]

$$\begin{aligned} & \text{want } q \in R, A \subset R, S_K(s) = \sum_{i=0}^{n-1} (N_p)_i \\ & R = \{Q \sum_{i=1, i \neq n}^n x_i\} / I, \text{ take } q \in R \text{ so } S_R(s) = \\ & S_R(s) = Z(R, \frac{1}{\sqrt{n}}), Z(R, t) = \\ & \text{Touching equation: } \boxed{H} \quad \boxed{Z(R, \frac{1}{\sqrt{n}})} \\ & \text{def } \hat{H}(s) = \text{Spec}(R) \\ & Q_R^q, 1 - \text{def } F^q, \text{ why? } F^q : \text{Spec} \\ & \text{so } Z(R, t) = \prod_{i=0}^{n-1} \dots \\ & \Rightarrow \varrho(R) \\ & S_{C_+}(R, t) \geq (R, t) \end{aligned}$$



Backward 5 sec -[01:56:38 / 86%]



$$\text{for } K \geq Q, A \in P, \quad \varphi_K(s) = \sum_{p \in A} (N(p))$$

want also $Q \subset R$ ~~so we can take~~
 $R = \{x \in X_n : X_n \in T\}$, take $q \in P$. so $\varphi_Q(s)$

$$S_R(s) = Z(R, s), \quad Z(R, t) = \exp\left(\sum_{q \in R} N(q)\right)$$

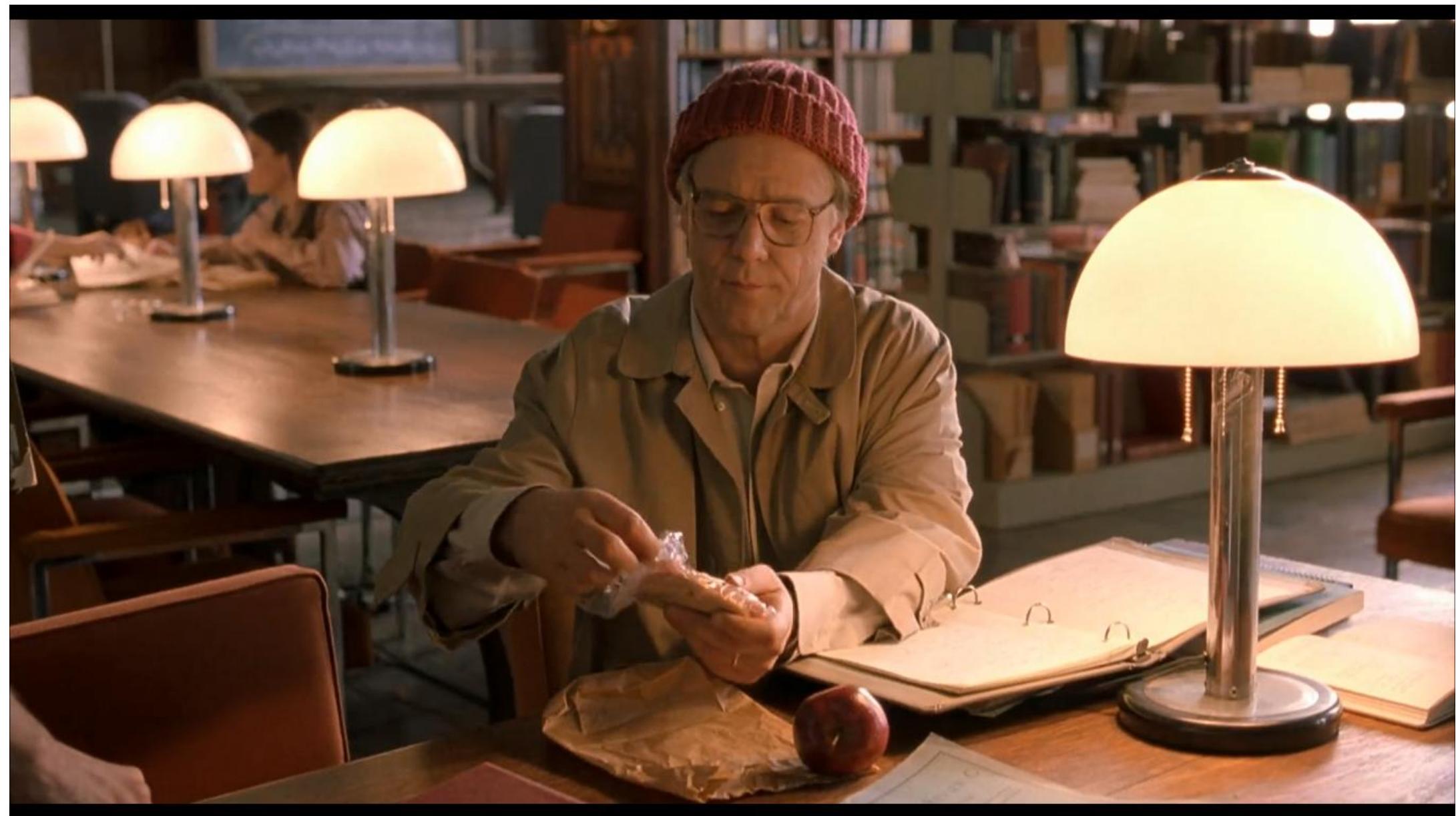
$$\text{so we have } Z(R, \frac{1}{n! \cdot 2^{\binom{n}{2}}}) = \pm \sqrt{n! \cdot 2^{\binom{n}{2}}} t^n$$

$$\text{def } H(S_{R_n}(R, K_R)) = \lim_{n \rightarrow \infty} H_n(S_{R_n}(R, K_R))$$

$$S_R, 1 \rightarrow F \text{ is defined} \quad S_{R_n}(R) \rightarrow S_{R_n}(R) \Rightarrow N(R) = Z(R)$$

$$\text{so } Z(R, t) = \prod_{i=0}^{m_R} \left(\exp\left(\sum_{q \in R} N_q(t^i)\right) \right)^{N_i(R, K_R)} \quad \text{def}$$

$$\Rightarrow \sum_{R \in Q} C_m(R, t) Z(R, t)^m = 0 \quad \text{in } Q[[t]], \quad C_m$$



Pause

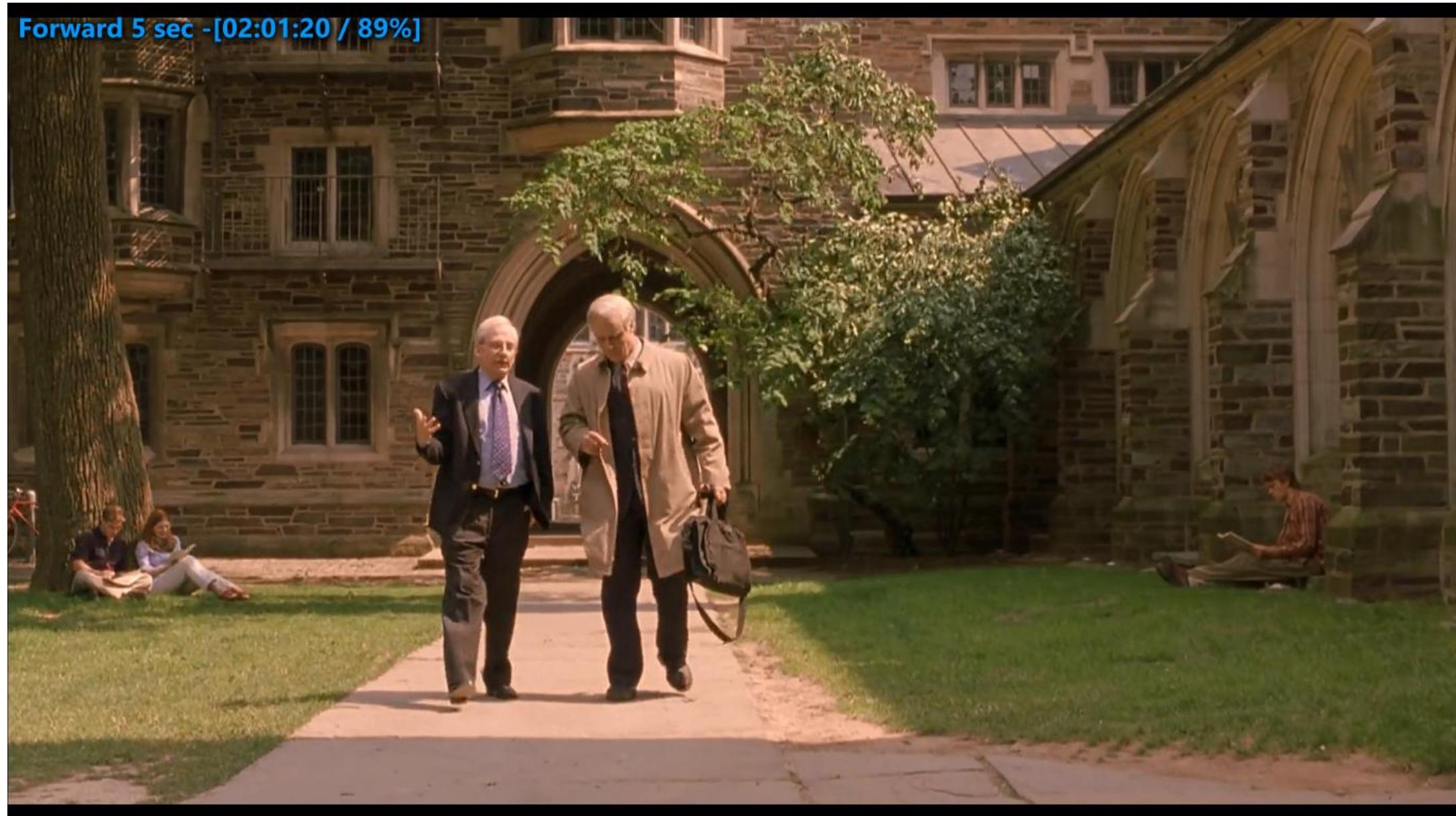




Forward 5 sec - [02:01:10 / 89%]



Forward 5 sec -[02:01:20 / 89%]



Forward 5 sec -[02:01:35 / 89%]



Pause



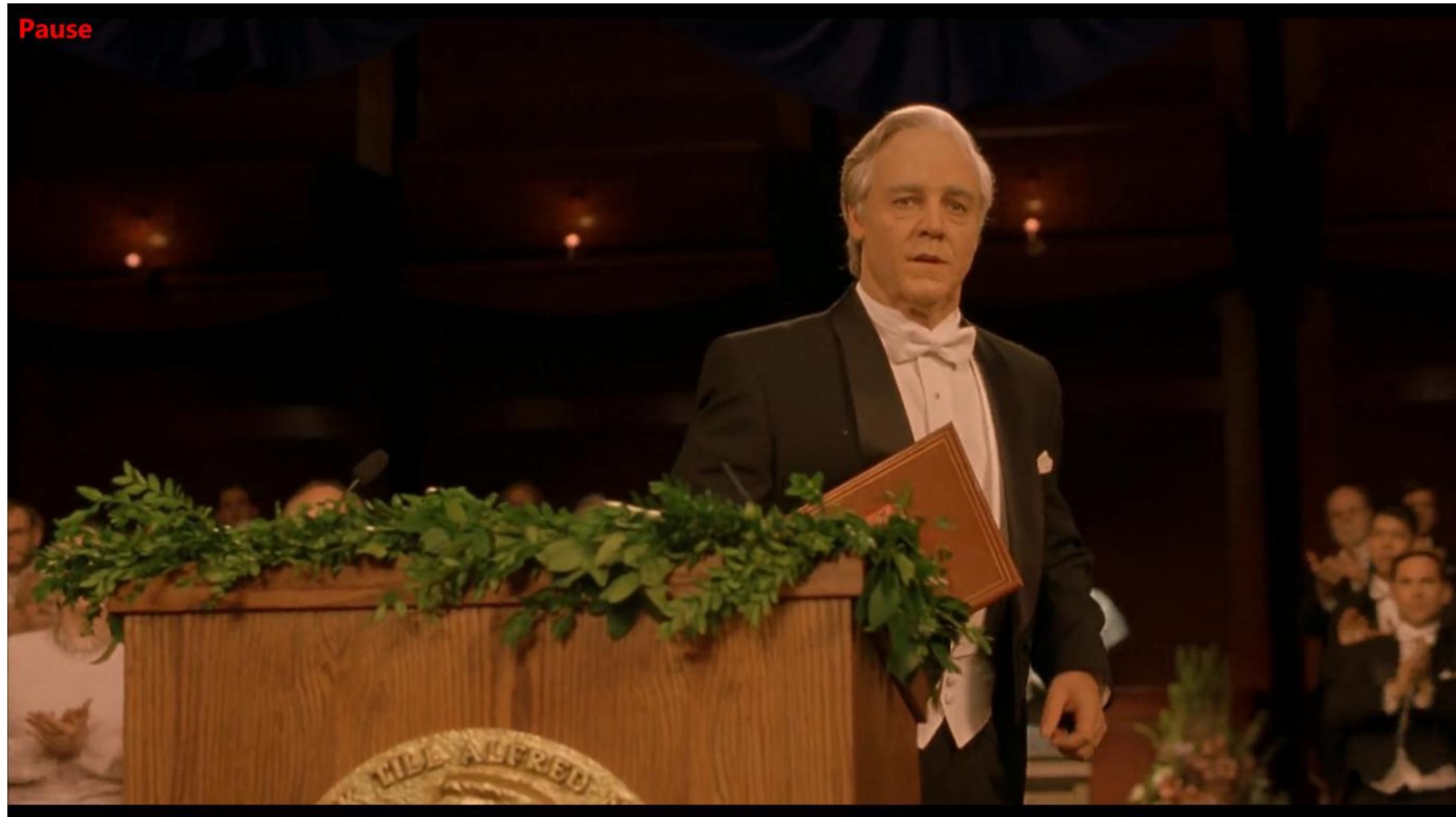
Play



Pause



Pause



Pause



Pause

