BEFORE THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

UNITED STATES OF AMERICA, et al., .
. Case Number 20-cv-3010
Plaintiffs, .
.
vs. .
. Washington, D.C.
GOOGLE LLC, . September 20, 2023
. 1:32 p.m.
Defendant. .
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PUBLIC TRANSCRIPT OF BENCH TRIAL, DAY 7
(AFTERNOON SESSION)
BEFORE THE HONORABLE AMIT P. MEHTA
UNITED STATES DISTRICT JUDGE

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C O N T E N T S

TESTIMONY

MICHAEL ROSZAK	Cross-Examination	1735
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EXHIBITS RECEIVED

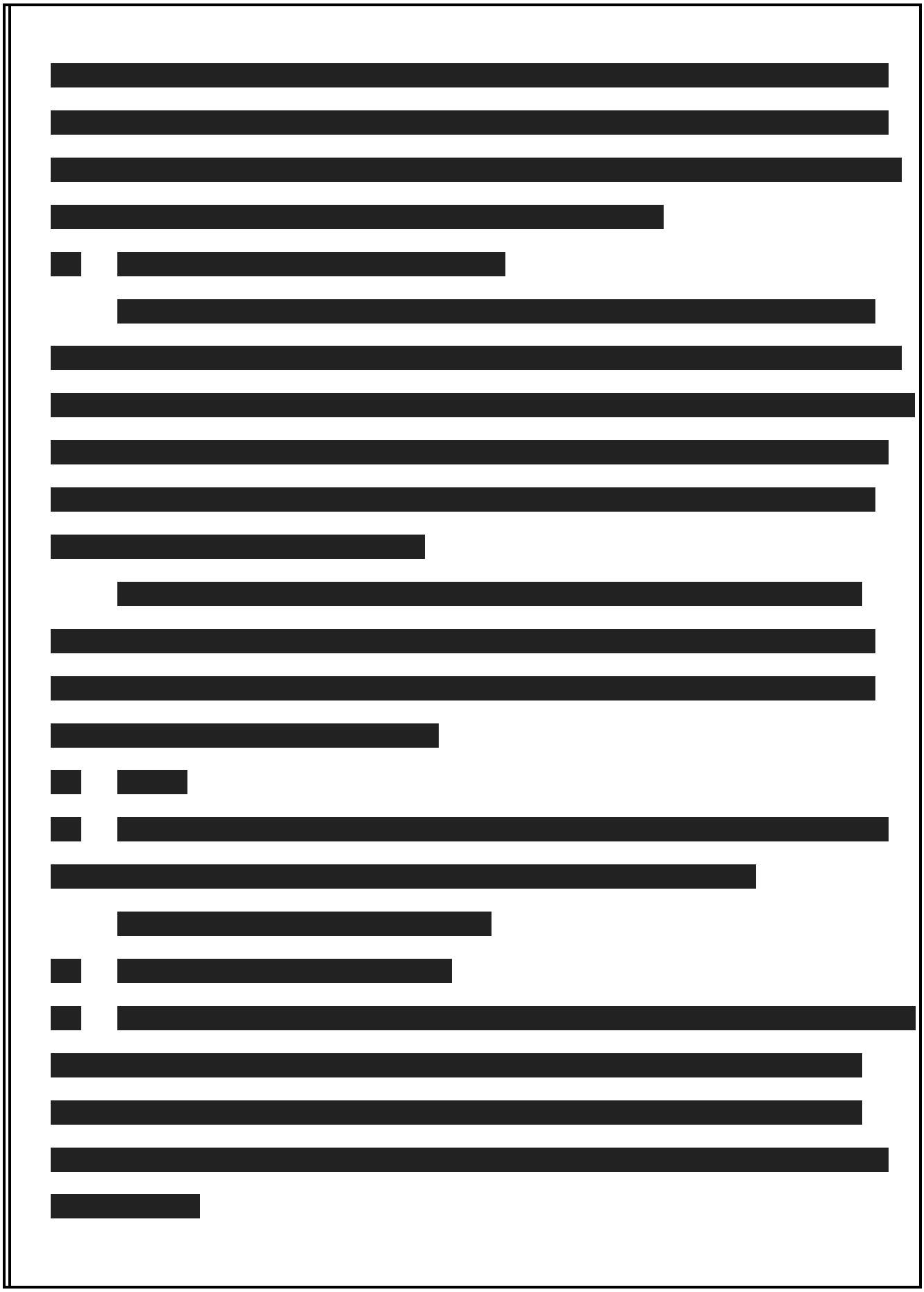
UPX38 1857

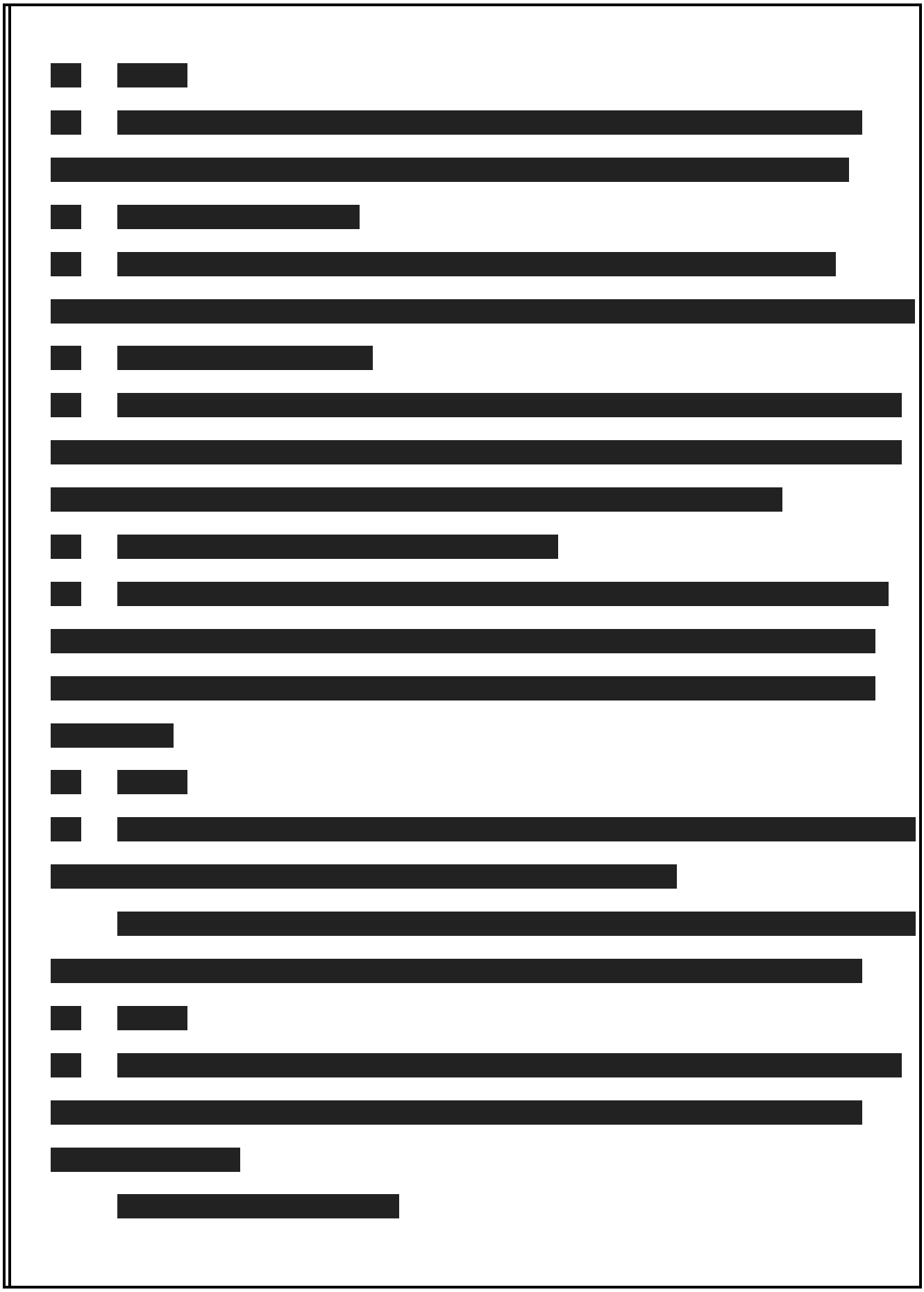
P R O C E E D I N G S

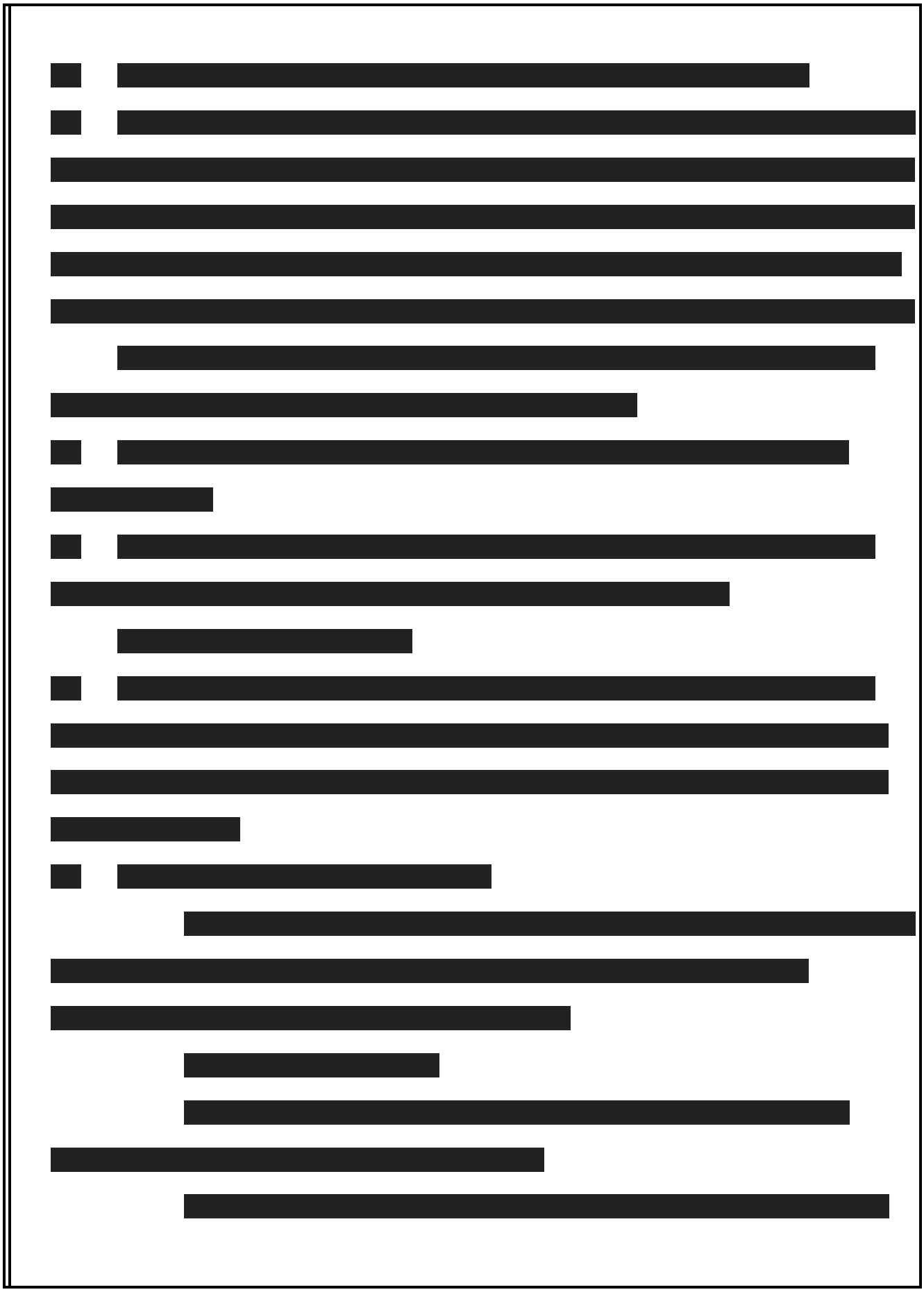
(Call to order of the court.)

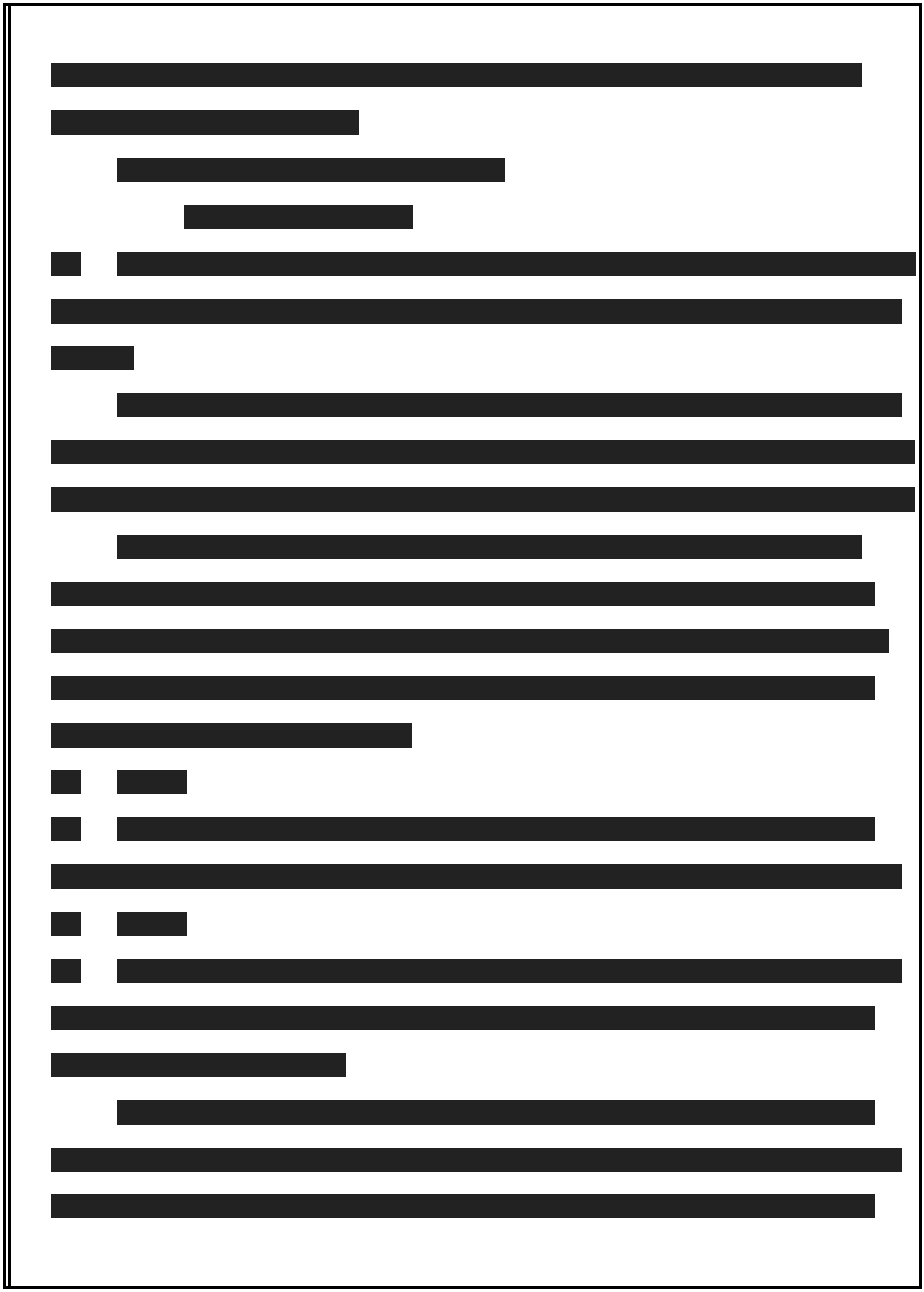
(The following occurred under seal.)

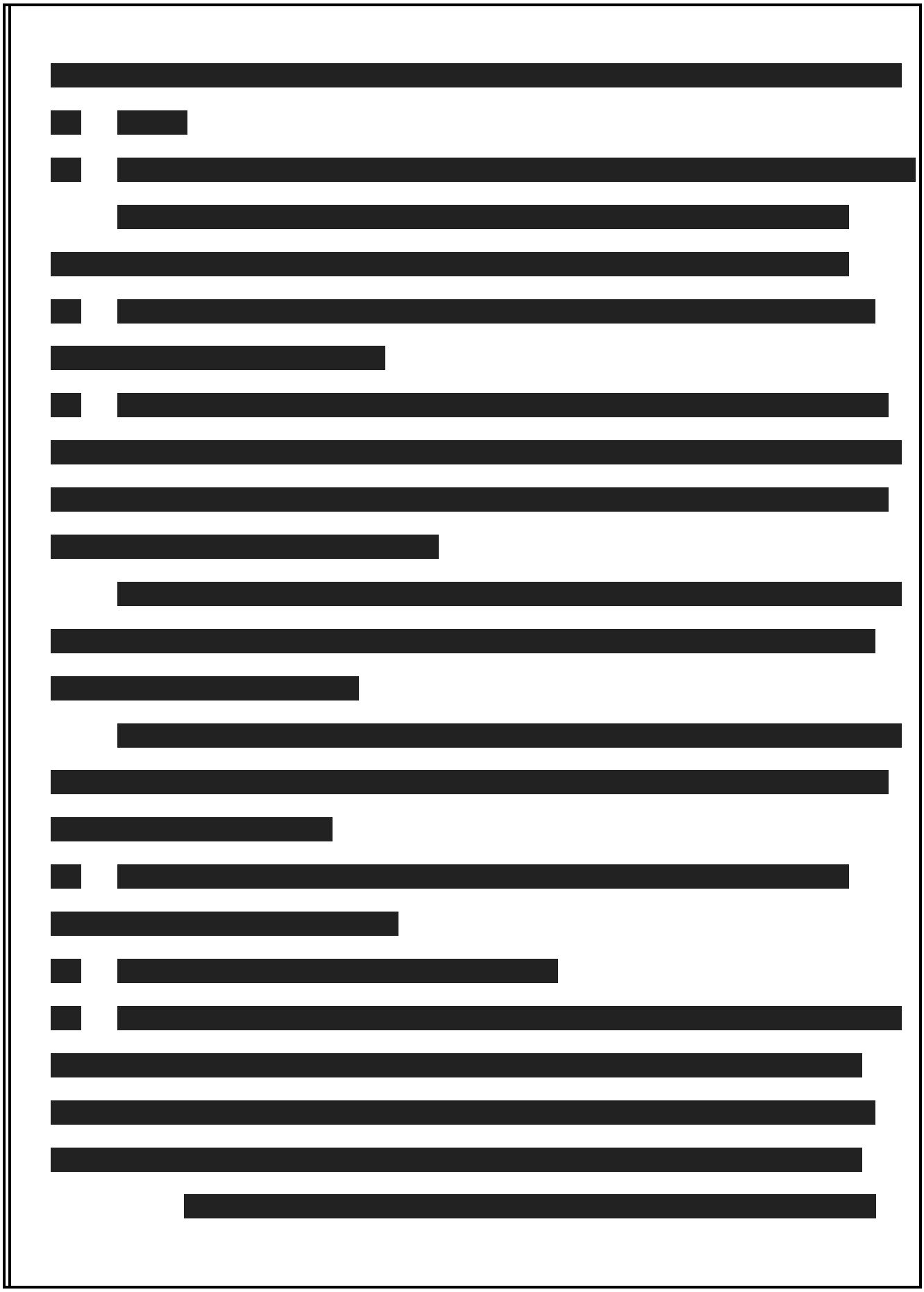
[redacted]











[redacted]

Q. If we could pull UPX38 back up.

Mr. Roszak, did you give the speech that these notes are notes for?

A. I expect --

THE COURT: This a little bit out of the scope.

He did ask about this. Pardon me. Go ahead and ask your question. Sorry.

BY MR. HAFENBRACK:

Q. My question is whether -- UPX38 reflects your notes for a speech you were going to give at a Google training; correct?

A. For a presentation, yes.

Q. And my question is whether you actually gave the presentation that's listed here.

A. I expect I would have done a presentation. I don't know if I would have said this exactly. These were notes. But I expect I would have given some presentation.

Q. Do you recall whether you used these notes as sort of your outline for the presentation?
A. I think I probably would have used them as the outline. I don't know if I would have followed them. I actually try in presentations to not have notes.
Q. And when you were giving the presentation, were the other Google employees that were a part of the training, were they the audience for the presentation?
A. I don't know that there really was an audience. It was much more around like coaching on how to give presentations. I didn't really view it as audience or anything else, given it was just like -- I mean, it really wasn't audience so much as, you know, how to use some of the tips that they had on presentations.
Q. Okay. If I could direct your attention to the fifth bullet point that said "we had a few jolts across time," and then you provide two examples of jolts. One is iOS 7.

And that's when Apple changed the Safari search bar configuration; right?

MR. BENNETT: Objection. Now we are beyond the scope, Your Honor. I asked about the first full bullets, and that was it.

THE COURT: Let me hear the question first, and then I can decide. Go ahead.

BY MR. HAFENBRACK:

Q. My question is whether the iOS 7 example that you provide was an example where Apple changed the configuration of the Safari browser.

A. Can I answer? Sorry.

Yes, I believe so.

Q. And the second example you provide here is Mozilla switching the default to Yahoo!; right?

A. Yes.

Q. And those are just facts that you included in your presentation; right?

A. Yes.

Q. And you're aware of those facts based on your work at Google; right?

A. Yes.

Q. Okay. Your counsel --

THE COURT: I will overrule the objection on scope. Go ahead.

MR. BENNETT: Thank you, Your Honor.

[redacted]

[redacted]

(End of sealed proceedings.)

THE COURT: Mr. Douyon went down to let everybody know the courtroom was reopen. It's going to take about five minutes to reconnect the line. Instead of waiting, why don't we plow forward.

MR. BENNETT: Thank you, Your Honor.

RECROSS-EXAMINATION

BY MR. BENNETT:

Q. Exhibit 462, it's the Japan RPM e-mail you were asked some questions about. And there were questions posed to two of your colleagues who, I understand from prior questioning, are the head of finance for Google in Japan and the head of finance for Google in Asia; is that correct?

A. Asia-Pacific, yes.

Q. Asia-Pacific, I'm sorry.

And so with those duties, are those people you would turn to if you wanted to understand the dynamics of competition for search advertising in the United States?

A. No, those are not individuals I would reach out to on that.

MR. BENNETT: I have nothing further, Your Honor.

THE COURT: Just for the interest of completeness on the public record, will you re-ask the questions you asked him in closed session and elicit that information?

MR. BENNETT: Oh, sure, Your Honor. I apologize for that.

BY MR. BENNETT:

Q. So I had previously asked you a question about who Mr. Sidarto is.

Can you tell us who Mr. Sidarto is?

A. He is the Google finance lead for Asia-Pacific.

Q. And at the bottom of Exhibit -- I guess we need to call up the exhibit as well, 462, and we're looking at the bottom e-mail.

At the bottom of 462, are there several bullet points that Mr. Sidarto provided you in response to your question about RPMs in Japan?

A. Yes.

MR. BENNETT: That's all I have, Your Honor. Thank you.

THE COURT: Okay. Any redirect?

MR. HAFENBRACK: No, Your Honor.

THE COURT: Mr. Roszak, thank you very much for your time and your testimony, and safe travels home.

THE WITNESS: Thank you.

THE COURT: Okay. Are plaintiffs ready with their next witness?

MR. HAFENBRACK: Your Honor, if I may, at this time the United States moves into evidence UPX38 under Rule 801(d)(2)(D).

MR. BENNETT: Objection, Your Honor.

THE COURT: Let's hold off. I actually didn't bring my materials with me. So why don't we take that up at the start of the next break.

MR. HAFENBRACK: Sure, Your Honor.

THE COURT: Or right after the next break, I should say.

MR. SOMMER: Judge, there was one exhibit yesterday that Your Honor received provisionally but DOJ wanted to

consider it overnight. It's DXD03.005.

MR. DAHLQUIST: Yes, Your Honor, and to the extent that's offered as a demonstrative, I have no objection. But to the extent it's being offered substantively, we would.

MR. SOMMER: We are offering it pursuant -- do you want a copy?

THE COURT: Yes, please.

MR. SOMMER: We are offering it pursuant to 1006, Your Honor. All of the underlying exhibits that form the data are unobjected to. It's simply a compilation.

THE COURT: And who prepared it?

MR. SOMMER: Dr. Israel, one of our excerpts.

THE COURT: Any objection to it being admitted as a 1006?

MR. DAHLQUIST: I think they have to ask Dr. Israel that in order to get his view on it.

THE COURT: I'm asking you whether you -- well, if you're not prepared to agree to its admissibility, are you reserving the opportunity to question Dr. Israel about his preparation of this?

MR. DAHLQUIST: Yes, Your Honor.

THE COURT: Okay. So let's just wait, and we can ask Dr. Israel how he created this chart and go from there.

MR. SOMMER: Fine.

MR. DAHLQUIST: Thank you, Your Honor.

MS. MURDOCK-PARK: Good afternoon, Your Honor. Erin Murdock-Park on behalf of the United States. We call Eric Lehman as our next witness.

ERIC LEHMAN, WITNESS FOR THE GOVERNMENT, SWORN

MS. MURDOCK-PARK: Because Google has asserted confidentiality over some of the subjects of Dr. Lehman's testimony, we expect to conduct both open and closed sessions today.

THE COURT: Okay.

MS. MURDOCK-PARK: I hope to end the public session around our next break time.

DIRECT EXAMINATION

BY MS. MURDOCK-PARK:

Q. Good morning, Dr. Lehman. My name is Erin Murdock-Park. I represent the United States.

You were a distinguished software engineer at Google; correct?

THE COURT: Could we just ask the witness to state his name and spell it.

MS. MURDOCK-PARK: My apologies.

BY MS. MURDOCK-PARK:

Q. Mr. Lehman, could you please state and spell your name for the record.

A. Lehman, L-e-h-m-a-n.

THE COURT: Thank you, sir.

BY MS. MURDOCK-PARK:

Q. And Dr. Lehman, you were a distinguished software engineer at Google?

A. At the end of my time at Google, yes.

Q. And you left Google in November 2022?

A. Yes.

Q. Why did you leave Google?

A. I found that the work was becoming very demanding, and I couldn't balance work with my family responsibilities.

Q. What is your current job?

A. I am a stay-at-home father.

Q. Are you represented by counsel today?

A. Yes.

Q. Whom?

A. Ken, I guess.

MR. SMURZYNSKI: Smurzynski. It's not easy.

MS. MURDOCK-PARK: Thank you.

BY MS. MURDOCK-PARK:

Q. Do you have a pension from Google, Dr. Lehman?

A. A pension? No.

Q. Do you own Google stock?

A. I don't myself own Google stock. However, my wife is an employee of YouTube, which is a part of Google, and she does periodically get stock grants.

Q. Do you have any financial interest in the outcome of this

case?
A. Only to the extent -- only via my wife's employment, I guess.
Q. Now, the questions I'll be asking you today will revolve around the time that you spent working at Google. Okay?
A. Okay.
Q. Let's talk briefly about your background. You received a bachelor's, master's, and Ph.D. from MIT; is that correct?
A. That's right.
Q. And you also did a post-doctoral at MIT?
A. That's right.
Q. Then you worked at Google for about 18 years?
A. I think a little over 17.
Q. You always worked in search quality and ranking?
A. Yes, that's right. I always worked in search quality on ranking with some sort of peripheral things.
Q. Thank you. At one time, you managed a team of about 50 people who worked in search quality; correct?
A. That's right. Maybe a year or so before I left, I stepped down from management, but the largest group I managed was just before that and was about 50, yes.
THE COURT: What was your Ph.D. in?
THE WITNESS: Theoretical computer science, so combinatorial and probabilistic algorithms.
THE COURT: Thank you.

BY MS. MURDOCK-PARK:

Q. Pandu Nayak was your direct supervisor for a time when you were at supervisor?

A. Yeah, for all of my later years at Google, he was my supervisor.

Q. You were familiar with Google's processes for ranking web results; correct?

A. I'm generally familiar, yes.

Q. And you're familiar with Google's efforts to refine and improve its search algorithms?

A. Yes, I'm generally quite familiar.

Q. You're also familiar with Google's use of user interaction data; right?

A. Fairly familiar. I didn't sit on the team that is most heavily engaged with user interaction data, but I had many connections to it during my time.

Q. Can you briefly explain for the Court what user interaction data is with respect to search quality?

A. Yeah, so here's the idea. The biggest problem in search is, given a query and a web page, is that web page relevant to the query. A person can figure that out pretty easy. They just read the web page and think about it. But a search engine runs on computers, and they couldn't read.

So there's sort of a trick to get around that, which is you show web pages to people and then see their reaction, and that

can give you some sort of hint about whether or not the web page is relevant to the query. So you do a search. You see five search results. The person can read the query, can reach the search results, and then they might click on one of those results or skip over one of them, user interaction. And that gives you some hint about what it is the person read.

So I think that's user interaction data you're talking about.

Q. Yes. So briefly, so user interaction data provides users' feedback about search results? Is that a fair summarization?

A. Did you say user interaction data provides users?

Q. Provides feedback from the users about their search results.

A. I think that's fair, yeah.

Q. And user interaction data is Google's observation of the user's engagement with the search results?

A. Yes. So if someone does a search, then they might look at the results for a little bit. They might click on something, back up, click on something else, maybe swipe through a carousel. Usually, those events is logged and time-stamped and recorded, and that becomes a body of user interaction data.

Q. So Google sometimes uses the term "clicks" as a shorthand for user interaction data; right?

A. Sometimes, yeah, yeah. I mean, people who work on this stuff really probably make the fine distinctions, but we can use

clicks as sort of a shorthand for user interaction data.
Q. And you mentioned that another team was more heavily used or -- strike that.
Which team at Google is most heavily engaged with user interaction data?
A. It's a team that has sort of gone by various names: Navboost, Glue, Tetris, things like that. It's all kind of the same group of people with their role sort of evolving a little bit over time.
Q. Thank you. If I use "user data" instead of "user interaction data," will you understand what I mean, or would you prefer I use the whole term?
A. I think we can agree what user data is.
Q. Okay. So let's talk a little bit more about how Google views the use of user data in its search systems. And I would like to turn your attention to a slide deck that you authored in 2017 titled "Google is magical." This is UPX228. And this is admitted, and there are no redactions on this document.
Dr. Lehman, you drafted UPX228; correct?
MR. SMURZYNSKI: Your Honor, could the witness be presented with the document before he is questioned about it?
MS. MURDOCK-PARK: Oh, my apologies. If may I approach.
THE WITNESS: Might you be able to tell me the number one more time?

BY MS. MURDOCK-PARK:

Q. 228. You will notice in the binder, Dr. Lehman, there is an "open" section, and that's what we will be talking about publicly. And there is a "closed" section, and that's what we will be discussing in the sealed session.

So the first half of the binder will have documents we're discussing now. I think it's the sixth tab in.

A. I see. It says "closed"?

Q. Yes. We're in the "open" section right now at UPX228.

A. Okay.

Q. Do you have the document in front of you, Dr. Lehman?

A. Yes.

Q. Okay. So did you draft the presentation "Google is magical"?

A. Yes.

Q. And you titled the slide deck "Google is magical" because Google gets search results right even when that doesn't seem possible; correct?

A. There's a somewhat complicated story behind this. I'm not sure that that quite captures the reason for that.

Q. Okay. We'll get into a little bit more why you drafted the deck.

A. Okay.

Q. But you presented UPX228 to other Google employees?

A. I just want to check, because I did probably variations on

this presentation several times. But yes, yes, I did.
Q. Let's turn to slide 7, which is Bates ending 9499, and this is a graphic titled "this is not how search works."
Do you see that?
A. Yes.
Q. Okay. And the graphic on slide 7 has one set of arrows going from left to right. The keyboard on the left that has "scoring" over it, that represents Google?
A. That's right.
Q. And the "results" arrow pointing from Google to an artist pallet that's labeled "UX," does "UX" stand for user experience?
A. That's right.
Q. And the second arrow labeled "SERP" going from the UX to a smily person holding a phone, "SERP" stands for search engine results page; right?
A. Search results page, yeah.
Q. Okay. And so a SERP includes those blue links, the web results?
A. Yeah, blue links, image links, maybe a translation box, weather maps, all kinds of things.
Q. Okay. And the translation box, maps, those are referred to as search features; right?
A. Yes, those are often called search features.
Q. You write on slide 7 that it the graphic is not false. Specifically, the last line of the user notes, "This is not

false, just incomplete. So incomplete that a search engine built this way won't work very well. No magic."

Right?

A. Yes, that's what I wrote.

Q. So Google needs more than just good engineering to produce this magic; right?

A. So at this time, for the examples that I gave in this presentation, we also needed user feedback data.

Q. And you said you used other versions of this presentation years following this presentation; right?

A. Sorry --

Q. In the years following this presentation.

A. I used portions of this in a subsequent presentation.

THE COURT: I'm sorry. I don't know if we got when he first developed this and started presenting it.

BY MS. MURDOCK-PARK:

Q. You drafted this presentation in 2017; is that right, Dr. Lehman?

A. That sounds about right to me, yes.

Q. If we could go to slide 10, which is Bates ending 9502. It's titled "how search does work."

Do you see that graphic, Dr. Lehman?

A. Yes, I do.

Q. And slide 10 has the same graphic we looked at before, but it includes additional information flow from the user back into

Google; right?
A. That's right, yes.
Q. And the user is wearing a magic hat?
A. Yes.
Q. And both arrows pointed back to Google have on magic hats as well; right?
A. Yes.
Q. So the arrow going away from the user which is labeled "interaction," that represents user interaction data?
A. Yes.
Q. And the "interaction" arrow points to a graphic of logs. That represents Google logging user data; right?
A. Yes.
Q. And then there's a "learning" arrow going back to Google. That represents Google learning from the user data that it logged; right?
A. That's correct.
Q. Okay. And part of learning from user data means training Google systems; correct?
A. So learning from user data, there are many different systems that learn from user data. The word training is most commonly used in connection with machine learning systems, and not all the systems that Google uses to process user data involve machine learning.
Q. Okay. But some of the systems that Google uses do train on

user data; right?
A. Some of the systems that Google uses in ranking search results are machine learning systems that train on user data.
Q. And so in terms of training a system, would one example be something like people misspelling words and Google training its systems to figure out the best way to correct those misspellings? That's a pretty simple example.
A. Yes. That's been a very fast-changing system, and I don't -- I'm a little hazy on where user interaction date is -- or whether user interaction data is used in that system. I think it is, but I'm not sure.
Q. The first two lines of your speaker notes read, "The key is a second flow of information in the reverse direction. As people interact with search, their actions teach us about the world."
Do you see that?
A. Yes.
Q. So you were explaining the importance of user data to Google; right?
A. Yeah, I was explaining the importance of user data to Google at that time.
Q. And you write in your last sentence, "We log these actions, and then scoring teams extract both narrow and general patterns."
Right?

A. Yes.
Q. Okay. So user data can improve specific search results, correct, with respect to a specific query?
A. So for each specific query, there's a scoring process for all the results, and then results are ranked by decreasing store. And the user data may affect the scoring of those individual results and so affect how they're ranked, yes.
Q. And user data can also be used to improve Google's systems more broadly; fair?
A. Which systems?
Q. Well, generally speaking. There's multiple systems at Google; right?
THE COURT: I think you can be more specific. It seems like "systems" is a pretty broad word.
MS. MURDOCK-PARK: Certainly, Your Honor.
BY MS. MURDOCK-PARK:
Q. I'm not going to get into the specifics in the public session. So if this is something that we need to talk about in private session or sealed session, please let me know.
A. Okay.
Q. But generally speaking, Google uses multiple systems to rank search results; correct?
A. So the ranking of search results involves many, many components. Is that answering your question?
Q. Would it be easier if I referred to components rather than

systems? Is that the term that you prefer?
A. Okay. So we will say the pieces of the ranking system are components.
Q. So there's multiple ranking components; right?
A. Yes, there are multiple ranking components.
Q. And the better that Google utilizes user data, the more inferences that multiple components can make; right?
A. Let's see. Okay. So the better -- sorry. Could you repeat that one?
Q. Let me hopefully ask a better question.

Can Google make broader inferences from the more -- strike that.

The more user queries that Google has, the more inferences it can make from those queries; right?
A. It's changing pretty fast. So in one direction, it's better to have more user data. At the same time, with technology improvements, later systems in some cases require much, much less user data. So it's a little bit of a complicated picture.
Q. All right. But the later systems still do require some user data; right?
A. Some later systems require user data, and some do not.
Q. I'd like to go to the next slide on UPX228, which is slide 11, and this is, again, the same graphic, but this time, the user, Google, and all four arrows have magic hats; right?

A. This is 503?
Q. It is, yes, Bates ending 503.
A. Yes.
Q. Okay. And in your speaker notes, you write, "The source of Google's magic is this two-way dialogue with users"; right?
A. Yes.
Q. And that's why you put the magic hats on every step in the process?
A. Yeah, to show that information flows through this whole loop, yes.
Q. And you go on to write, "With every query, we give some knowledge and get a little back. Then we give some more and get a little back. These bits add up. After a few hundred billion rounds, we start looking pretty smart"; right?
A. Yes.
Q. Okay. So Google has dialogues with users billions of times a day; correct?
A. I believe that's right.
Q. And each of these billions of times for each user, Google logs user data; right?
A. Yes.
Q. The final sentence in your speaker notes reads, "This isn't the only way we learn, but the most effective"; right?
A. Yes.
Q. So Google learns in other ways, like its engineers

developing algorithms; right?
A. Yes, that's one other way that Google learns, and there are others.
Q. Okay. But when you wrote UPX228, you considered the dialogue with users to be the most effective way that Google learned; right?
A. I think when I wrote this I considered that the most effective way Google learns. Obviously, the situation is changing rapidly.
Q. So when you wrote this, you considered the most effective way Google learns is the dialogue with users; right?
A. So at that time, yes.
Q. The more searches that people run on Google, the more user data that Google gets; right?
A. So generally, that's true. As more people do searches, more data Google gets. However, Google also begins dropping data at some point. So there's a flow in and a flow out.
Q. The more user data that Google gets, the more it can use that data in various -- in various ways to improve Google systems -- or Google components, the ranking system; right?
A. Let's see. Could you ask that one --
Q. Sure. Let me ask it slightly clearer.
The more user data that Google has, the more it can use that data to improve Google's ranking components?
A. Well, for whatever volume of data we have, of course, we

make copies of it, and each copy goes to a different -- goes to a different ranking component. So it isn't like we need 20 times as much data if we have 20 components.

Let's see. I'm not quite sure I'm getting --

Q. Okay. How about I ask a different question.

Would you agree that the better that Google's ranking components are, the more that users should run searches on Google?

A. So the better the ranking components are, the more users should run?

Q. Google wants more users to run searches on its website, right, on google.com?

A. Well, I don't know about what Google wants. When I was in play at Google, I wanted to help as many people as possible get access to the information they wanted.

Q. Okay. And that would -- when you were working at Google, you considered that to be people using Google services; right?

A. Right. So I wanted to help as many people using Google Search to get access to the information that they wanted.

Q. And the more people that use Google Search, the more money that Google makes; correct?

A. I'm not a finance person. I think so.

Q. We can go ahead and put UPX228 down, and I want to talk a little bit more about the types of user data. Okay?

Google turns user data into signals; correct?

A. I guess the term "signal" is pretty ambiguous. I guess we have to be a little bit more specific about what you mean by "signal."

Q. Okay. You've heard the term "signal" when you were working at Google; right?

A. Yes.

Q. Can you explain in a few sentences for the Court what a signal is in the context of user data?

A. So I guess when I was working on search, people would generally use the term "signal" to mean some sort of chunk of data that's carrying some kind of meaning.

So I guess a signal in the context of user data -- I guess that doesn't really change the meaning of signal in the context of user data. It's a chunk of information that carries some kind of meaning.

Q. Would an example of a signal be if a document contains the same words as a query?

A. One could call that a signal, yeah.

Q. Okay. And then Google interprets that signal into determining that the document might be relevant to the query; right?

A. So for that particular signal, say counts of the number of times each query term appear in a document, that signal or collection of signals could then be used to help assess the relevance of the document to the query.

Q. I'd like to show you UPX4, which is a Google document titled "life of a click user interaction."

And this is admitted. There are some redactions on the slide. I'm going to start at slide 2.

THE COURT: Sorry. Can I just back up for a moment? The term "signal" I understood to be a user action that conveys some type of intent to the search engine that would enable the search engine to process a result.

And what I just heard was an example that seems to suggest that the contents of a web page could signal those results.

Am I misunderstanding the term, the concept?

THE WITNESS: The word "signal" in the sense that I used it while working on search at Google was fairly broad. Maybe examples would help. They're not all related to user interactions.

So for example, a signal might be how many links on the web are there that point to this web page or what is our estimate of the sort of authoritativeness of this page.

So it's a very broad, inclusive term, I would say.

THE COURT: Okay. I think I understand. Thank you.

BY MS. MURDOCK-PARK:

Q. Do you see UPX4 in front of you, Dr. Lehman?

A. Yes.

Q. Okay. And you're familiar with UPX4, correct, the slide deck titled "life of a click (user interaction)"?

A. I did not produce this slide deck, and I have not read through it.
Q. Okay. You reviewed this document at your deposition.
A. Okay.
Q. Correct? Do you recall that now?
A. No.
Q. Let me ask you some questions on slide 5, and you can tell me if the graphic looks familiar to you.
A. Okay.
Q. Have you seen the graphic at slide 5? It's Bates ending 8265.004.
A. It's the blue -- oh, I see it now, yes.
Q. And the graphic is titled "user interaction signals"?
A. Yes.
Q. Okay. The top left of the graphic on slide 5 shows a smily faced user; right?
A. Yes.
Q. And then the "queries" area going down from the user is pointing to a cloud labeled "search"; right?
A. Yes.
Q. And those queries are logged by Google; right?
A. Maybe I could just look at this graphic for a minute.
Q. Of course.
A. I'm not sure I understand it yet.
Okay. I guess if the little blue guy is a person using

Google Search and the arrow is queries done by that person and the cloud represents, I guess, like Google, then the queries would be flowing to Google's systems, I think.

Q. Okay. And the queries flowing into Google's system are logged by Google; correct?

A. That's right. When someone enters a query in the search box, Google receives that and logs it.

Q. And then there's a "results" arrow towards the bottom of the page that's going towards the text box on the right.

Do you see that?

A. Yes.

Q. And that represents Google returning search results in response to the user's query?

A. I think so.

Q. Then there's an "interaction" arrow, and I'm going to point to the first one at the top from the smily face to the right side, and we've highlighted it on the screen.

It's "interactions" and has a box with some other words in it.

Do you see that?

A. Yes.

Q. And those are four categories of user interactions; right?

A. I think so, yeah.

Q. Okay. Well, let's talk very briefly about those four categories. The first category listed is "read." A read interaction measures whether the user gave the result some

attention; correct?

A. I'm not sure whether that's read or read. Is it the user interaction of reading it or -- because we don't necessarily know whether somebody has read something.

Q. Okay. Google instead refers to things as "attention"; correct? Like the attention that a user may have spent on a website or how long?

A. So I believe that attention usually refers to a person looking at a portion of the search results page. Because as long as they're on Google, I mean, they're looking at a Google web page, then we have a chance to sort of see what are they doing, we can see are they looking at the top of the page or the bottom or something like that.

So I think it's attention to the parts of the search results page as opposed to some page off of Google.

Q. If a user clicks on a document, then there are different lengths of clicks; right?

A. Yeah. So when someone clicks on a document, at that point they've left Google, and various things could happen. They could come back to Google later, after some period of time. They could just go away forever and we never see them again.

There are also more complicated things like if people do tabbed browsing. So they will do a search, get a bunch of search results, decide three of them are promising, and they open three tabs, and then things start to get complicated.

Q. You've heard the terms "short click" and "long click"; right?

A. Yes.

Q. Can you please briefly explain what a short click and a long click are?

A. Yeah, so the precise definitions have varied a lot over the years, but a short click would typically be one where somebody clicks on a search result and then comes back to Google fairly soon after.

Whereas, a long click would be they click on something and maybe they come back in two minutes or something. I don't know how we classify like if somebody clicks on a search result and we just don't see them again for that day.

Q. Okay. Generally speaking, a short click is associated with a less relevant result; right?

A. It's -- my understanding is that there is a correlation between click duration, but it's fairly weak. There are just a lot of complications there. For example, if you're just trying to get the telephone number of something, you search for it. You click on a search result. You get the phone number, come back. You're completely happy.

Also, media type can have a big effect. So you do a search. You click on a video. You go away. You watch it for five minutes. They're saying hey, everyone subscribe to my channel and all that. So that can sort of protract a click.

So the click duration, it's a pretty noisy signal, but I think in general the thinking is long clicks are typically better than short clicks.

Q. Let's go back to slide 5 in UPX4 and look at the second category of user data, which is clicks.

We've talked about clicks. That's when somebody just clicks on a web result; right?

A. Sorry. Slide 5?

Q. It's the slide that's up on the screen right now, slide 5 of UPX4.

A. Okay.

Q. And at the top where it has the "interactions" box and then there's the "clicks."

A. You're calling it slide 5. Is it 004?

Q. It's UPX4, and the Bates number at the bottom is 265.004.

A. Got it. Okay.

Q. All right. The second "clicks" under "interactions," do you see that?

A. Yes.

Q. And a click is literally just somebody using their mouse or their finger to click on a result?

A. Yes.

Q. Okay. The third category listed is "scrolls." And that's scrolling through the screen like you were discussing earlier?

A. I think so, but I'm not entirely sure.

Q. Is that one of the meanings of scrolls with respect to user interaction data?
A. I'm not sure.
Q. And a "mouse hover," is that how long somebody hovers their mouse over a result before clicking on it?
A. I think it can be how long their mouse hovers over some element on the search page they may or may not click.
Q. Okay. And for each of these interactions and others, Google tracks them; right?
A. Tracks them? Well, as -- if you go to Google and you start interacting with the search page, then many of the things you do are sent back to Google and logged. I'm not sure about the scrolls one, and I'm not sure whether -- I'm not sure whether they log mouse hovers. In principle, we could, I guess.
Q. Now, there's a second "interactions" arrow on slide 5, and it's in the middle of the page, and it's going from the text box back to the "search" cloud.

Do you see that?

A. Yes.
Q. And that arrow refers to Google feeding the logged user data back into Google Search; right?
A. Maybe. I think that's a reasonable interpretation.
Q. Okay. We can go ahead and put slide 5 aside, and I would like to talk to you briefly about some differences between mobile and desktop user data. Okay?

A. Okay.
Q. Desktop queries and mobile queries, they're search intents differ often; right?
A. I don't think the search intents for desktop and mobile queries differ often. I'm not an expert on this, but my impression is that the two query streams are fairly similar. But again, it's not an area of expertise for me.
Q. Okay. Well, you're familiar with the term "search intents"; correct?
A. Search intents? I suspect that that phrase is being used in some specific way that I'm not sure I precisely know. Usually, when someone does a search, we can talk about having -- their intent, in plain language what it is they're trying to accomplish.
Is that what you mean?
Q. Yes. So when a user on their mobile phone or their desktop, they enter a search, and they want to get a result back; right?
A. They want something, uh-huh.
Q. And if a desktop user wants to get a certain type of result back -- strike that. Let me ask a better question.
Sometimes people's search intents can differ, depending where they're at, right, their location?
A. Their physical location?
Q. Yes.

A. I guess there could be cases like if you search for DMV and you're in California, you probably want the California DMV, or if you're in a different state, you want a different DMV.

Is that what you mean?

Q. Yes, or for example, if I'm in Rochester, New York, and I look up Norton's Pub, then I probably want the local Norton's Pub and not the one in Perth, Australia?

A. That would make sense.

Q. But that's one of the ways that location helps determine somebody's search intent; right?

A. You mean how we might figure out what their intent is based on their location?

Q. Yes, or figure out a user's search intent generally.

A. Right. So knowing a person's -- a person's location can sometimes help understand what it is they're looking for.

Q. And sometimes mobile users and desktop users have different intents?

A. I think that's probably true, yes. I think that's true. I'm not sure I could just sort of list off a bunch of examples, but I think that's probably true.

Q. Let's move on and talk about some of the basics of search. The Court has previously heard an overview of this last fall. So we're not going to go through everything again, but I want to make sure we're on the same page. Okay?

A. Okay.

Q. So I would like to show you UPX204, which is a slide deck titled "ranking for research." And this is another document that's admitted.

You presented UPX204 to the research team at Google; correct?

A. To -- so I presented this to certain researchers at Google who were getting more involved with Search.

Q. Let's go to slide 47, which is Bates ending 4241, and it's a chart that's titled "basic control flow."

Do you see that, Dr. Lehman?

A. Yes.

Q. So I want to start at the top right of the page where it says "web documents."

You agree with me that there's a lot of documents on the Internet?

A. Yep.

Q. And there's an arrow pointing down to "crawl and indexing, prepare for fast retrieval and scoring"; right?

A. Yes.

Q. So basically, Google crawls the web to get information to use in its search product?

A. Yes.

Q. And that information is arranged and categorized, which makes it easier to search?

A. Yes.

Q. And the top left of slide 47 says "search query," and that's the search query entered into Google by the user?
A. That's right.
Q. Then there's an arrow pointing down into "query rewriter." Query rewriter interprets the query; right?
A. Yes. I think these things are a little bit dated. There's also some flows from the search query on other paths. But yes, query rewriter still exists, and that's its function.
Q. Okay. And interpreting a query generally or annotating a query means adding additional information to it to help come up with relevant search results? Would that be a fair characterization?
A. I think that's fair.
Q. So that's stuff like adding synonyms to somebody's search?
A. Yes, that would be an example of an annotation in a query rewriter.
Q. Now, the middle of slide 47 shows the query interpretation process meets the crawling and indexing process, and it's at that point in time where documents are ready to be searched; right?
A. Yes. Again, there are some other paths now.
Q. Sure. And this is very, very high level. I understand it's much, much more complex.
A. So I will stop repeating that if we just agree on it. Okay.

Q. So once Google has -- the documents are ready to be searched, they're retrieved, and they're scored; correct?
A. Yes. There's a fair amount of complexity there, and that's probably a bit of a simplification, but maybe that's good enough for now.
Q. And the documents, the scored documents are then ranked?
A. Well, let's see. So in ascorer, documents are given -- are called ascorer scores. And then in the next step, which is now highlighted in yellow, "super root," there are additional adjustments to those scores. And then typically, search results are ordered according to those scores in decreasing score order. There are certain exceptions, but that's sort of the typical case.
Q. There's also a step in the basic control flow called "packaging"; right? Documents are packaged together?
A. Packaging?
Q. Like they're put together before they're sent on to the user?
A. Maybe the packer? I think that -- if that's the component you're referring to -- and I'm not super familiar with this, but I think the job of the packer is to arrange things visually on the page.
Q. And then search results are returned to the user after they finish through these processes; right?
A. Yes, and then they're sent -- the sort of -- once the page

is sort of visually constructed, it would be sent to the user.
Q. Now, slide 47 of UPX204 does not show the logging of the web search results; correct?
A. That's right.
Q. We can go ahead and put UPX204 aside. And I want to talk a little bit about how Google evaluates its quality as a search engine. Okay?
You would agree with me that high-quality search engines should return high-quality search results?
A. Yep.
Q. And you would agree that there's many aspects of a high-quality search engine?
A. Yes, there are many aspects of -- many aspects of a high-quality search engine or high-quality search results.
Q. So relevancy is one of those important aspects of a high-quality search engine; right?
A. I think when thinking about sort of the value of the search result for a query, relevance is the most important consideration.
Q. Because if I look up "DR," it matters if I'm looking for a doctor or the Dominican Republic, as a fairly simplistic example?
A. That would be sort of a case of an ambiguous query. Absent any other information, either of those search results could be relevant.

Q. So having more user data helps Google figure out what results might be more relevant; right?
A. So having user data is useful to Google in identifying relevant results for a search query.
Q. Okay. So like if I put in "DR vacation," it's more likely I'm trying to go to the Dominican Republic on vacation instead of looking for Dr. Vacation?
A. I think so.
Q. And we talked about localized search results. That's something important to search quality; right?
A. When you say "localized search result," do you mean something like showing the California DMV to somebody in California?
Q. Yes, or where can I watch the Ohio State football game even though I'm in the District of Columbia?
A. And the idea is that -- so in general, showing people search results that are appropriate to their location for a certain query is important, yeah.
Q. So let's go back to UPX204, which we just looked at, and this time I'm going to show you slide 25. And this is a slide titled "search quality has many aspects."
Do you see that?
A. Yep.
Q. And there's relevance and localization as two aspects for search quality?

A. Yep.

THE COURT: What's the Bates number again?

MS. MURDOCK-PARK: This is UPX204 and the Bates ending in 219.

THE COURT: Okay. Thank you.

BY MS. MURDOCK-PARK:

Q. There's other aspects of search quality listed on slide 25 that we haven't talked about, like privacy, for example?

A. Privacy, yes.

Q. And the bottom of slide 25 says "capturing everything in a metric is tough"; correct?

A. Yes.

Q. Okay. So Google uses different yardsticks to measure how well it's meeting its users' needs?

A. So currently, at least when I left Google, the primary measure of search quality is a metric called IS4, information satisfaction version 4, the metric, and maybe it's a higher number now. That captures many of these aspects of search quality, but it can't get quite all of them. And so sometimes we use other methods to compliment IS4.

Q. Okay. So the IS metric, information satisfaction metric, that's human rater-based evaluation; right?

A. That's right, yep.

Q. So it's basically paying people to evaluate search results?

A. Yes, though Google doesn't make those payments directly.

It works with an outside vendor.

Q. Okay. And most changes in ranking over the past few years before you left Google, most changes in ranking tried to maximize the IS score; right?

A. So yes, but I think something we always try to teach search engineers is that making great search is not a game of maximizing metrics. So metrics can be a useful guide towards great search, but there are a lot of little games you can play to maximize metrics that actually probably don't make the search engine more useful to people.

So generally, yes, we hope to find changes that increase IS but in ways that are actually beneficial to people.

Q. Now, you mentioned another metric, the live experiment, or LE, metric; right?

A. That's not a single metric. It's an experimentation process.

Q. Okay. And it's -- that's user-based evaluation basically; right?

A. Yes.

Q. Okay. So it's a live traffic experiment that runs on a percentage of users?

A. Typically, or -- so if we want to experiment with some sort of change to the search engine, then we would by various means expose a subset of Google users to that change, gather data that gives us some insight into the nature of that change.

Q. Okay. So basically, turning on a new feature in realtime and seeing how users seem to interact with it?
A. So a live experiment is sort of like turning it on, although it can be a bit more complicated than that.
Q. The information satisfaction, or IS, metric and the LE metric don't always agree; right?
A. That's correct. Sometimes they disagree.
Q. And that's because IS and LE give Google different information about user behavior?
A. Well, the goal of the metrics is not to measure user behavior. The goal of the metrics is to measure quality of search results.
Q. Okay. And how users behave or interact with those results; right?
A. No. The purpose of these metrics is to measure how good our search results are and whether or not they're meeting people's needs.
Q. Okay. So if we could go to UPX192, and this is another document that is admitted. I'm going to ask you to look in your binder at page 2, and we're not going to put that up on the page, but just to confirm that you sent the e-mail at 1:32 p.m. on page 2 of UPX192.
A. Okay. So this is UPX192.
Q. Yes, and the second page.
A. Second page. Okay. And you -- so it looks like this is an

e-mail thread -- I sent an e-mail, and there's a response or something like that. Okay. Then you're saying on the second page, you want to know the date and time of that particular chunk in kind of the middle part of the second page?

Q. I'm just confirming that that -- you wrote the e-mail, including the bullet points, that's on page 2; correct?

A. Yes.

Q. All right. And then there's some links that are on page 1 of UPX192; right?

A. Yes, that's correct, there are some links.

Q. So I would like to go to slide 4, page 4, which is the first slide of the deck titled "unified click prediction."

Do you see that?

A. Yes.

Q. And this is a slide deck that you authored?

A. Yes.

Q. Let's go to slide 24. And it's titled "approximately 1 million IS ratings."

A. For slide 24, do you know the --

Q. The end is 787.

A. Okay.

Q. Okay? We're at slide 24?

A. Yes.

Q. Okay. And there's a really fuzzy picture on the right side of the slide; correct?

A. That's right.
Q. You write in the second paragraph that IS ratings give only a low-resolution picture of how people interact with search results; correct?
A. Yes.
Q. And so you're conveying -- well, strike that.
In the third paragraph, you write, "Useful behavioral patterns may appear in few training instances and thus cannot be learned from IS ratings"; right?
A. Yep.
Q. So you're conveying that information satisfaction is an incomplete evaluation metric by itself?
A. No. I think that's misinterpreted. What I'm talking about here is to what extent can you learn about language and the world from these two different data sources. It's not commenting on the quality of the information satisfaction metric as a tool for evaluating the quality of search results.
Q. Okay. But you -- by itself, you can't get a full picture of search quality results; would that be fair?
A. By itself, with information satisfaction alone?
Q. Yes.
A. It's the best available single metric we have for measuring the quality of search results, but it's not perfect.
Q. But IS can only give you a fuzzy picture; right? That's why you put the fuzzy picture on the slide?

A. So the point here, I think -- maybe I could just look at this for a second.
Q. Certainly. And I'm going to ask you about slide 25 next. So that might help clarify things.
A. Yes, okay, I've had a chance to look at this.
Q. So the IS metric itself doesn't give you a full picture standing alone; right?
A. So the IS metric is the best metric we have for measuring the quality of search results, but in certain -- there are aspects of the quality of search results that it doesn't capture.
Q. But IS -- well, strike that.
Let's go to the next slide, slide 25, which is titled "approximately 100 billion clicks."
Do you see that?
A. Yes.
Q. And the right side of slide 25 has a high-resolution picture of the earth; correct?
A. Right.
Q. So the first sentence reads that those 100 billion clicks "provide a vastly clearer picture of how people interact with search results"; right?
A. Yeah.
Q. And the second paragraph reads, "A behavior pattern apparent in just a few IS ratings may be reflected in hundreds

of thousands of clicks, allowing us to learn second and third order effects"; right?

A. Yep.

Q. So second and third order effects means clicks help give a more in depth understanding of user behavior?

A. Let's see. No, I don't think that's quite right. I think what these slides are getting at is if you're trying to understand how people use language or trying to understand facts about the world -- and let me give an example, just sort of trivial. When people search for something involving a cat, we -- there may be search results that are appropriate to show that don't contain the word cat but do contain the word kitten.

So now within -- if you try to learn that fact from our IS rating data, that would be hard. There just isn't enough data. There wouldn't be very many examples of queries containing cat.

On the other hand, if you got a very large volume of click data, then you may have many, many examples of people who have queries that contain the word cat and clicking on search results for -- that contain the word kitten.

So these slides are talking about trying to understand language and the world through use of these two data sources. It's not talking about these two metrics or these two approaches to measuring the quality of search results.

Q. So then you would agree that 100 billion clicks gives a lot of information to help understand user behavior; right?

A. So I guess if we define clicks as sort of a record of user behavior, then, you know, 100 billion records of user behavior, yeah, it tells you a lot about user behavior.
Q. Are you saying that the machine learning systems learn better from search logs, if I'm understanding?
A. That's a complicated question. It's evolved over time. So Google has used a variety of machine learning systems in search. Many of them -- I don't know how to generalize, actually. They're all over the board. Some use IS data. Some use click data. Some use both. Some use neither.
Q. Do IS and LE metrics tell you different things about search quality?
A. I think they provide two different perspectives on search quality, with IS as, I think, probably the stronger guide to search quality, but I think live experiments can often provide useful additional information.
Q. Okay. We can go ahead and take down UPX204.
Earlier, we discussed the "Google is magic" slide deck.
A. Right.
Q. And I would like to go to a more recent version of the deck that you created in May 2020. If we could go to UPX219, and UPX219 is admitted. This is a deck titled "logging and ranking."
A. Yes.
Q. And you wrote the logging and ranking deck; right?

A. Yes. And I think as you've noted, parts of it are drawn from that earlier presentation.
Q. If we could go to the speaker notes on page 3.
THE COURT: I'm sorry. This was prepared when? 2020?
BY MS. MURDOCK-PARK:
Q. Mr. Lehman, UPX219 was prepared in May 2020; is that right?
A. I don't know about May. I think the earlier one was 2017. This was during COVID because it was sort of a cheer-up presentation for the logging team, but beyond that, I don't quite remember.
Q. Was it early in COVID or late in COVID?
A. I don't remember unfortunately. Probably earlier in COVID.
Q. If we could go to slide 3. I want to draw your attention to the last sentence that you wrote from your speaker notes, which is, "Effective logging for ranking is central to search, to Google as a whole, and beyond."
Do you see that?
A. Yeah. So I'm trying to tell the logging team that their job, which is not necessarily the world's most pleasant or glamorous job, it matters, it's important.
Q. So it matters to the entire company; right?
A. Let's see. I don't know about the entire company, but it certainly matters to the Search team and, I think, the Ads team.
Q. Okay. Well, you wrote that "effective logging is central to Google as a whole"; right?

A. I wrote that. In context, I'm trying to cheer up this team stuck at home.

Q. Okay. If we can go to slide 30, which is Bates ending 2426, and it's titled "logs to ranking to money."

Do you see that?

A. Okay.

Q. Now, the bullets on slide 30 explain why ranking needs user data so much; right?

A. Okay. I have to reacquaint myself with this. Sorry. It's been a long time.

Okay. I've looked through it, yeah.

Q. The second bullet of the slide, you write, "Not just one ranking system learns from search logs. Learning from logs is the main mechanism behind ranking."

Right?

A. That's what it says, yeah. Again, remember the audience; remember the situation.

Q. And you also write at bullet point 4 that "web ranking is only a part of search, but many search features use web results to understand what a query is about and trigger accordingly."

A. Yes.

Q. Right? And so search features, I believe we've mentioned those before, but that's stuff like knowledge cards or facts?

A. Yeah, there's a lot of search features, translation things, weather boxes, all kinds of things.

Q. And you also write that other parts of Google benefit from user data, right, like Ads, YouTube, Play?
A. Yes.
Q. And then I would like to turn you to your speaker notes, in the middle of the speaker notes. Actually, about a third of the way through, you write, "Not one system but a great many within ranking are built on logs. This isn't just traditional systems like the ones I showed you earlier, but also the most cutting-edge machine learning systems."
Right?
A. Yes, it says that.
Q. So both older Google ranking systems and new machine learning systems leverage user data; right?
A. This is as of, I guess, some time around 2020 that was true. Subsequently, some -- an important machine learning system did not use any user data.
Q. Now, according to your notes, as of this -- certainly, in this slide deck, you say that cutting edge machine learning systems rely on user data to function; right?
A. It says cutting-edge machine learning systems, yes. Again, that's cutting edge as of this time. The field has moved very, very fast.
Q. So at the very bottom, you write that you're not in finance, "but grossly speaking, I think a huge amount of Google business is tied to the use of logs in ranking"; right?

A. Yes.
Q. We can go ahead and set the document aside for right now.
You would agree with me that user data is used in multiple parts of Google Search processes, right, multiple parts of their ranking components?
A. Right. There are many ranking components that make use of what we are calling user data or clicks.
Q. Okay. And other components outside of ranking also utilize user data; right?
A. I know less about those things, but it's the other components. So I think the Ads team uses user data. I don't really know how. That's their world. And outside of ranking -- you're saying in Search outside of ranking, like feature triggering or something like that?
Q. Multiple different aspects.
A. Probably. I mean, I guess without naming something specific, I'm not sure if there are multiple aspects. But user data is widely used within Search. So I wouldn't be surprised if there's something outside of ranking.
Q. And is it used directly in some systems and indirectly in others?
A. Within ranking?
Q. Within ranking or within search as a whole.
A. So I guess I can speak of within ranking. I'm not sure it would be direct versus indirect use of user data. I guess I'm

not sure what the difference is.
Q. Well, direct as in it's used directly to train a certain components, and indirectly like there's a second component that trains off the first.
A. There are components in Search which make use of user data, and then there are cases where we will take, say, data from that first system and sort of reprocess it and use it in another way, yeah.
MS. MURDOCK-PARK: Your Honor, I'm about to get to another document. I believe I have another 15 minutes approximately. I'm happy to push through, or we can take our afternoon break.
THE COURT: Why don't we go ahead and push through until we get to the end of the public session.
BY MS. MURDOCK-PARK:
Q. Mr. Lehman, I'd like to show you another slide deck. This is UPX1115, and it's titled "search quality all hands 2018."
A. Yes.
Q. All hands means all search quality team members; right?
A. Yeah, all members of the search quality team were invited.
Q. Okay. And you were either at this training or invited to this training?
A. It's not a training really. It's sort of a get-together to discuss plans and --
Q. Meeting?

A. Sure.
Q. Okay. But you would have attended or had this deck available to you as one of the search quality team members?
A. It would have been available to me, yes, and I probably was there.
Q. Okay. If we could go to slide 42, which is Bates ending 1529, and it's a slide titled "result previews and language understanding."
Do you see that?
A. Yes.
Q. Okay. And it's got three arrows chasing each other around the words "virtuous cycle"; correct?
A. Yes.
Q. Okay. People at Google refer to the use of user data within Google Search as a virtuous cycle; correct?
A. I don't know if that's generally true.
Q. You've heard the term "virtuous cycle" refer to the cycle of user data that -- the dialogue that you used in the magic presentation; right?
A. Virtuous cycle used in connection with, let's see, the magic presentation?
Q. Strike that. Let's start with, you've heard the term "virtuous cycle" used at Google before; correct?
A. I'm sure -- I've probably heard it used in multiple contexts, yeah.

Q. Okay. And you've heard it referred to with respect to Google Search; right?
A. Yeah, probably multiple contexts even in connection with Google Search, yeah.
Q. So try and break down the self-reinforcing cycle that we've got on UPX1115. At the upper right side of the screen, there's a smily face with a phone. And it's above a green arrow; correct?
A. Okay. So let's see. Yeah, it's near the green arrow.
Q. And it says "happy users informed user interactions"; right?
A. Yes.
Q. And then the green arrow goes down to the blue arrow, and it says "better training data"; right?
A. Yes.
Q. Underneath the blue arrow, there's a bullet that says "better models (ranking, language understanding)"?
A. Yes.
Q. Then the blue arrow feeds into an orange arrow that says "better result previews, better results"; right?
A. Yes.
Q. Okay. So then orange arrow goes back to the emoji with the happy users and informed user interactions; right?
A. Yes.
Q. So happy users means better data. Better data means better

systems and better results. And those better systems and better results lead to happier users; right?

A. It's a little bit different. So the goal here -- to explain the context, when you do a search, you get a bunch of search results, and those are called result previews, because you don't actually know what's on those web pages until you click them and go read.

So I think what this slide is talking about is the importance of making sure those result previews give people a good, well, preview of what they're going to find on that web page when they click through.

So a really bad thing would be we make a web page look like it's relevant to your query when it's actually not and you go click and you read for 30 seconds and are like wait, this doesn't answer my question. We're wasting people's time a lot.

So better result previews has two benefits. One is happy users. We're not sending people off on useless web pages. And it has a second benefit, which is more informed user interactions. If people know what they're clicking on, then the clicks become more meaningful.

As an extreme, you could imagine if we had a search result page and we just said here are results 1 through 10 and gave you no information, your clicks would be random and meaningless.

So by improving result previews, clicks contain more information. So it isn't the happy users that give better

training data. It's the second bullet point, more informed user interactions.

Q. Okay. But the slide refers to happy users; right?

A. Yes.

Q. And it refers to better training data going to better models; right?

A. Yes, and that better training data is not coming from the happy users. The happy users is an important side benefit. The better training data is coming from more informed user interactions because people can anticipate what's going to be on the web page that they're clicking.

Q. The informed user interactions that Google then logs; right?

A. Yes. So when people interact with Google, we log those interactions.

Q. Okay. And by the orange arrow, it says "better result previews, better results"; right?

A. Yeah. I think the idea, if we're sort of interpreting this, is a cyclic thing. I think the upper bullet point can kind of be seen as a starting point for going around the circle, and the lower bullet point is kind of something you get on the far side, I think. I'm not sure. I didn't make this slide.

Q. Fair to say that Google needs users to sustain the cycle shown in slide 42? It needs those user interactions?

A. Let's see. So I have to confess, in looking at this slide,

I can follow the reasoning. Better result previews give you some happy users because people click on results that are relevant to them, and it also gives you more informed user interactions.

Okay. I'm sorry. I'm trying to work through the reasoning here.

I guess the thing is I don't quite understand why it's a cycle. Because yes, a result of this process is we will get better search results, but I don't see how that leads to better result previews. So I guess I don't really understand why it's a cycle.

Q. Well, my question is, the cycle breaks if there's no users; right?

A. Yeah, and I guess I'm saying that I don't understand why it's a cycle in the first place.

Q. We can go ahead and put UPX1115 aside.

Dr. Lehman, Google has a public position about how much user data it utilizes; right?

A. I don't know that -- I'm not sure. So this might be getting into some sensitive matters. I can just go ahead, or I don't know what to do.

Q. How about I show you a slide which is not redacted, and I will ask you some questions on it.

A. Okay.

Q. If we could go to UPX204, and this time to slide 14. This

is Bates ending 208, and it's titled "sensitive topics."

Do you see that?

A. Yes.

Q. Okay. And underneath the picture -- that's Sundar Pichai, Alphabet's CEO; right?

A. Yep.

Q. Underneath the picture of Mr. Pichai, you write, "Do not discuss the use of clicks in search, except on a need to know basis with people who understand not to talk about this topic externally. Google has a public position. It is debatable. But please don't craft your own."

So Google has a public position on clicks; right?

A. Right. So I guess I will go ahead and talk about this. I don't know whether there's trade secret issues here. I don't really know where the boundary lies.

Q. I mean, if you're concerned, you can answer just yes or no. I don't want to tell you how to testify, obviously, but --

A. So let's see. So Google has a public position on the use of clicks in search, yes.

MR. SMURZYNSKI: Your Honor, I think we're clearly getting into an area where Dr. Lehman is concerned about revealing trade secrets of Google, and I think that's why we have a closed session, and I think it would be appropriate to ask him further questions on this in the closed session.

THE COURT: Okay. Why don't we have counsel just run

through whatever additional questions she thinks she can elicit testimony on, and then we will see where we are at that point.

MS. MURDOCK-PARK: Thank you, Your Honor.

BY MS. MURDOCK-PARK:

Q. By Google's public position on clicks, you're referring to how much user data Google actually uses in its systems; right?

A. No.

Q. Okay. Google's public position is not entirely accurate about clicks; right?

MR. SMURZYNSKI: Your Honor, I think -- there's a reason there's a public position, and there's a reason --

THE COURT: I would like to just find out what the public position is. Why don't we start there, because it's public.

BY MS. MURDOCK-PARK:

Q. Dr. Lehman, can you please state what Google's public position is on clicks?

A. So I'm not a communications person, but I think the position that we've strived for is to try not to tell search engine optimizers and people who would like to manipulate our search results for their own benefit, to try not to give them a really clear and unambiguous message that we use user data, because they could potentially manipulate it to damage Google and damage the quality of search results for everyone who uses Google.

So we have said that we use user feedback data, clicks, in evaluation of our search systems. And we try to avoid confirming that we use user data in the ranking of search results. So this has included things, I think, like saying well, there are a lot of challenges with using clicks in ranking of search results, not outright saying we don't do it but not encouraging the belief that we do.

The issue here is that pretty much everybody knows Google uses clicks in ranking. We're already being attacked. So there are occasionally people who say like wait, why are you guys trying to be secretive about this, because seriously, everybody knows this.

And that's the thing, is please don't craft your own position. And that's why it's debatable. And that's the debate people have. They say why are you trying to obscure this issue when it's totally not obscure, everyone knows it.

MS. MURDOCK-PARK: I think that ends the questions I have in public session, Your Honor.

THE COURT: Terrific. It's a little after 3:15. We will resume at 3:35.

Dr. Lehman, I will ask you to not discuss your testimony with anyone during the break.

THE WITNESS: Okay.

THE COURT: Thank you, sir.

(Recess taken from 3:16 p.m. to 3:41 p.m.)

(The following occurred under seal.)

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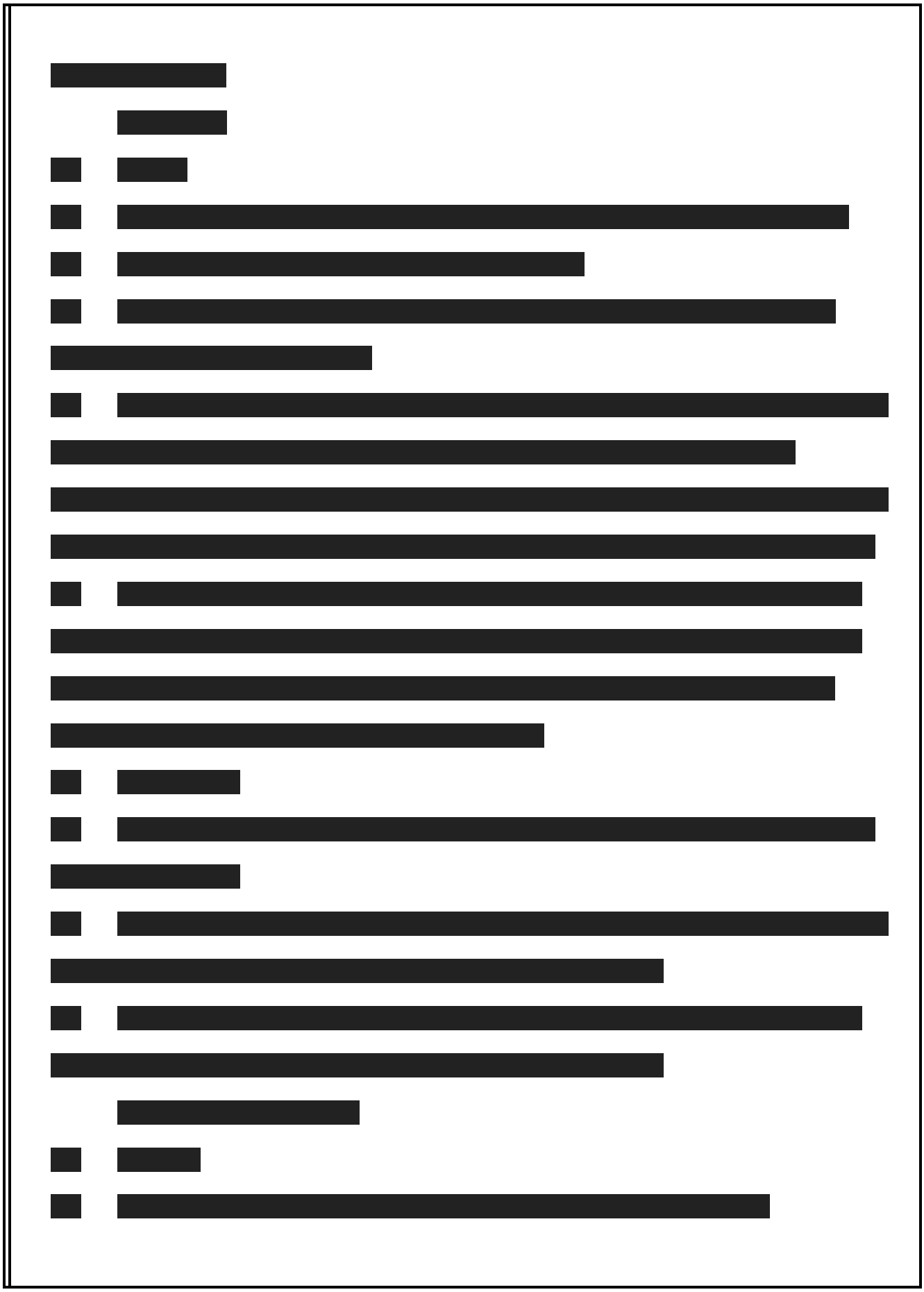

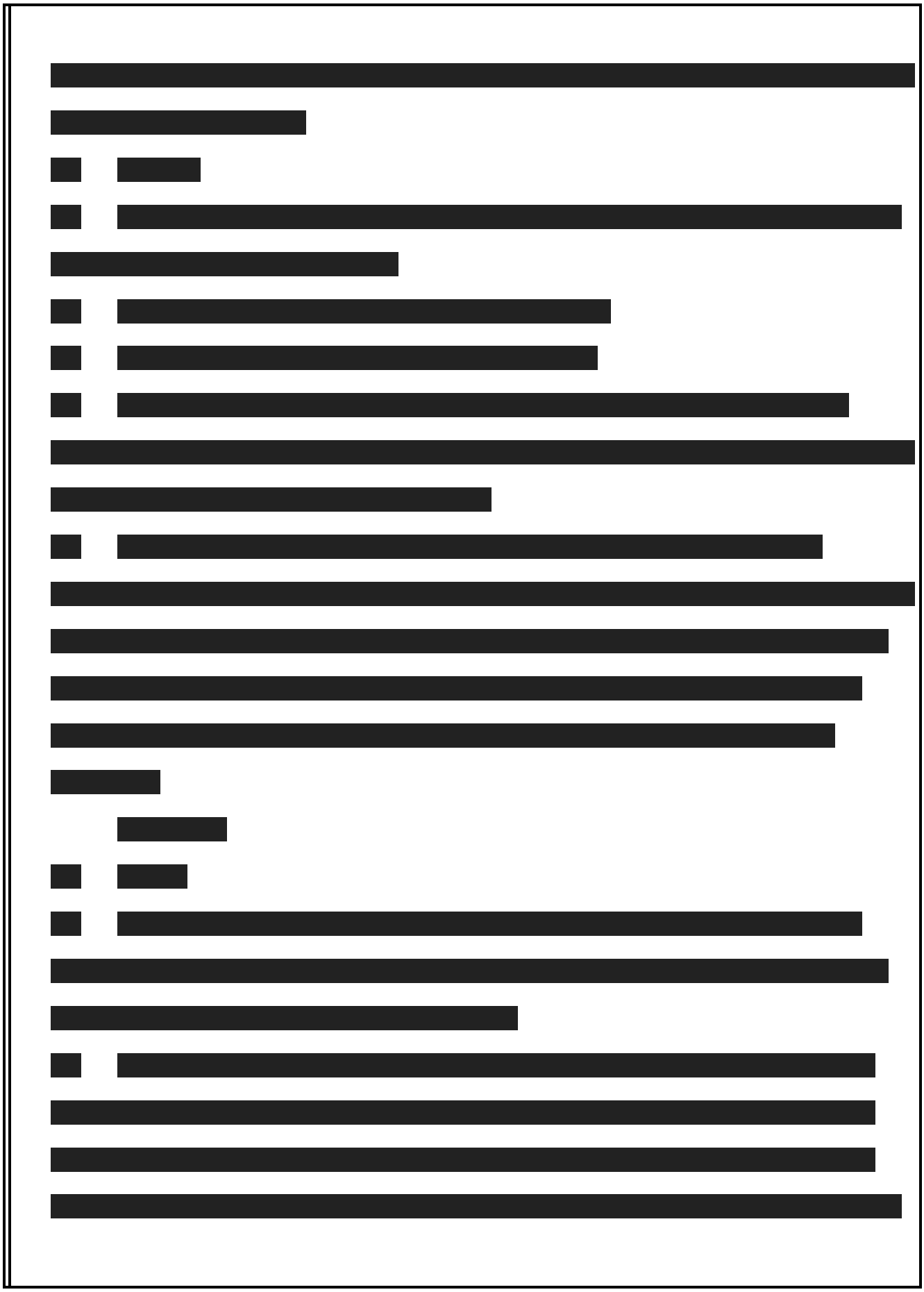

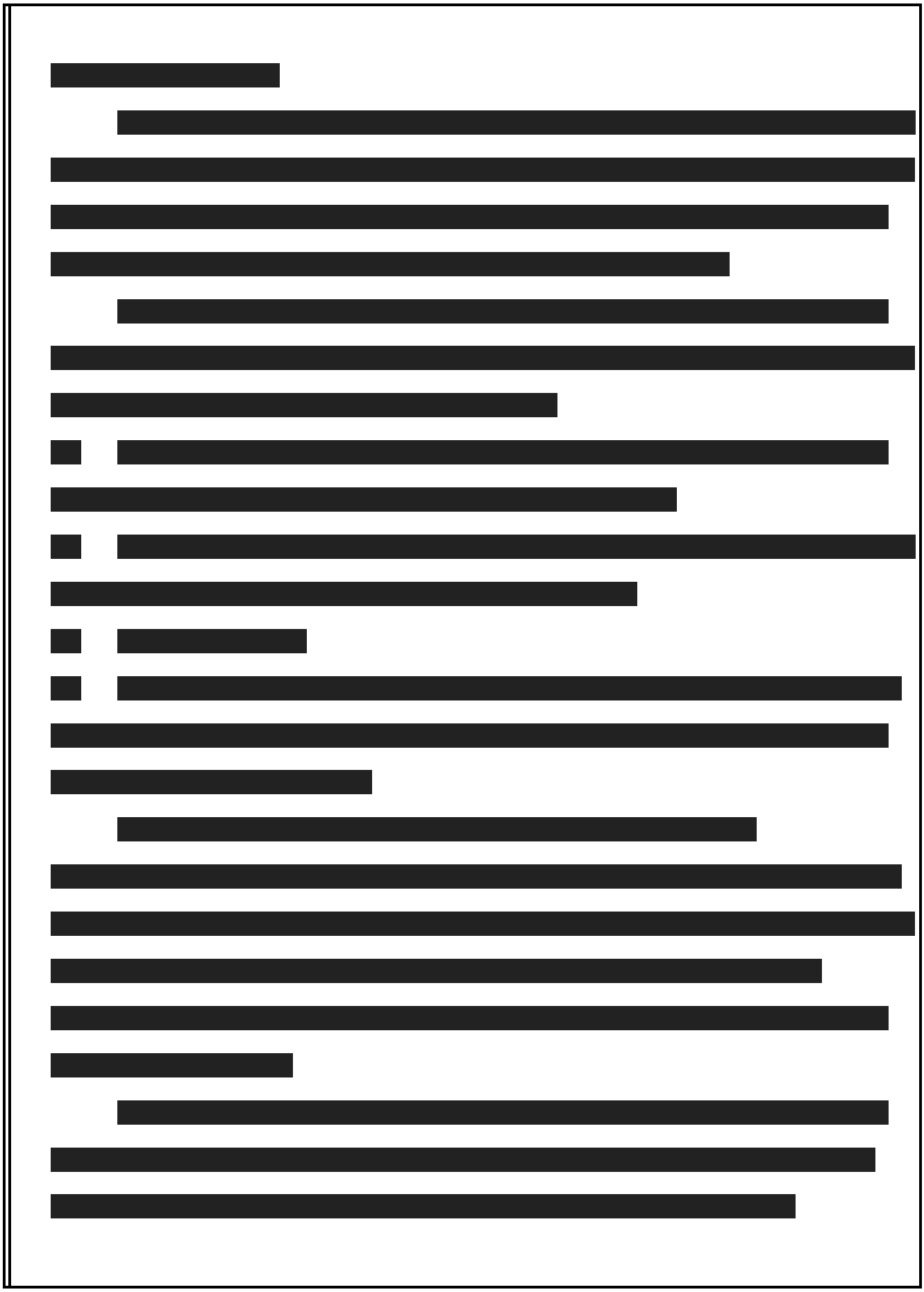

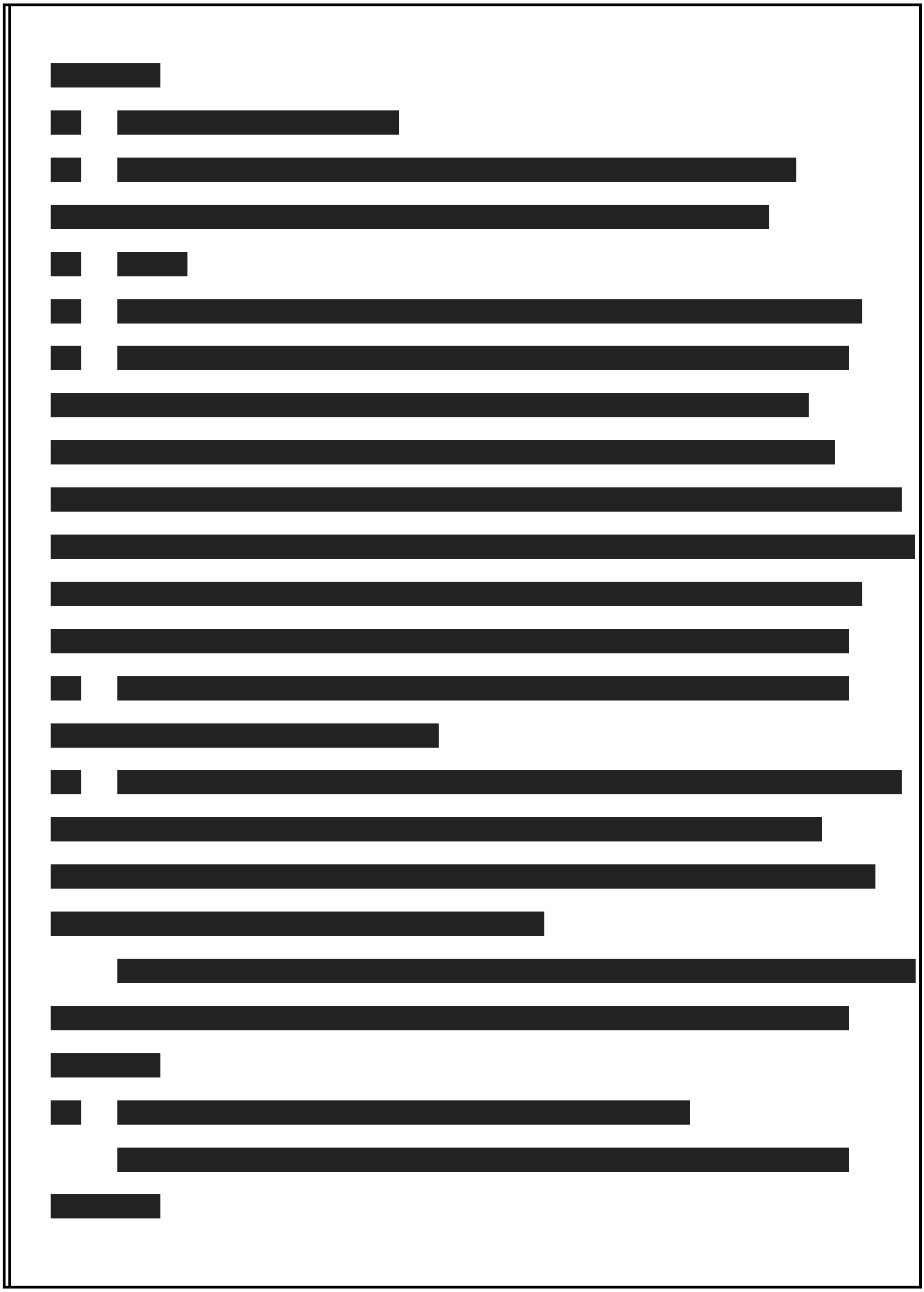
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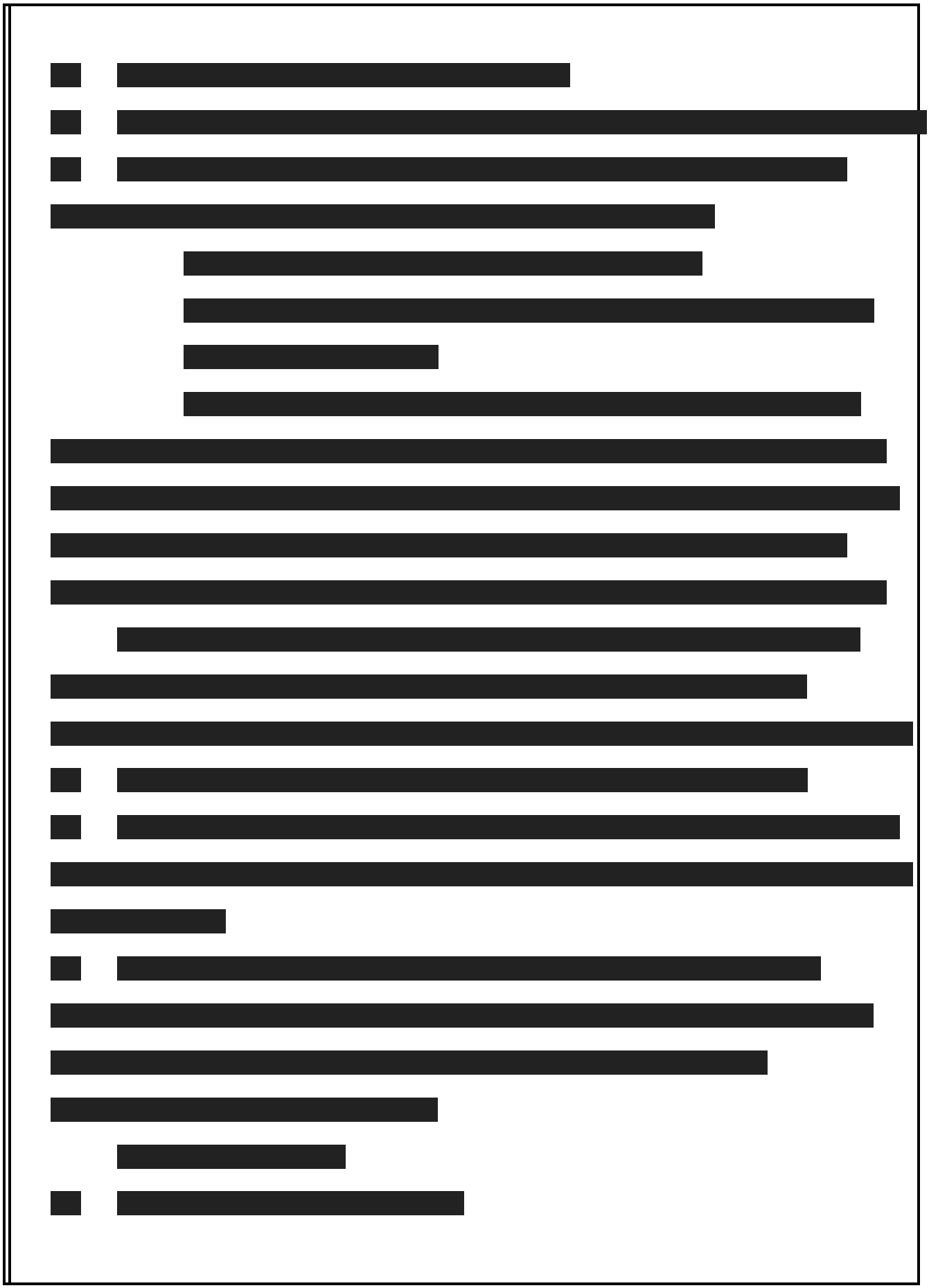

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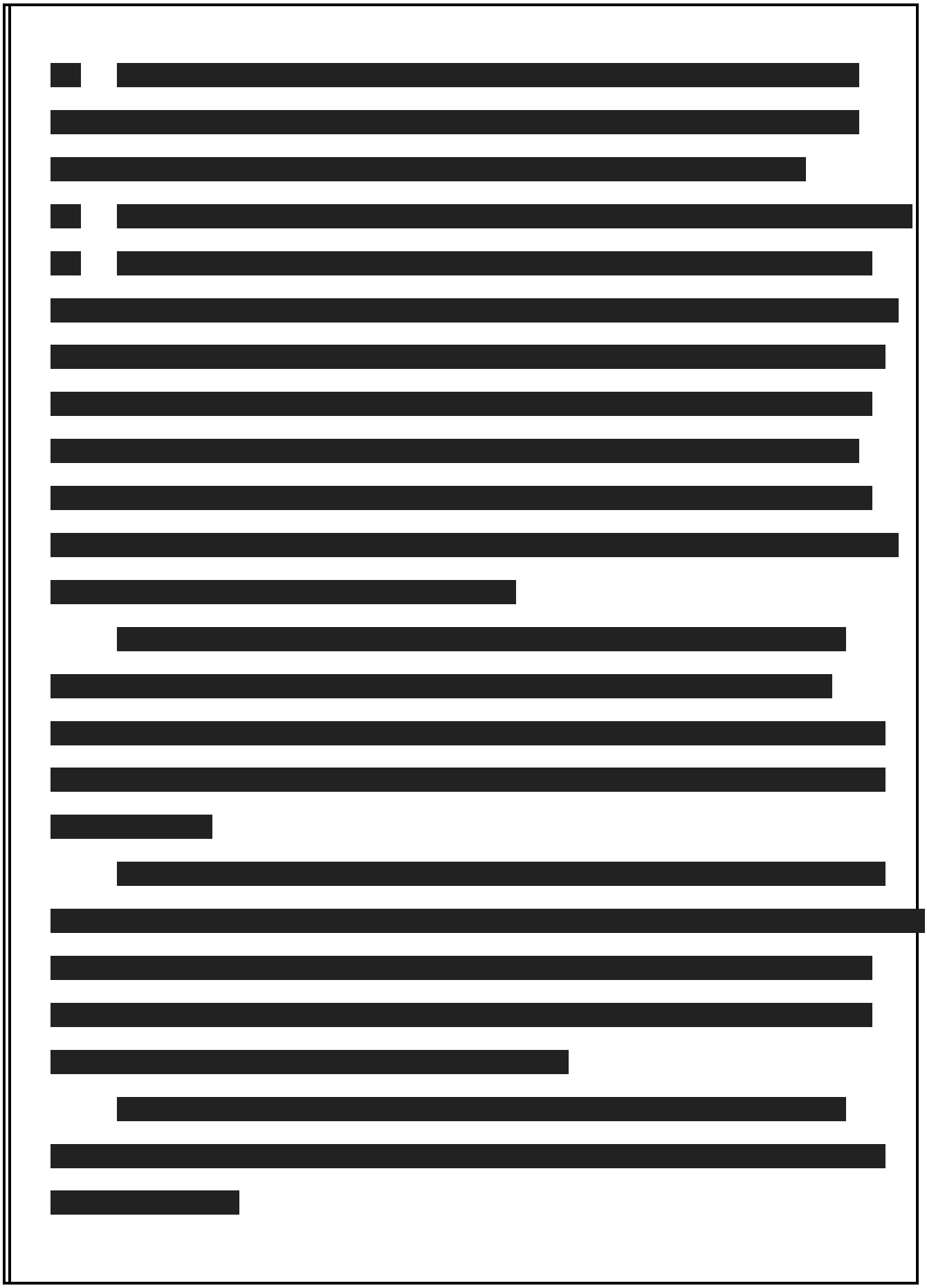

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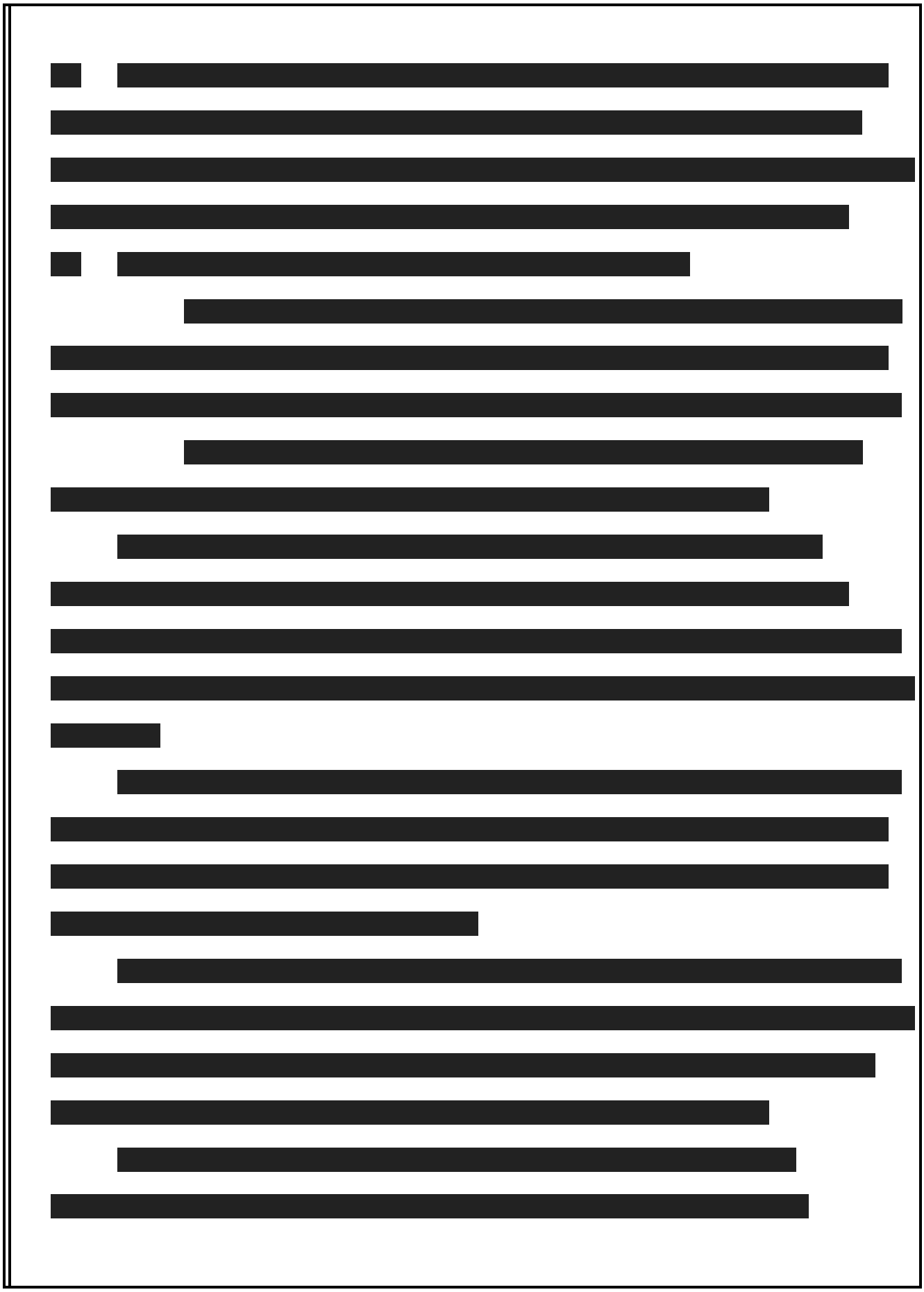

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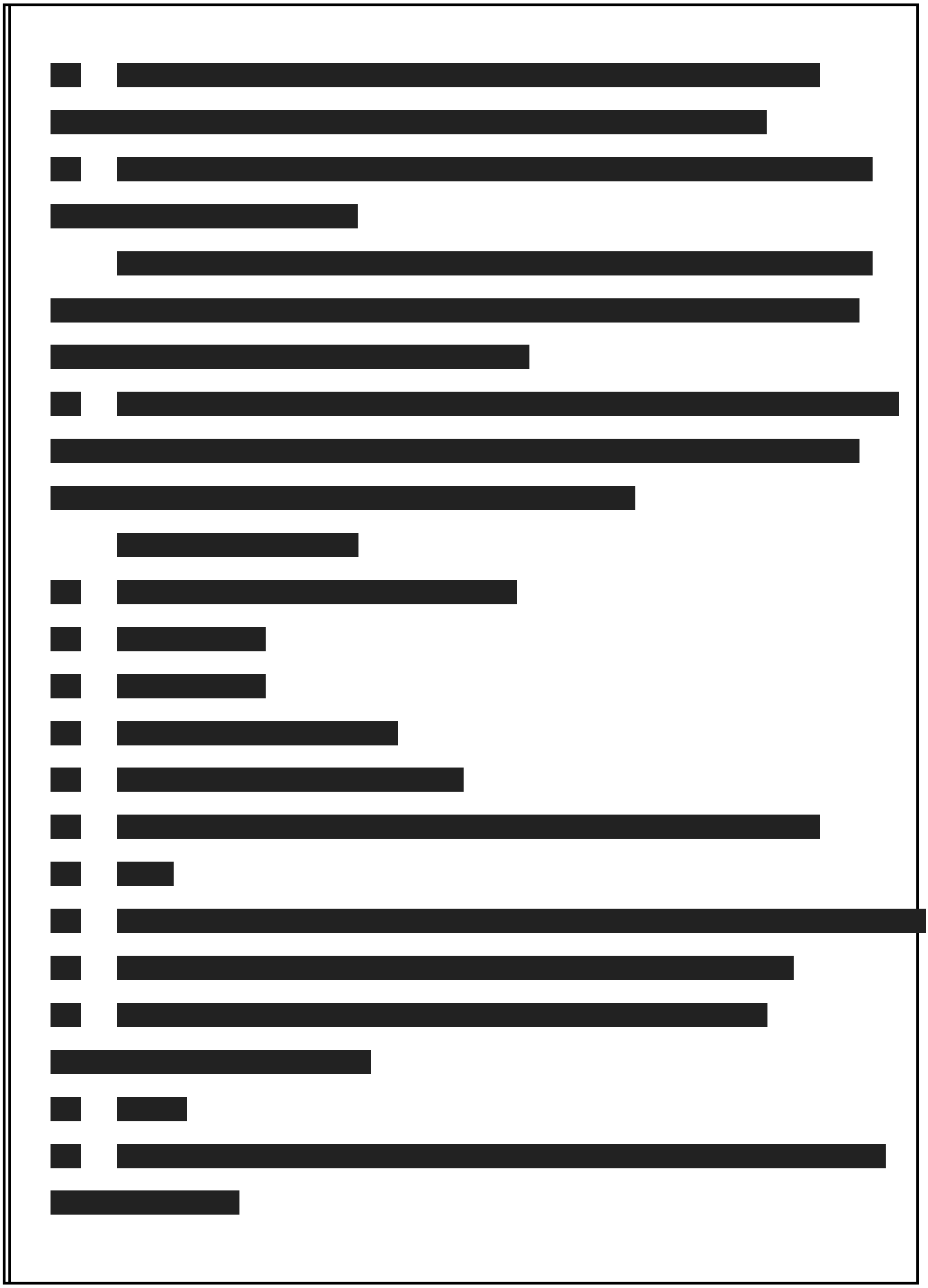

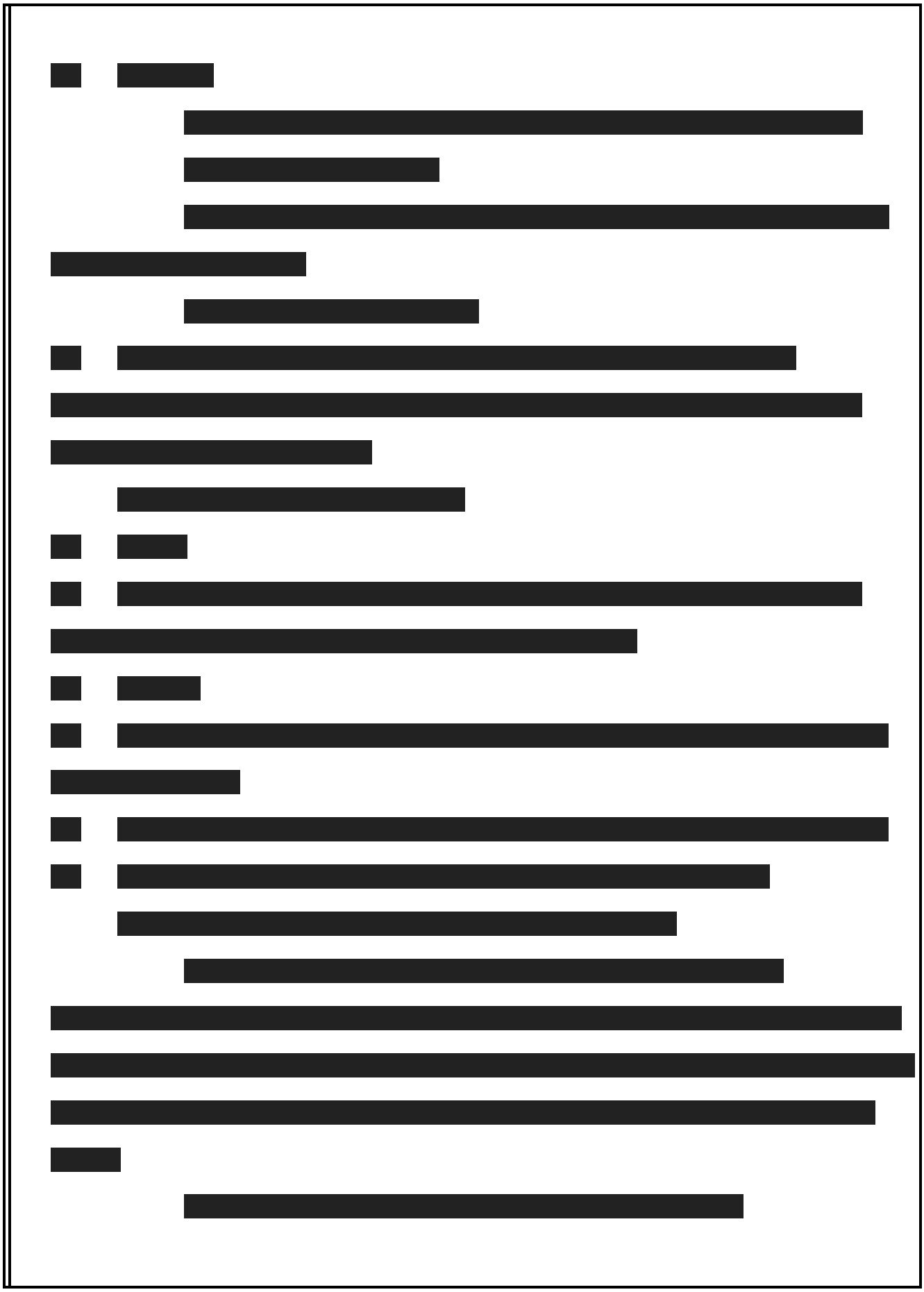
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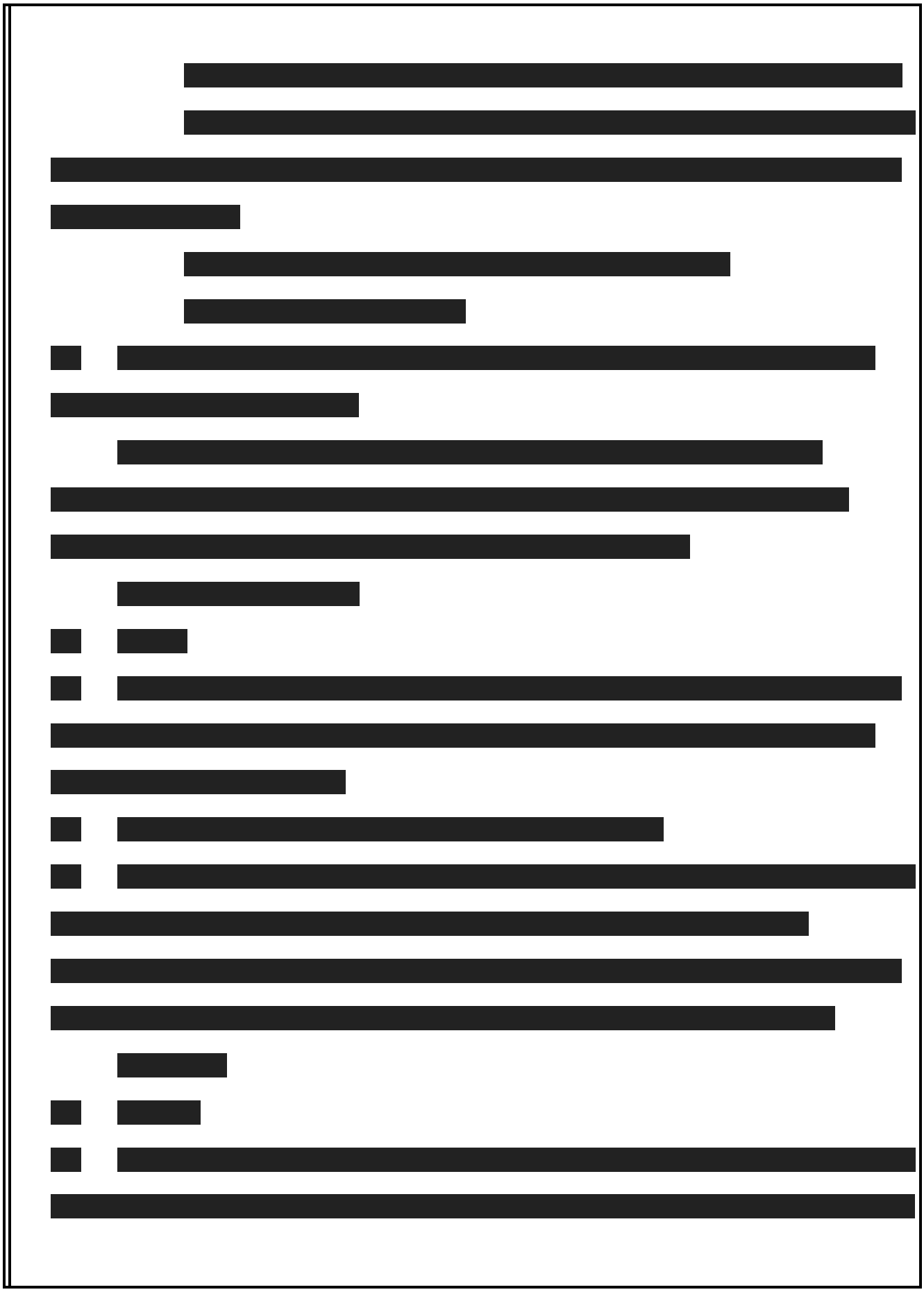

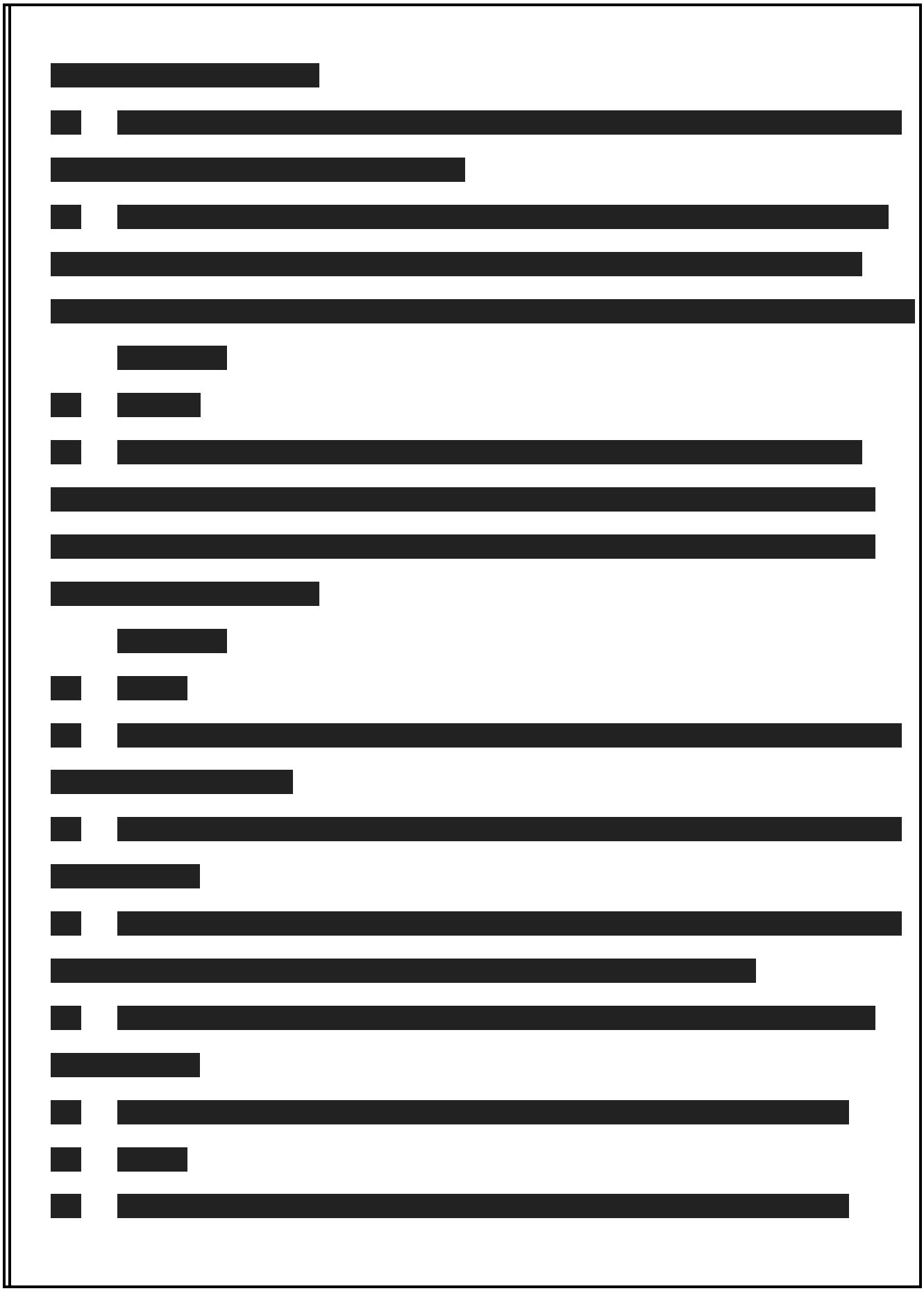

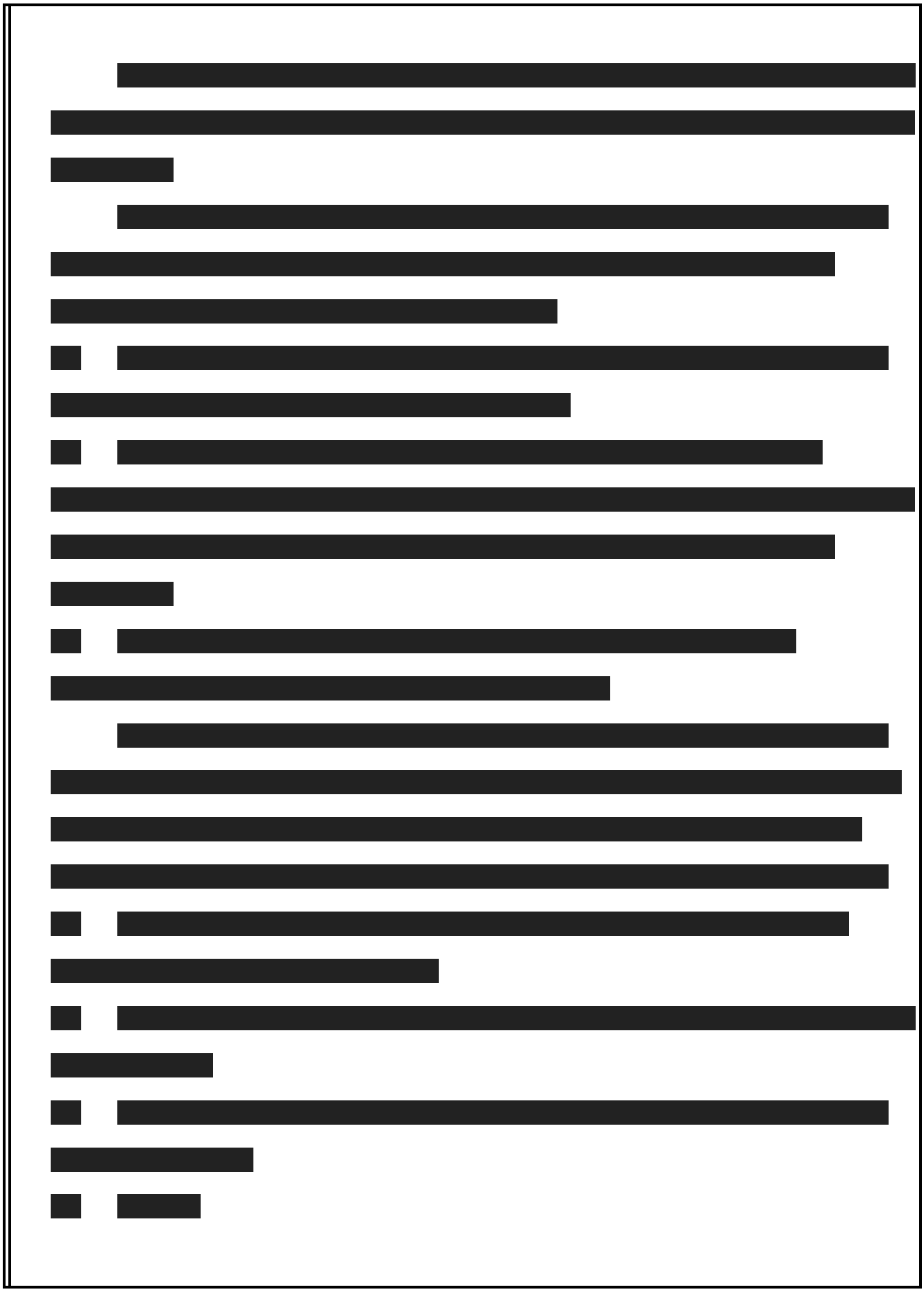

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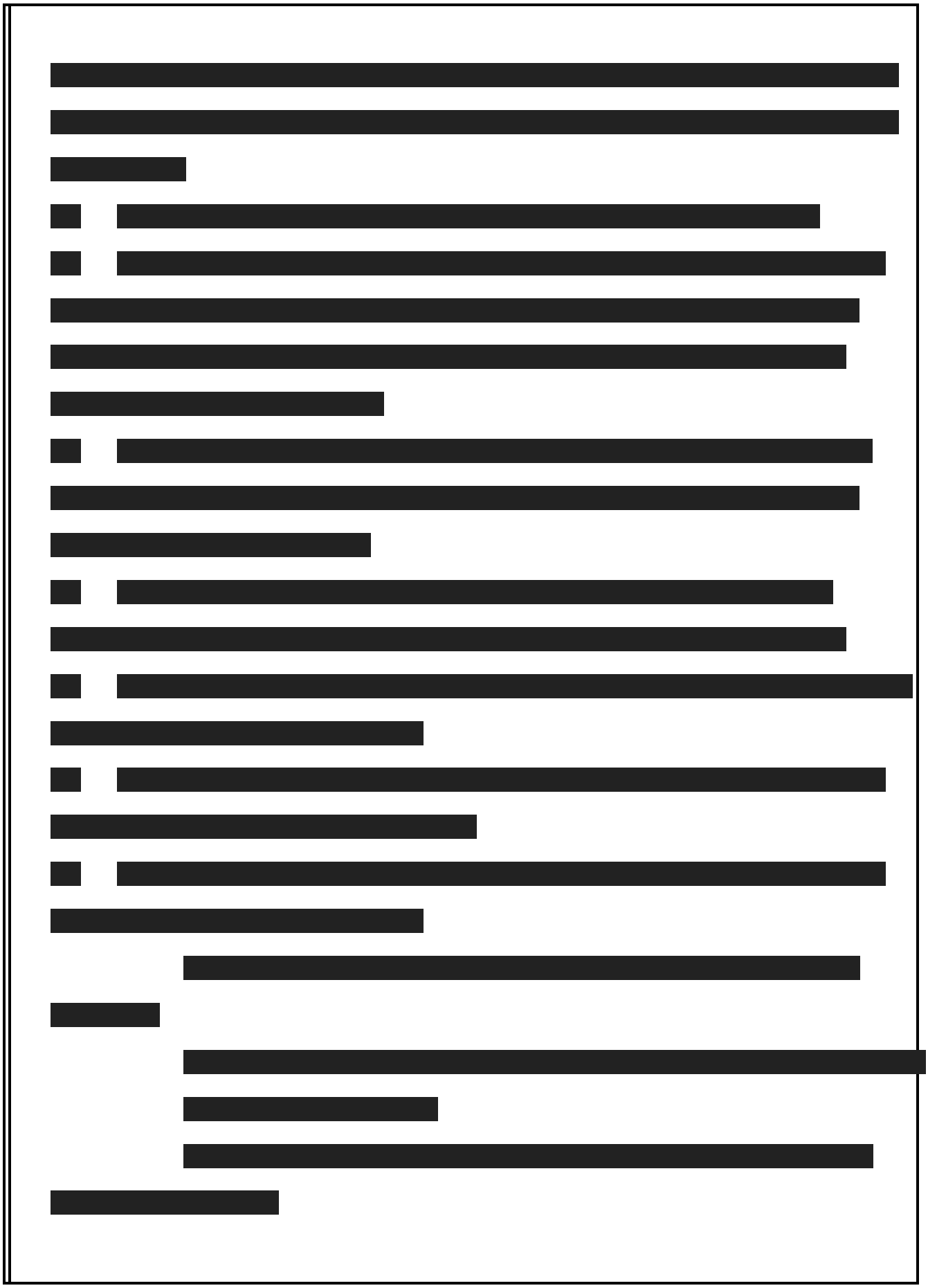

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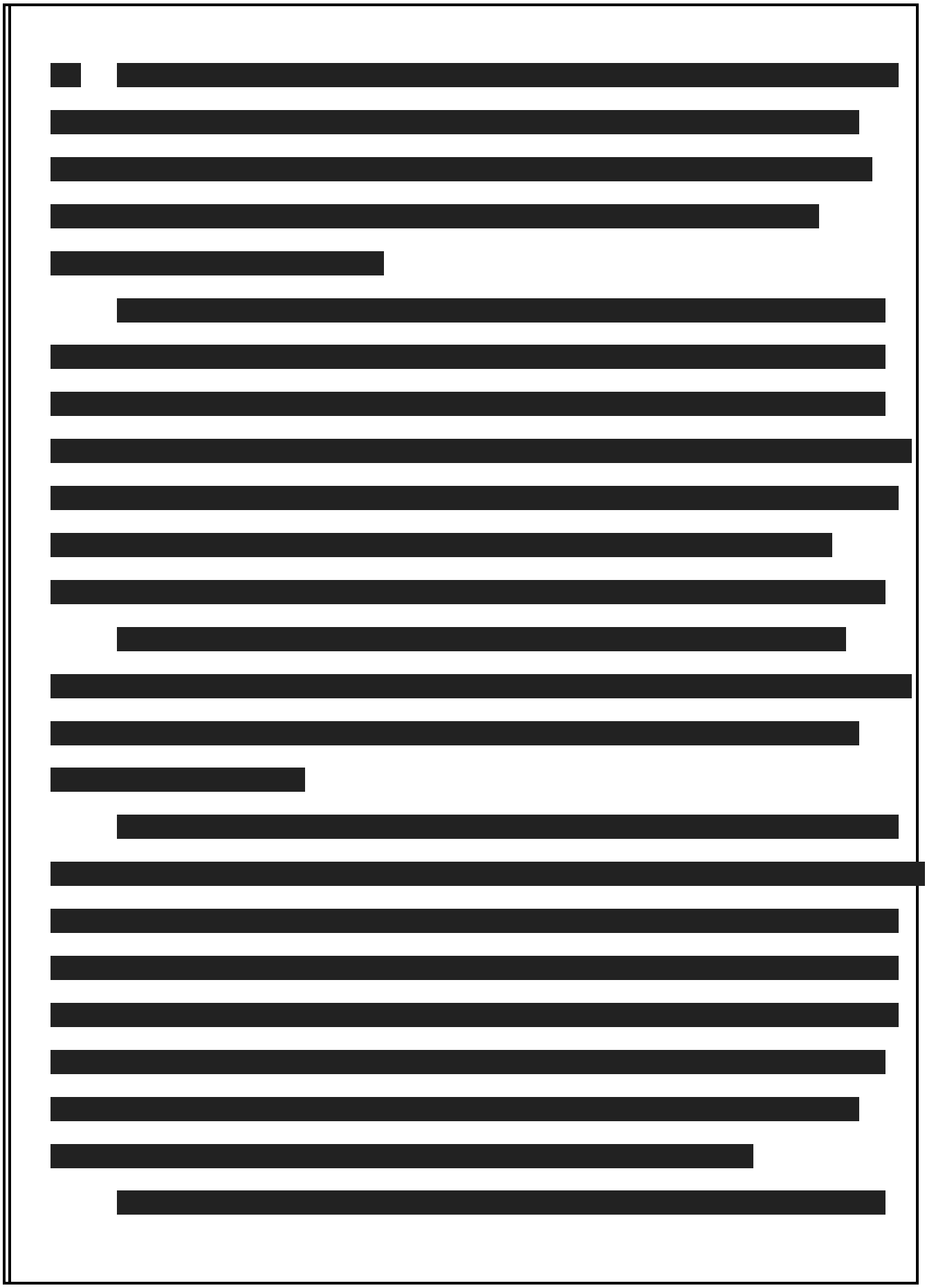

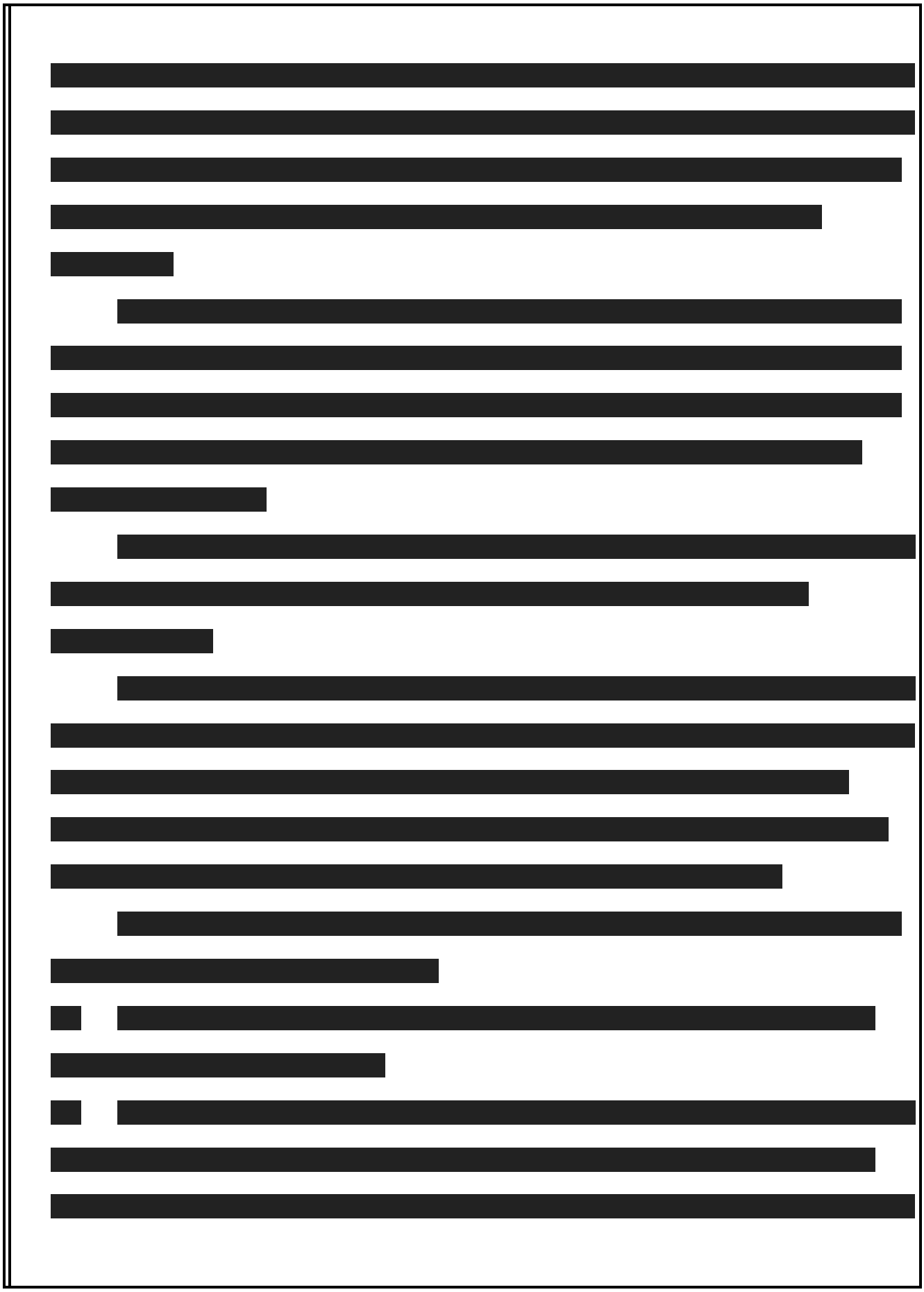
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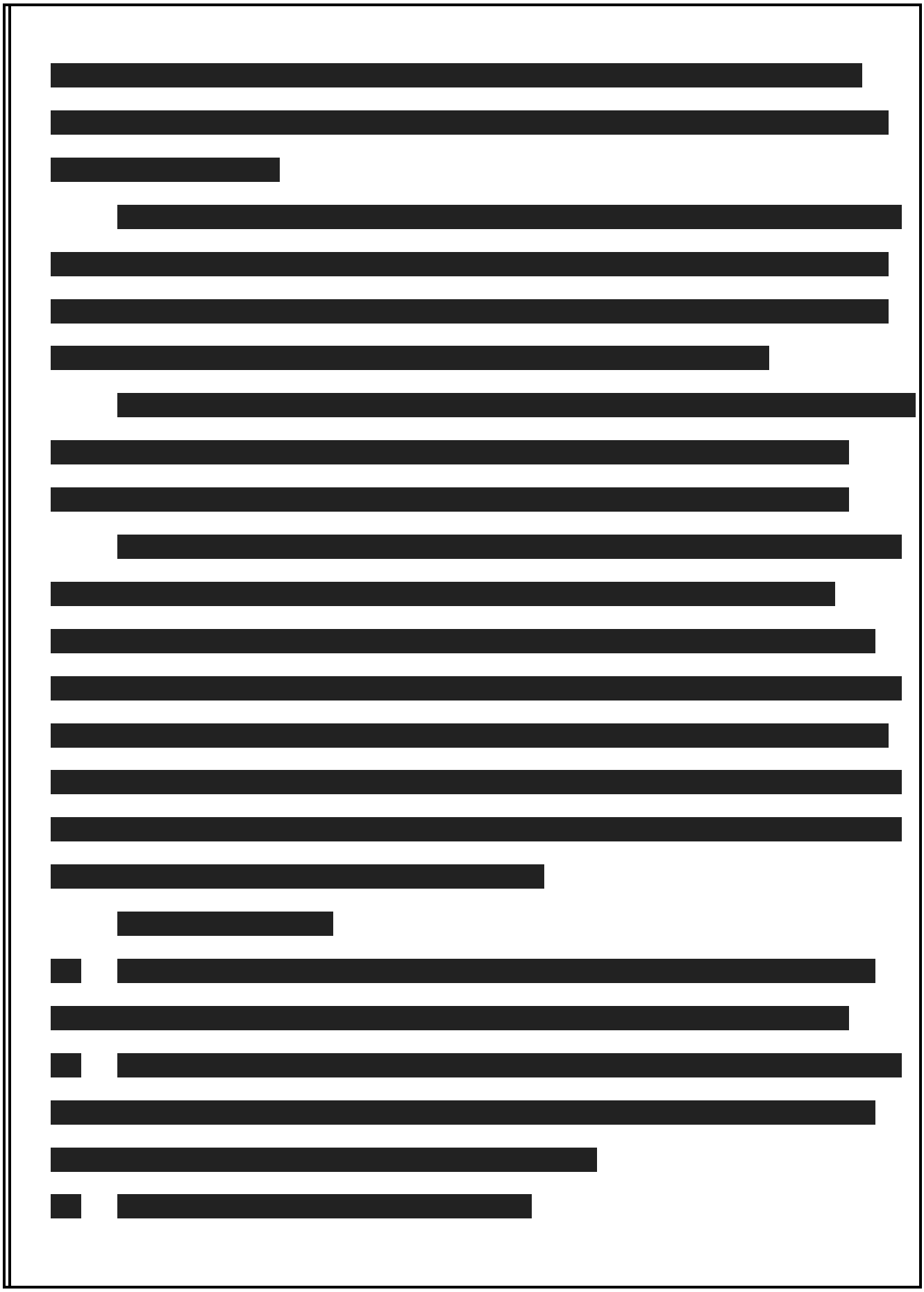

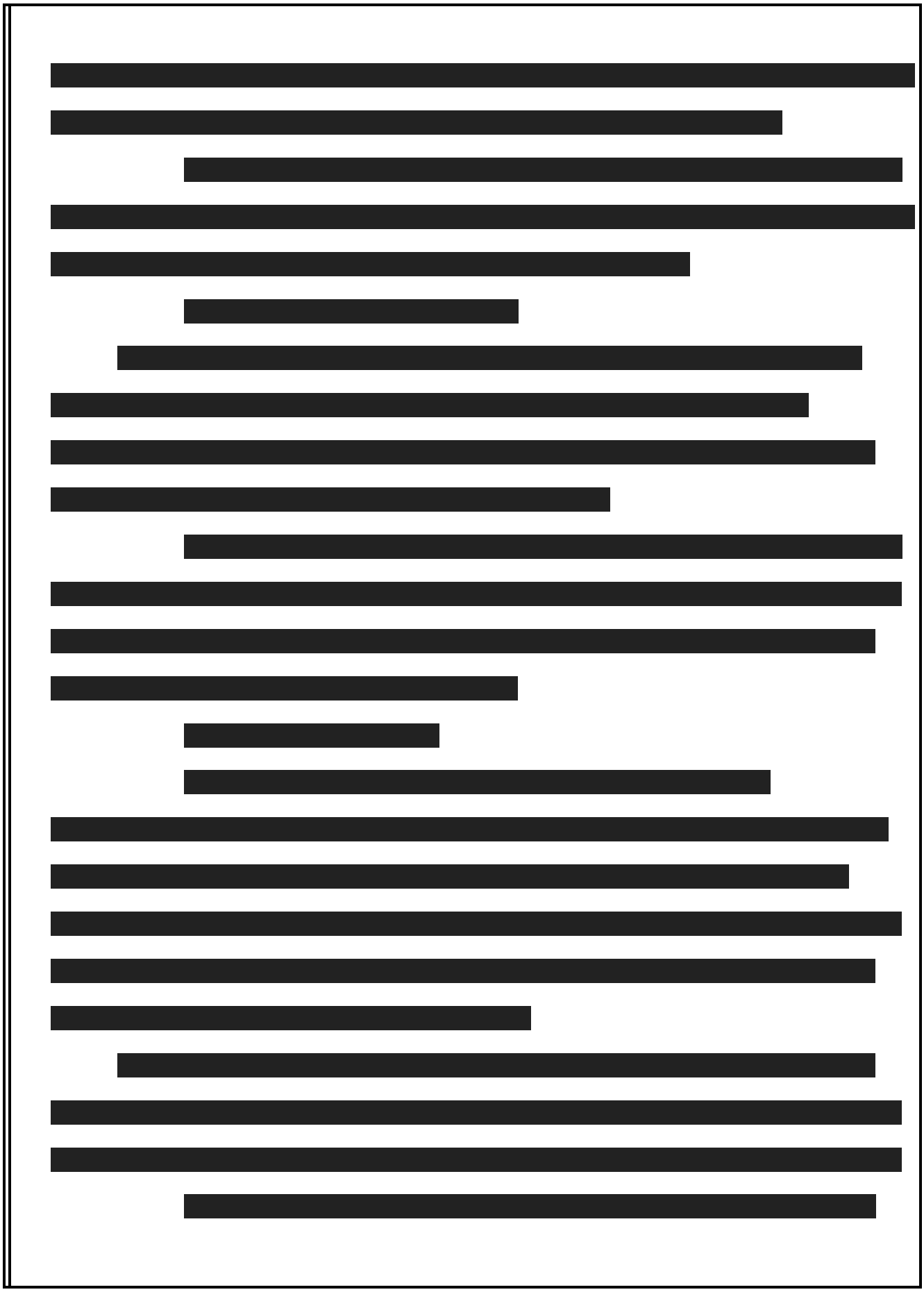

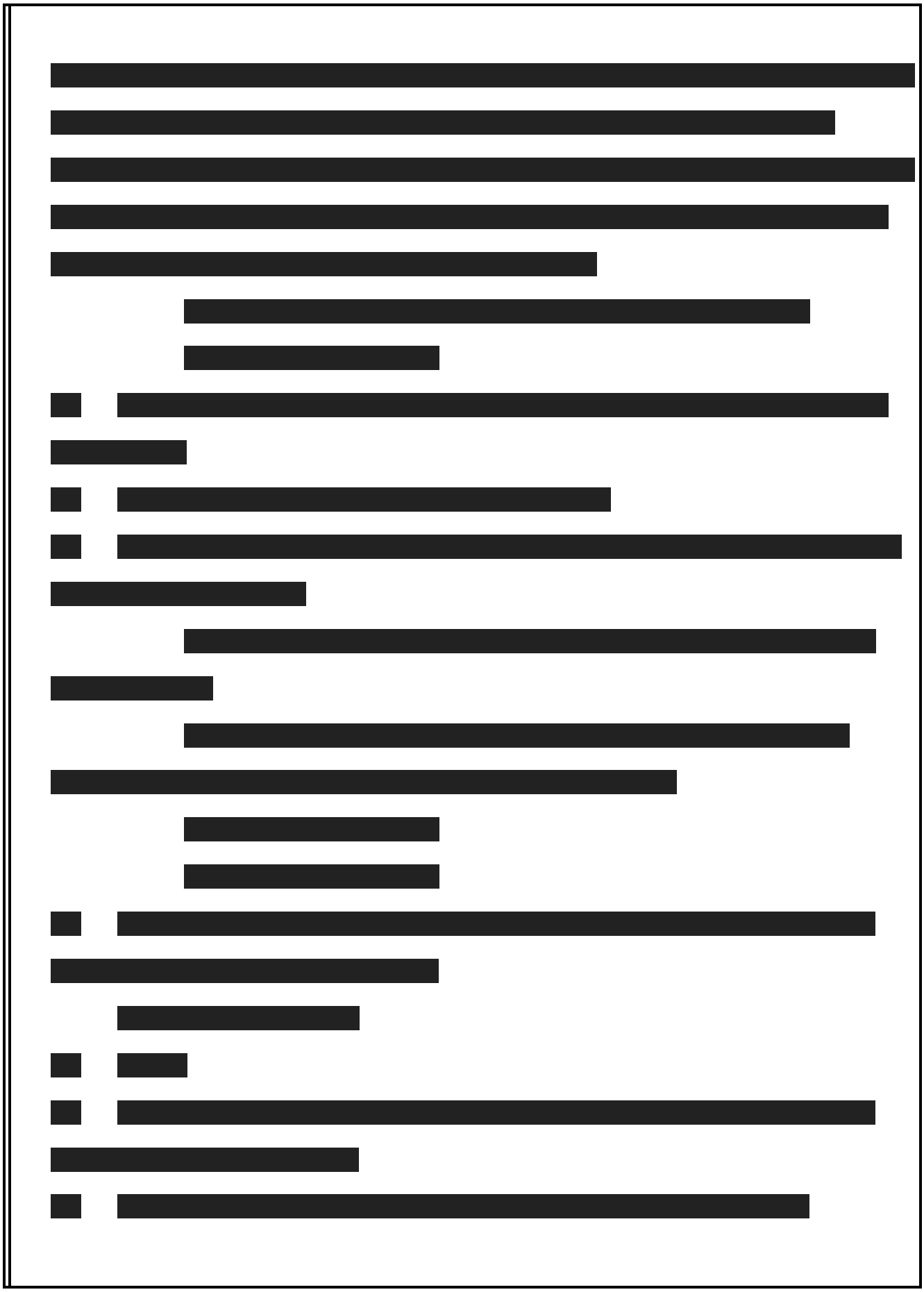
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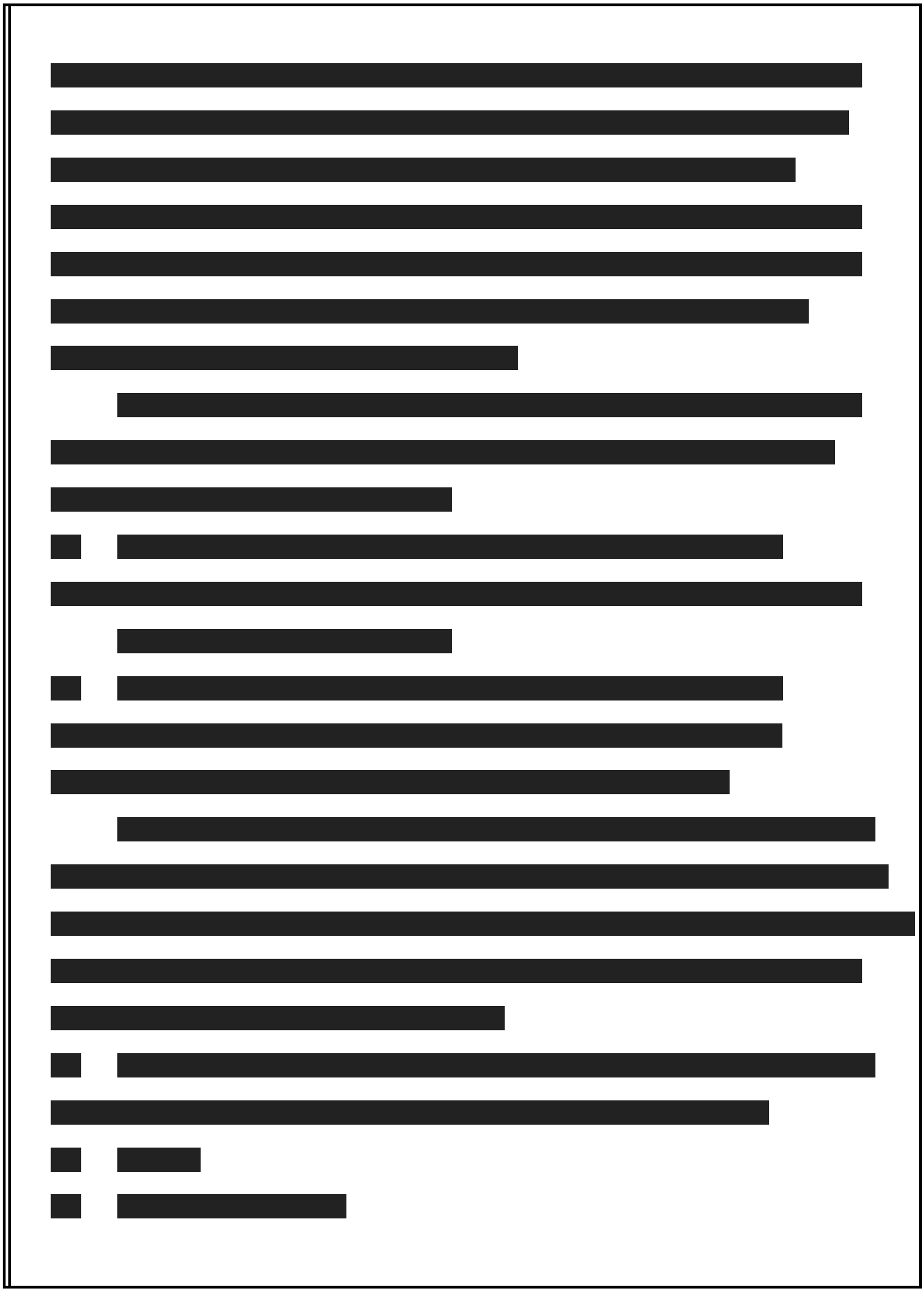

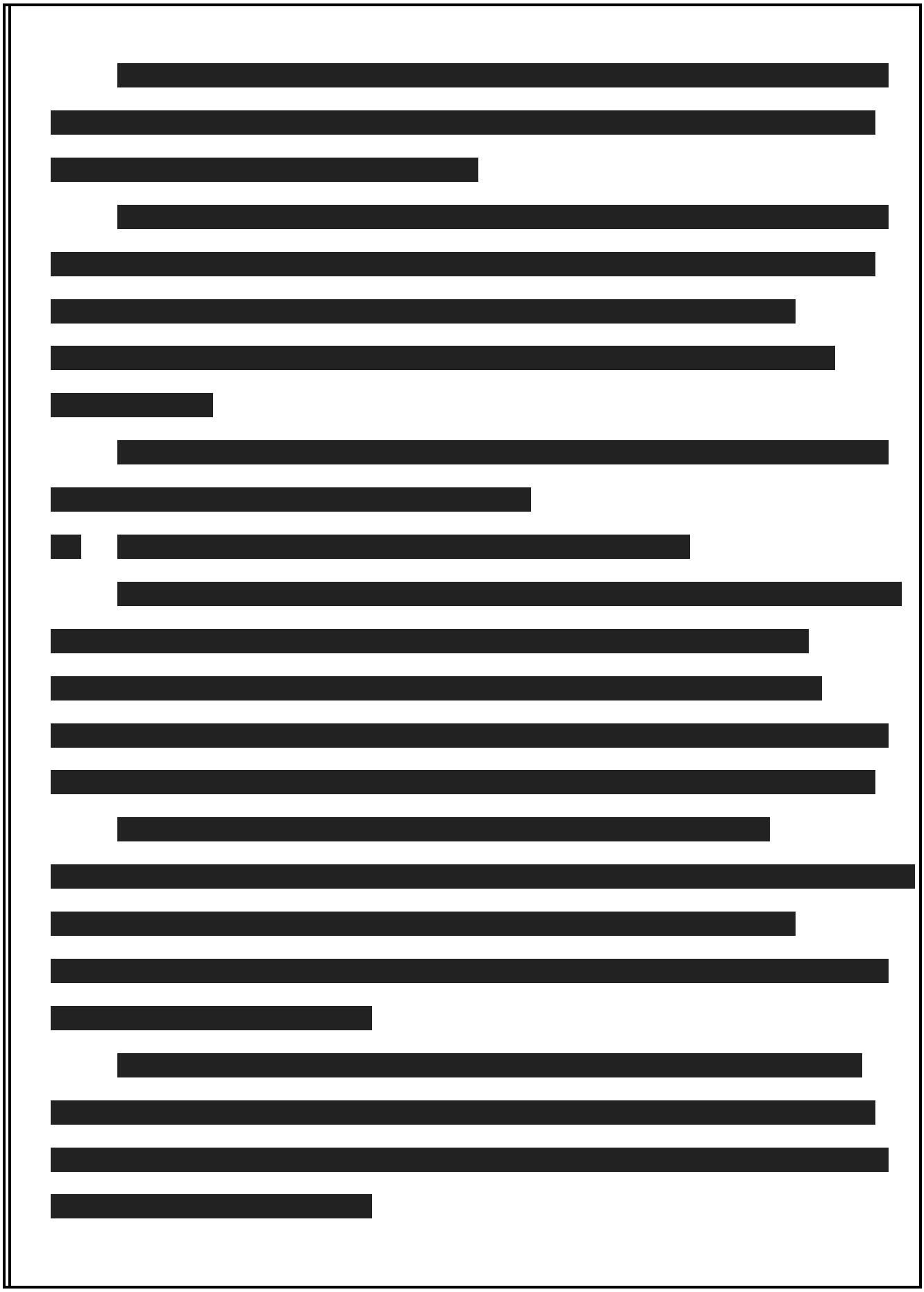

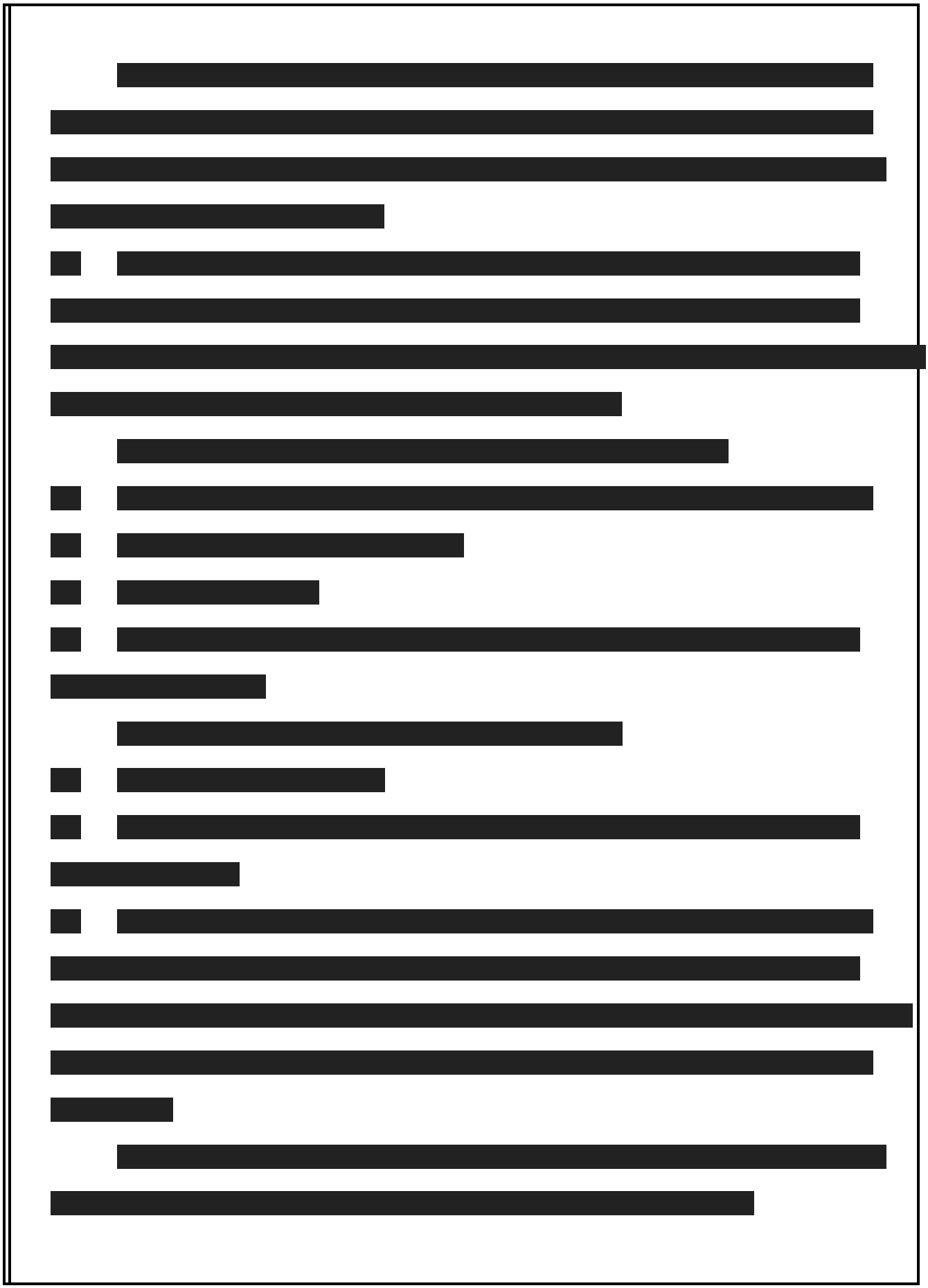

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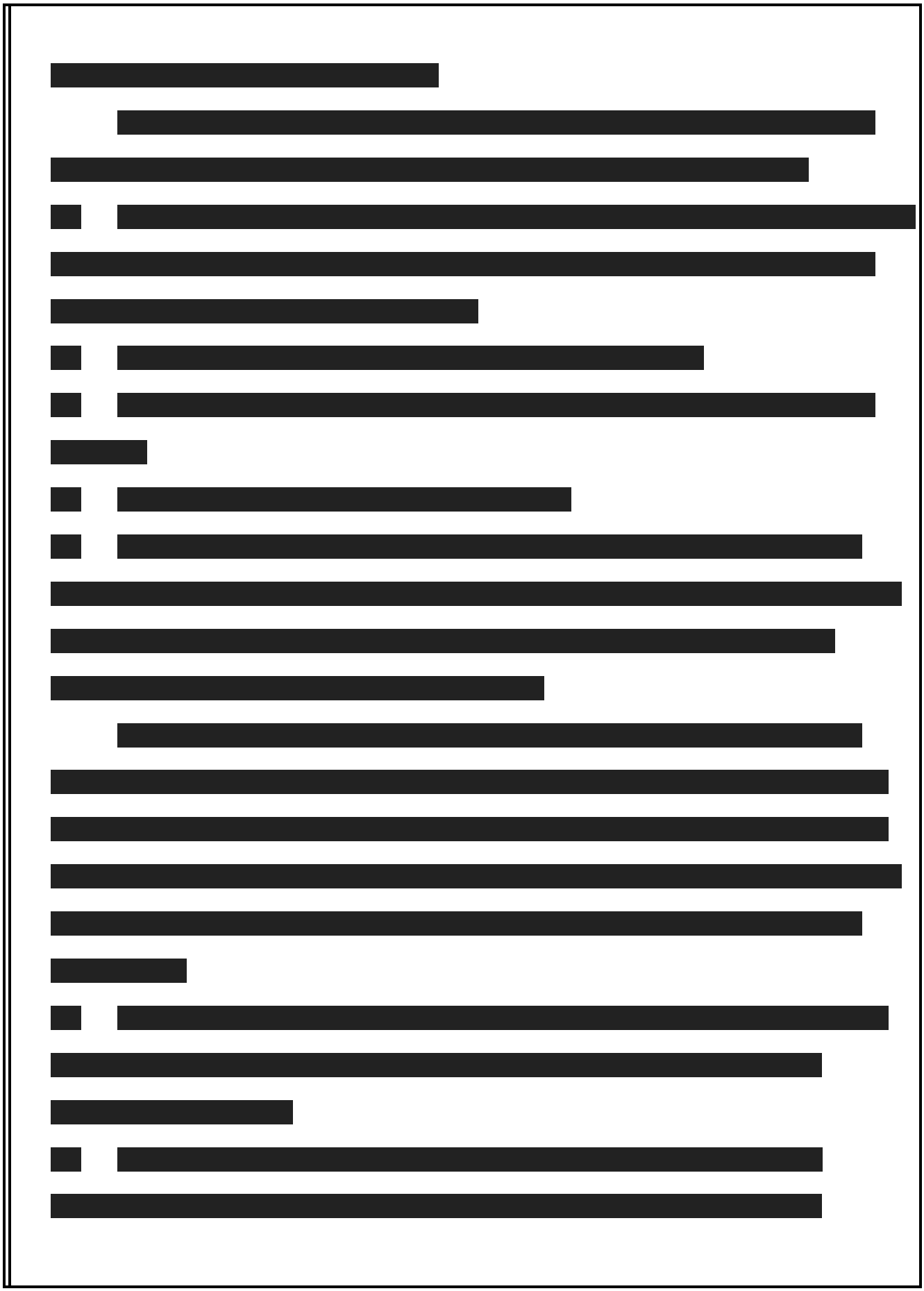

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(End of sealed proceedings.)

THE COURT: In terms of open items, we've got the Exhibit 38 issue.

Does Google wish to be heard on the admissibility of 38, Counsel?

MR. BENNETT: Yes, Your Honor.

So the government has moved for the admission of Exhibit 38, and they bear the burden, obviously, by a preponderance of the evidence to show that it has a basis to come in. They've moved only on the grounds of Rule 801(d)(2), and they've emphasized (d)(2)(D) as the basis for that.

Their argument, Your Honor, is, I guess, intended to show that Exhibit 38, which Your Honor has seen and heard much of, is a statement by Google. Google is the party opponent; Mr. Roszak is not the party opponent.

And to make that argument, they really focused, the government focuses on half of 801(d)(2)(D). They focus on the temporal aspect, was -- and this is their brief that was filed, was the witness employed by Google at the time he made the statement. The statement was from 2017. As Your Honor heard, Mr. Roszak was, in fact, employed by the government at that point -- not by the government, sorry, by Google at that point. He was a director. As Your Honor heard, there were dozens and

dozens of groups in finance. He was in one of them. And so that's the standard that the government puts forth.

THE COURT: Let's sort of cut to the heart of it. Why do you think his statements don't fall within the scope of the agency or the employee relationship?

MR. BENNETT: So I would submit that some of the statements come close. The one that the government focused on, counting the bullet points down, Your Honor, it would be the fifth and sixth bullet points. Those ones come close to what he focused on at Google. The other statements are clearly not within his wheelhouse. The statements about -- they're really macroeconomic statements, microeconomic statements, statements about parts of the business where he was not involved.

So it's like a lot of other documents Your Honor has seen --

THE COURT: Doesn't that ultimately go to the weight of the questioning -- the weight of what he's saying here?

I mean, look, he was the director of finance at the time he did this. It was a Google-sponsored training. And he made the decision to provide a -- to give a training speech that involved the area of his knowledge and understanding.

Again, I understand it's probably at the outer edges here. It's not at the core as we would see with a communication between colleagues in the context of financial -- you know, discussion about finance. But the standard is pretty lax,

pretty broad. And the cases that you all have cited don't quite go as far as I think you've suggested they do.

MR. BENNETT: Your Honor, I think the standard is probably most clearly set out in the *Aliotta* case that the government cites. That's a case where someone who was employed as an accident reconstructionist at a train company made some comments in a deposition about a train accident.

And the Court there distinguished those factual statements about a train accident by a train accident reconstructionist from -- and they juxtaposed that with what if he had offered conclusions about this particular train accident. And they said he was hired to do the former; he wasn't hired to do the latter.

There's no basis to think that Mr. Roszak was hired by Google, employed by Google to make the comments in the first four and the sixth bullet point. That's why the government got up -- I'm sorry, the first four and the seventh bullet point. That's why the government got up and asked about the fifth and sixth, because they know they had to find some sort of hook.

So this to me looks like a document that the Court has seen many times where there is hearsay and nonhearsay. And the best argument the government can make is that there's some nonhearsay.

Now, we would ask Your Honor, because those parts that the government talked about were talked about in closed session, those are confidential. And if the document comes in, it should

be redacted, as we have done in many documents, redacting out the things that are -- I would say irrelevant, but I know Your Honor wants to consider the weight, are clearly hearsay.

To go back to something Your Honor said a second ago, I think Your Honor said that this was presented by him, he was ordered to give a training. He wasn't giving a training. He was taking a training.

THE COURT: No, I understand.

MR. BENNETT: And I think what distinguishes this from the government's lead case is that in that case the declarant, the witness was being deposed. He was testifying about things that were, at least he was asserting, true, related to his job and they were true.

Here, you've got something that the witness has said was not true, wasn't intended to be true. He was cosplaying Gordon Gekko. He was saying things that he didn't think were true because it was a part of the training to do that.

If they had done a skit, the government certainly wouldn't come in and offer that for the truth of whatever role he was playing. This is the equivalent of that.

So the *Aliotta* case, I think, really is guiding and that there are -- there's a dividing line between things that are in an employee's wheelhouse, what they are hired, what they are employed to do, and things that are not.

And if Your Honor looks at --

THE COURT: What the Seventh Circuit said in *Aliotta*, 315 F.3d 756, is that the only requirement -- and this was, I think, in a Title VII case, but the only requirement is that the subject matter of the admission match the subject matter of the employee's job description.

MR. BENNETT: And then the Court goes on to say that even though concluding about that accident was the subject matter of his employment, they said that would be excluded because he wasn't employed to make conclusions about that accident. He was employed to know about accidents generally.

Here, we're one step removed from that. Mr. Roszak is not an economist. Your Honor, I think, has heard from economists already in this case. He's not an economist. He's not a strategy person or a policy person. He's someone who does financial modeling in a very narrow area of the business. In fact, he draws that out elsewhere in this memo, that he's talking about other parts of the business, not the part where he works.

So this just --

THE COURT: Here's the difficulty of where I find myself, which is that to the extent this is coming in, it does not contain anything that would qualify as confidential. It doesn't contain a trade secret. It doesn't contain any financial information that has been sort of in the wheelhouse of what is confidential.

Now I'm in the position where the testimony that accompanied this document was done in a closed session. So all context is lost if this document is admitted and then finds its way into the public space, because in theory it is now a public document if I admit it.

So I'm in a little bit of a pickle, in a jam here because of how we have teed this up.

So let me just go ahead and rule. We've got to bring things to a close here today.

MR. BENNETT: If I could just --

THE COURT: Thank you.

So look, the relevant provision here is 801(d)(2)(D), and I want to just read a few excerpts from the *Wright & Miller Treatise*, which is paragraphs 67 to 76, that covers it. This is 30B, Federal Practice and Procedure, in evidence.

Counsel, you can have a seat.

MR. BENNETT: Thank you, Your Honor.

THE COURT: *Wright & Miller* states, "The exemption requires neither adoption nor ratification of the statements by the party. All that is required is that the agent or employee made the statements during and within the scope of the agency or employee relationship.

"With respect to the subject matter, Rule 801(d)(2)(D) abandoned the common law requirement that the agent must have authority to make statements in a given area. It is no longer

the law that a qualifying statement must be shown to have been made by the employee at the insistence of her employer.

"Instead, 801(d)(2) takes a broader view, allowing statements to be admitted over a hearsay objection whenever an employee or agent speaks on any matter within the scope of his agency or employment during the existence of that relationship.

"By virtue of this requirement, qualifying statements are to some degree limited to those the employee is most likely to be knowledgeable about. Qualifying statements will arise when an employee or agent speaks about matters that are or were within her job responsibilities."

And then finally, the treatise says, "Outside the context of employee complaints, Courts typically take an unabashedly broad view of Rule 801(d)(2)(D)'s application, emphasizing that qualifying statements must simply touch on matters that fall within the employee or agent's general duties and responsibilities.

"Stated another way, an employee need only be performing the duties of his employment when he comes in contact with the particular facts at issue. Importantly, the statements must still concern matters related to the speaker's employment."

And so I think by those standards this comes in as an 801(d)(2)(B) -- excuse me, 801(d)(2)(D) statement. I will grant it's on the outer perimeter here, but it nevertheless meets all of the requirements. Here you have somebody who is the director

of finance, who albeit in a training session made the decision to make a mock presentation, understanding that's what it is, mock presentation about things he understands about the business, about the fundamentals of the business.

And they're really broad-stroke statements, obviously, but he doesn't need to be an economist to make statements like this. He has advanced degrees in finance, I assume, or an MBA and is the head of Google Finance. These are not statements that would fall outside his wheelhouse, so to speak, or outside his areas.

I mean, all the other indicia establish that this was a statement made during the course of his employment. It was a Google-sponsored training. It was done off-site, presumably sponsored by Google. It was done on his computer at work or his work-issued computer. And so all of those indicia establish what is required to meet the elements of the rule.

I will just note the handful of cases that Google has cited starting with *Rowell* from the Eleventh Circuit, 2005, is inapposite because in that case the statement was deemed not admissible because there was no evidence that the employee was involved in the decision of how to structure the reduction in force or how to design the performance evaluations used during the nonvoluntary stage of the reduction. There's also no evidence that the employee had received any information from the employer's upper management to indicate that age was to play a factor in these decisions.

As I said, this is different. This is a topic about which he can speak authoritatively based upon his experience. I can't remember. I think he said he had been at Google for approximately ten years by the time this training happened, the entire time in finance.

The Seventh Circuit's decision in *Young* notes that the exception or the carve-out from the rule embodies broader exception than the prerules. The rule simply requires that the statement be made by an individual who is an agent and that the statement be made during a period of the agency and that the matter be within the subject matter of the agency.

And the reason in that case the statement was excluded is because the statement was made in a resignation letter, and the Court concluded that essentially the employee was acting as an adversary and no longer inhibited by his relationship with the principal from making erroneous or underhanded comments that could harm the principal.

And then finally, the *Blackburn* decision from the Third Circuit, 1999, in which the Court excluded the statement or affirmed the exclusion of the statement where there was no indication that the employee was speaking for UPS on a matter within the scope of his agency employment such that the employee could testify about what he had been told.

And then finally is the *Mister* case from the Seventh Circuit, the case involved a report. What the Court said there

is not that the report was inadmissible under 801(d)(2)(D), even if it contained an absurd statement, but rather, it was excludible under Rule 403. So even though it met the requirements of 802(d)(2)(D), the circuit said it was properly excluded under Rule 403.

So again, I think this meets the requirements of 801(d)(2)(D). In terms of the 403 balancing, look, I understand it's somewhat embarrassing to the witness, but it's not substantially -- the probative value -- the likelihood of confusing me or creating embarrassment for the witness and for Google is not substantially outweighed by the probative value of what's in here.

He's testified that he doesn't believe a lot of what he's said. He's provided context for the way in which he said it. So all of that will go to the weight of the ultimate consideration of the statement.

But in terms of its admissibility, I think it meets the four corners of the rule. And so I will admit it.

So UPX38 can be admitted.

(UPX38 received into evidence.)

THE COURT: I will leave it to you all to discuss whether it ought to be redacted in any way. Talk about that amongst yourselves, and we can deal with that overnight. Okay? Or in the morning.

One last housekeeping matter. I think counsel had

requested at the -- or in fact, I know you all had requested that we create essentially a Webinar link so that there would be a Webinar available to counsel of record, both for the parties and third parties to access the proceedings. We allowed that. At the time it was something that was permitted by judicial policy. That policy expires as of tomorrow.

And it's not clear to me whether continuing that Webinar line is something I can do under the current policy. I can provide everyone with what the policy changes are, and we can talk about it in the morning, but I just wanted everybody to be aware it's something that's been brought to my attention and something I need to consider before the end of the day tomorrow.

So let me give these two documents to Mr. Douyon, who can make photocopies of them for you, and you can think about it overnight, and we can talk about it in the morning.

Al right. Is there anything else we need to talk about?

MR. CAVANAUGH: No, Your Honor.

MR. DINTZER: Not from the DOJ plaintiffs, Your Honor.

MR. SCHMIDTLEIN: No, thank you, Your Honor.

THE COURT: Thank you all very much. Please do not wait for me. And we will see you tomorrow.

(Proceedings adjourned at 5:18 p.m.)

CERTIFICATE OF OFFICIAL COURT REPORTER

I, Sara A. Wick, certify that the foregoing is a correct transcript from the record of proceedings in the above-entitled matter.

/s/ Sara A. Wick — September 20, 2023

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