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Maria Kallionpää

Climb

For Disklavier and Electronics

2017

Music Finland

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Description

Climb! is a musical composition to be performed by a pianist and supporting technician that combines the ideas of a classical virtuoso piece and a computer game. Written for a Disklavier grand piano and interactive electronics, Climb! is an indeterminate work of 26 sections that form three paths with cross-links between. This results in an open formal structure which potentially culminates in an original reading of the work on each performance.

Although not specifically a programmatic work, a 'game like' narrative underpins Climb!, namely a climb up a mountain. The climber (i.e. pianist) encounters challenges where success or failure may steer their subsequent route.

Climb! uses bespoke music recognition software to enable the pianist to interact with the Disklavier piano and electronics. Key musical phrases embedded within the score also function as triggers, or 'codes'. When these phrases are performed and recognised by the software system they subsequently govern and control a number of performance interactions, such as: determining the next section to be played, queuing and cueing the appropriate page of digital score for that section; starting Disklavier parts that self-play, dueting with the pianist; and changing audio effect patches that represent changing weather conditions along the mountain journey.

Along with the electronics a full performance of Climb! uses other additional media, such as projected visuals that illustrate the performer's progress up the mountain, and an' audience mobile app' that imparts a range of information pre-performance, during the performance and post-performance. The projections and audience app updates are also triggered by the musical codes that control all other performance interactions. Finally, there is an interactive online archive populated with recordings and metadata from each performance of Climb!, where different readings of the work can be explored and compared.

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Requirements

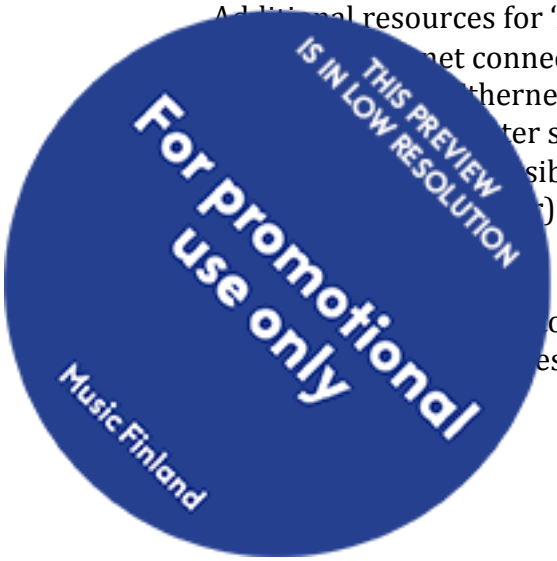
A performance of Climb! will require:

- A Yamaha Concert Grand Disklavier (with a standard 5-Pin DIN MIDI input and output connections).
- 2 high quality condenser microphones, boom stands and XLR leads.
- An audio interface with two balanced XLR inputs, two outputs and MIDI input and Output (5-Pin DIN).
- A laptop / computer (MacOS or PC; MacBook Pro recommended) to run the Climb! software system and two MAX/MSP patches. The computer requires the following:
    - HDMI port (for extension screen)
    - USB Port 1 (for audio interface)
    - Bluetooth connectivity for score display foot pedal (or 2nd USB Port for optional 'hard wired' foot pedal)
    - Ethernet port or Thunderbolt port and Ethernet adapter (if the performance includes visual projections, mobile app and/or archive)
- A light extension monitor screen with HDMI input to display digital score view for the pianist (10" tablet-style screen recommended).
- A Bluetooth 'page turn' footbpedal (e.g. AirTurn PED Pro). Contact the technical team for information about a 'hard wired' foot pedal alternative.
- Stereo PA system

Additional resources for visual projections:

- A projector and screen, or display screen of a suitable size and quality for onstage presentation. Projector will need either a VGA or HDMI input.
- Second Laptop / computer to run projected visuals (MacOS or PC) with:
    - Ethernet port
    - VGA or HDMI port
    - USB port
- WebCam (and USB extension cables as required) for the live keyboard view
- A router with Ethernet connections.
- Ethernet (x 2) and VGA/HDMI leads.

Additional resources for 'Audience Mobile App':



net connection from the main laptop via the router: ideally a thernet connection from the router, or alternatively via 3G/4G ter supports this.

sible web server that can host the mobile app service (as a). Or contact the technical team to discuss shared

o feed into the online archive then contact the technical ess.

Musical codes

Musical codes are motifs or phrases that form part of the scored musical material. They may be a particular melodic line or rhythmic phrase. The Muzicodes software system required to perform Climb! recognises a correct performance of these codes and initiates a number of different actions. There are four types of codes embedded in the Climb! score that have different functions within a performance.

Challenge Codes: these codes determine the route that a performer will take through the sections of Climb! (see *Structure and Narrative of Climb!* below). These are typically the longest (i.e. most number of note events) and hardest to perform. These codes will:

- Queue the next appropriate score section to display on the performer's screen. When the performer 'page turns' at the end of the current section being performed the next queued section will appear.
- Trigger different 'weather' effect patches running in MAX Patch 2, which process the sound of the piano.
- Trigger projected visuals.
- Trigger progress updates on audience mobile app.

There are three alternative endings to Basecamp, each of which is a simple challenge code.

Choice Codes: these codes function the same as the Challenge codes described above, but here the pianist is presented with a number of musical options, where their choice and subsequent performance determines the next section to be played. These only appear in *Basecamp.*

Disklavier Codes: these codes trigger playback of a MIDI files in MAX Patch 1, which outputs into the Disklavier MIDI input, so enabling the real-time performance of the self-playing Disklavier parts. Most, but not all sections have Disklavier codes and they are typically formed around short sequences of pitches (i.e. 1 – 4 notes) as it is important that these codes are easy to play, be recognised and triggered. All sections that begin with a Disklavier part are automatically triggered when the performer 'page turns' at the end of the previous section.

Anticipation Codes: these codes trigger content for both the projected visuals and the 'audience mobile app', that highlights to the audience the approach of a Challenge Code. All but one of these codes are played by the Disklavier parts, so [illegible]rt the performer does not need to be concerned with them.

[illegible]itted version of the score *Disklavier* trigger codes are [illegible] *Anticipation* codes are highlighted in blue. In this version [illegible]*ge* codes are not highlighted, but rather they are hidden [illegible]art of the 'game-like' challenge.

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Structure and narrative of Climb!

All performances of Climb! commence at *Basecamp* and conclude at *Summit* (see Figure 1). Three macro compositions called 'paths' (1, 2 & 3) progress from *Basecamp* and work their way to *Summit* each containing 5 events (micro compositions) interleaved with three variations of the path material. Most, but not all events can cross-link to events on other paths (see Figure 1). A *Challenge* Code embedded within each of these events is what determines whether a performer stays on their current path (i.e. successful articulation of the code) or branches off to an event on another path (i.e. unsuccessful articulation of the code). Where there are multiple cross-links from one event to several other events, the outcome of the branch is determined at random by the system.

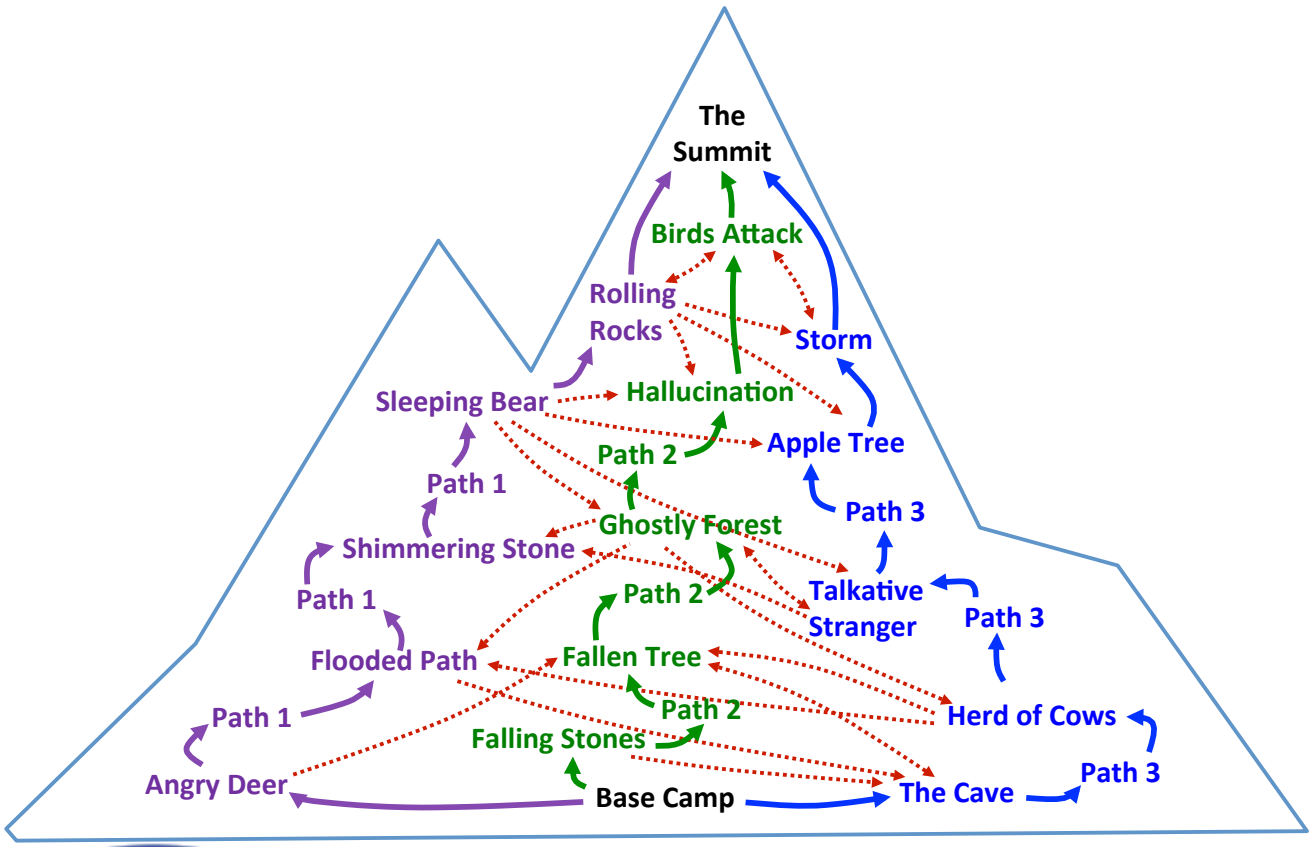

Figure 1: Structure of Climb!

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Configuration and staging

Figure 2 illustrates the technical configuration of Climb! and suggested staging.

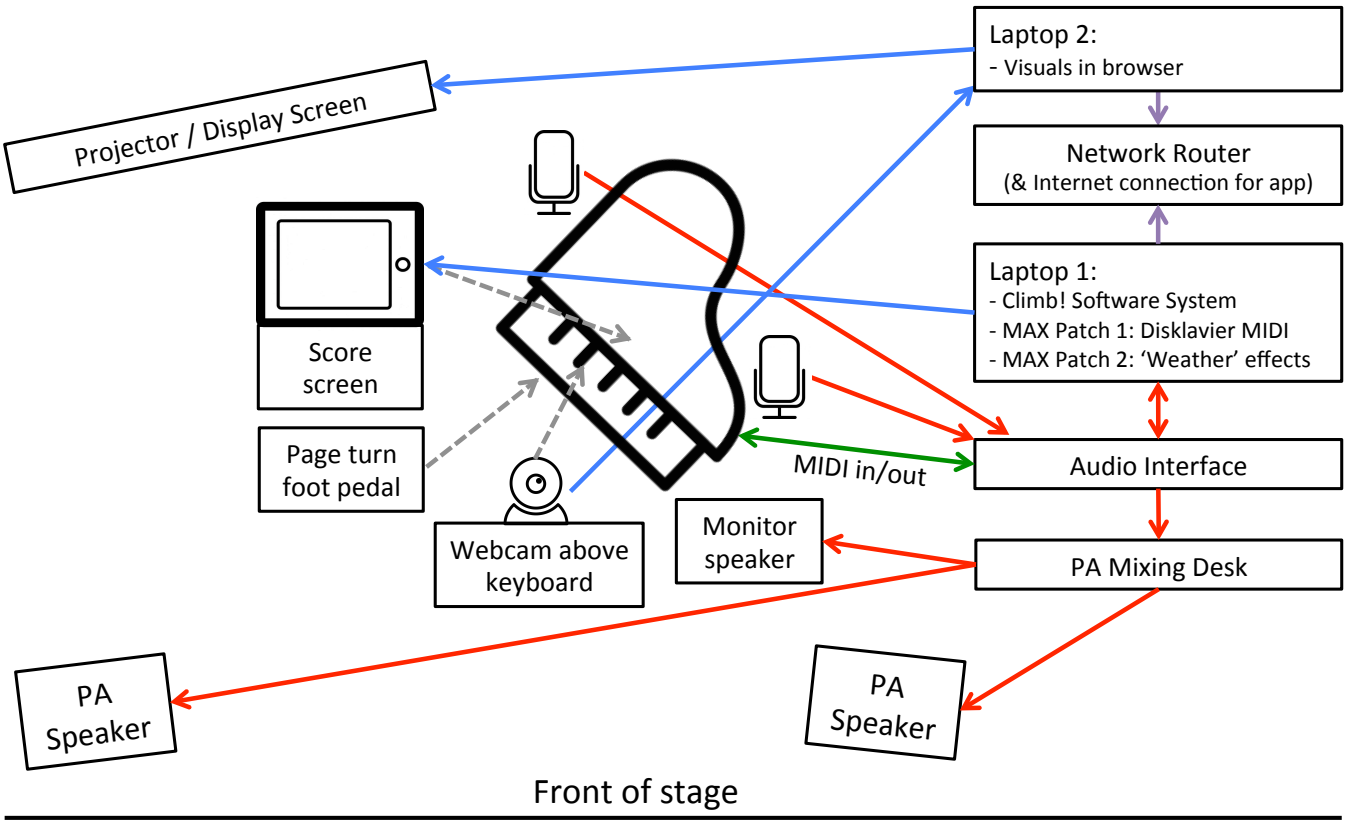

Figure 2: Climb! Configuration

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Acknowledgement:

We are grateful for the support of the EPSRC-funded FAST project (project EP/L019981/1), the Kone Foundation, and University of Nottingham's Research Priority Area (RPA) Development Fund.

Credits:

Dr Maria Kallionpää – composer and pianist.
Prof Chris Greenhalgh, Dr Adrian Hazzard, Prof Steve Benford – Muzicodes (Musical code recognition software).
Dr Adrian Hazzard – animations.
Dr David M. Weigl – MELD (Digital score rendering).
Ms Mengdie Lin – Audience Mobile App programme.

For any matters regards the Climb! score, please contact Dr Maria Kallionpää
maria_kallionpaa@hotmail.com

To access the Climb! software, MAX/MSP patches, projected media, other resources or technical enquires please contact Prof. Chris Greenhalgh.
chris.greenhalgh@nottingham.ac.uk

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Basecamp

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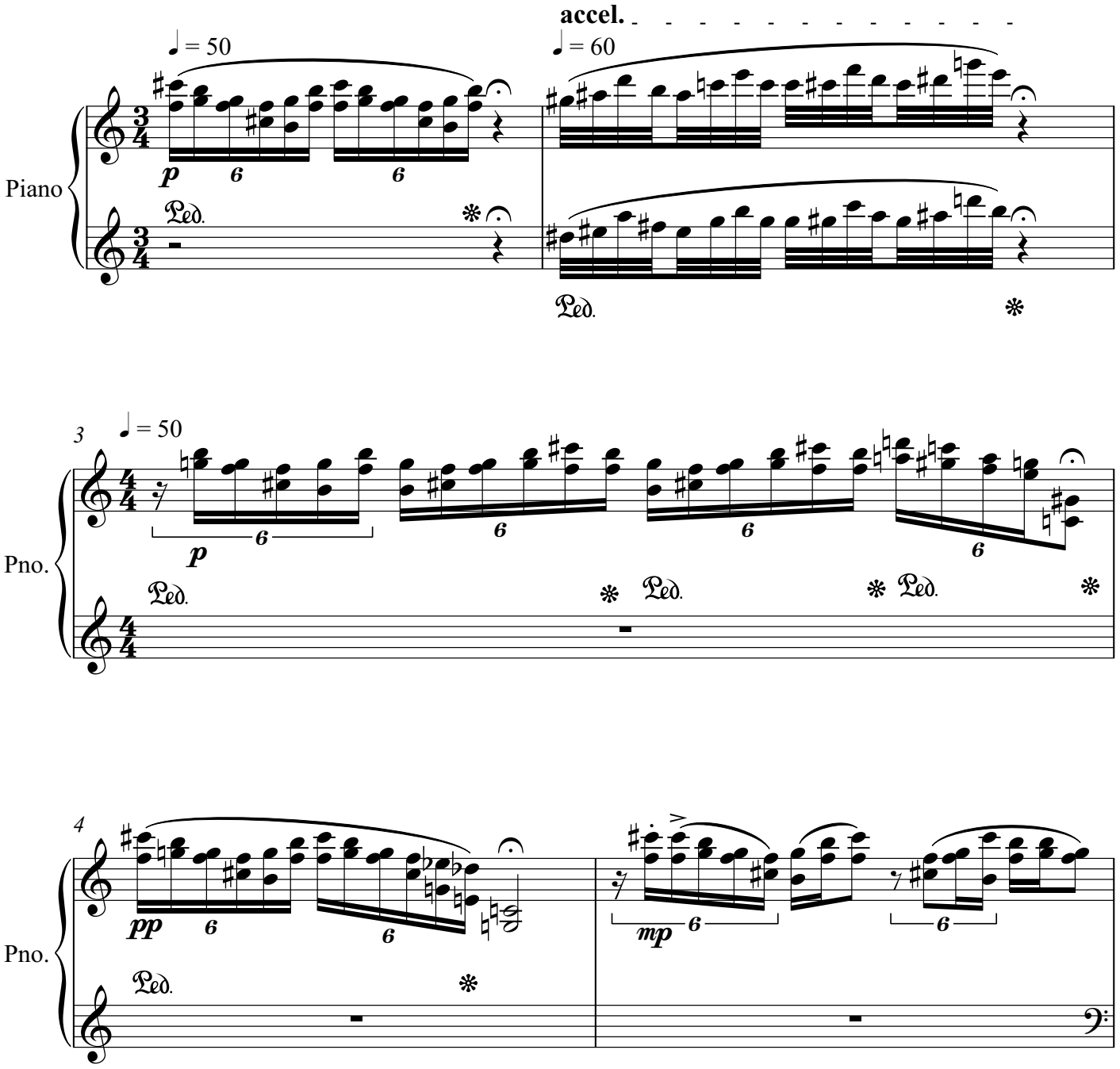

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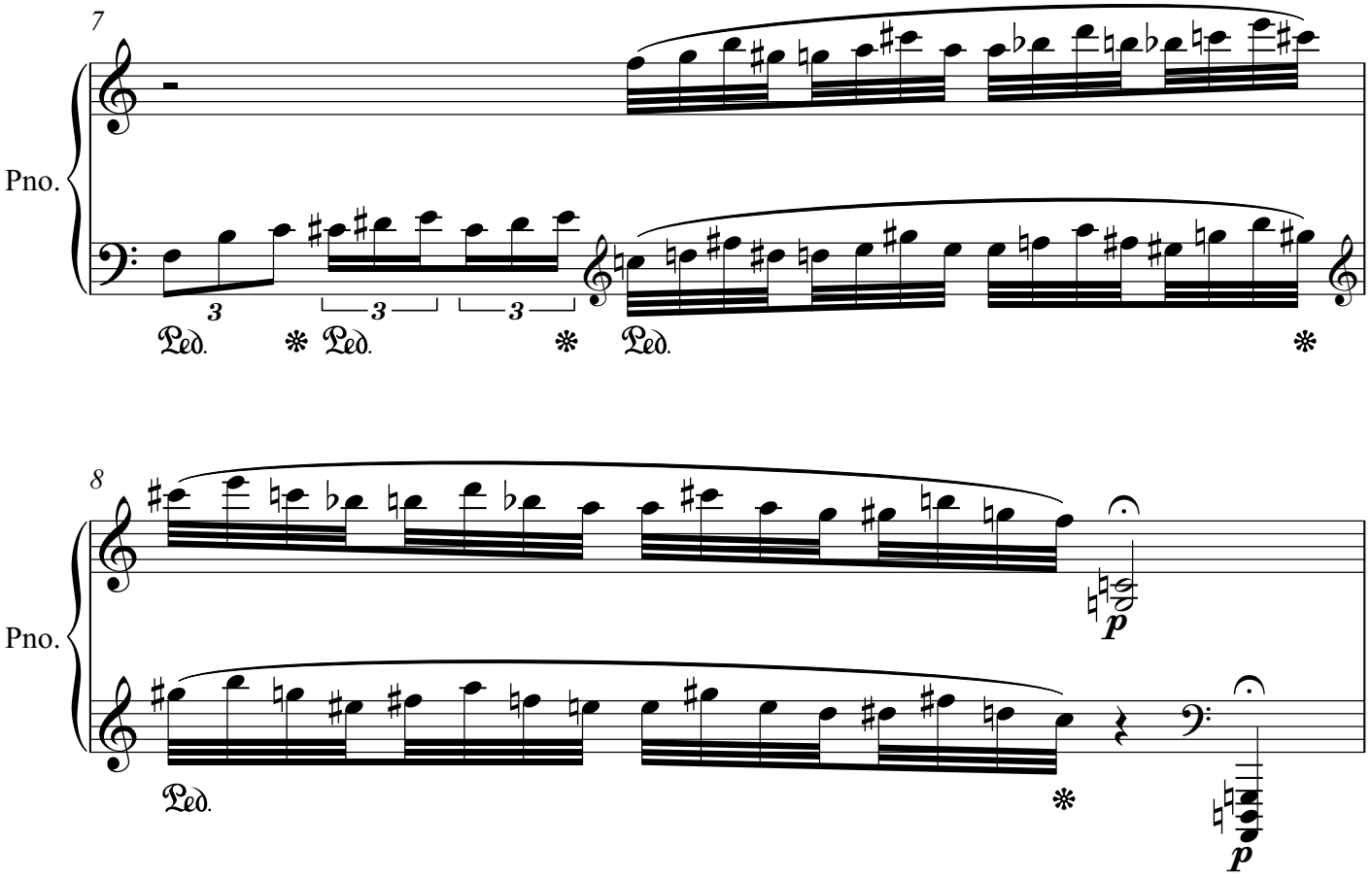

Choose one of the three endings.

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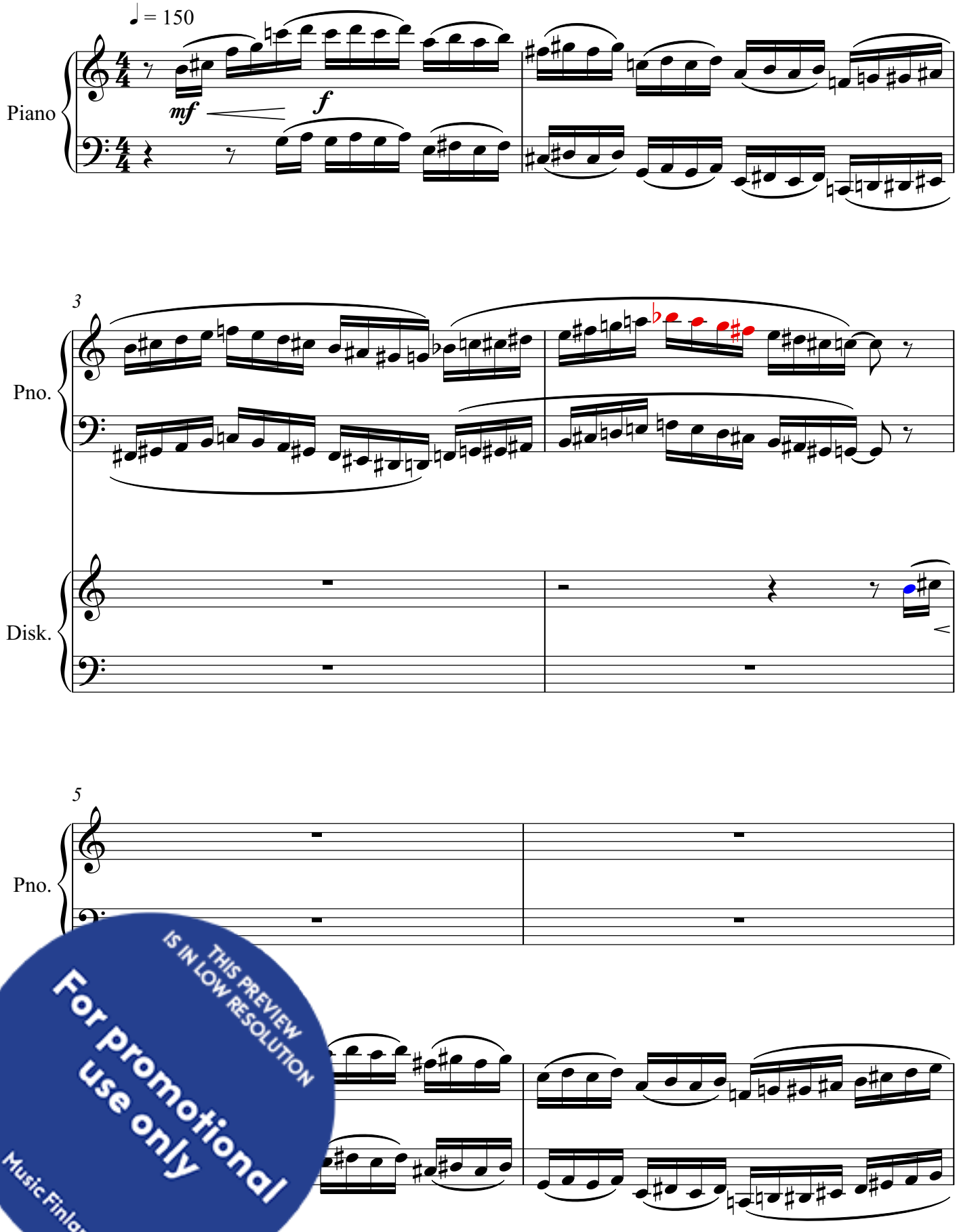
The Angry Deer (1a)



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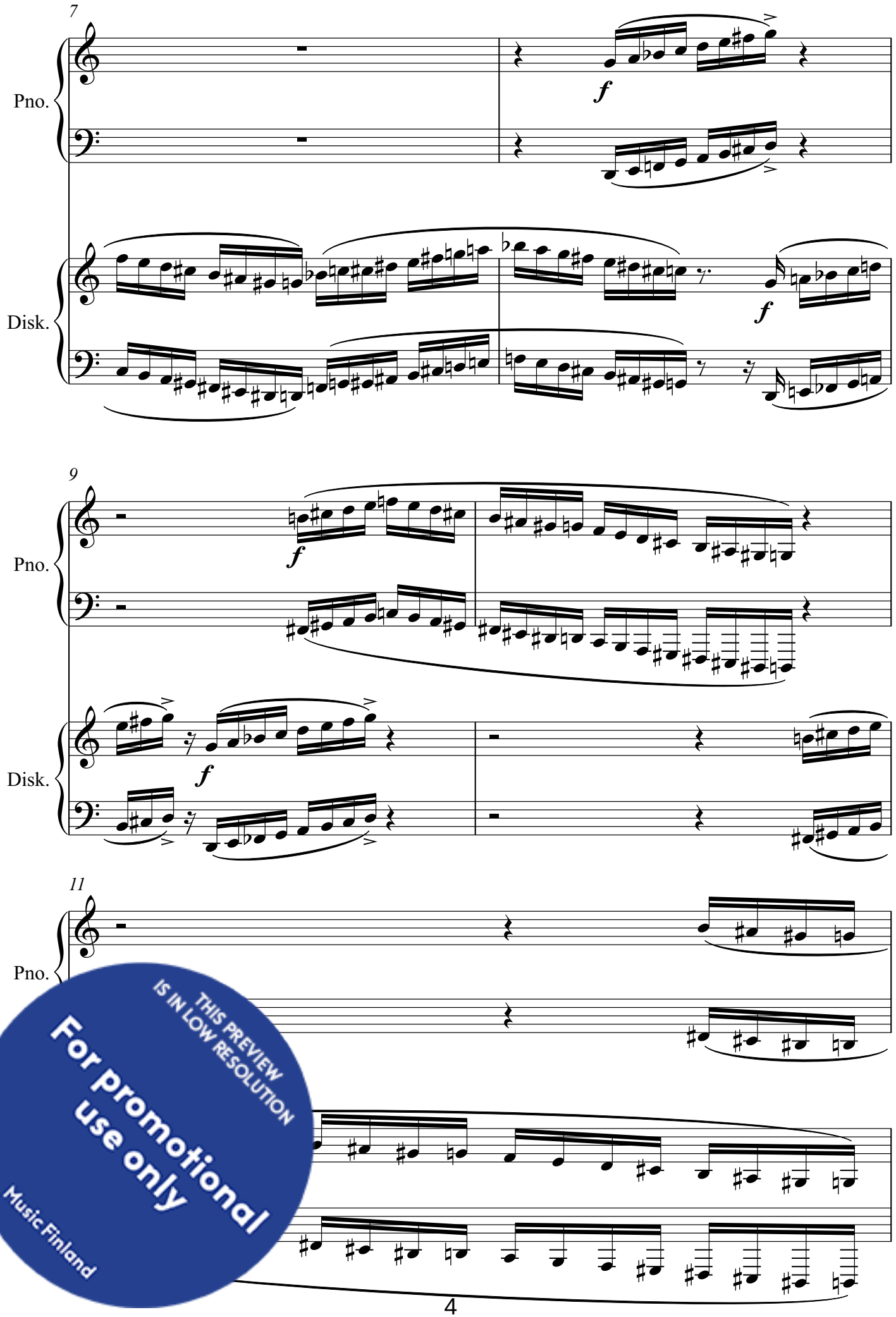

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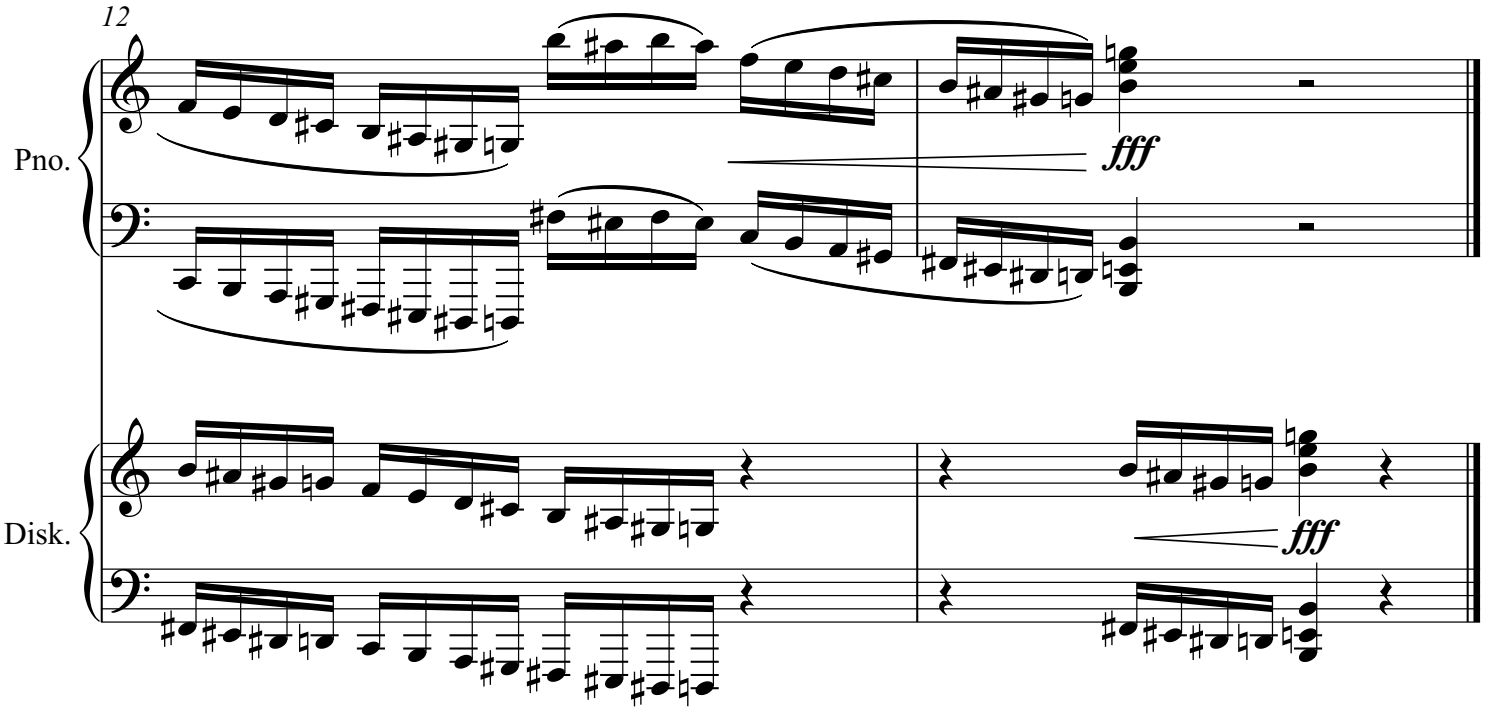

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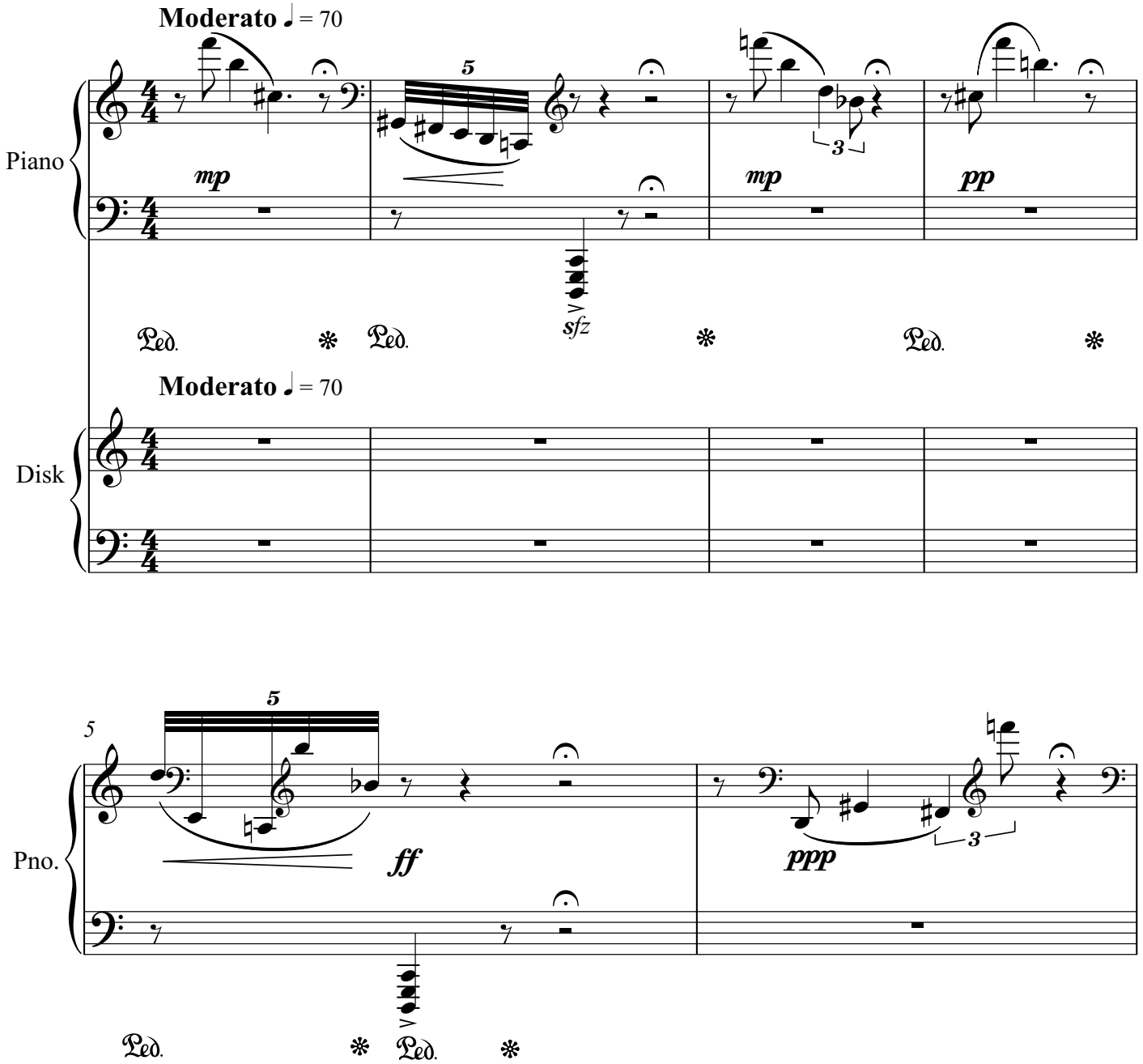
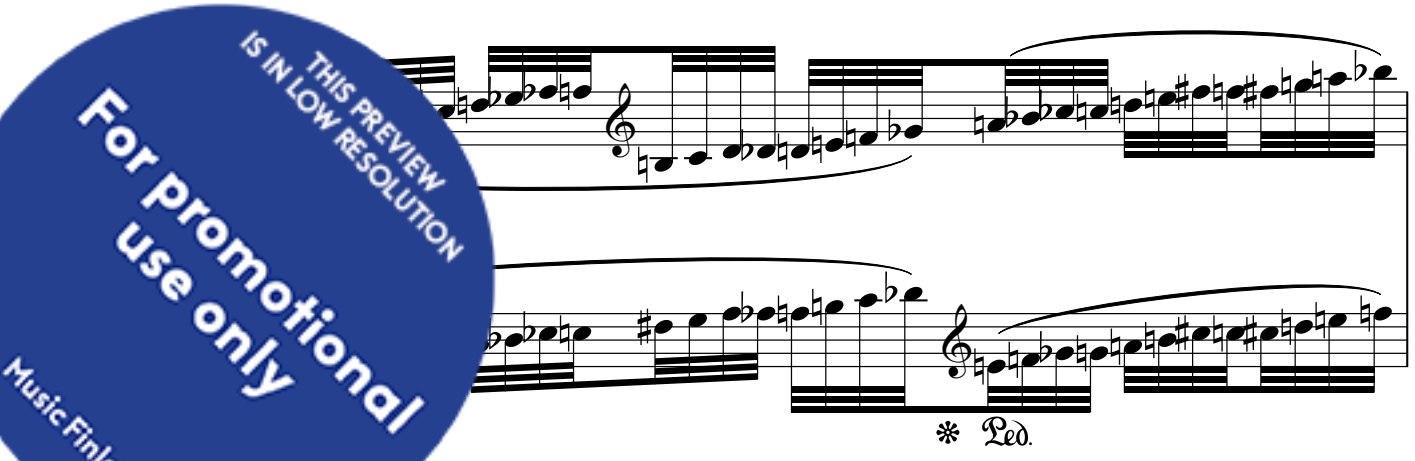
Path 1a





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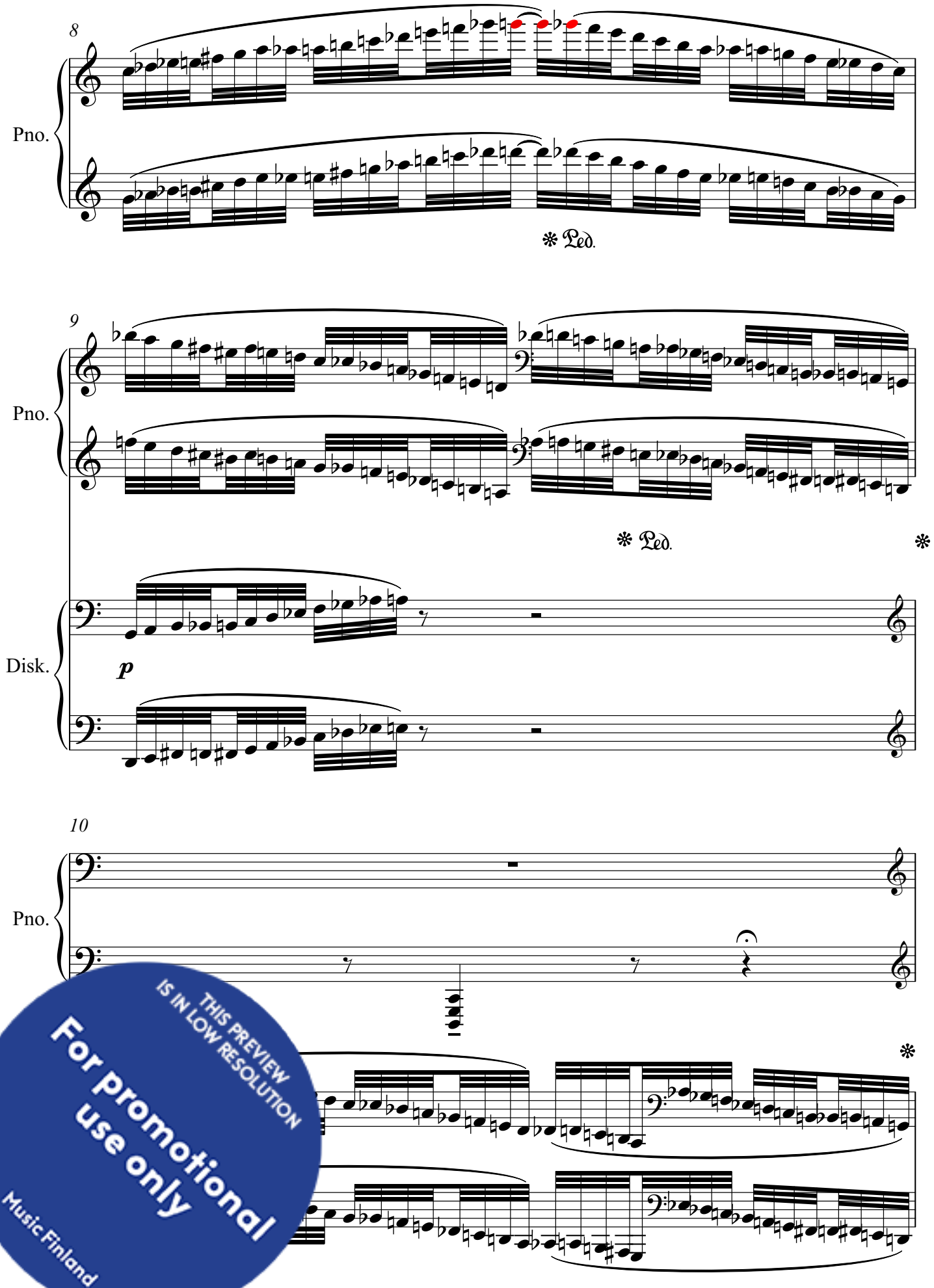

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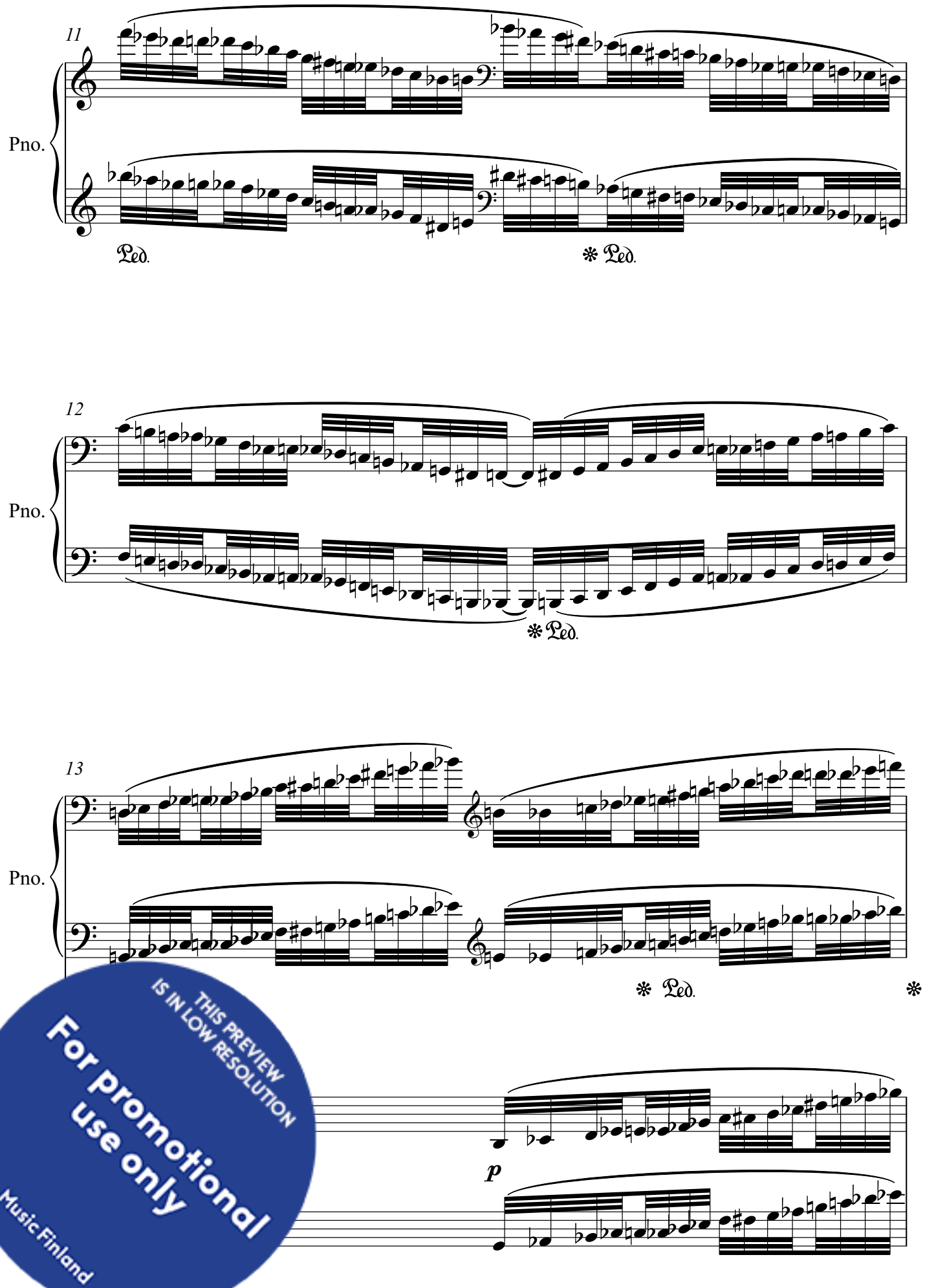

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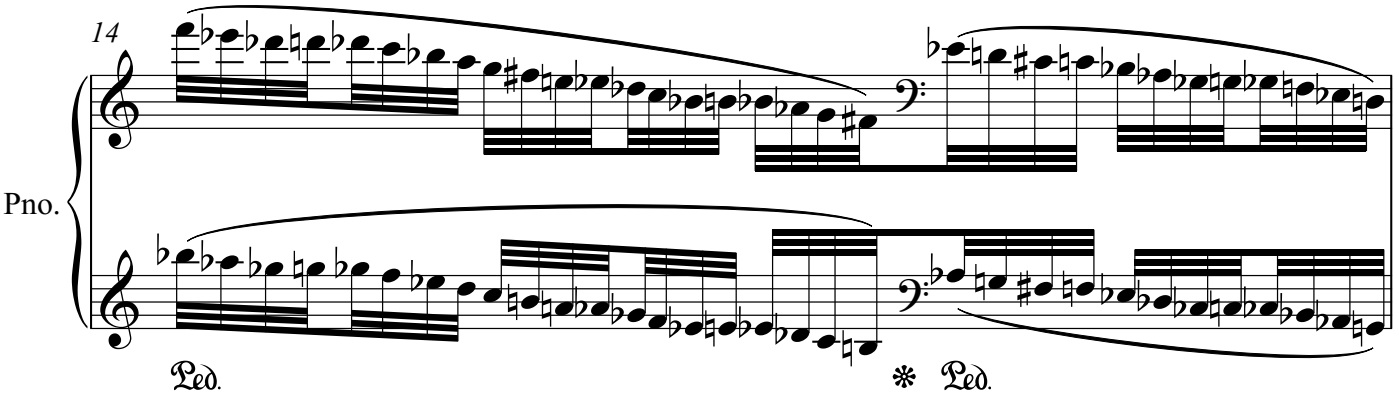

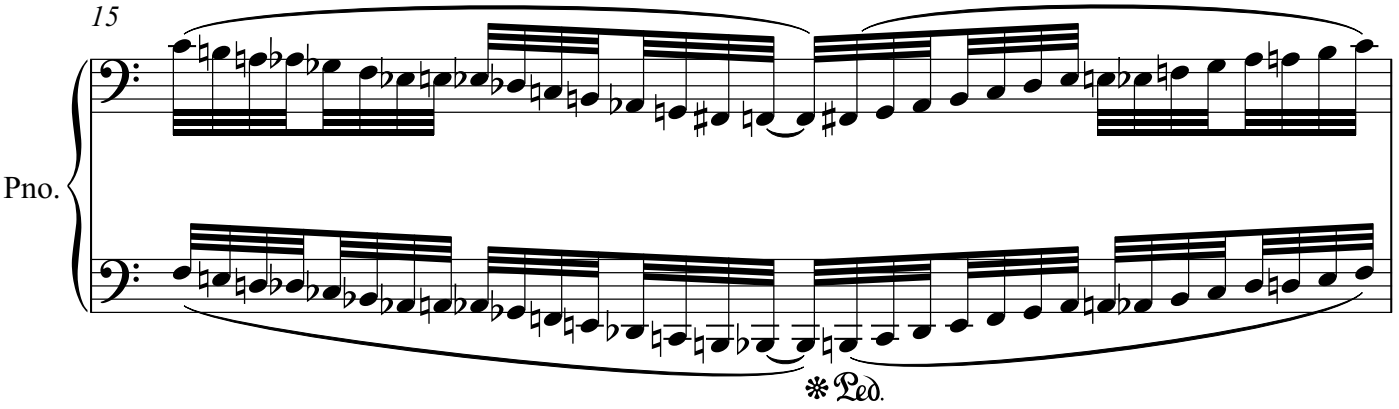

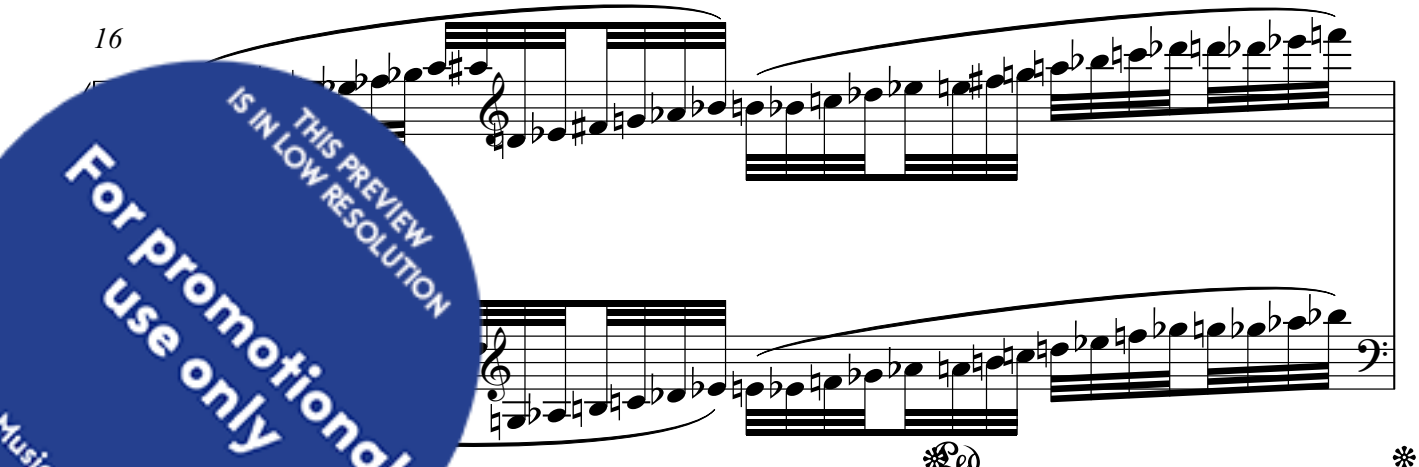

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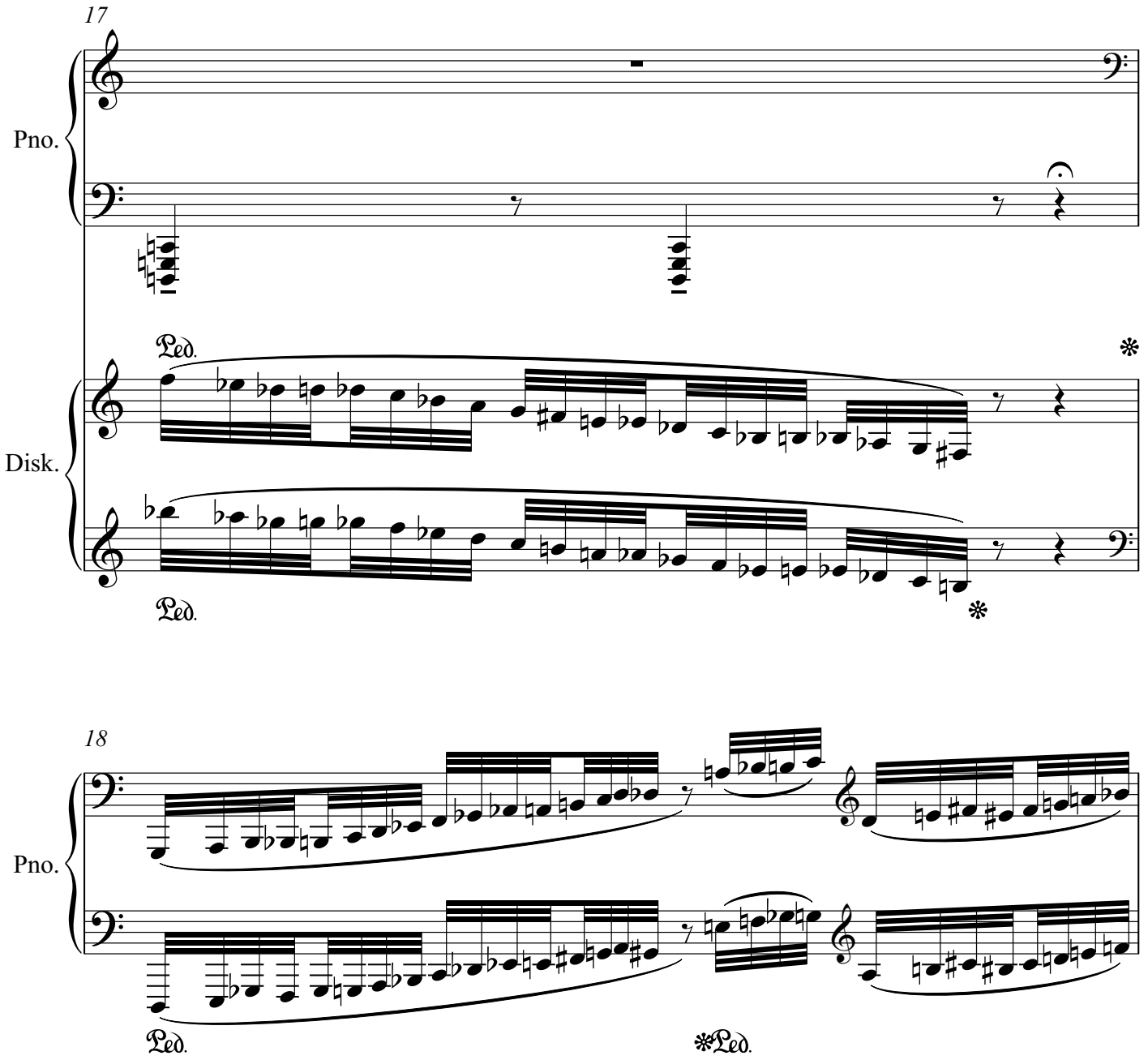

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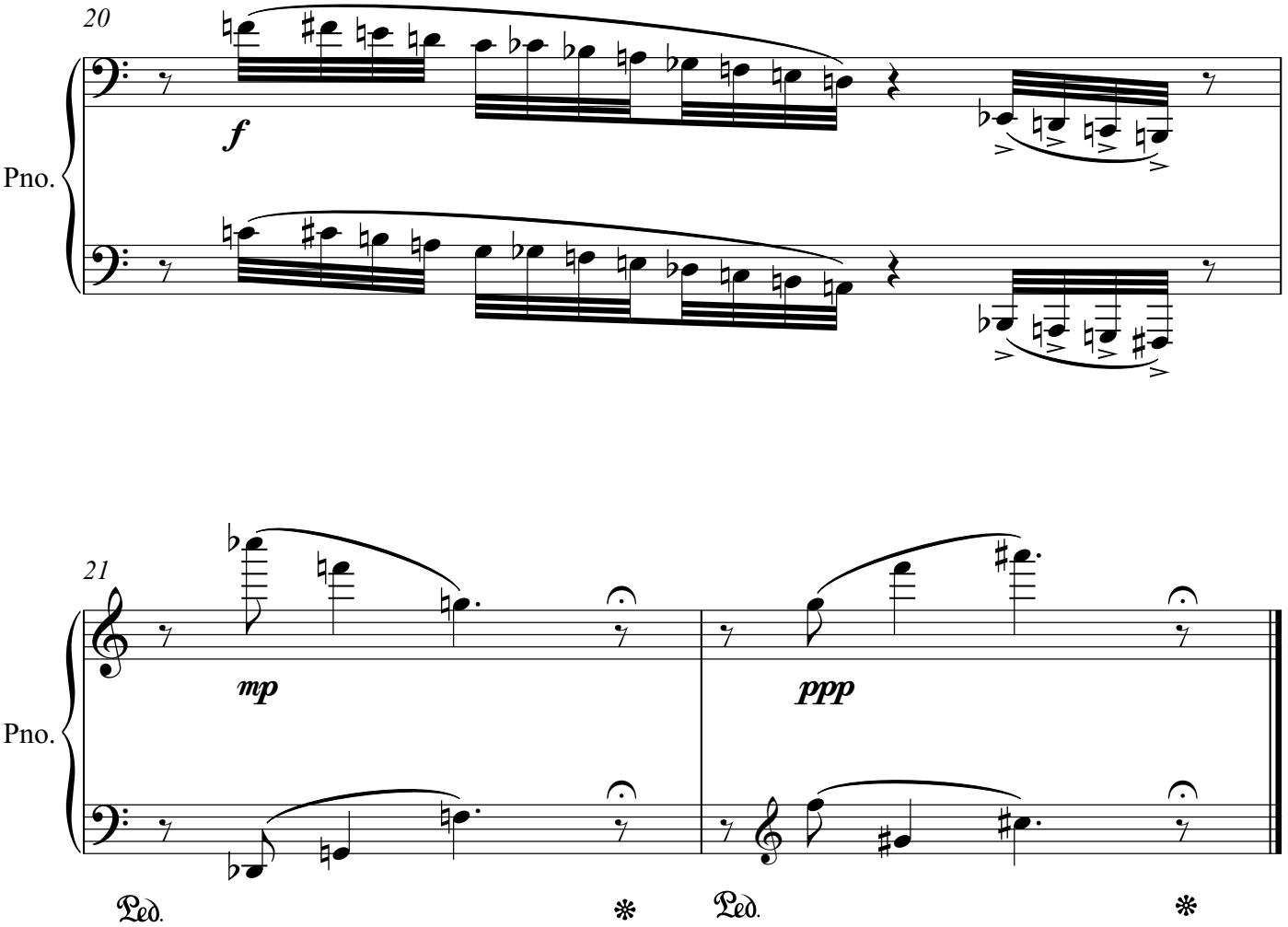

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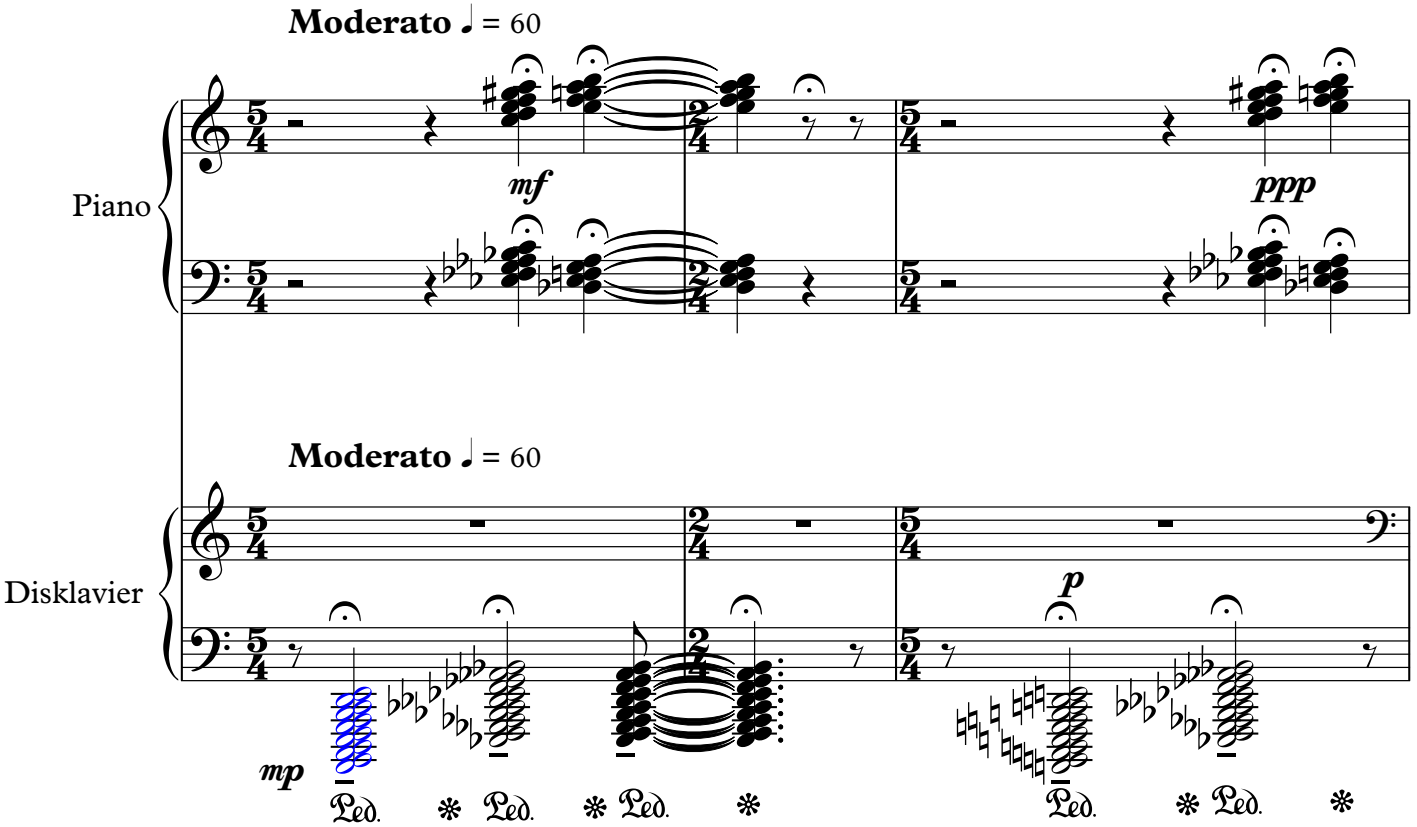
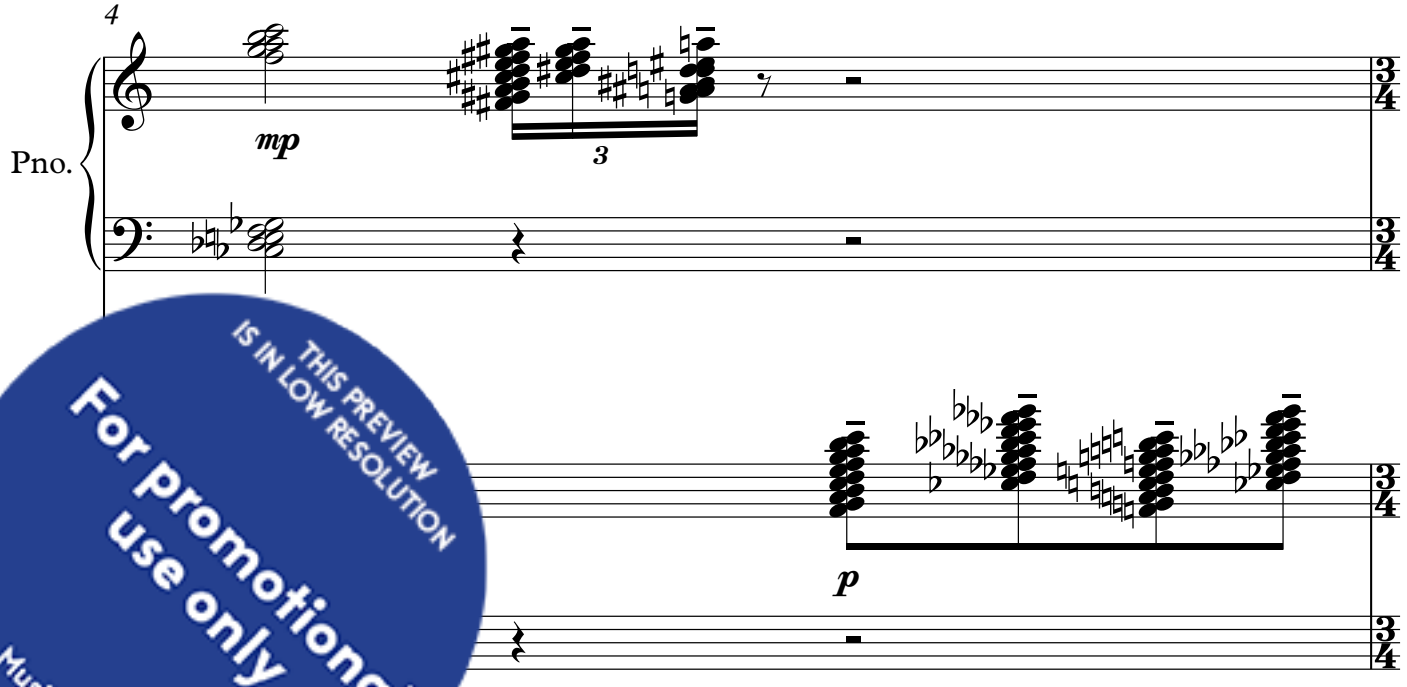
A Flooded Path (2a)





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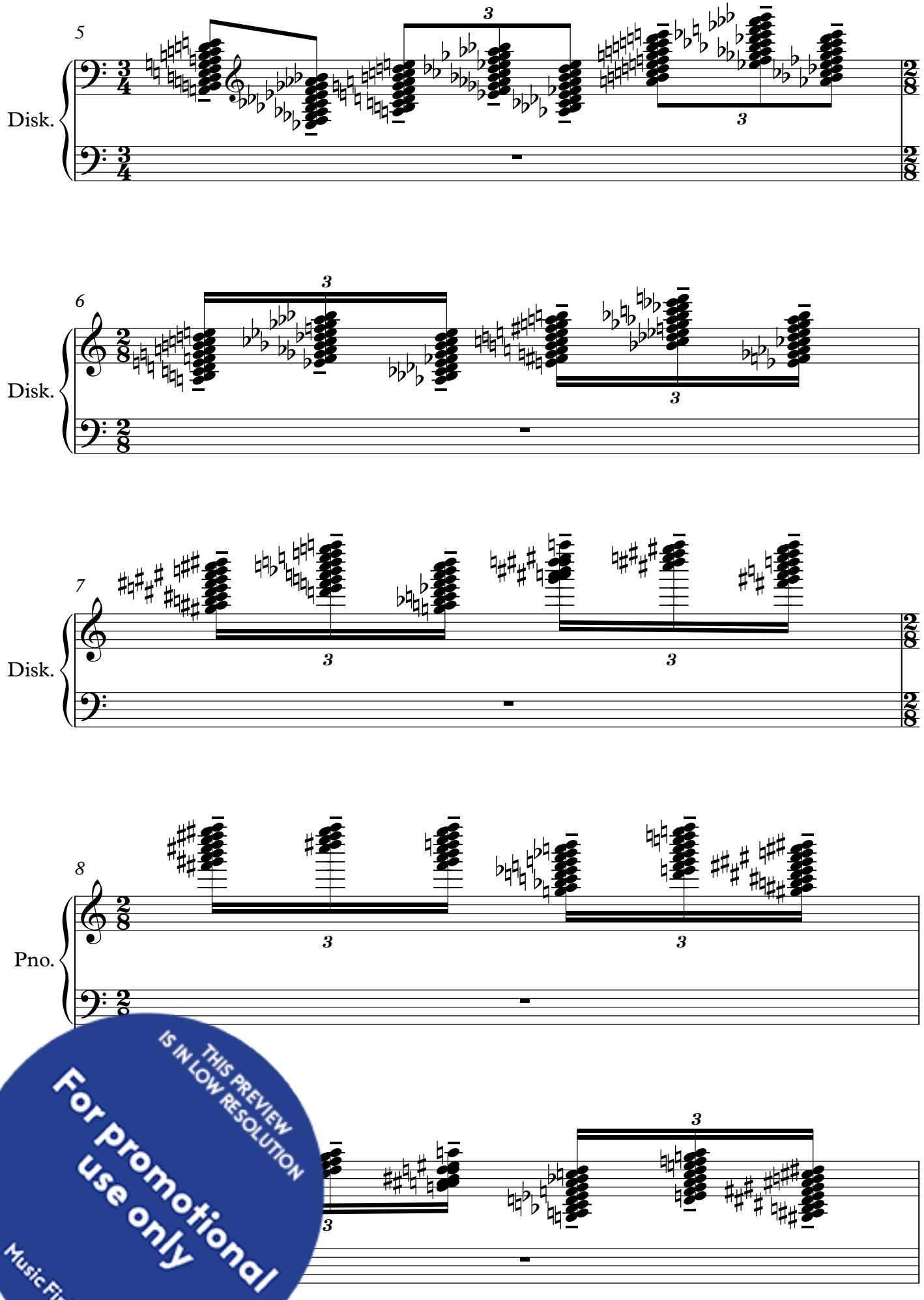

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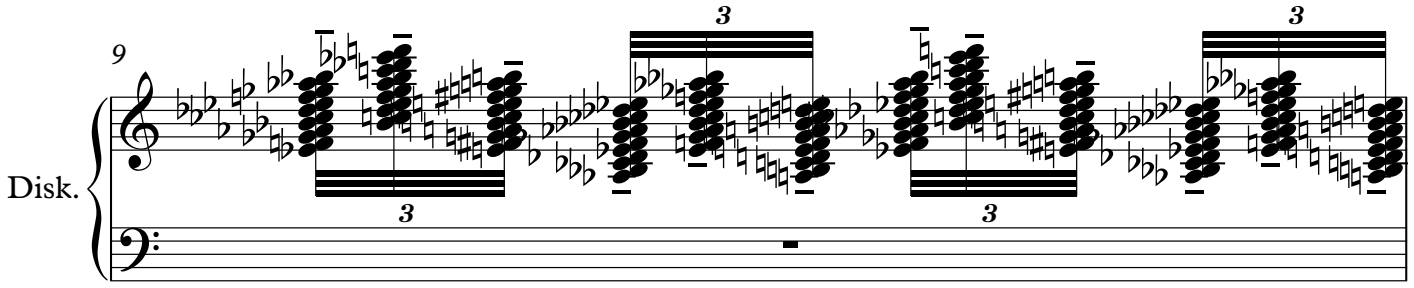

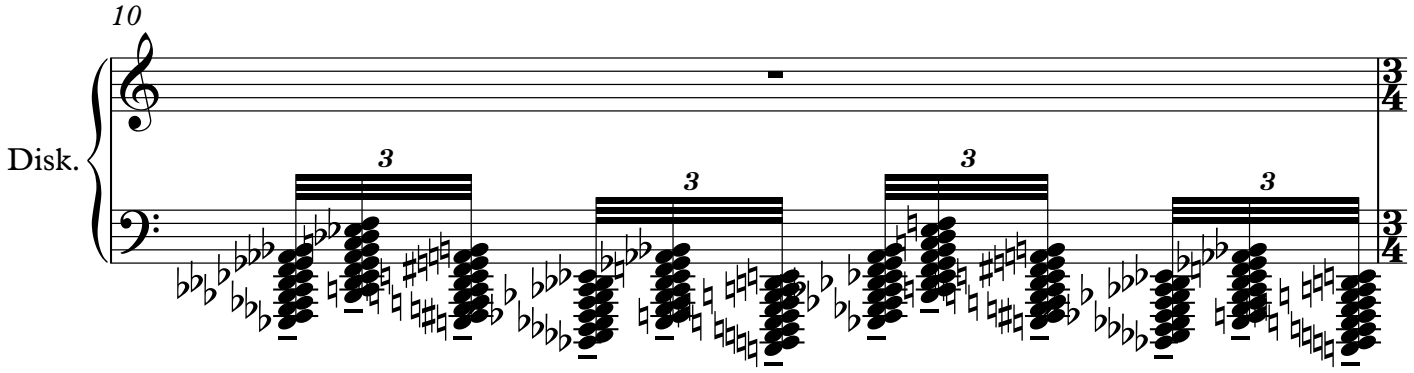

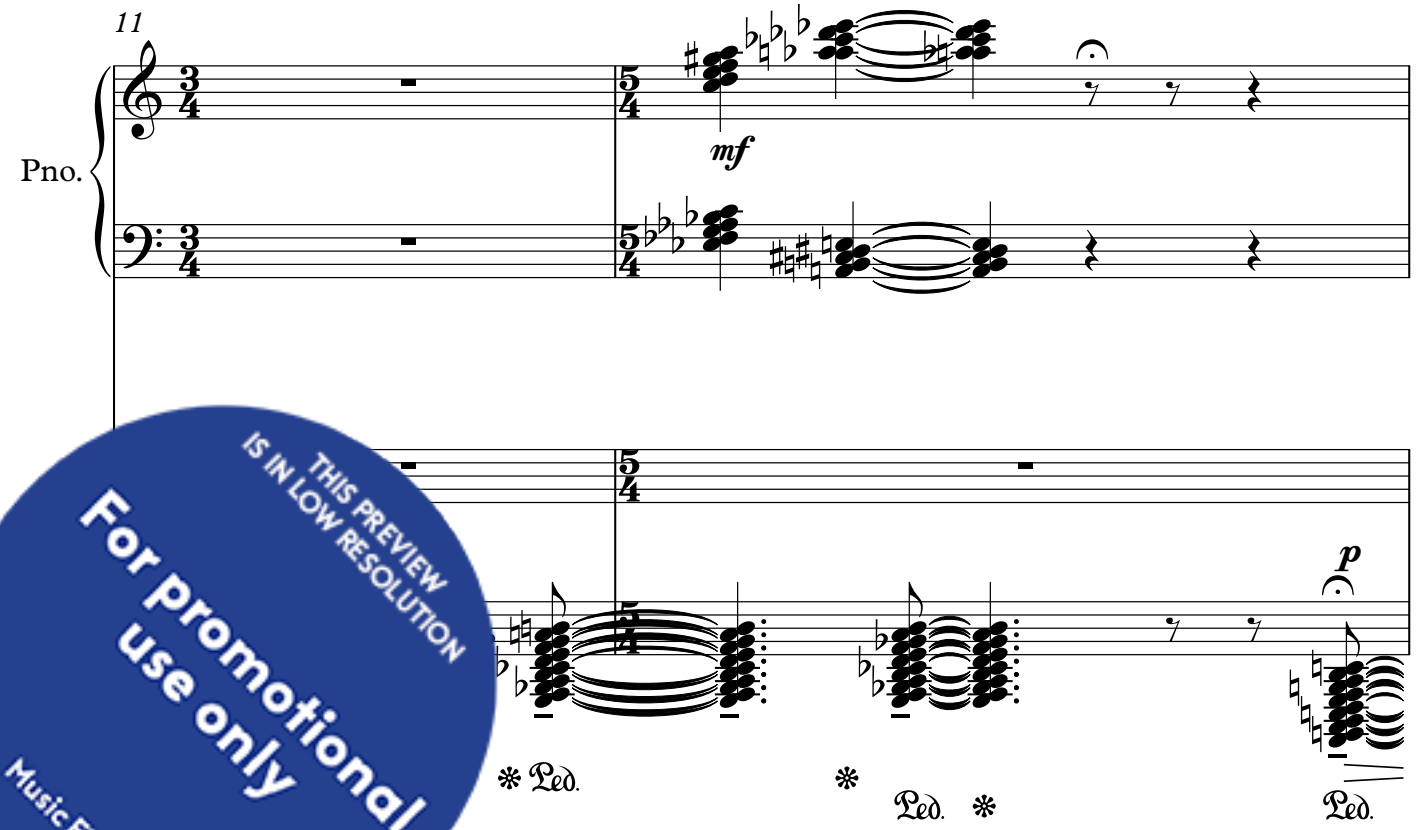

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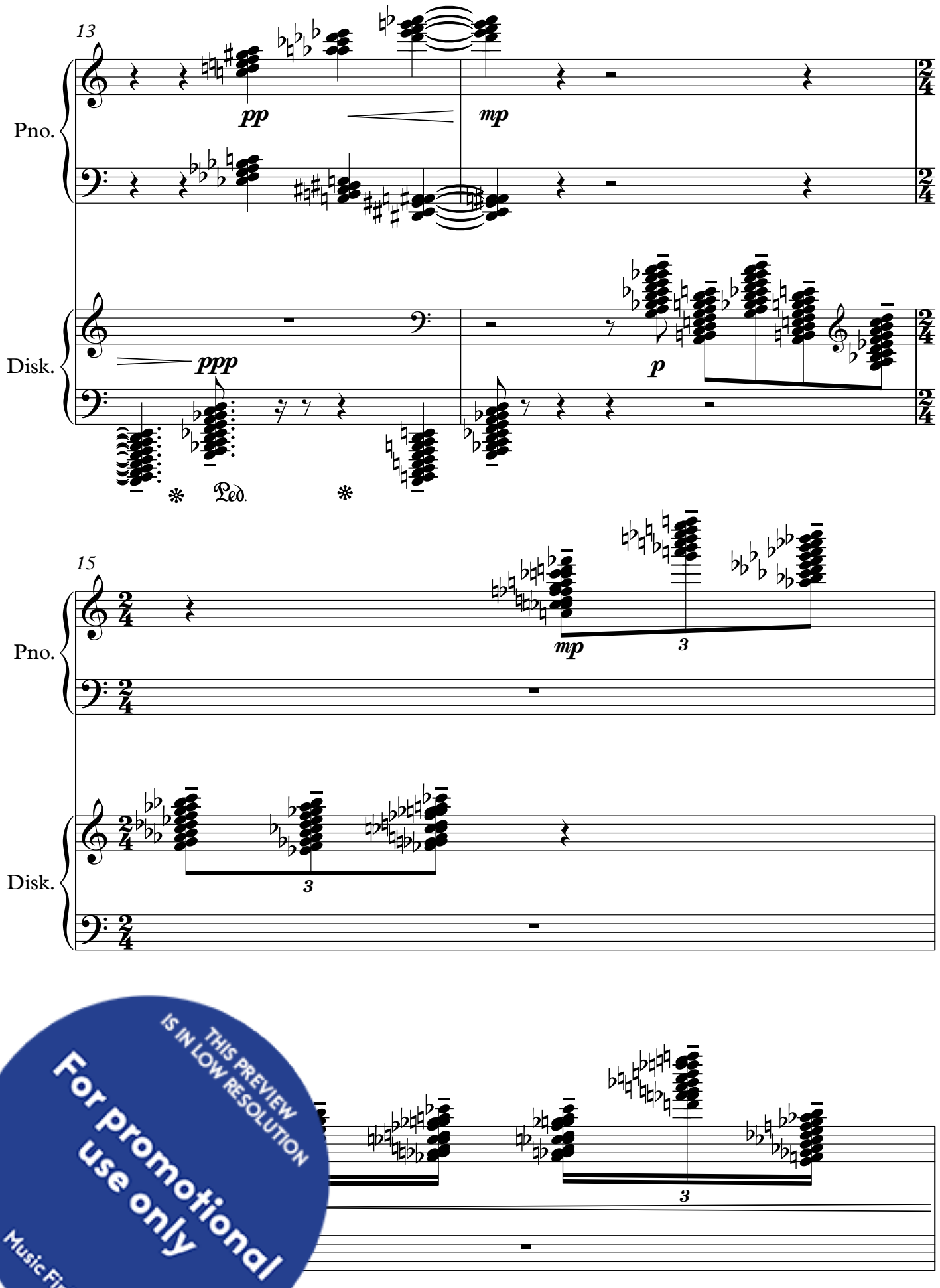

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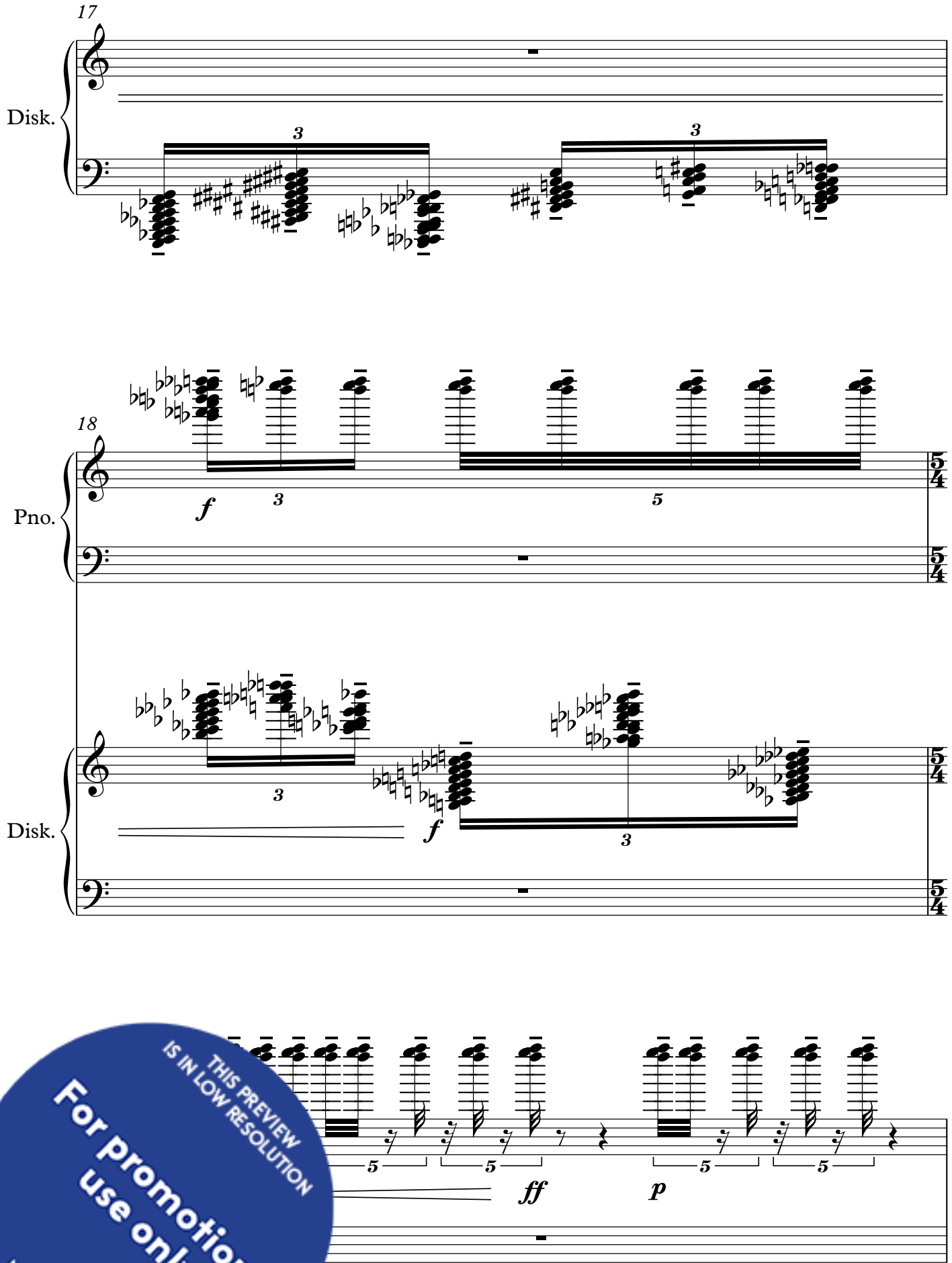

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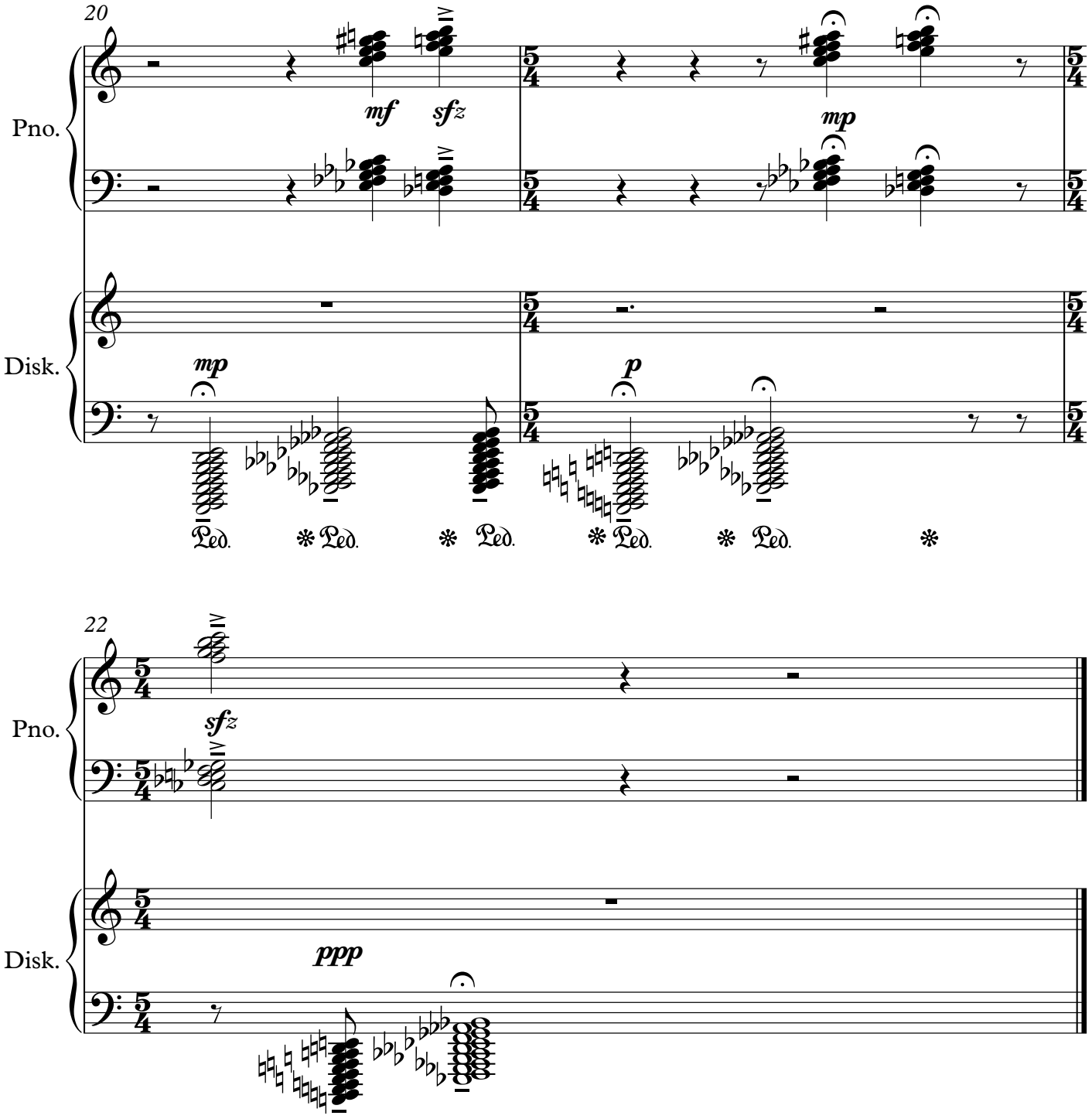

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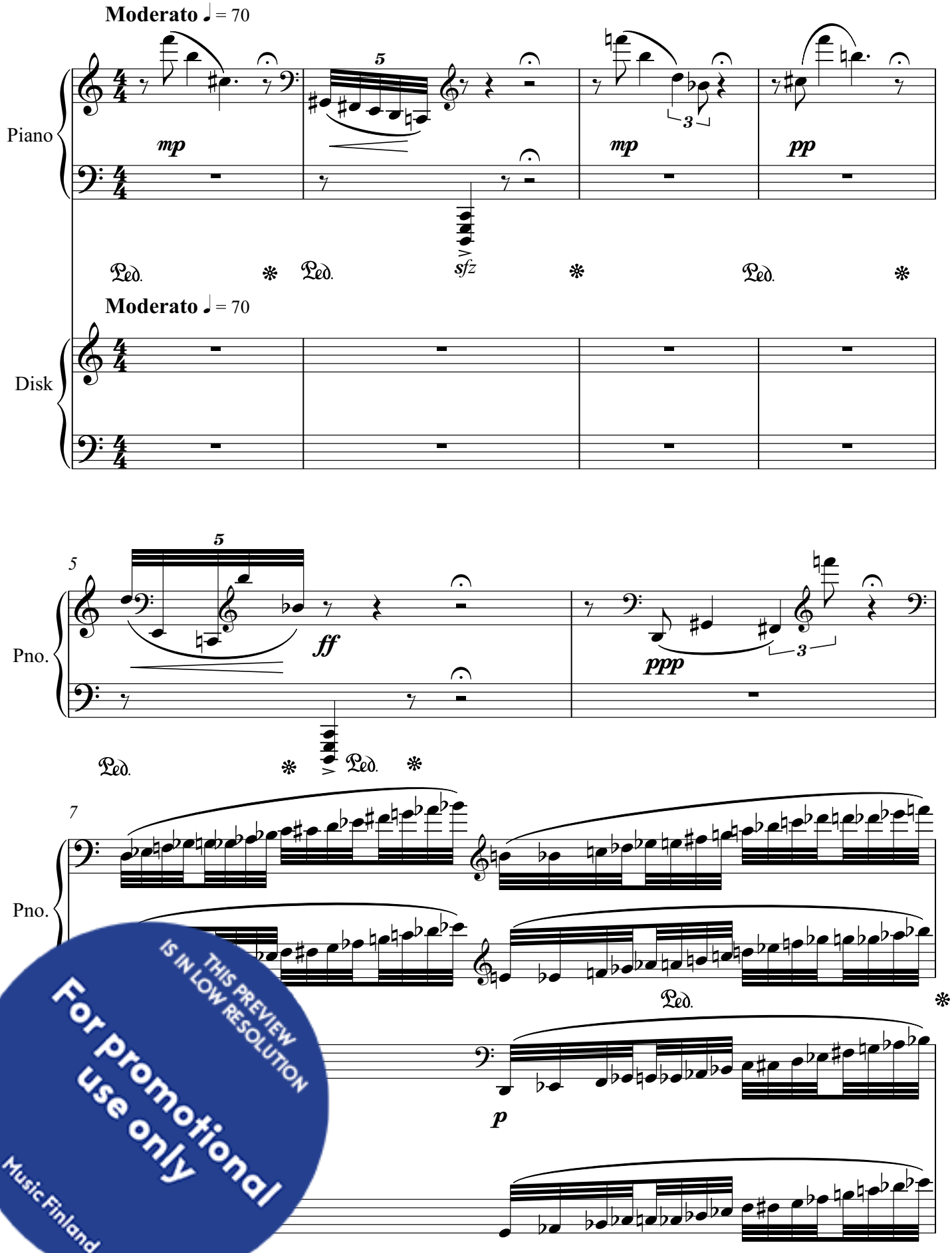
Path 1b



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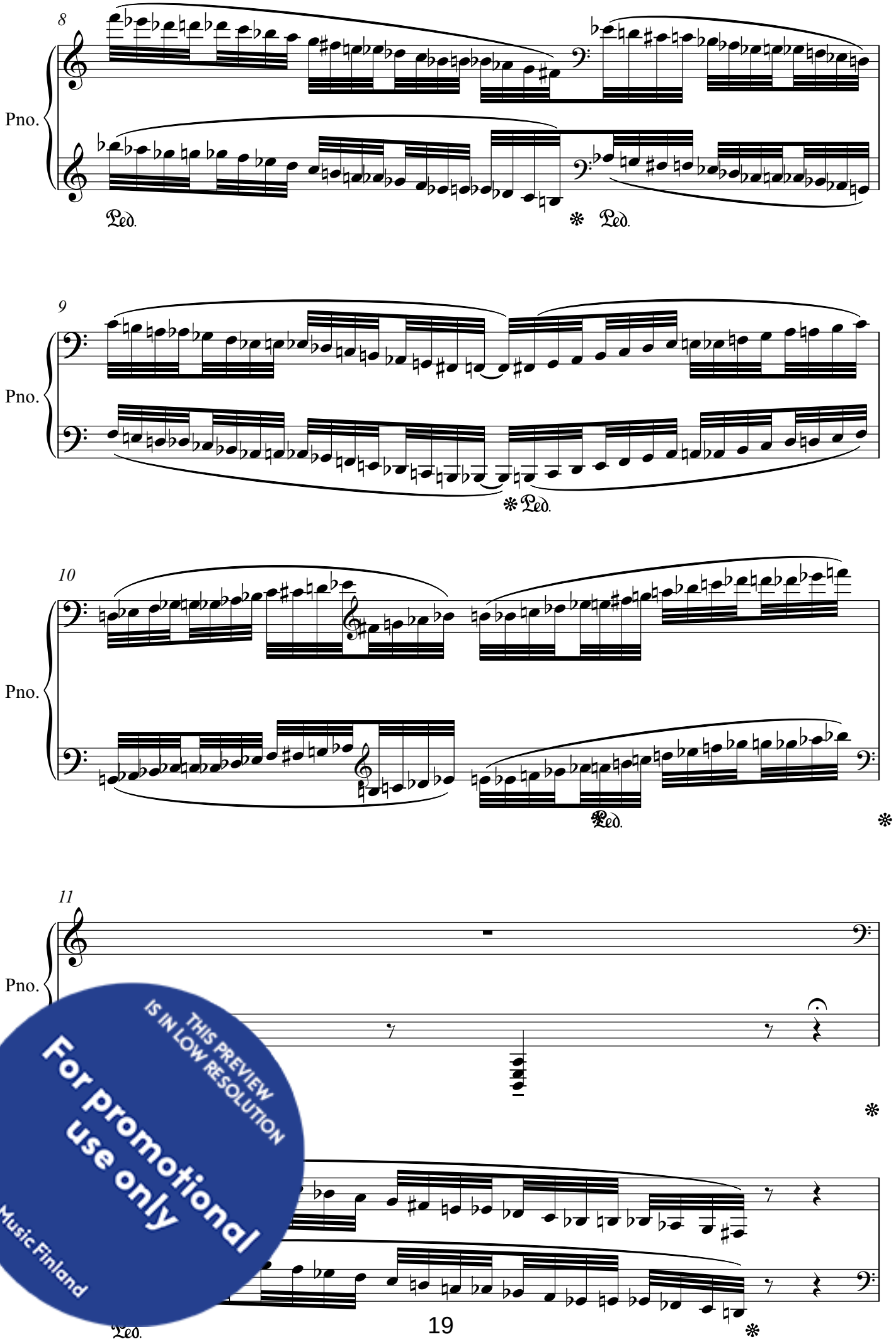

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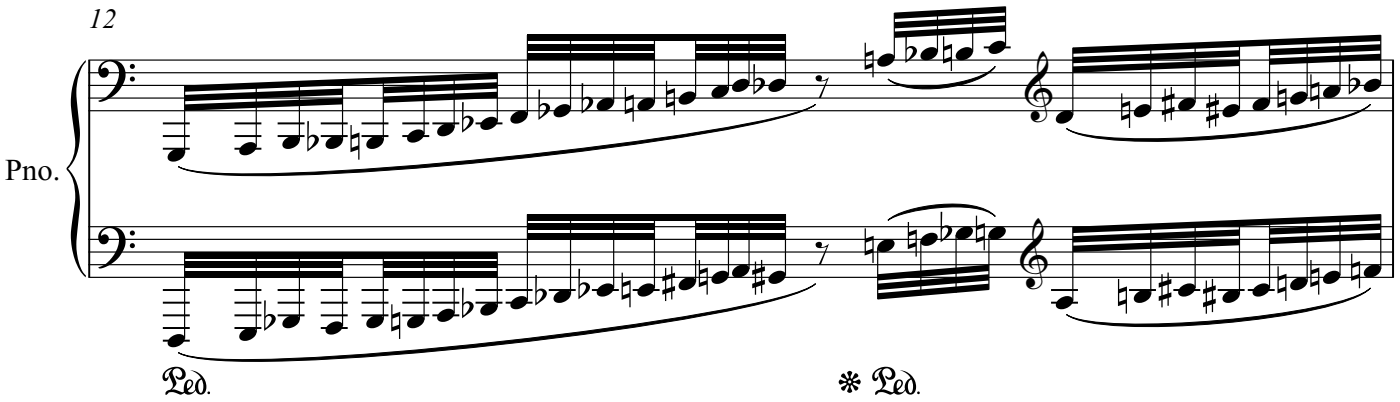

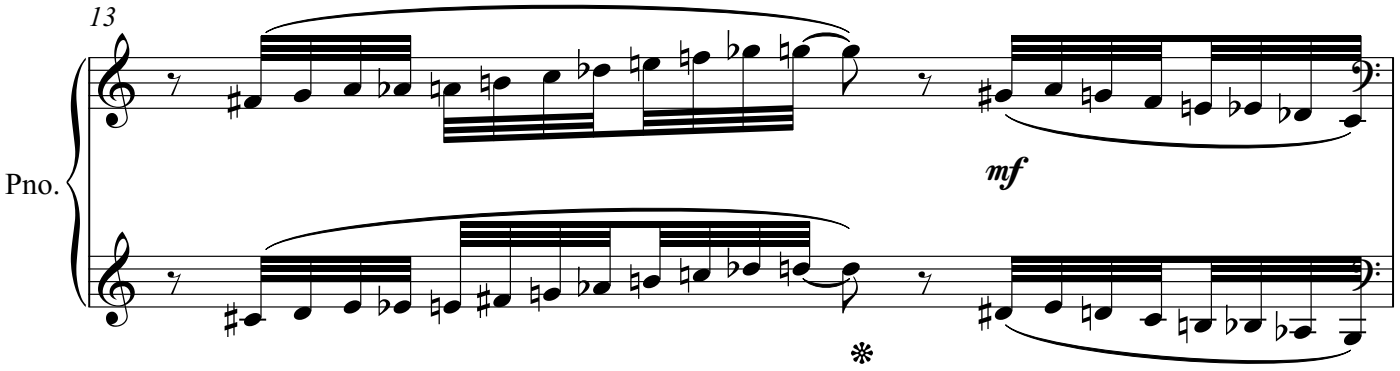

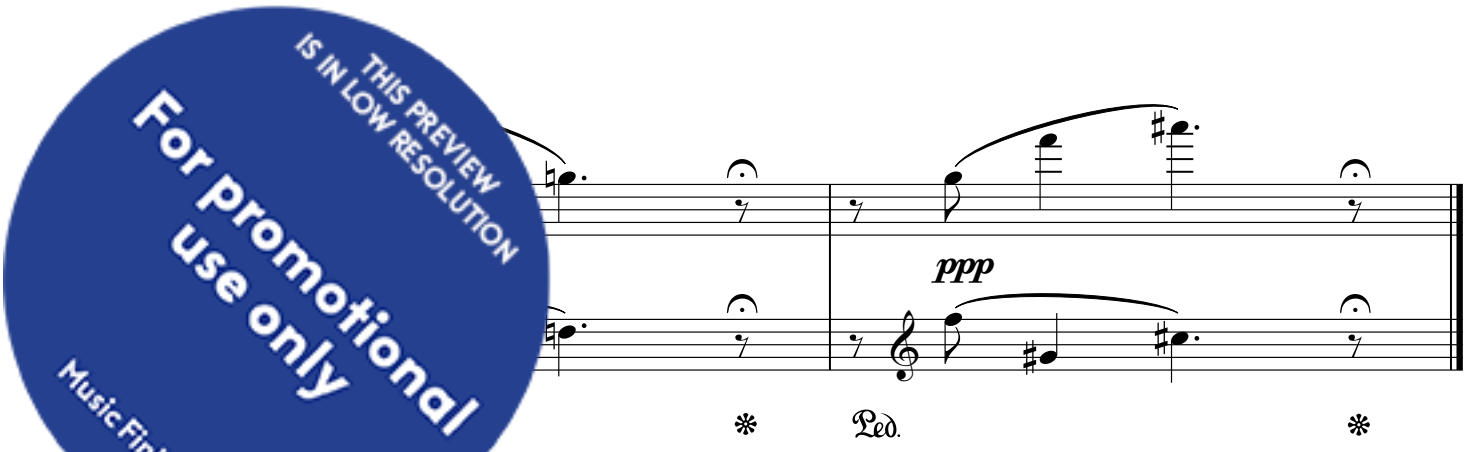

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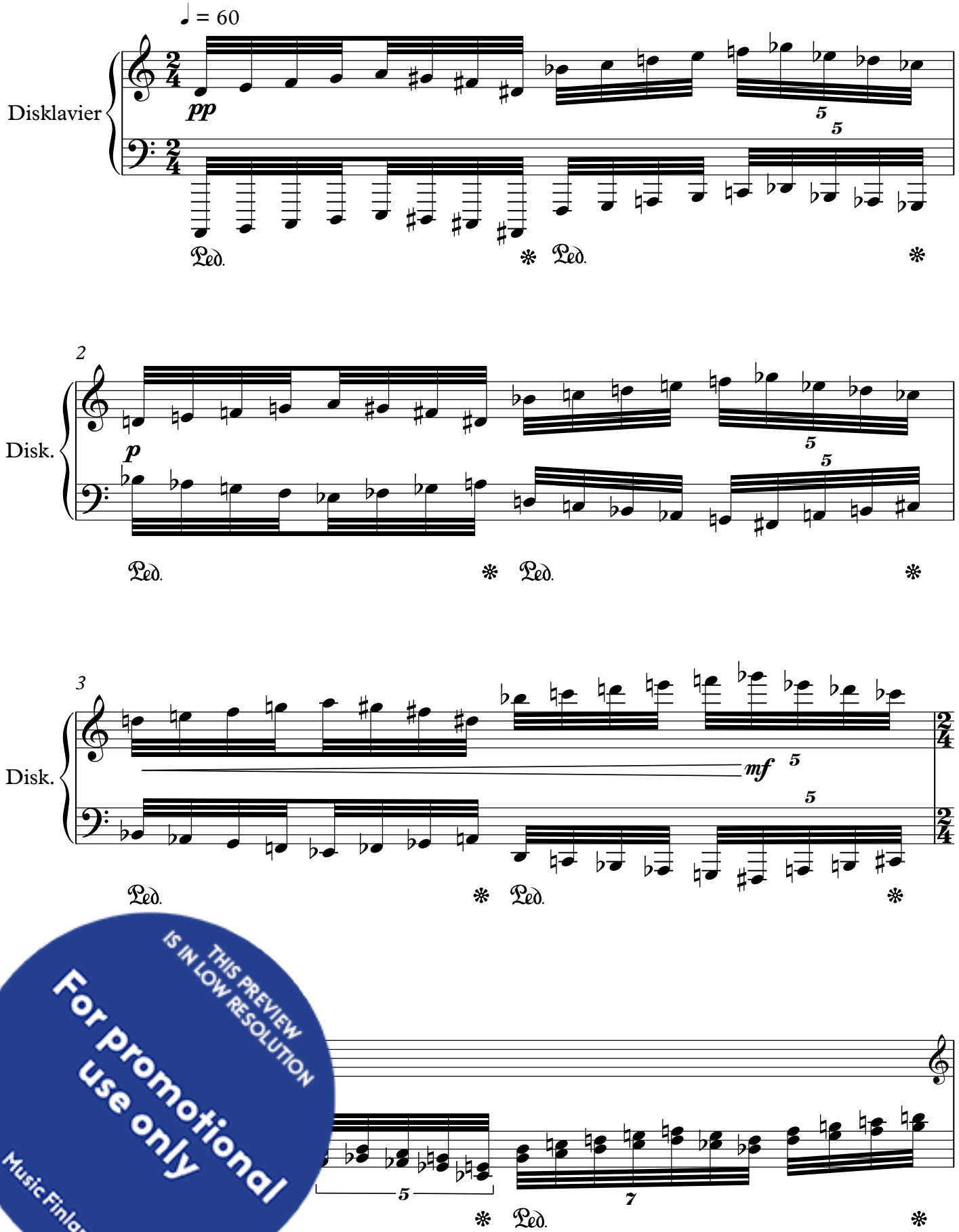
Avatar Finds a Shimmering Stone (3a)



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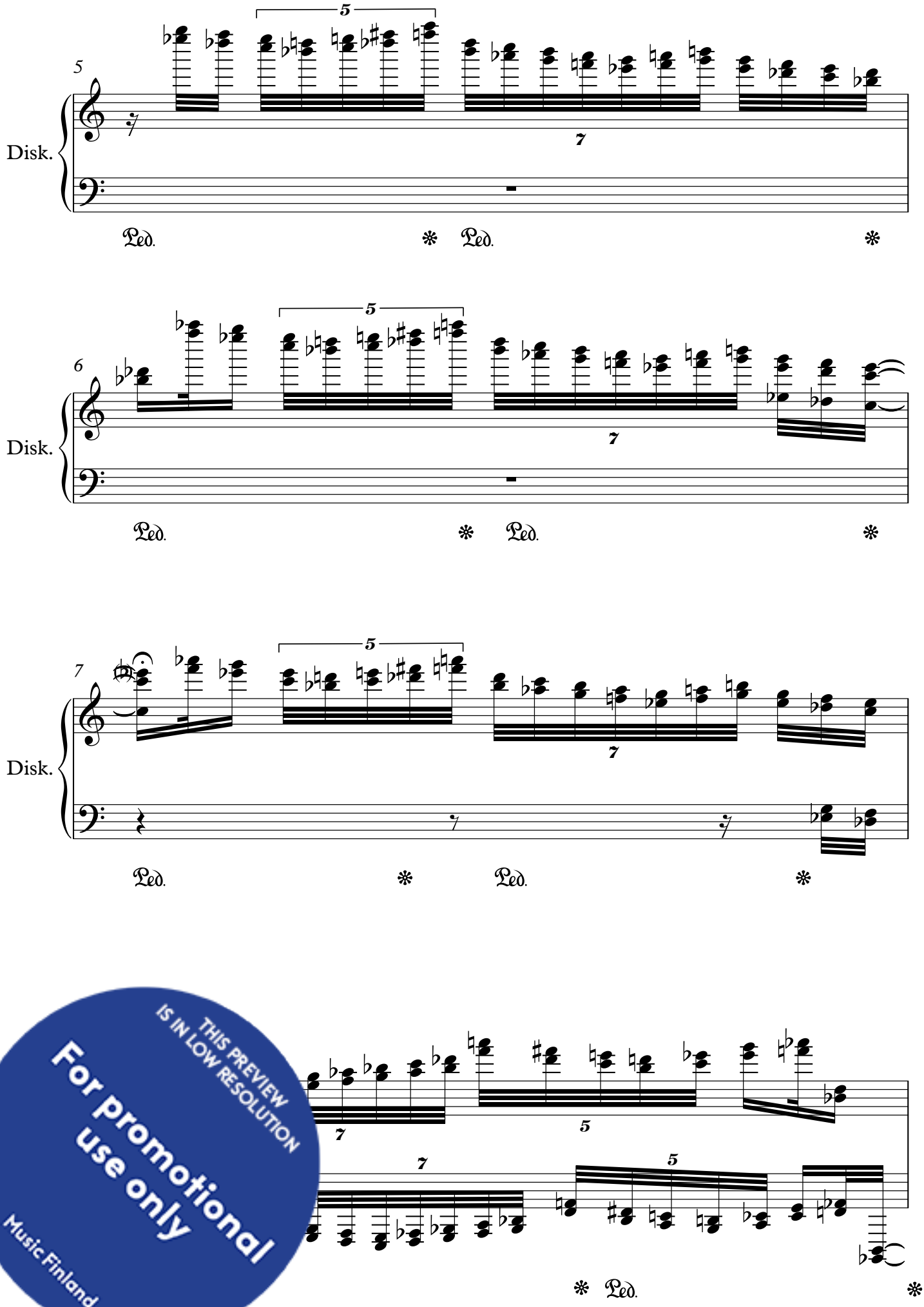

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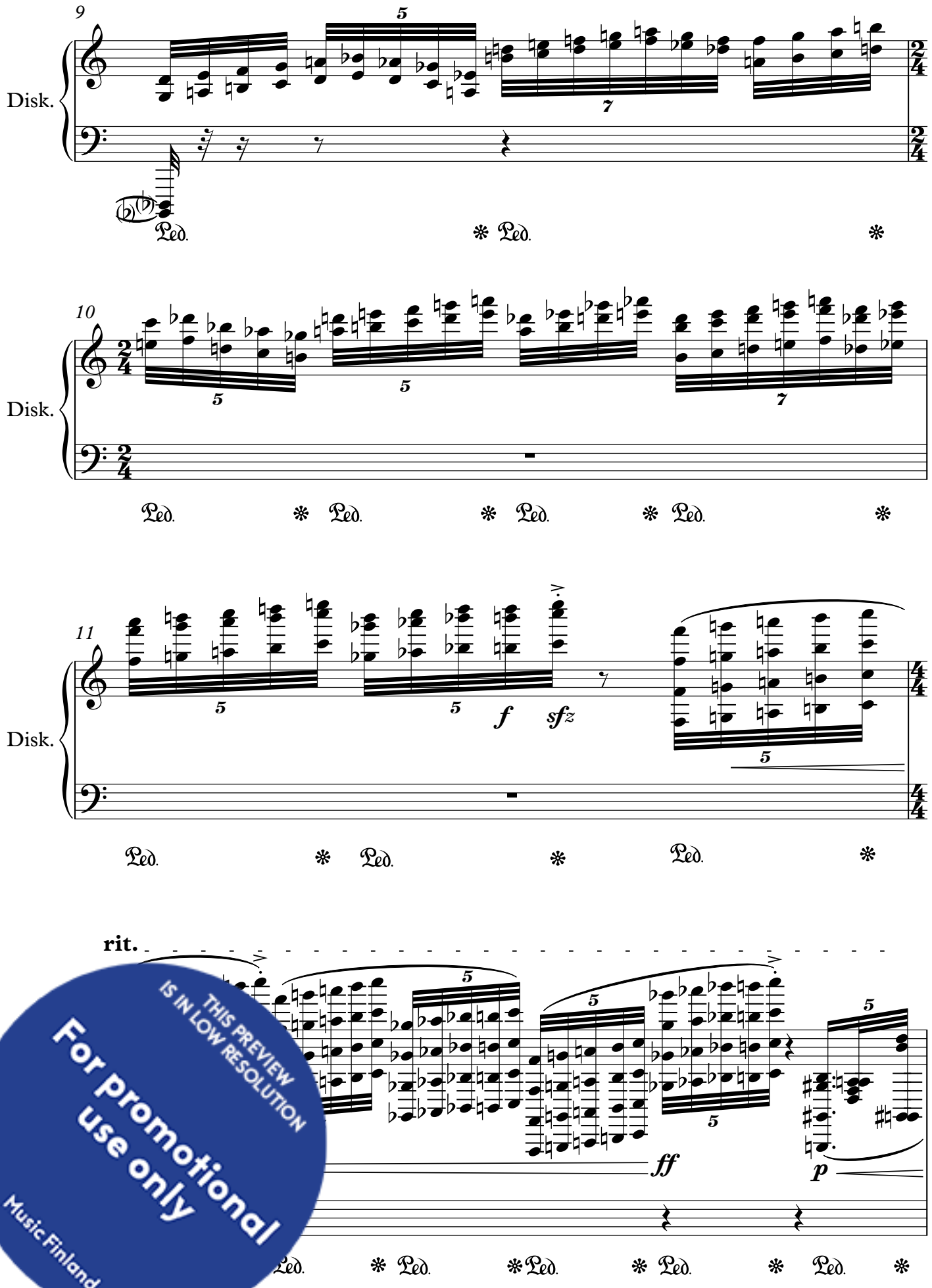

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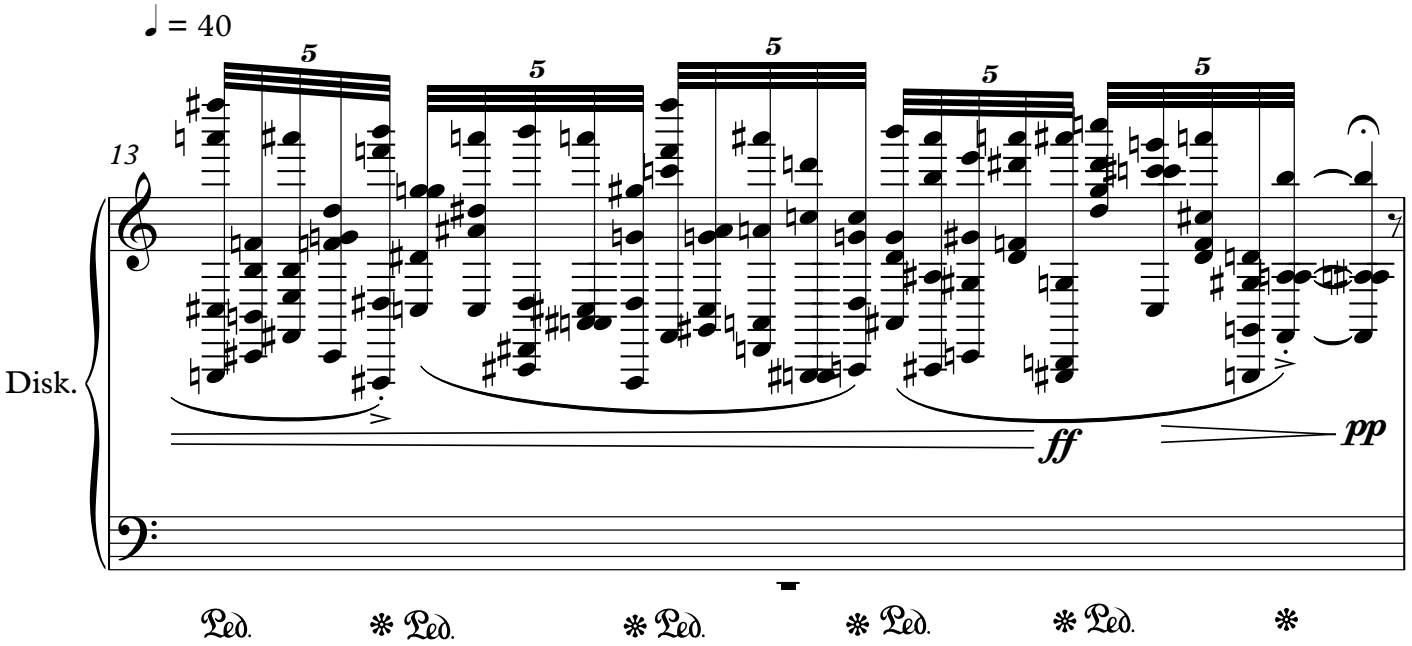

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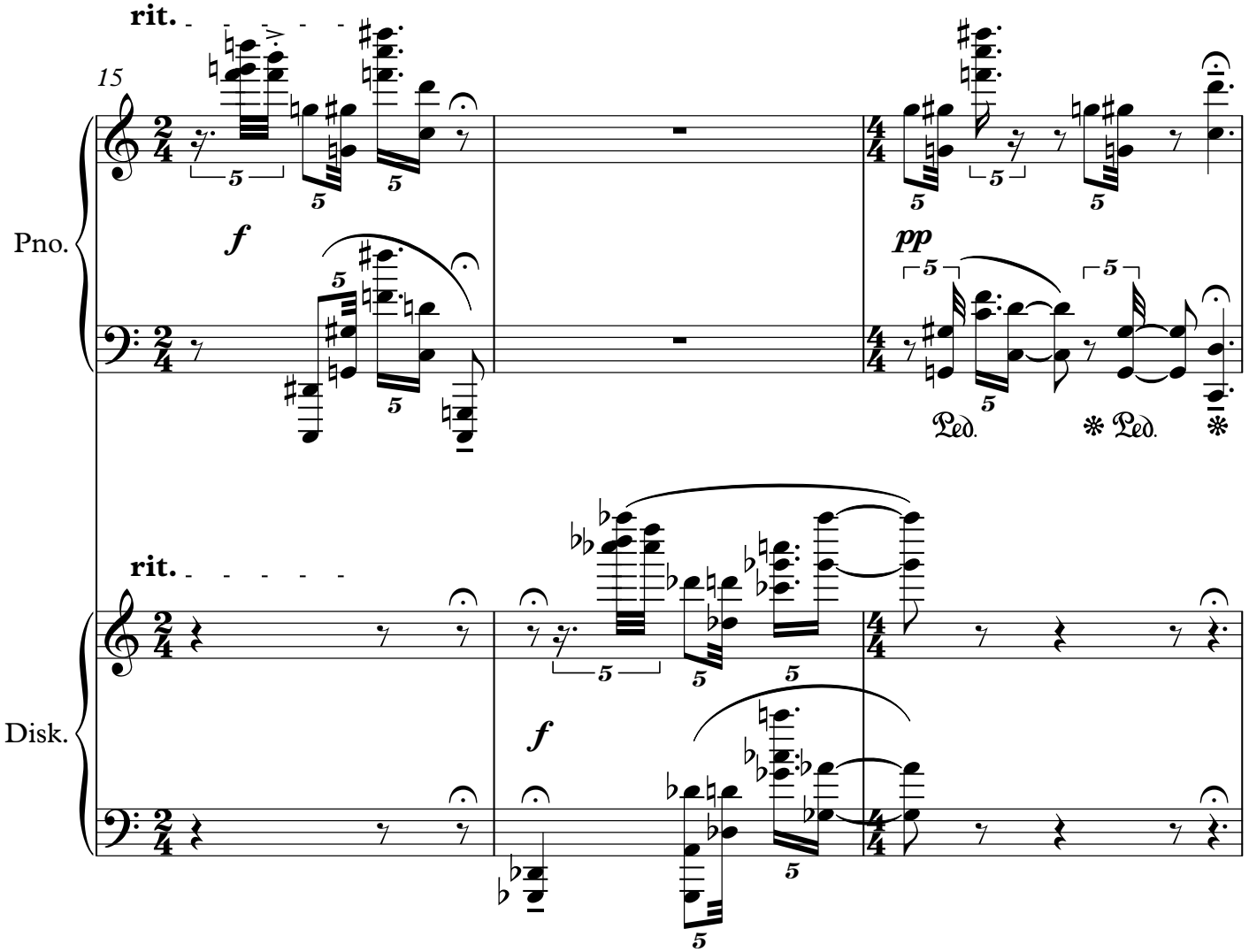

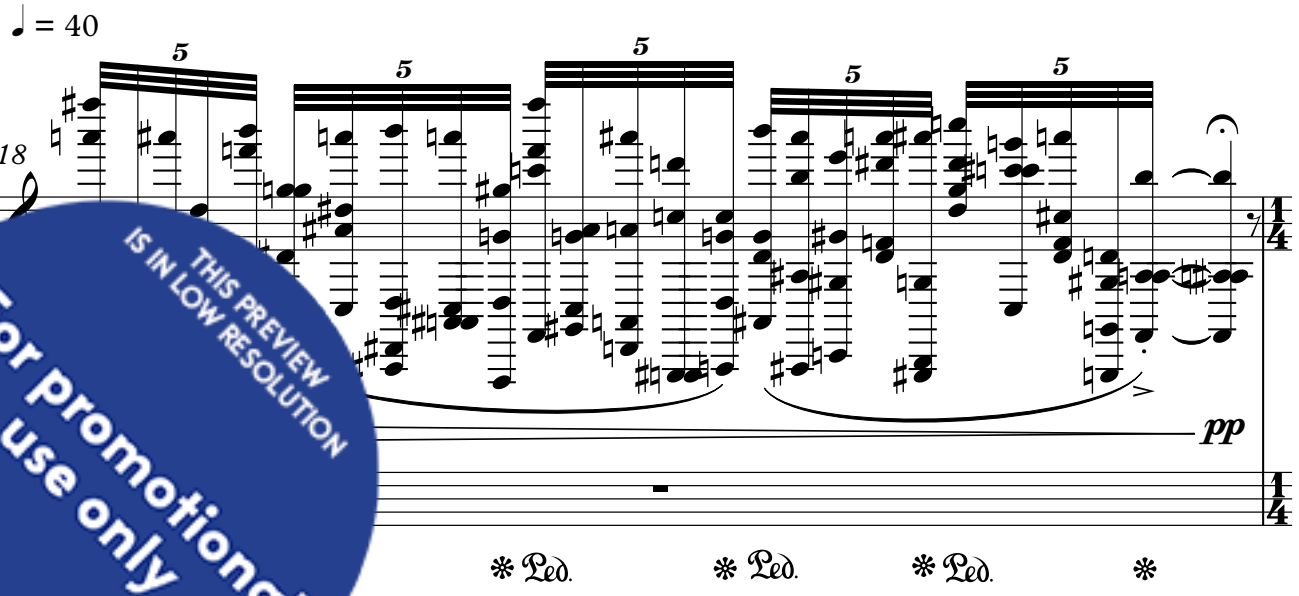

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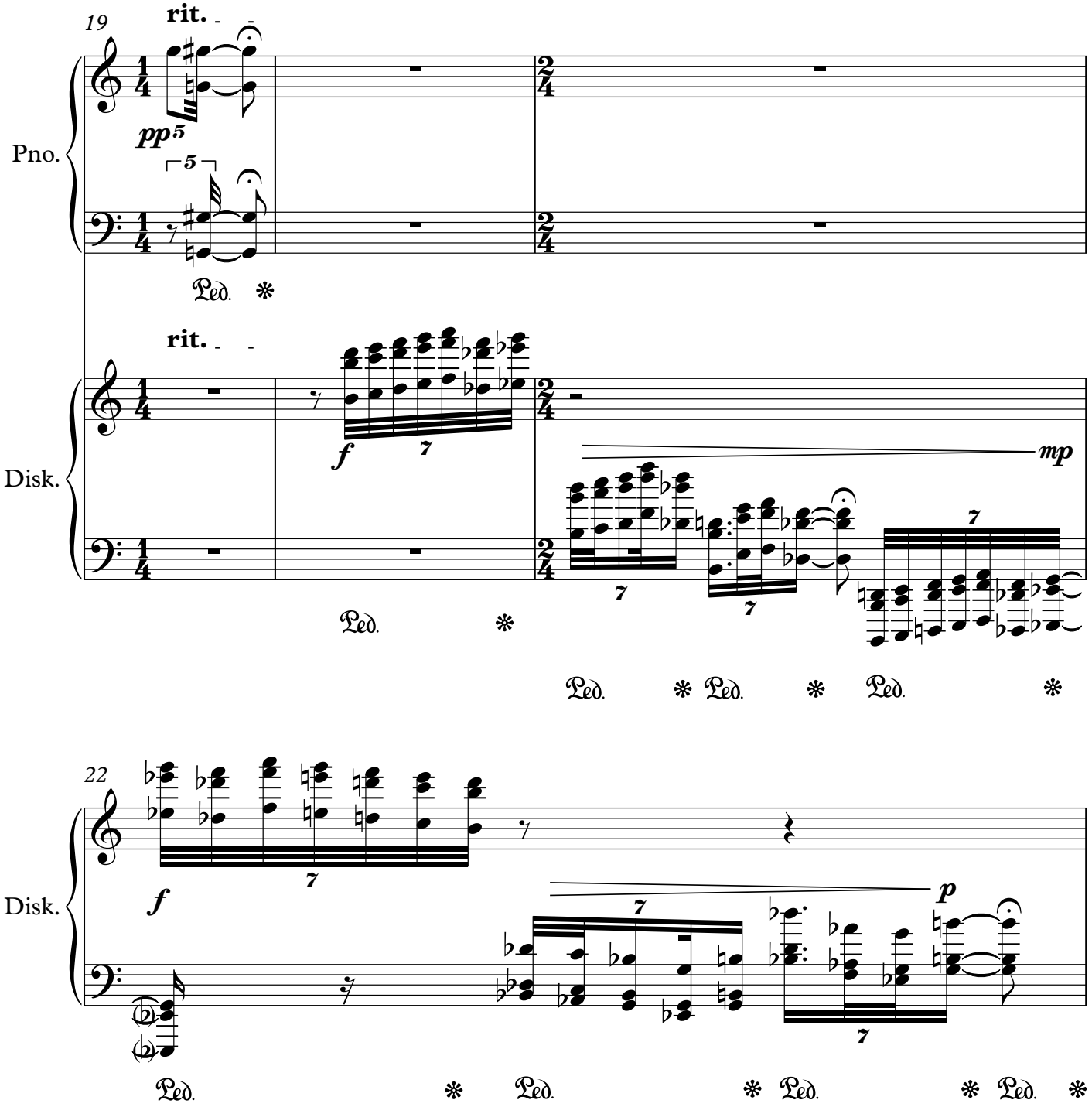

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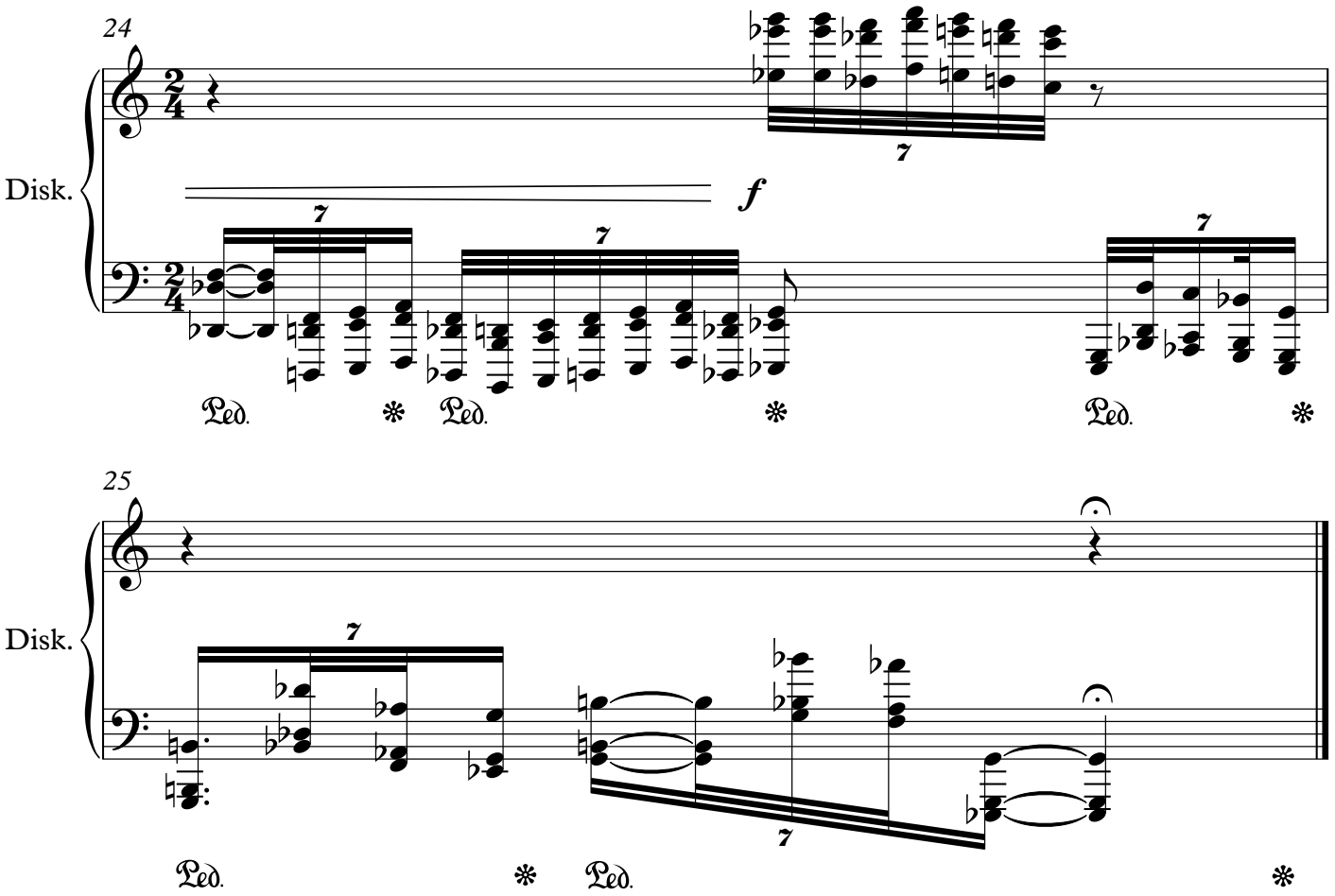

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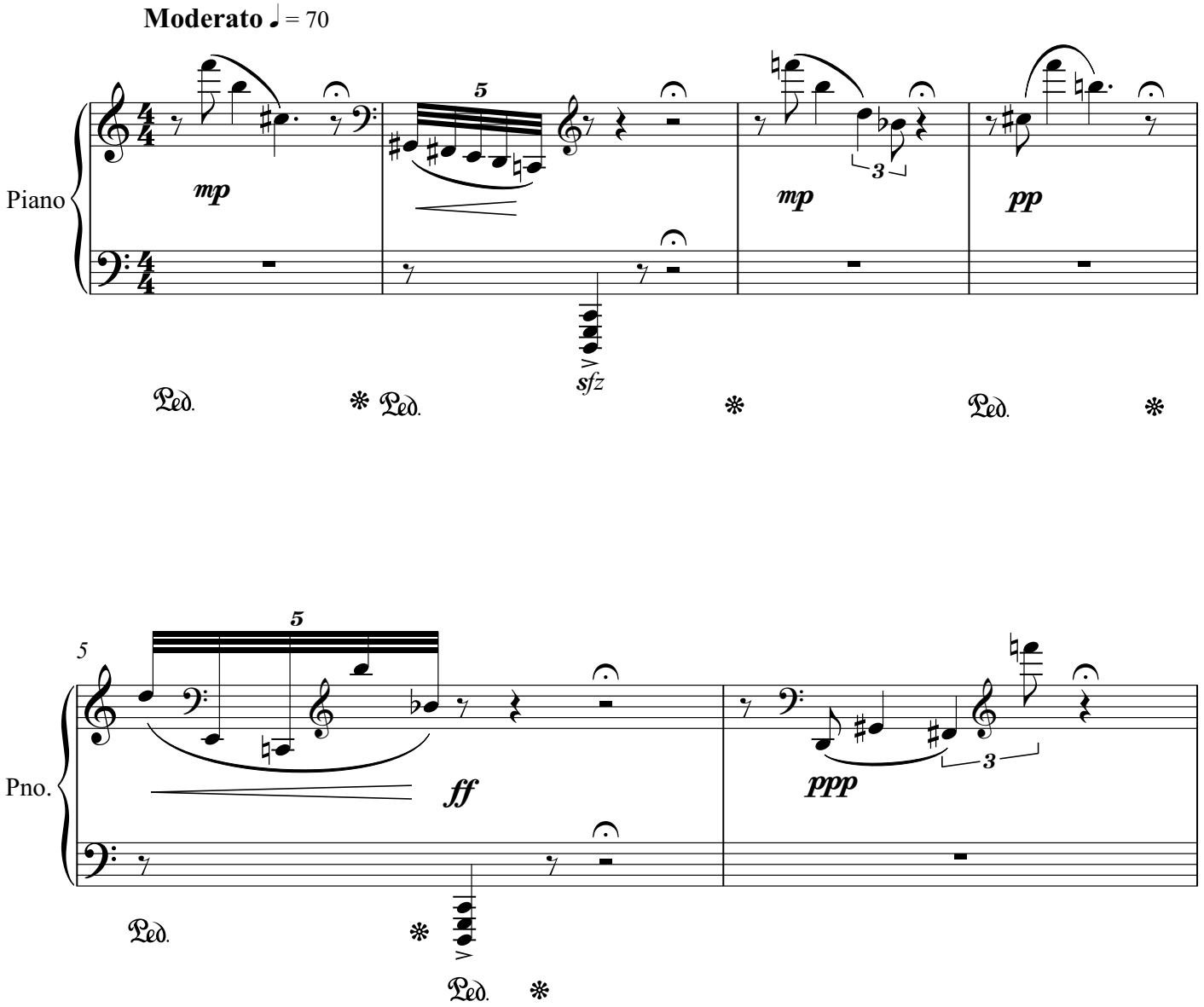
Path 1c



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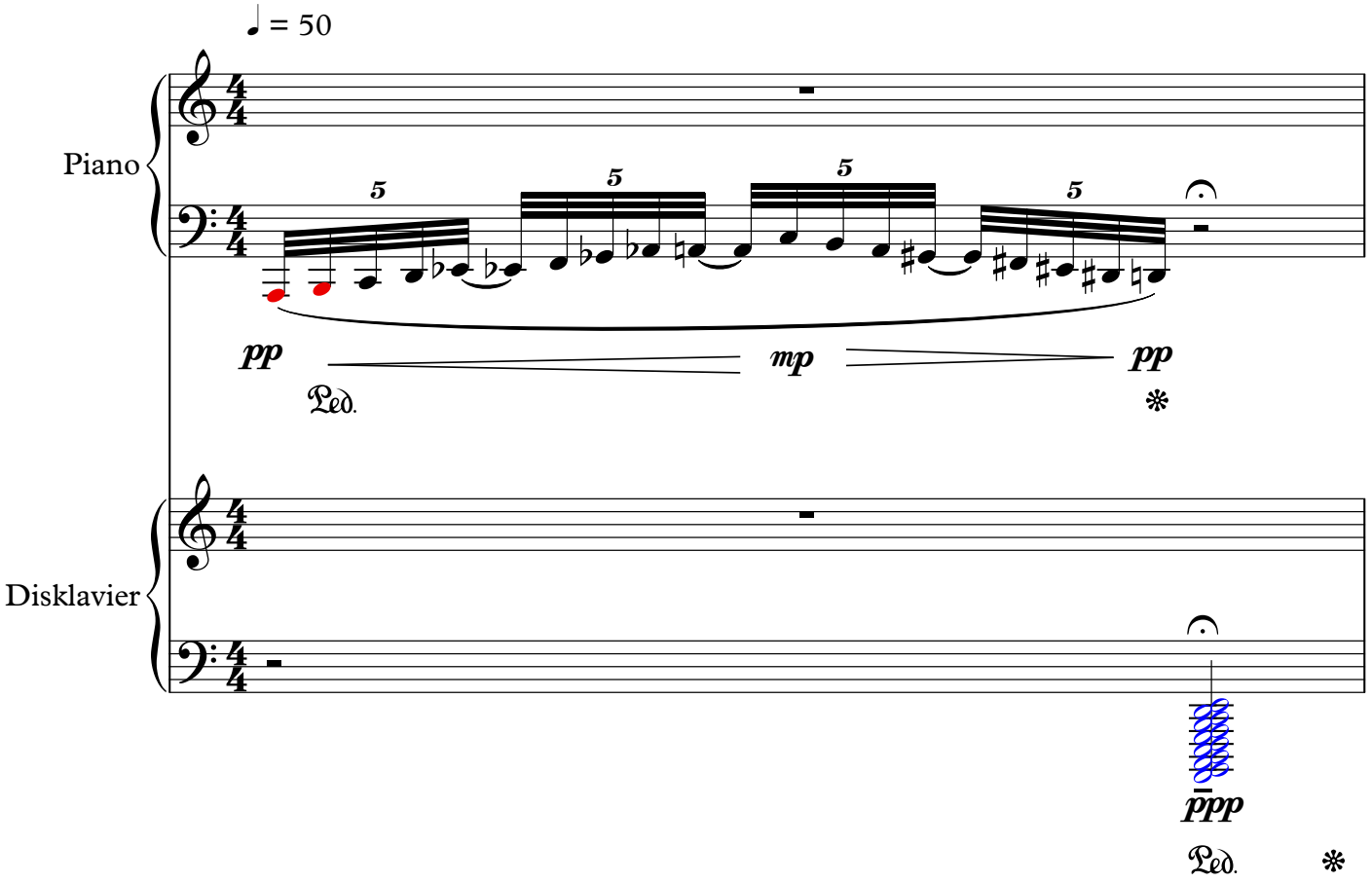
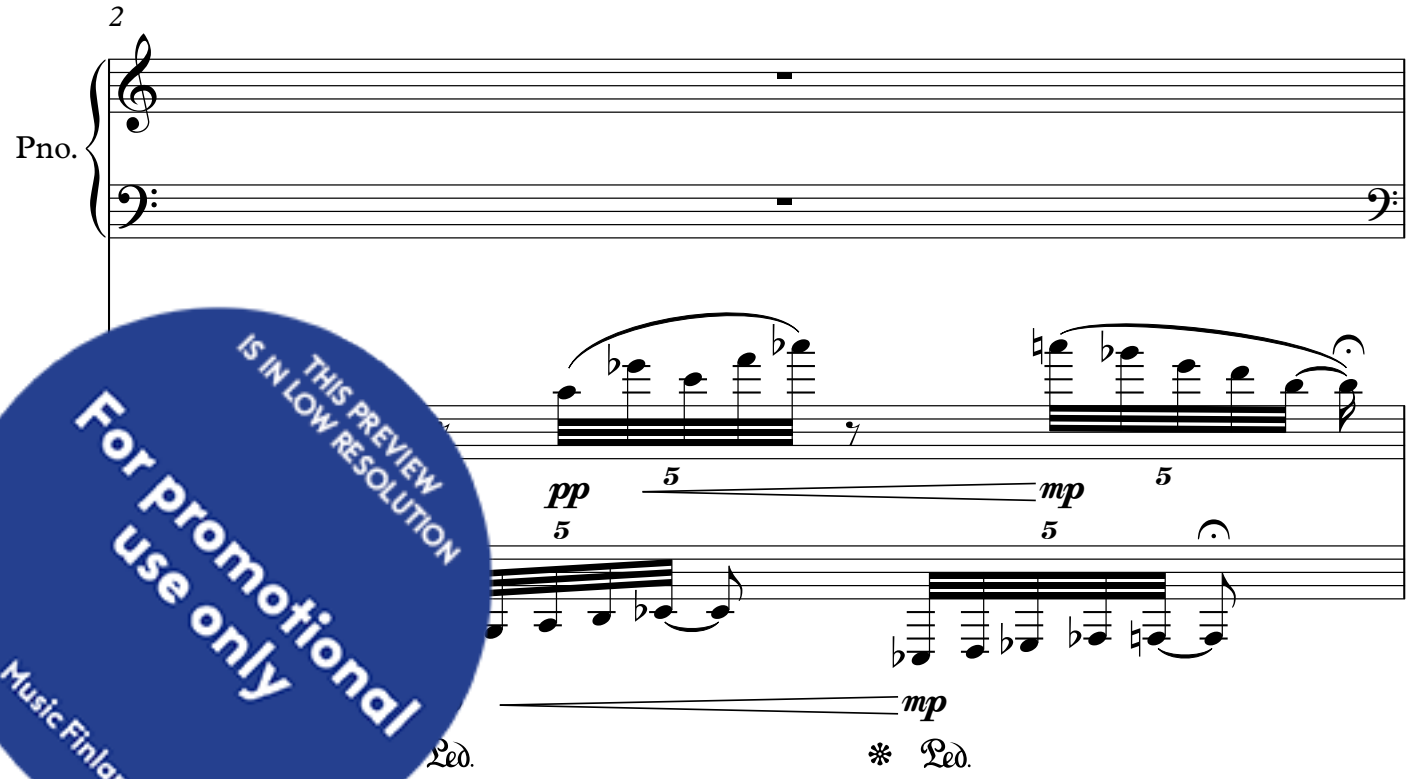
A Sleeping Bear (4a)





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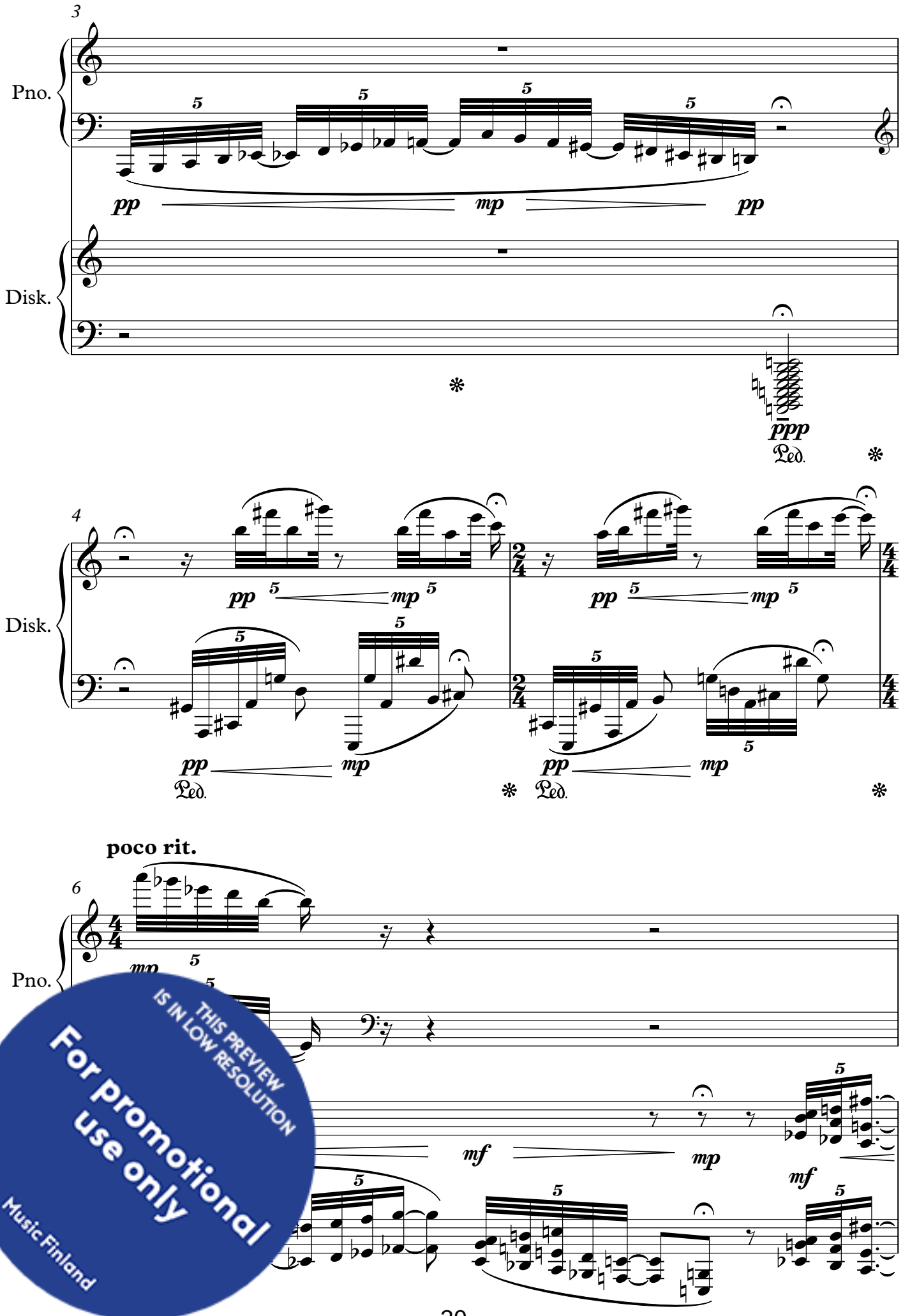

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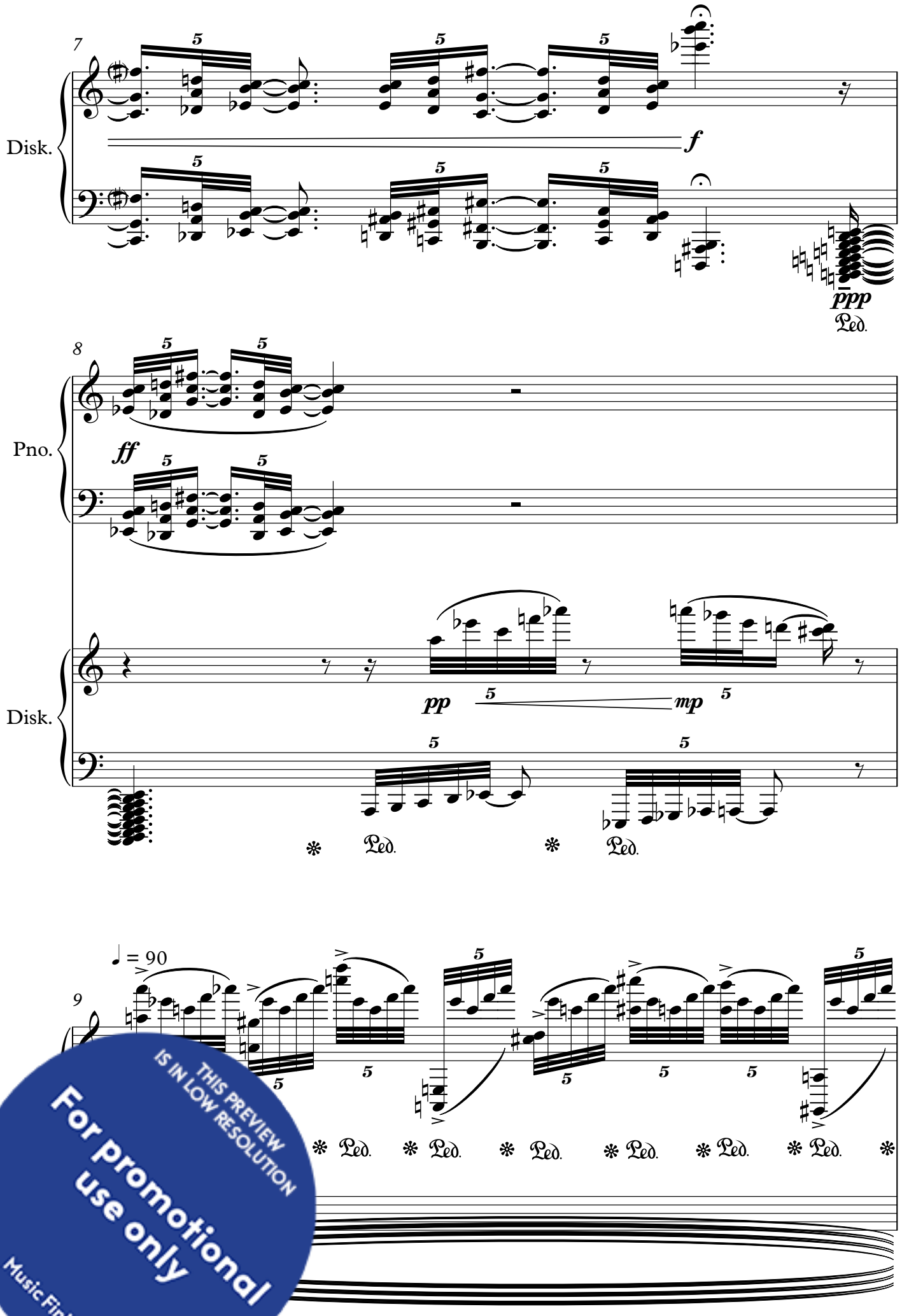

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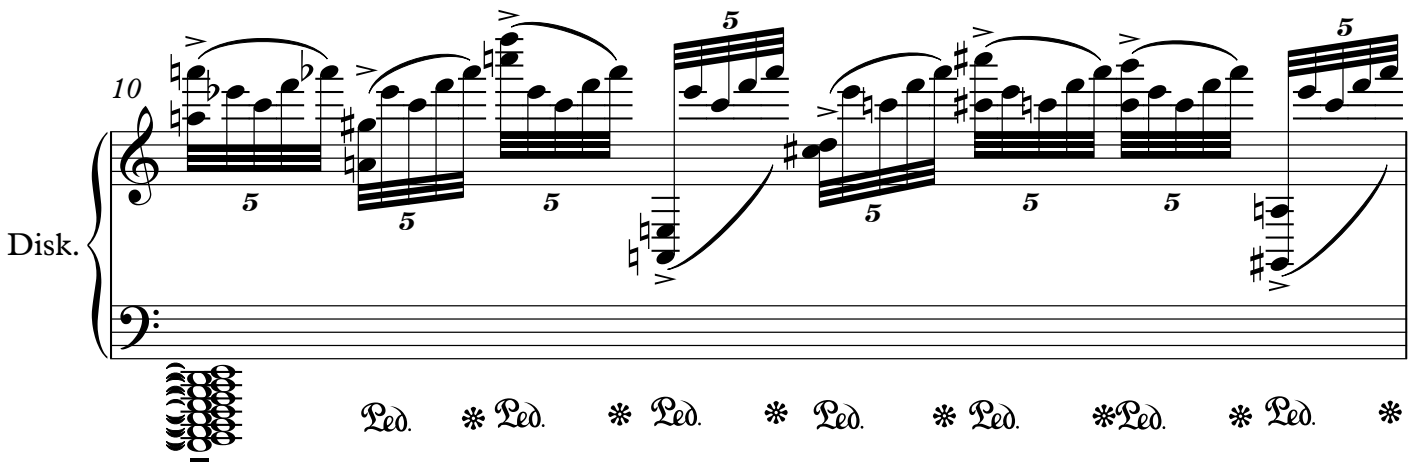

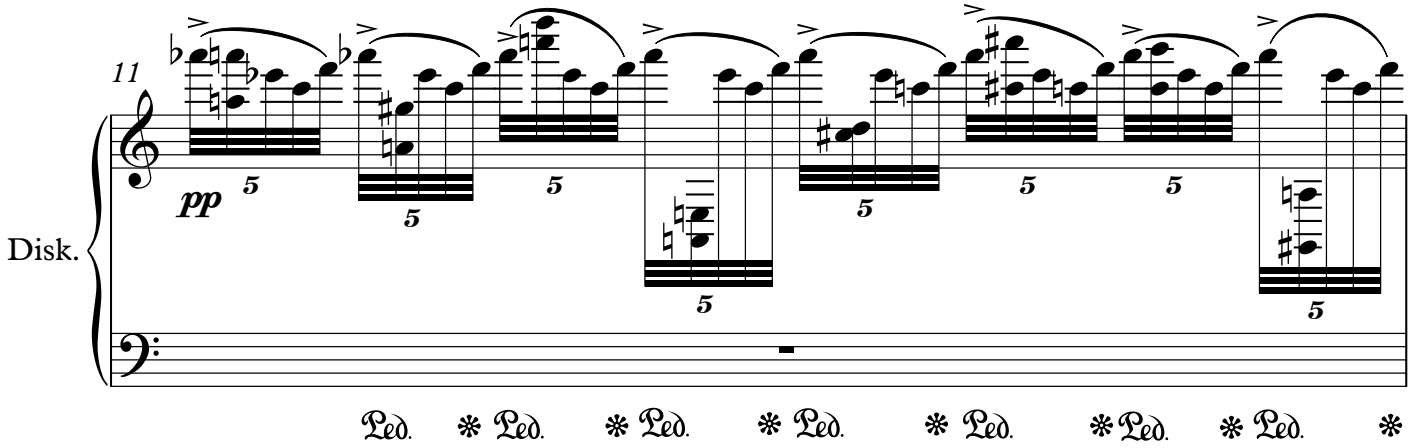

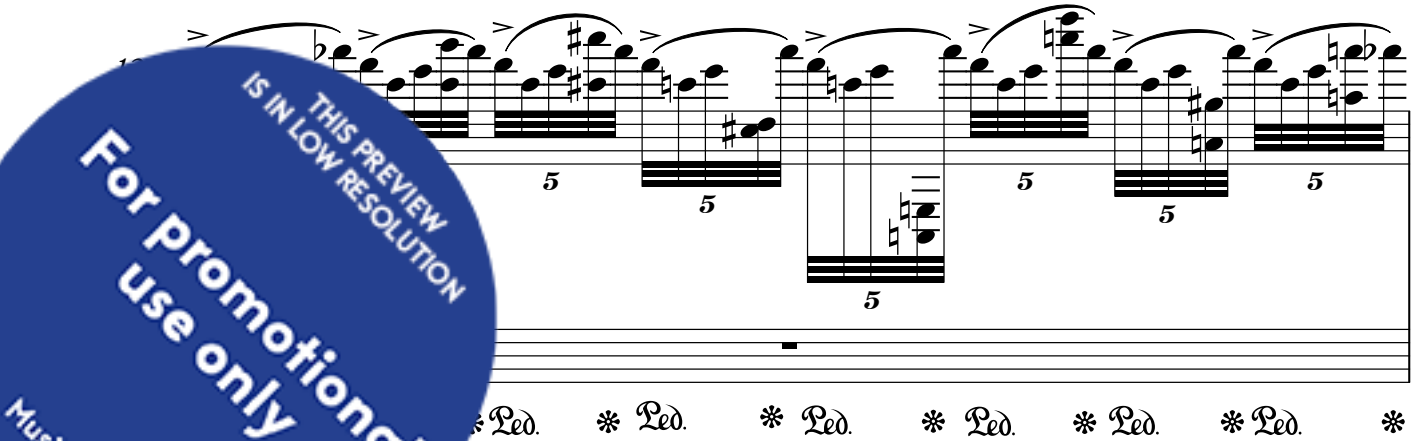

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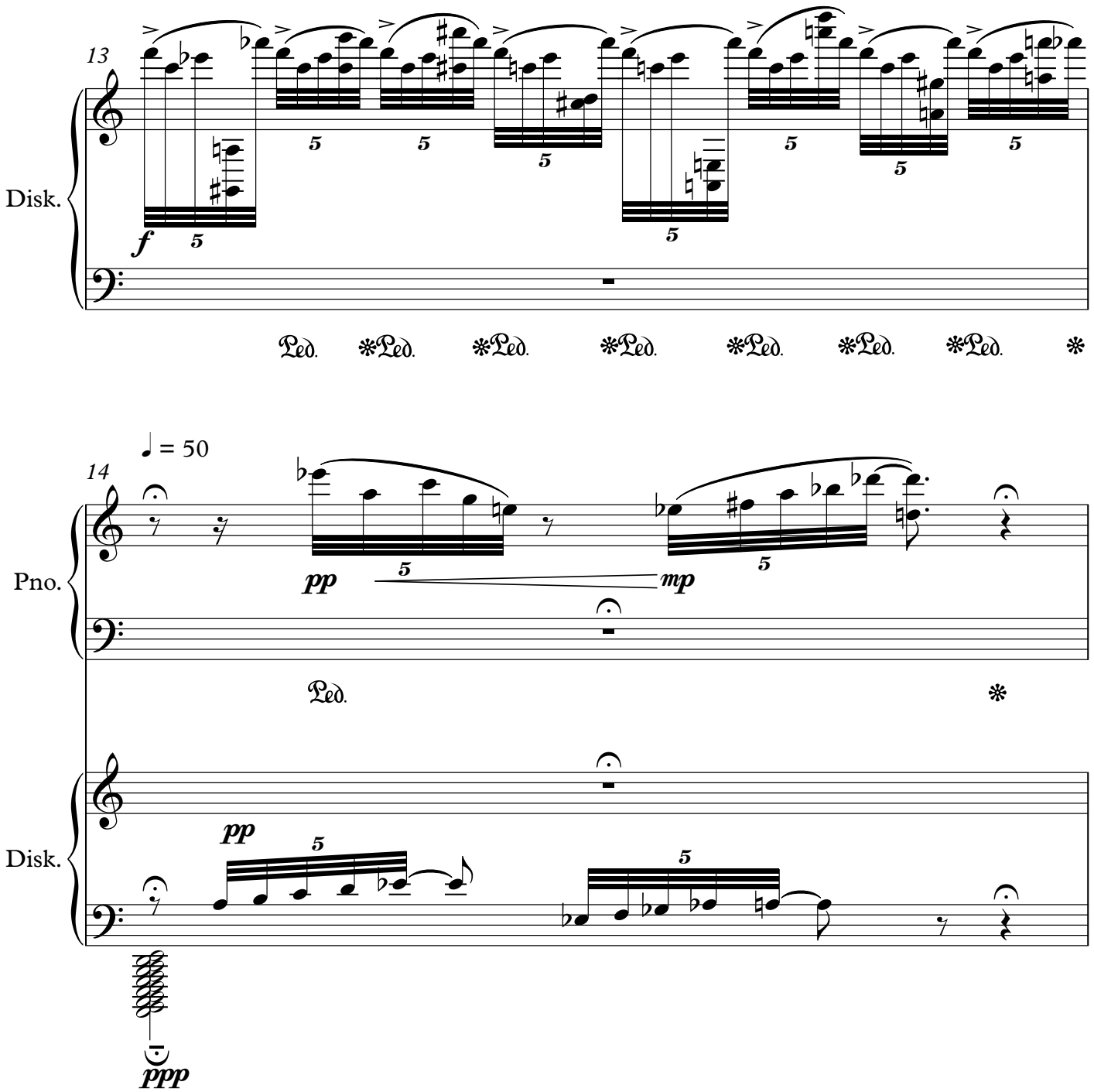

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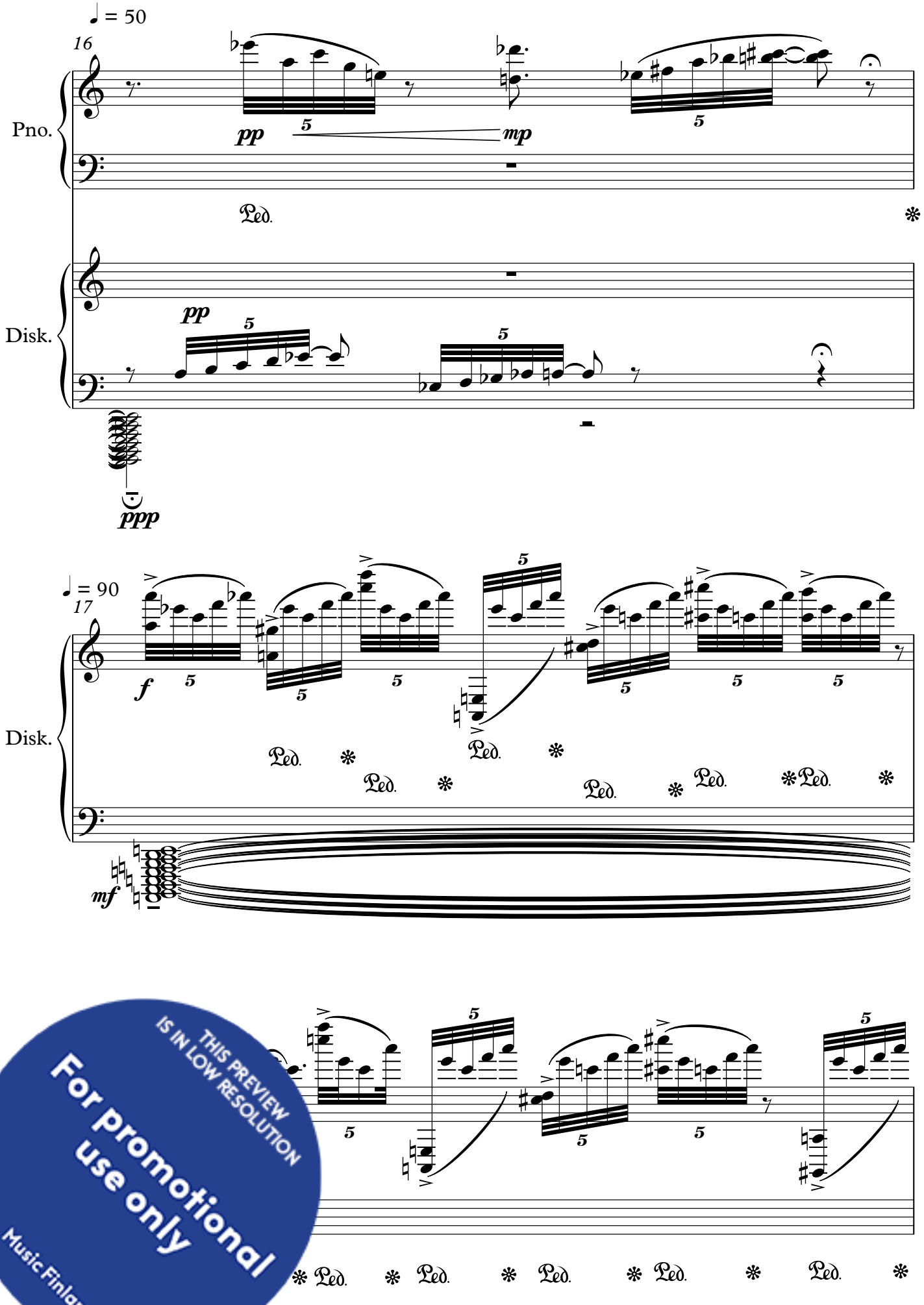

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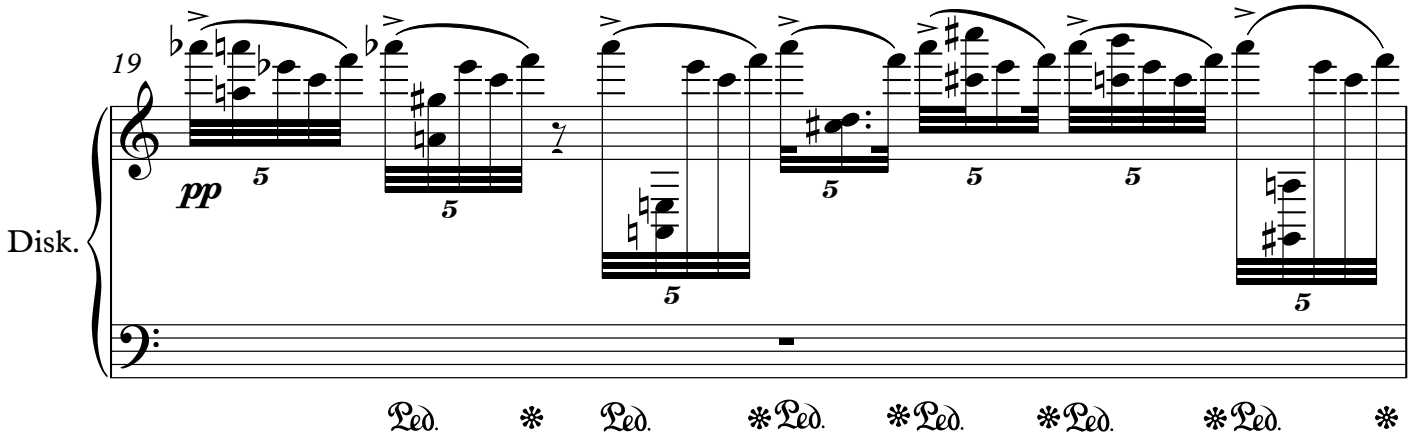

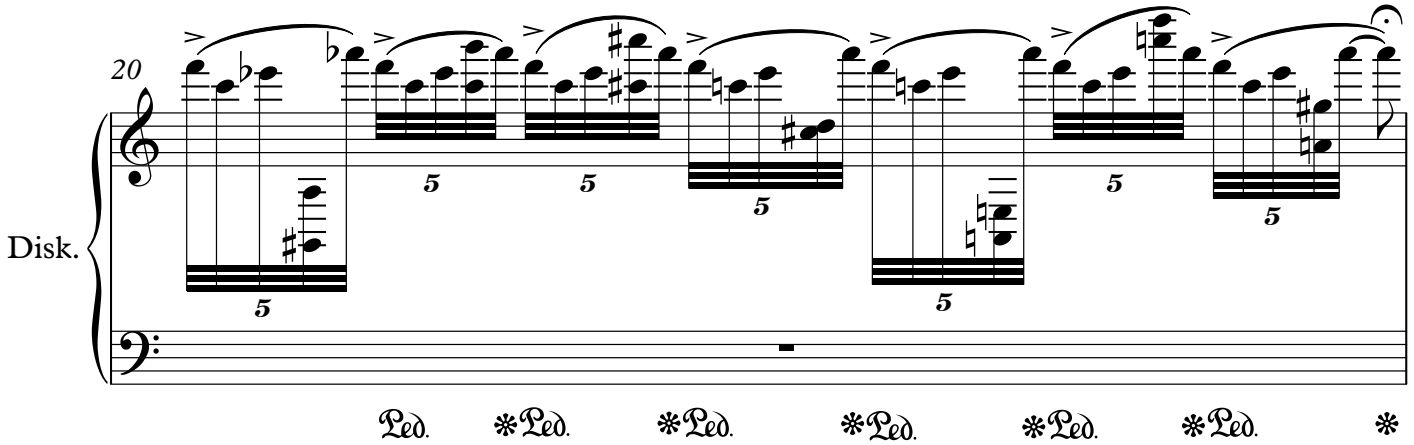

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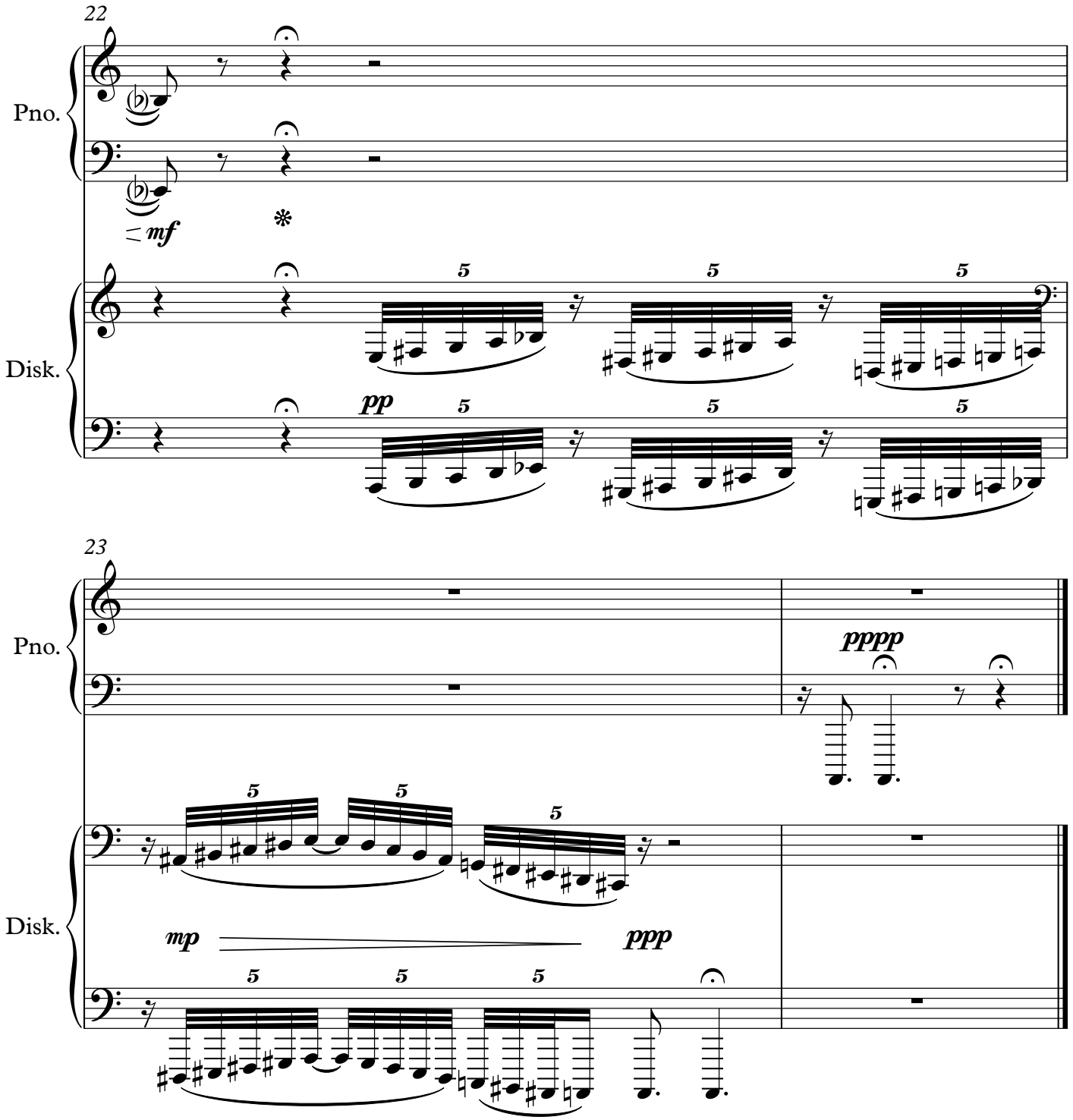

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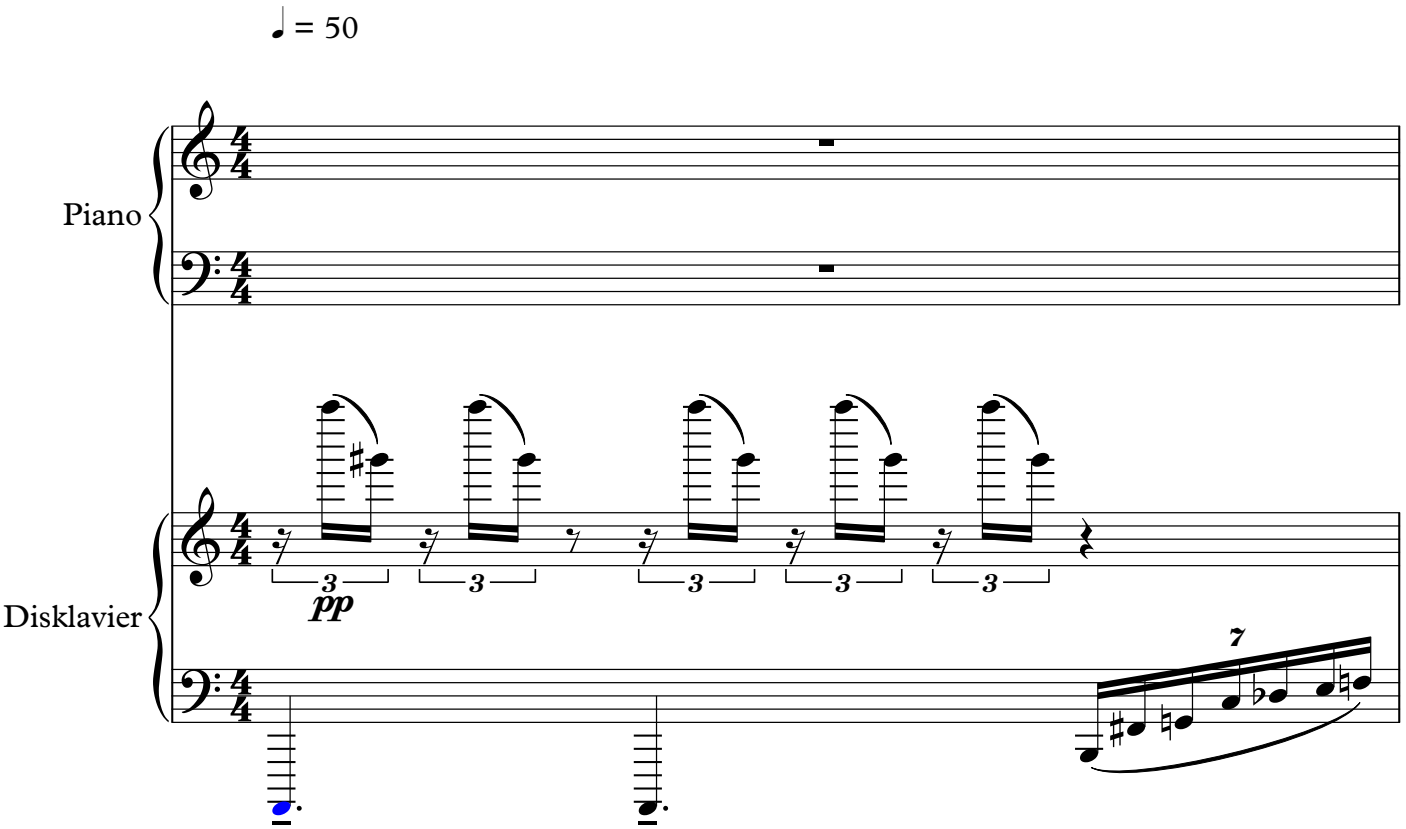
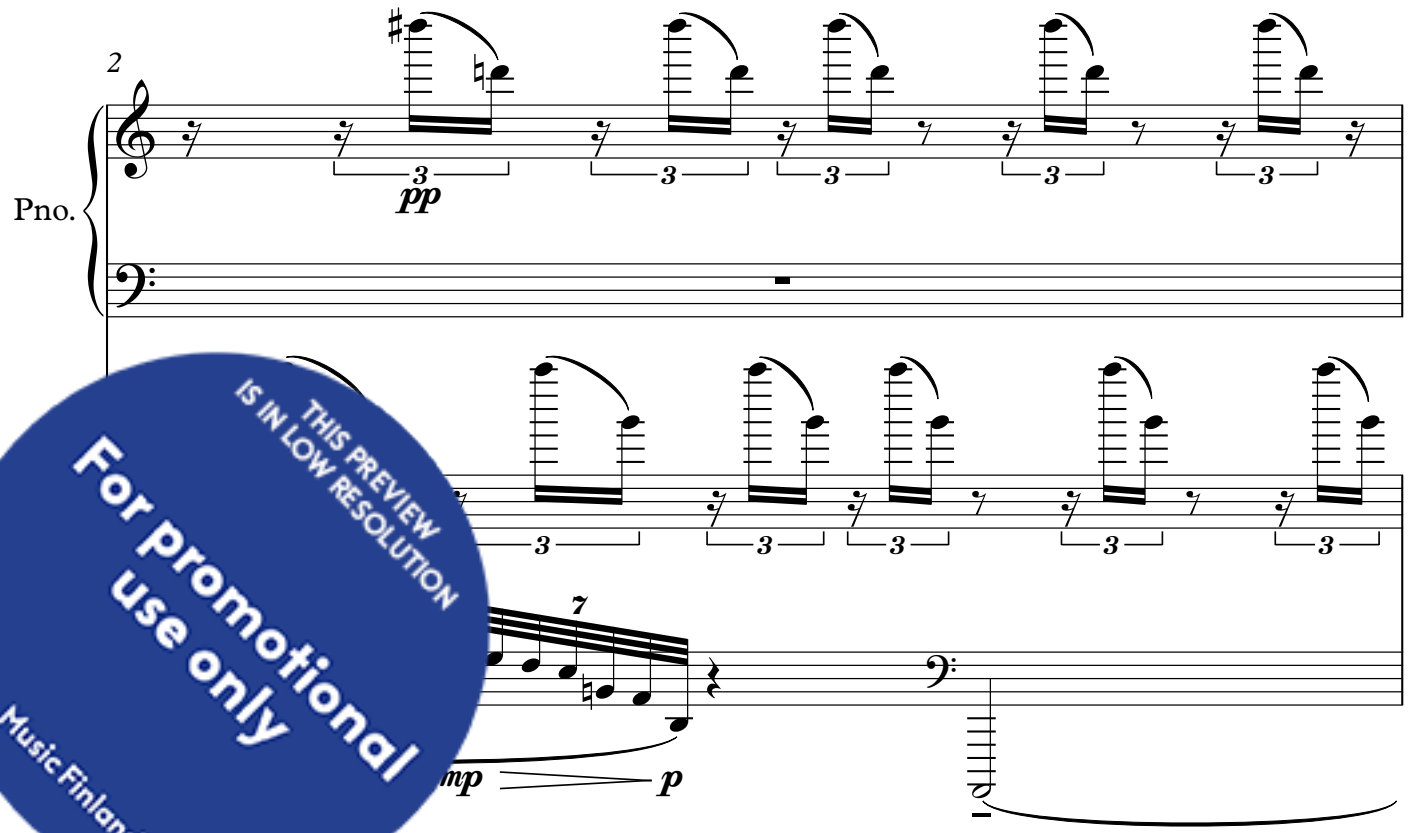
Rolling Stones (5a)





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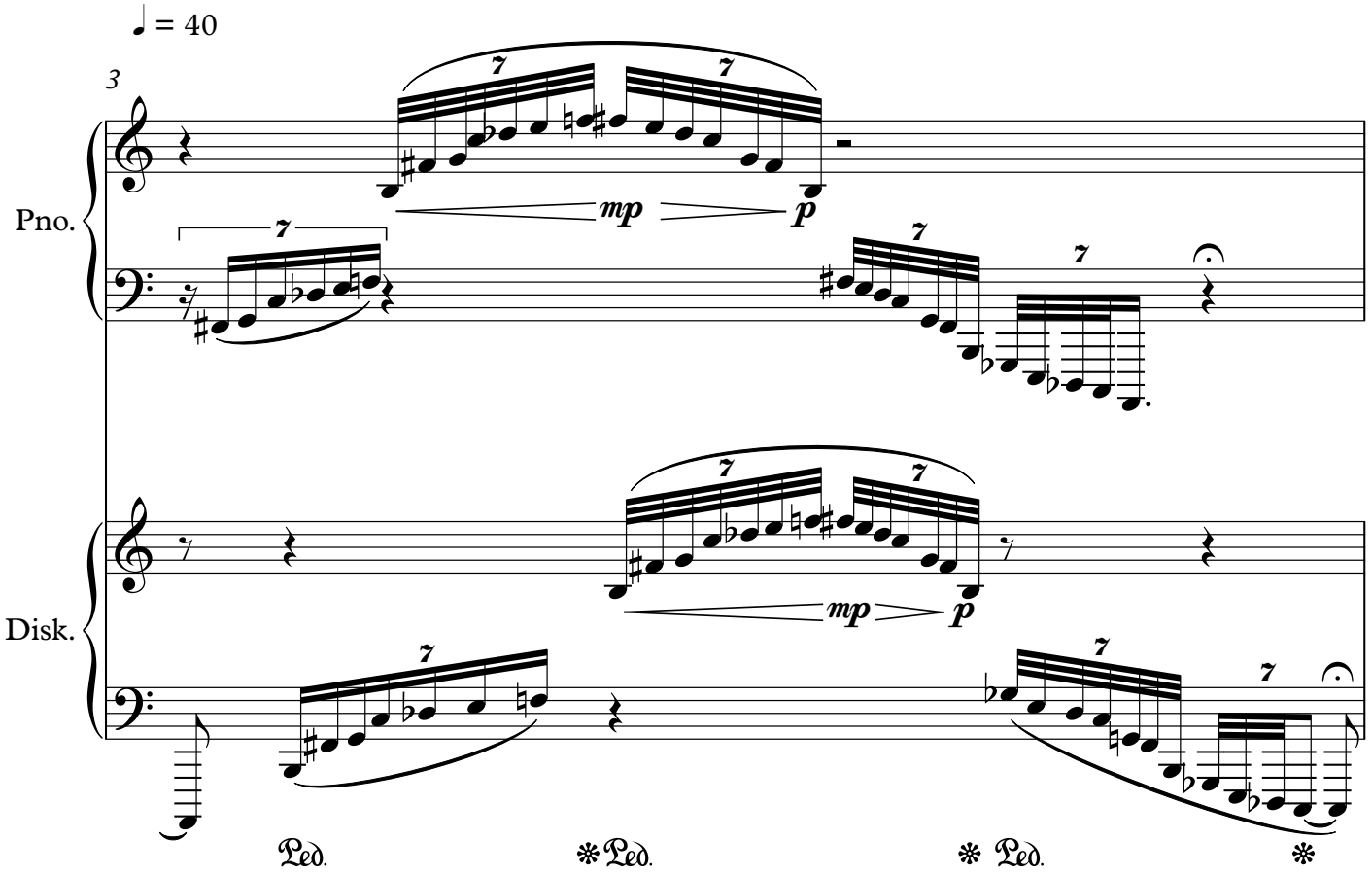

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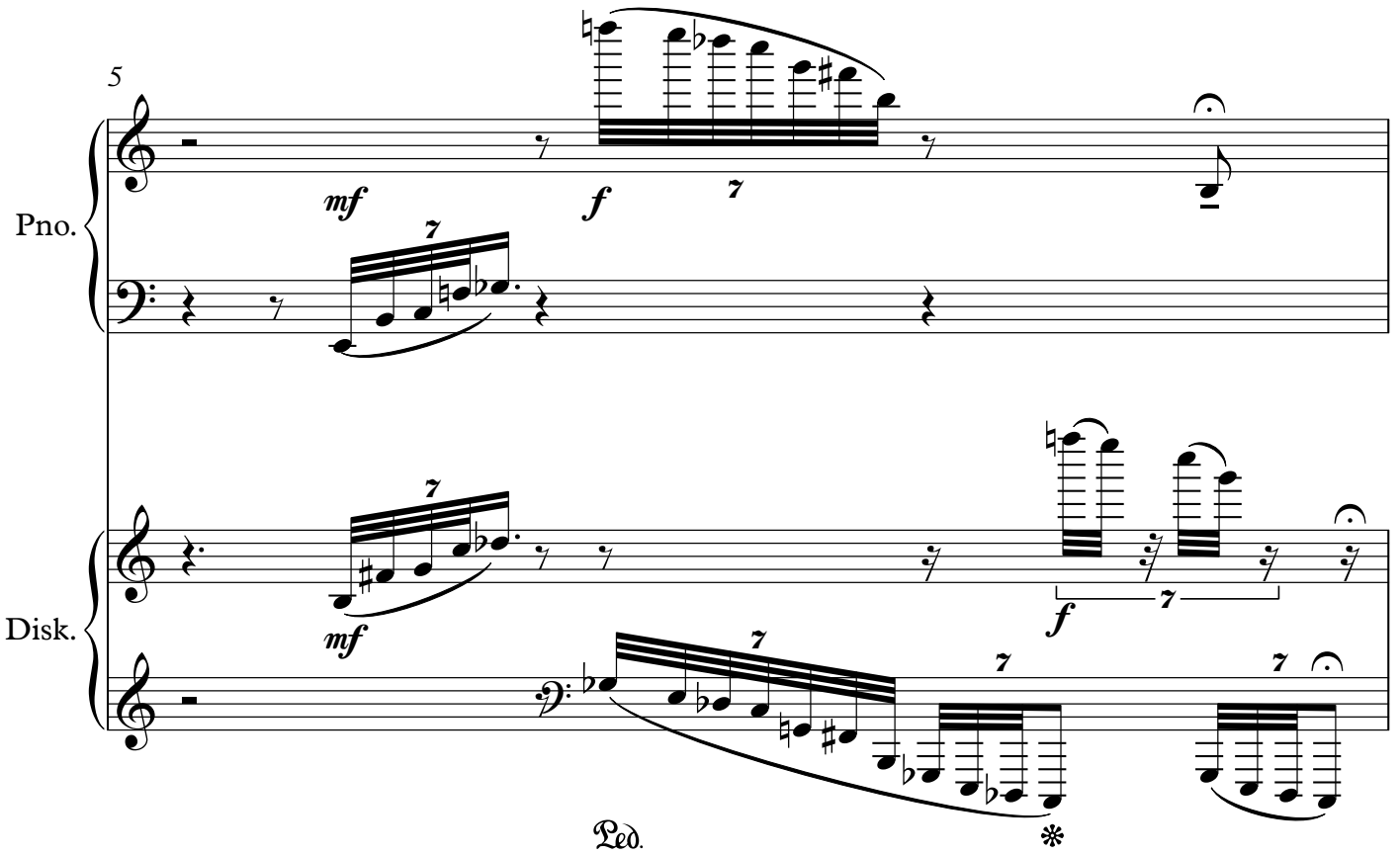

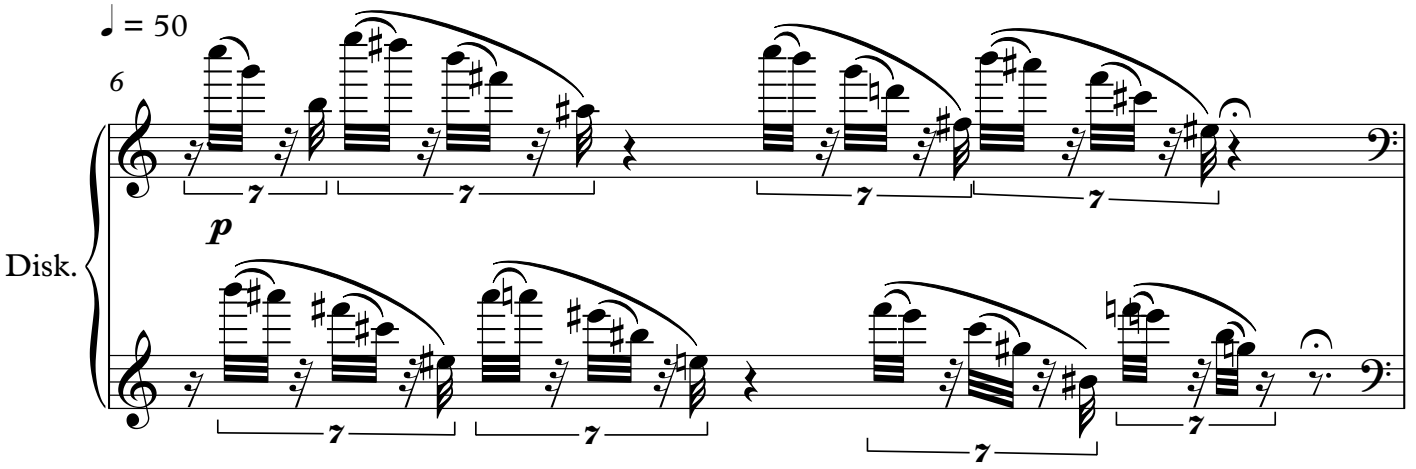

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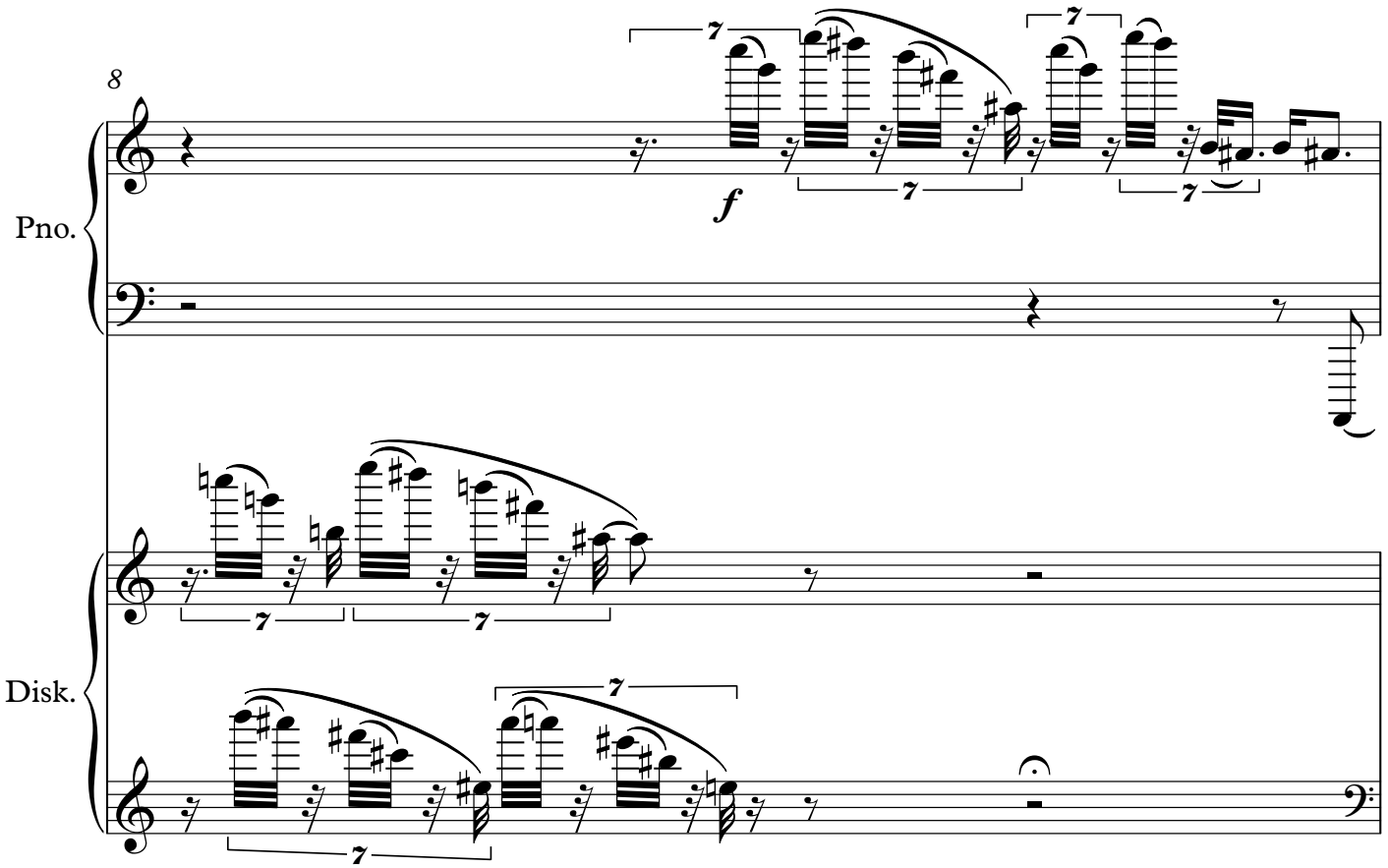

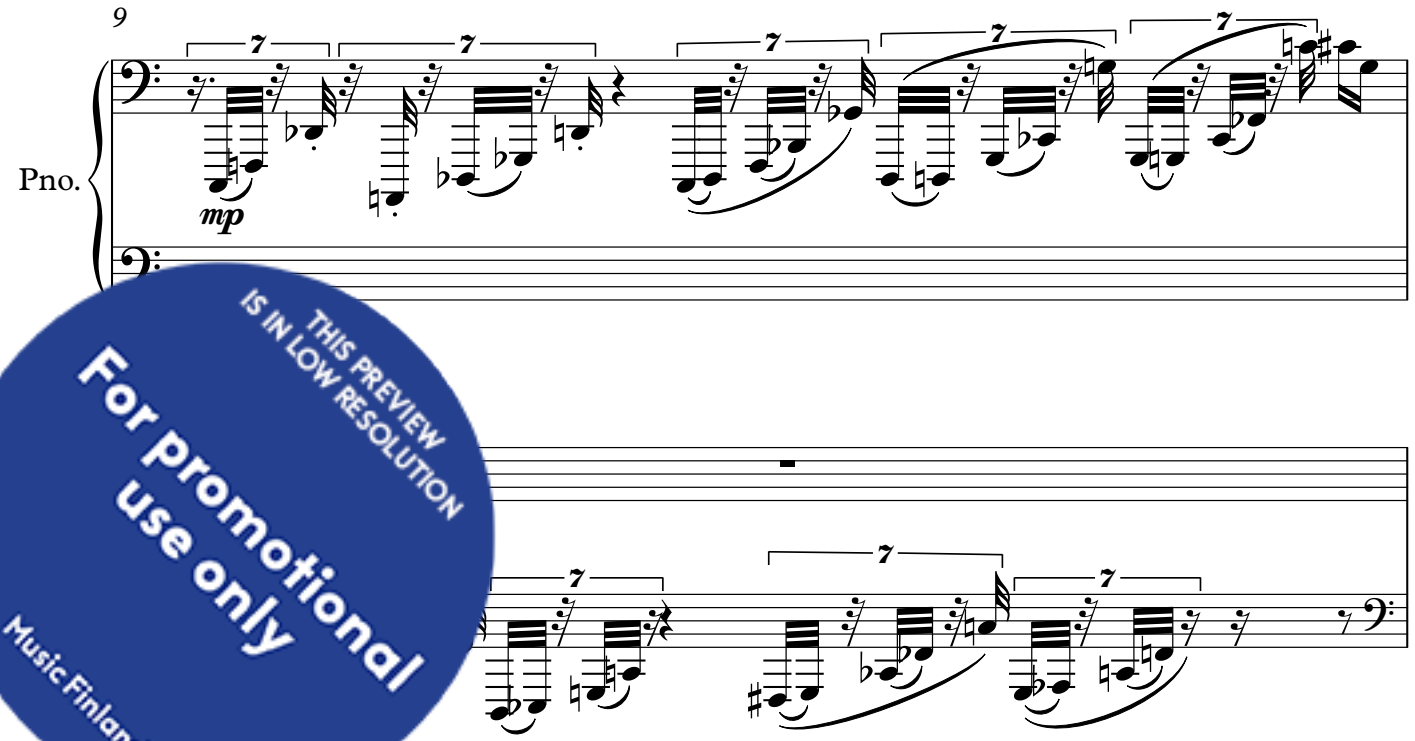

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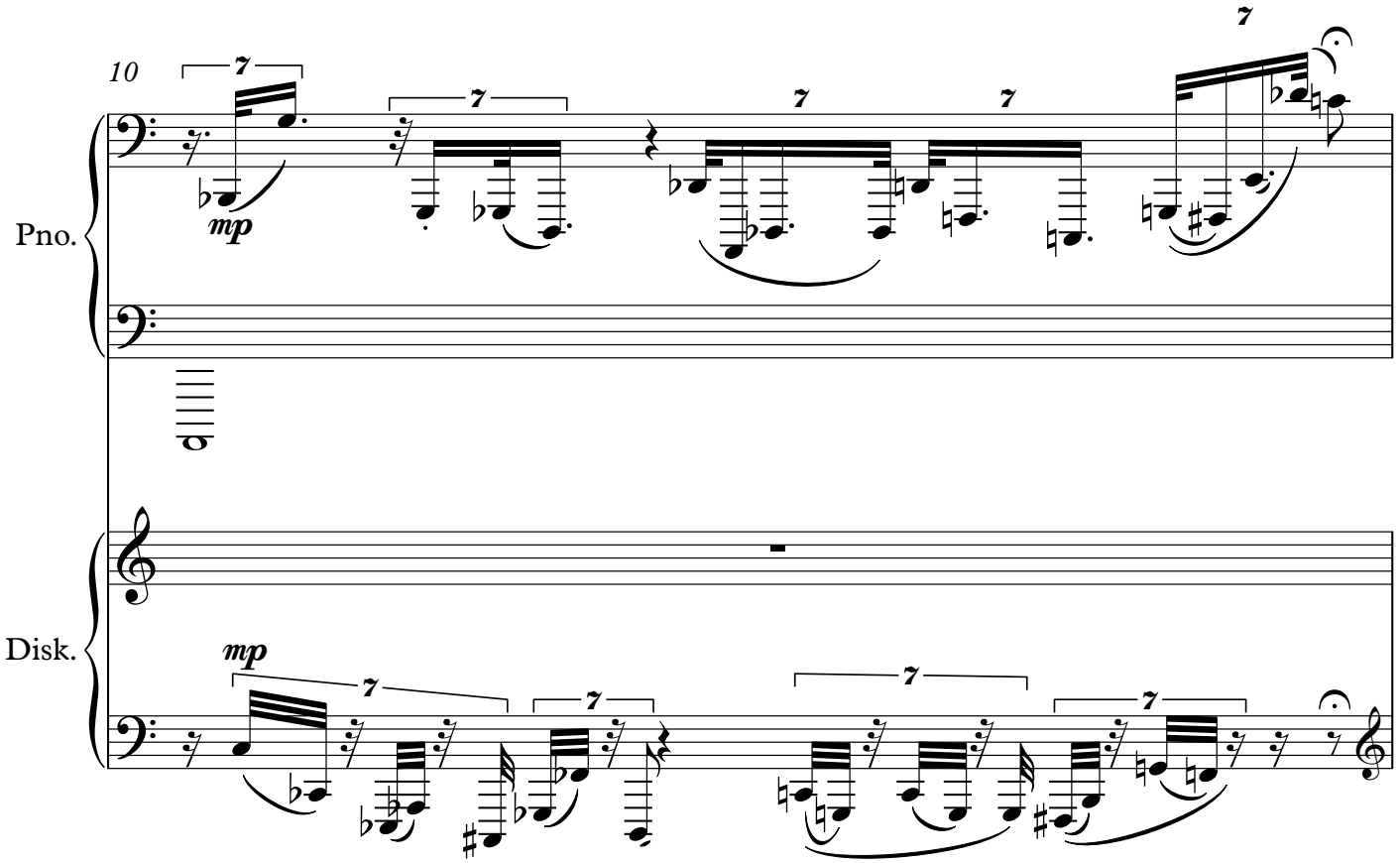

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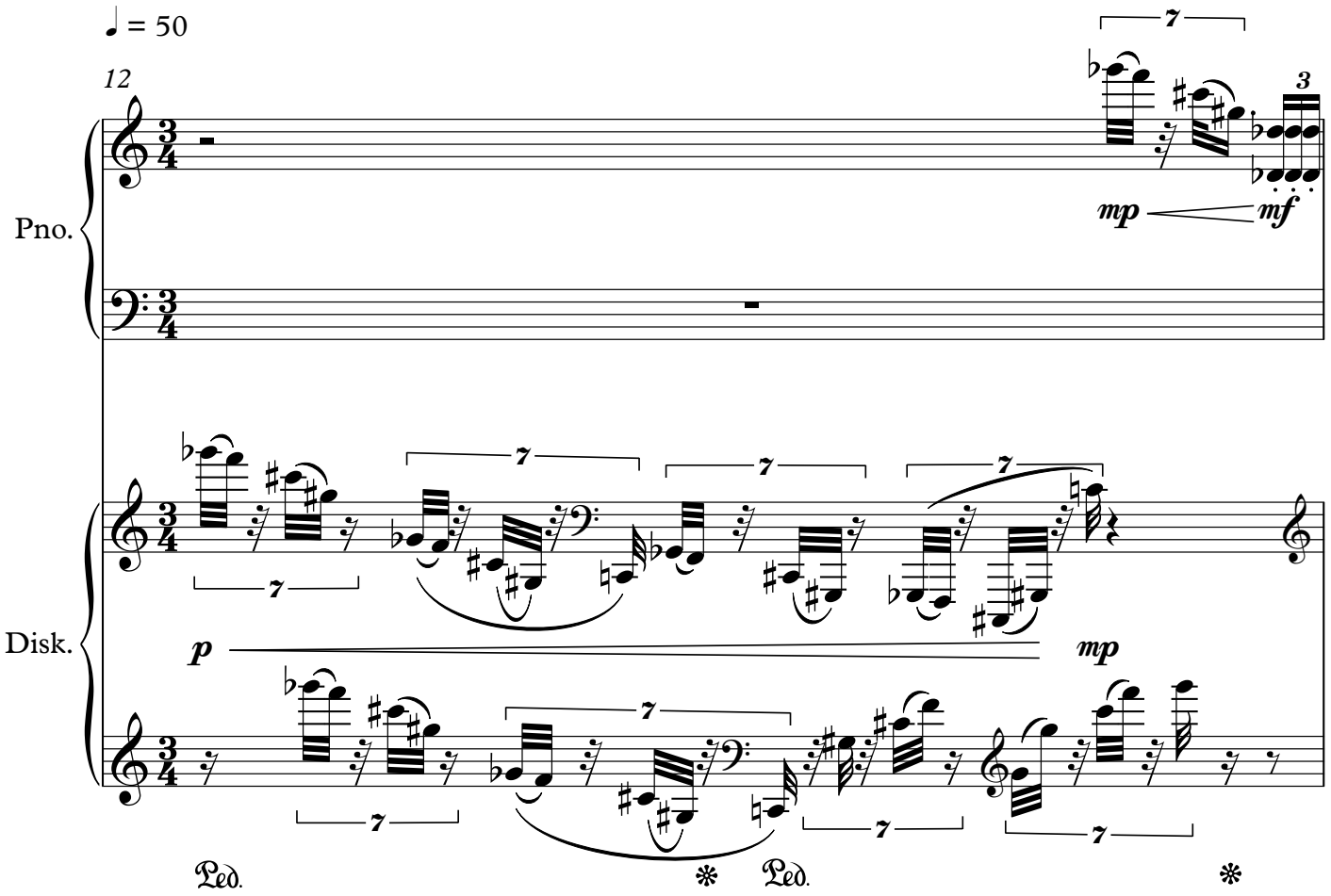

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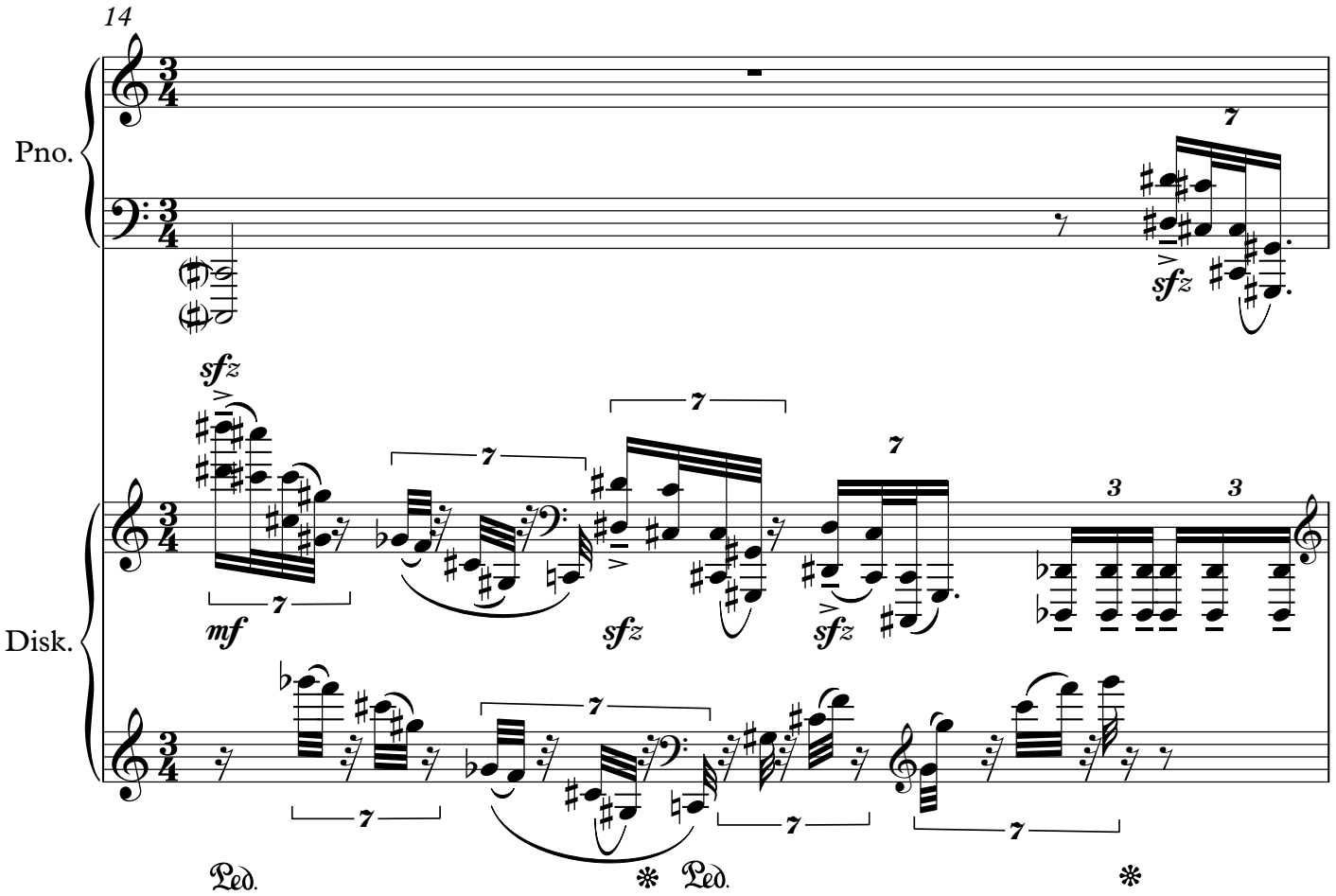

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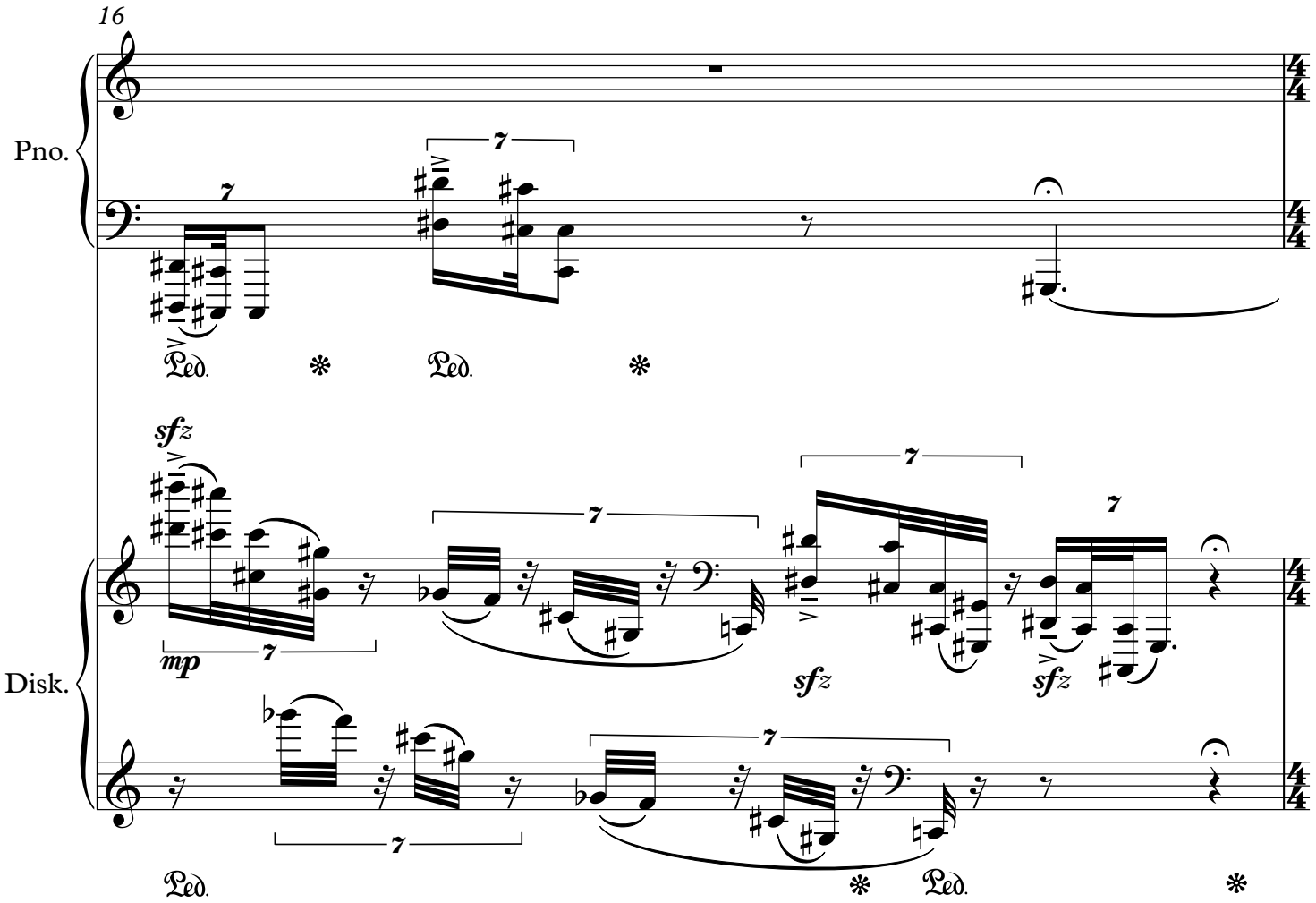

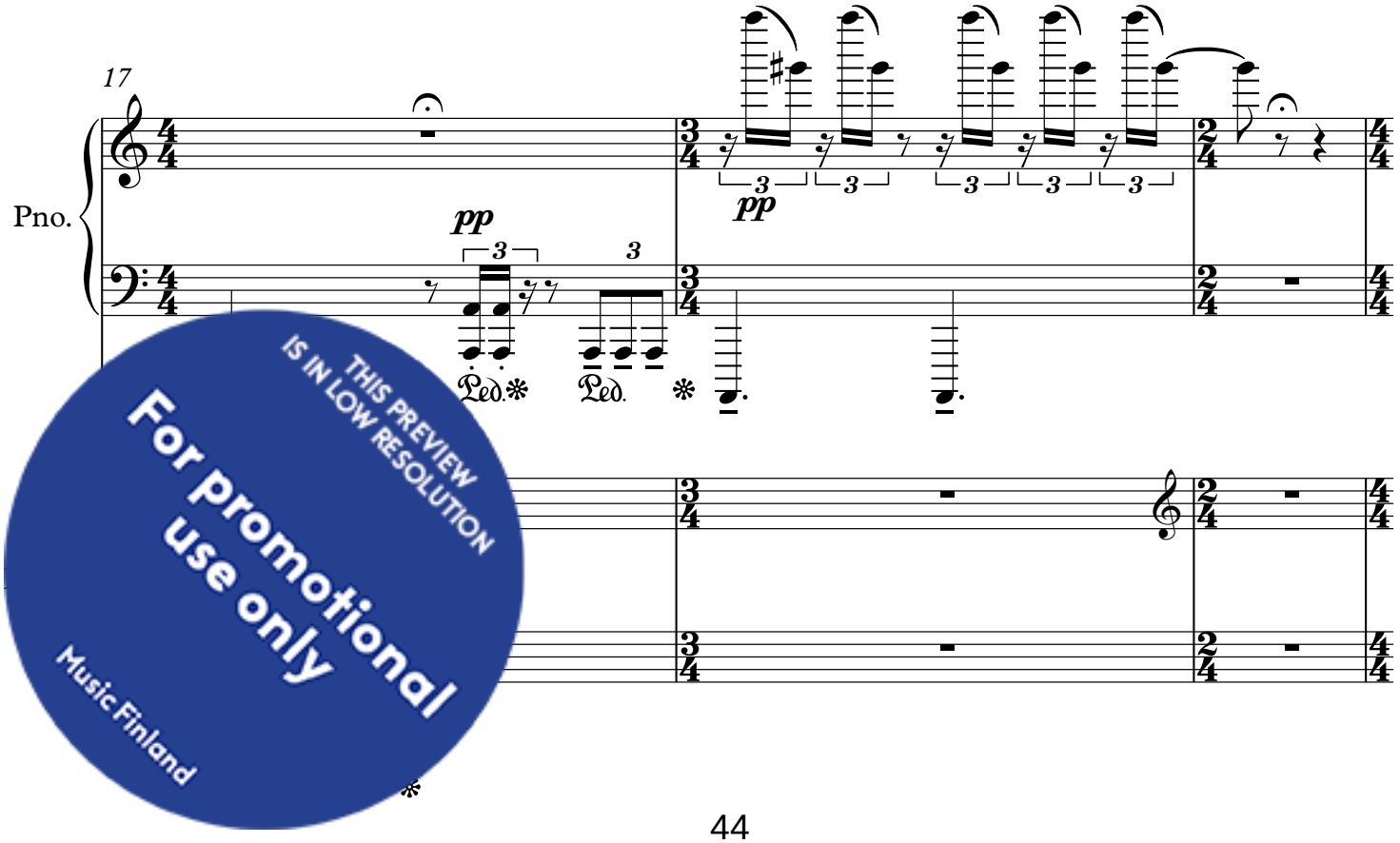

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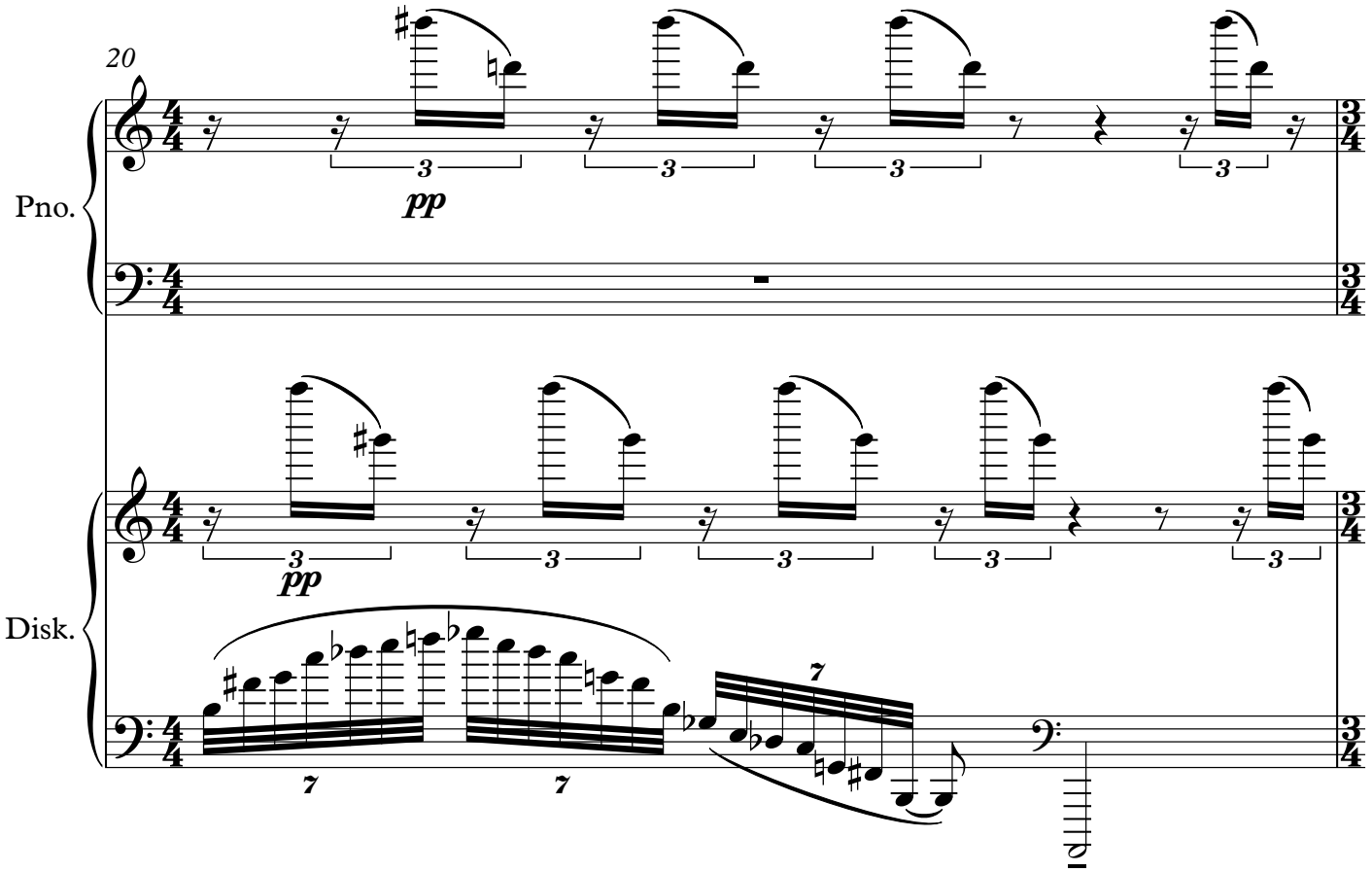

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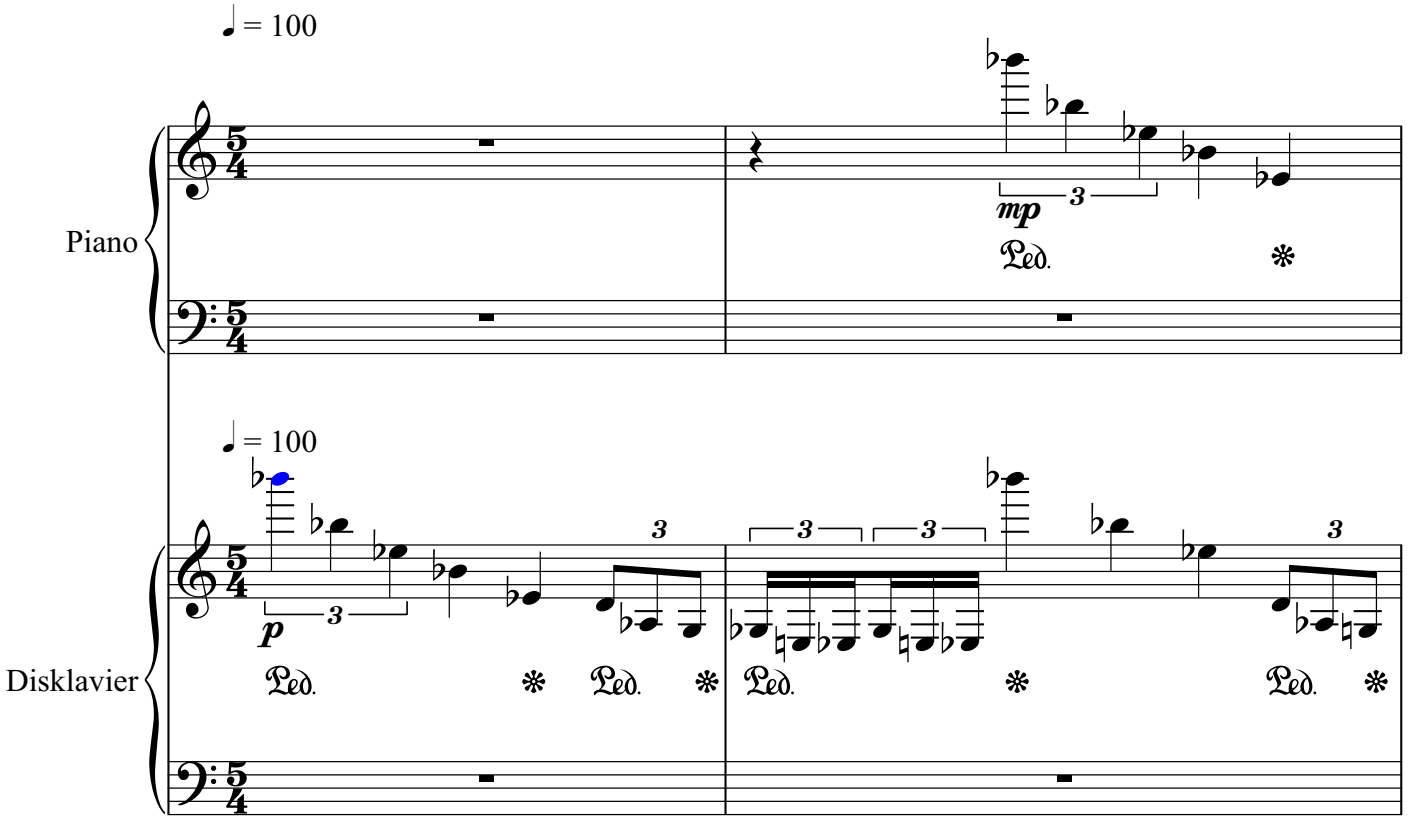
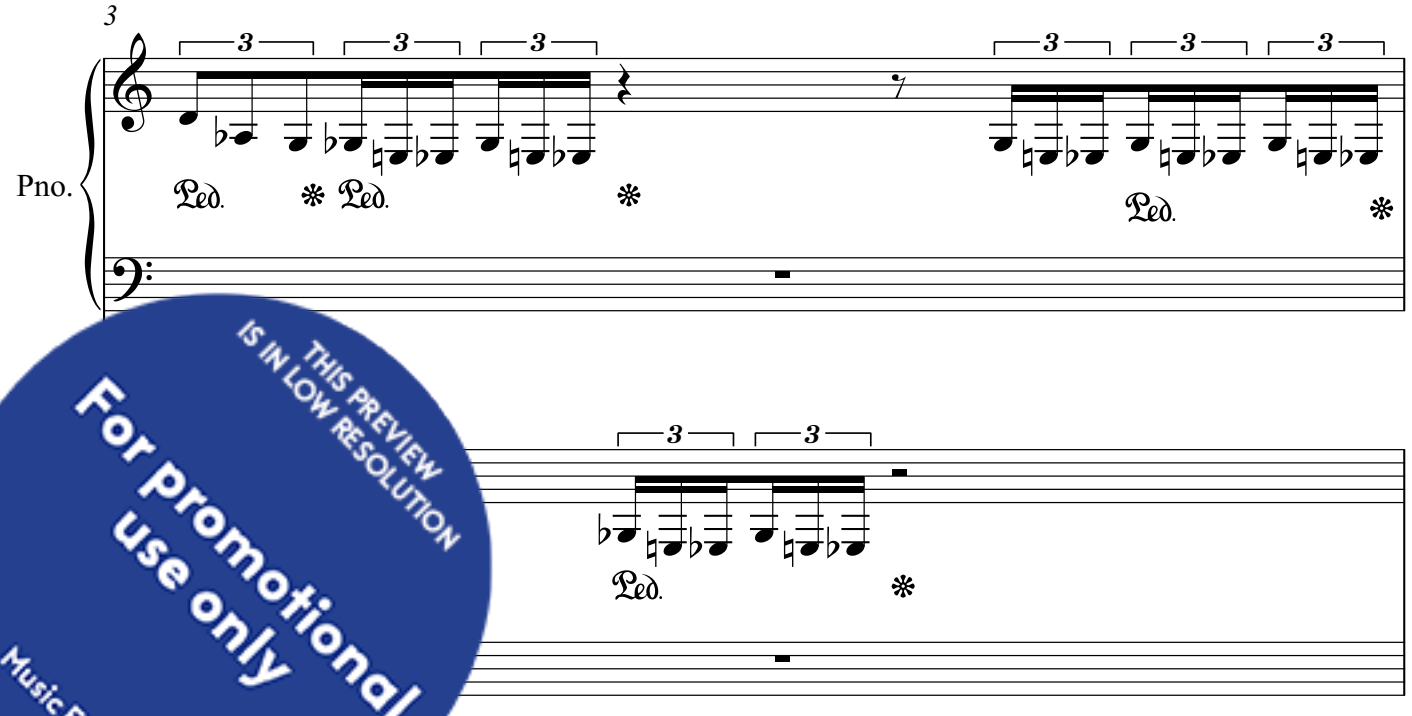
The Stones (1b)





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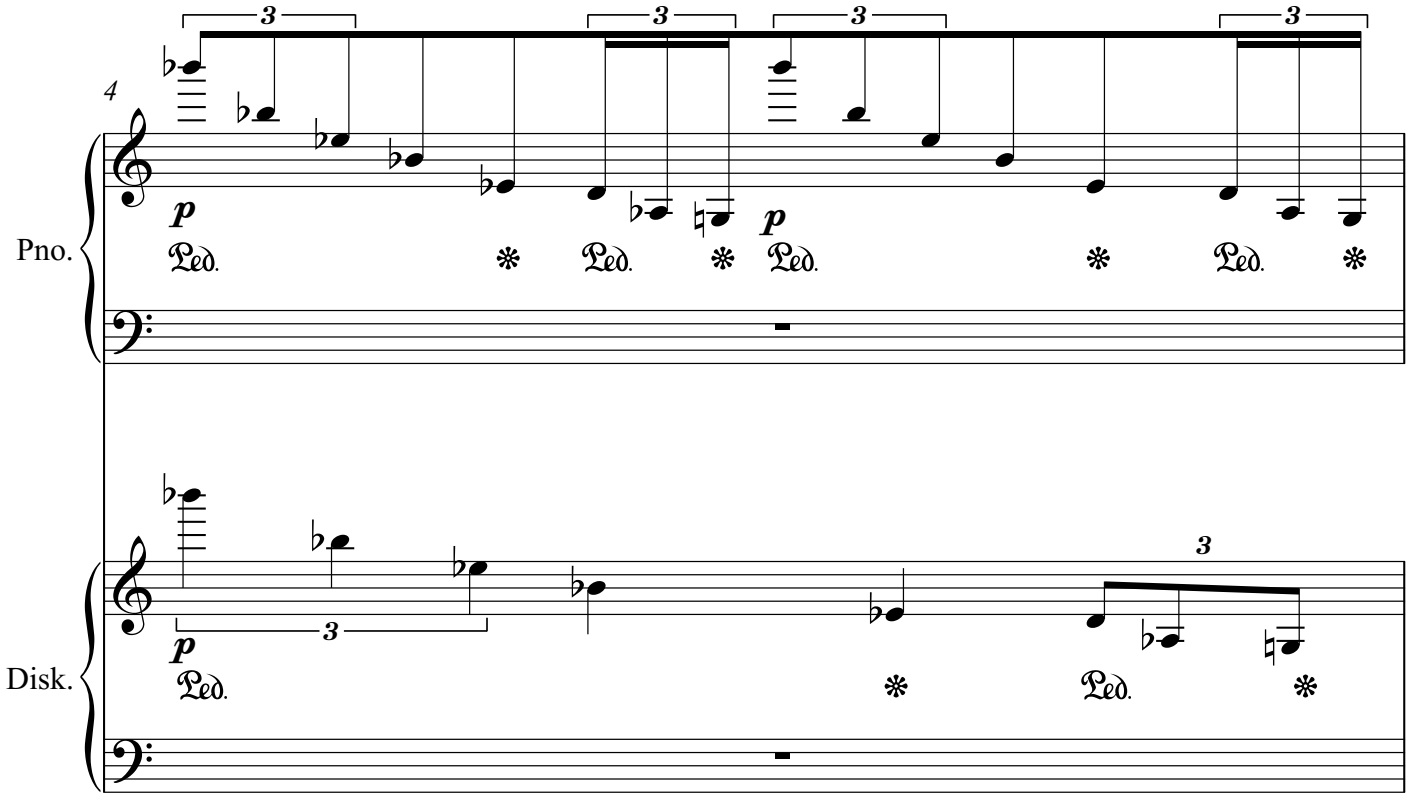

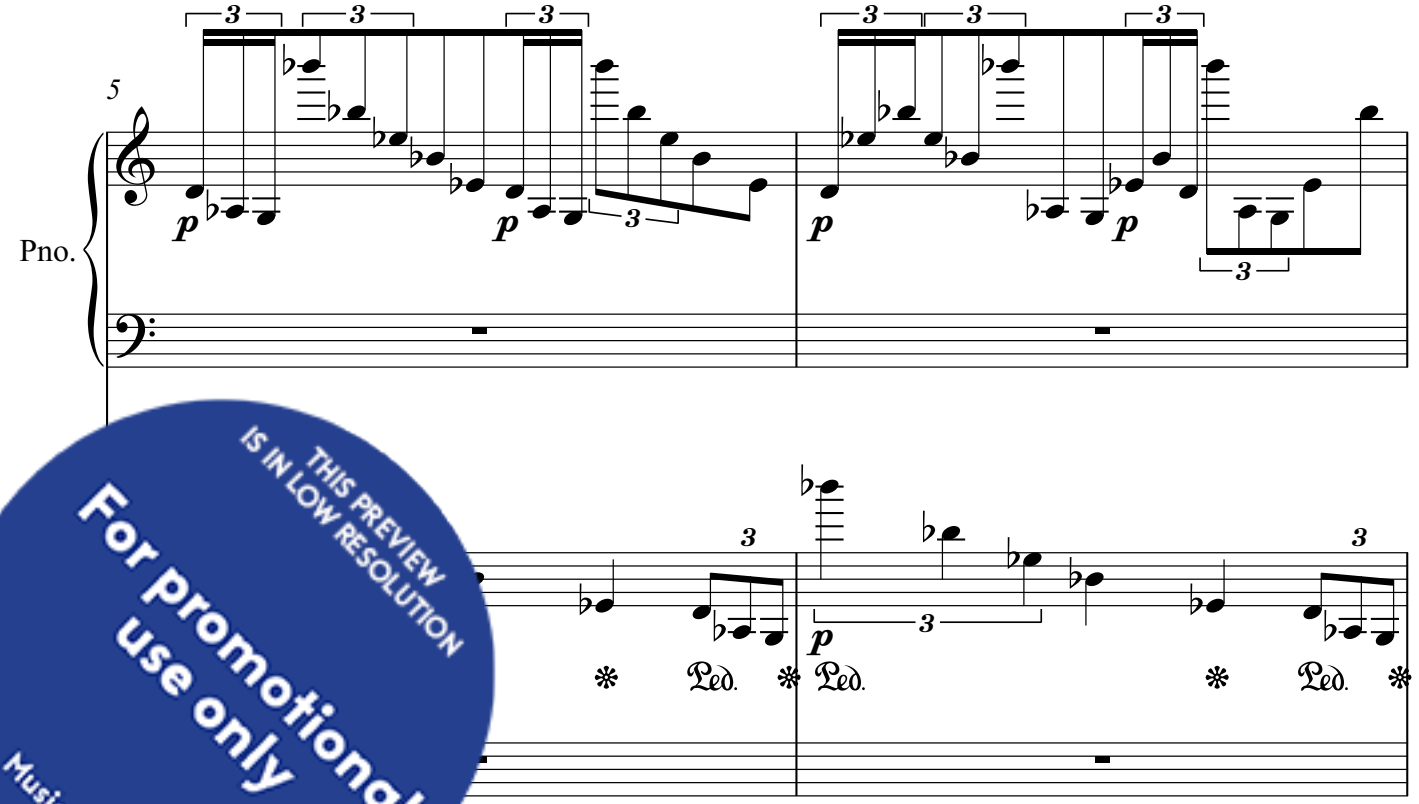

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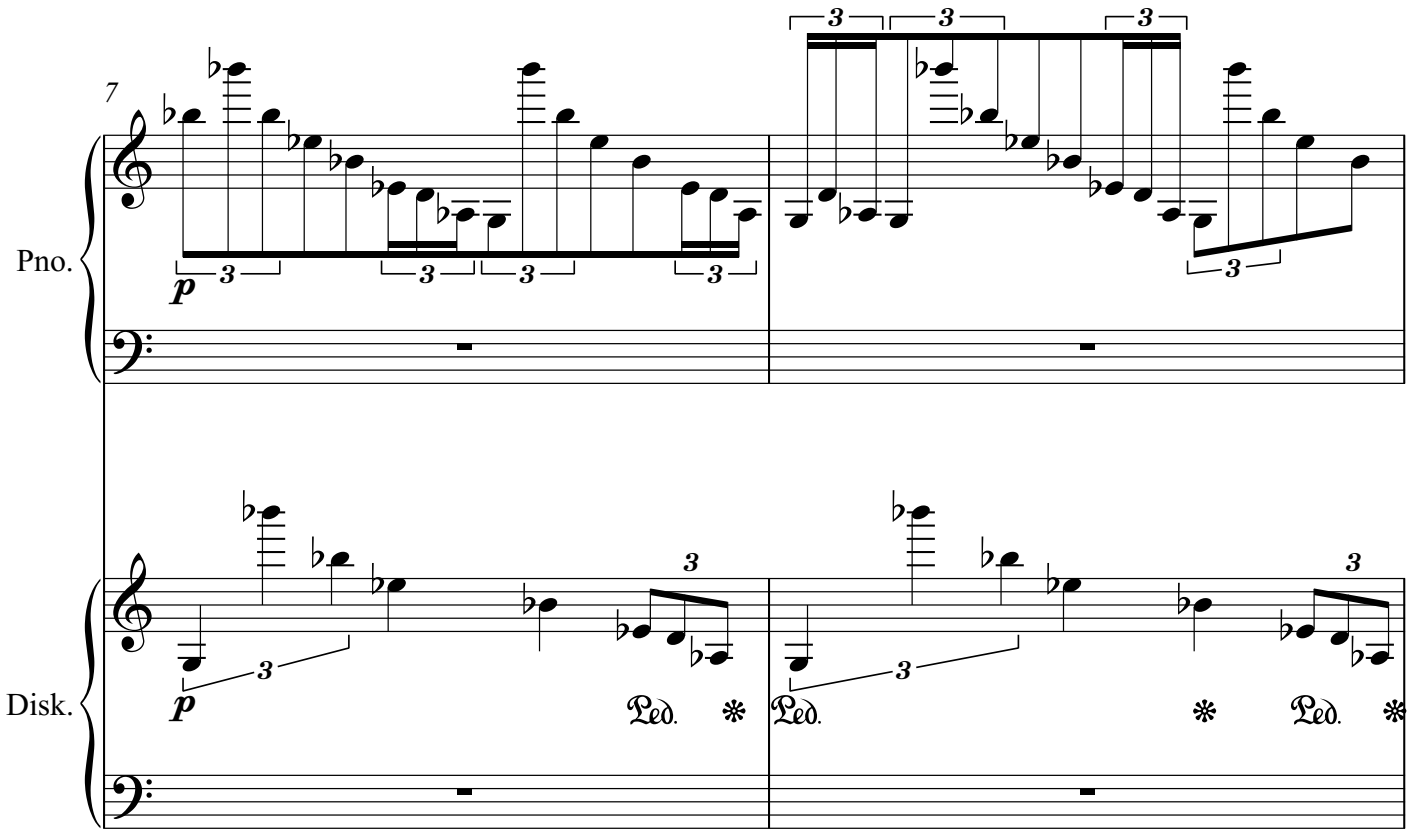

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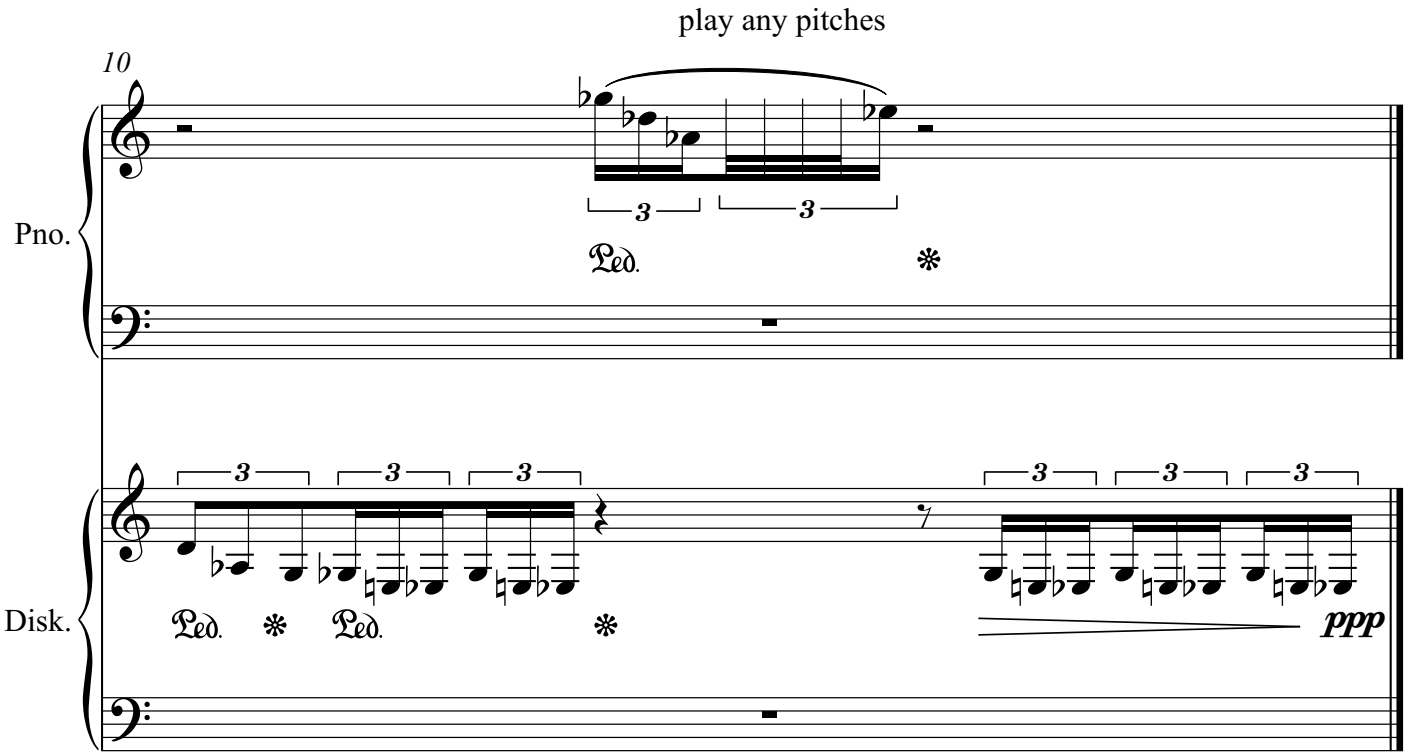

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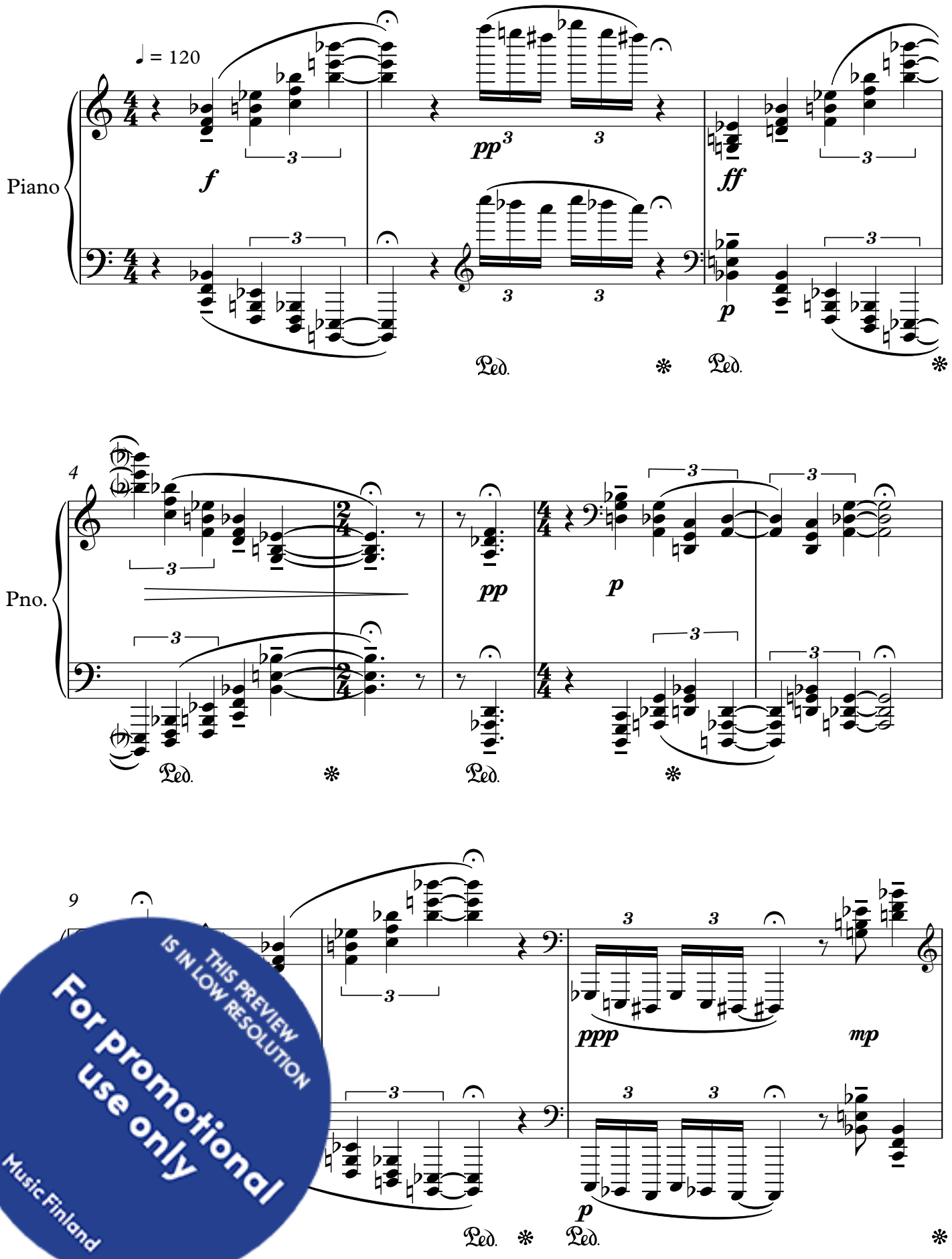
Path 2a



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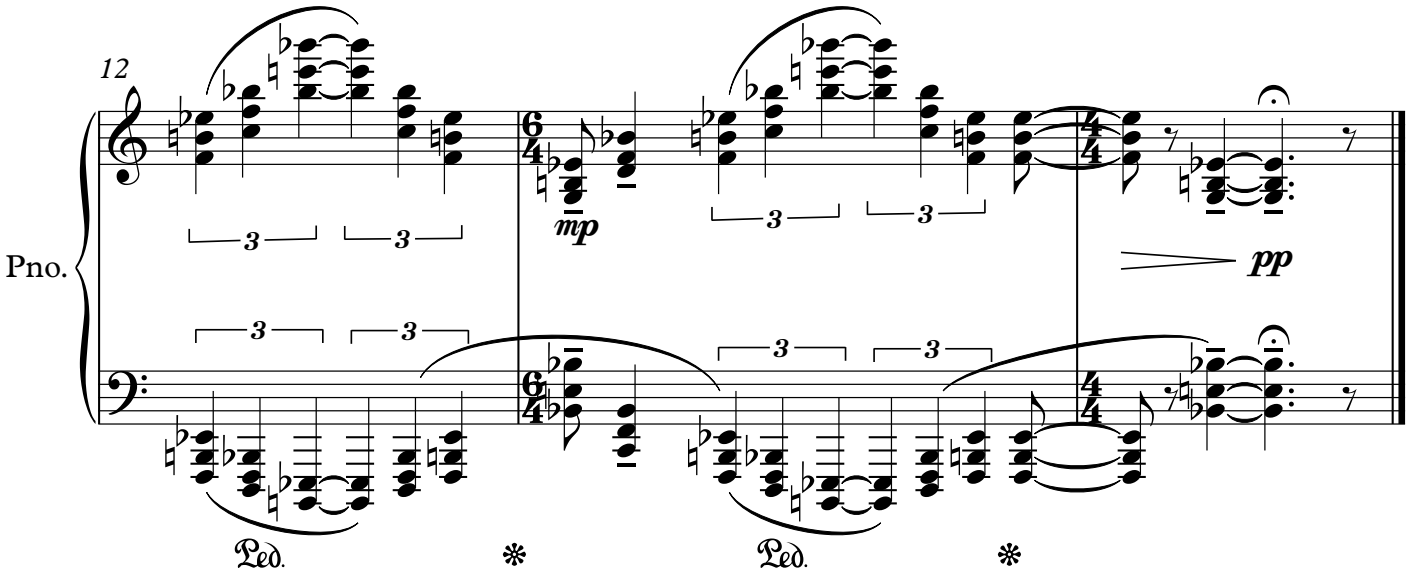

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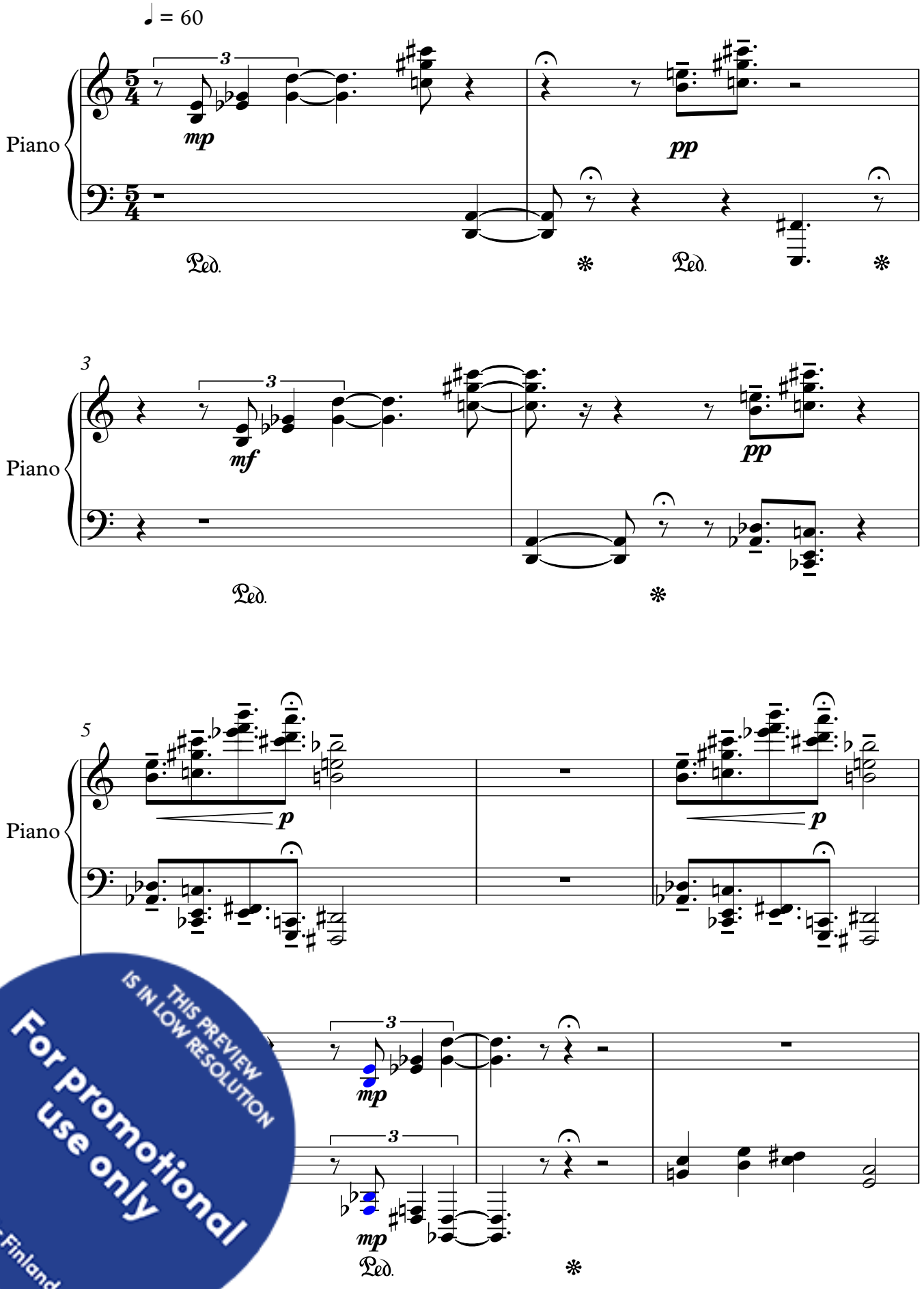
A Tree Trunk on the Path (2b)



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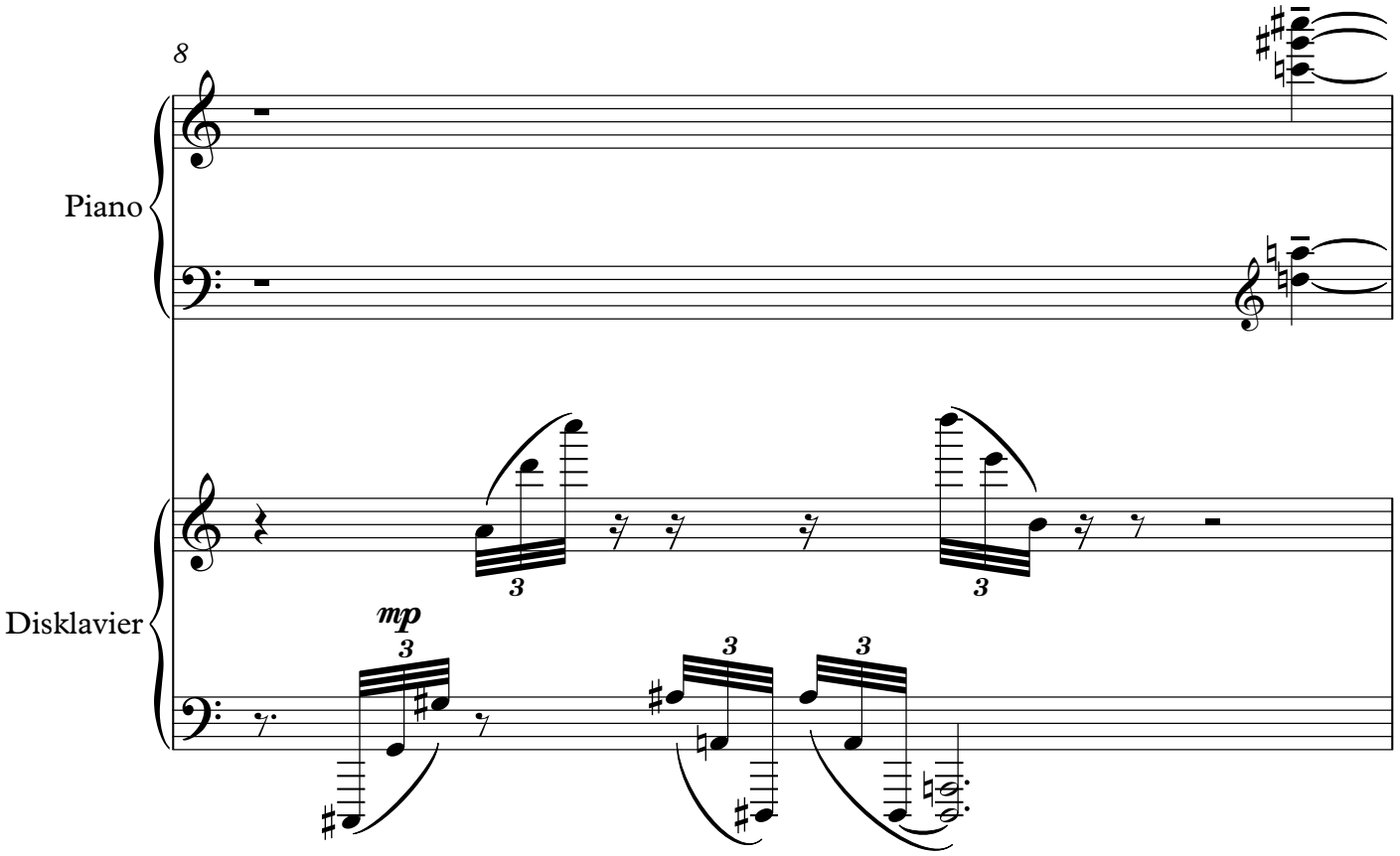

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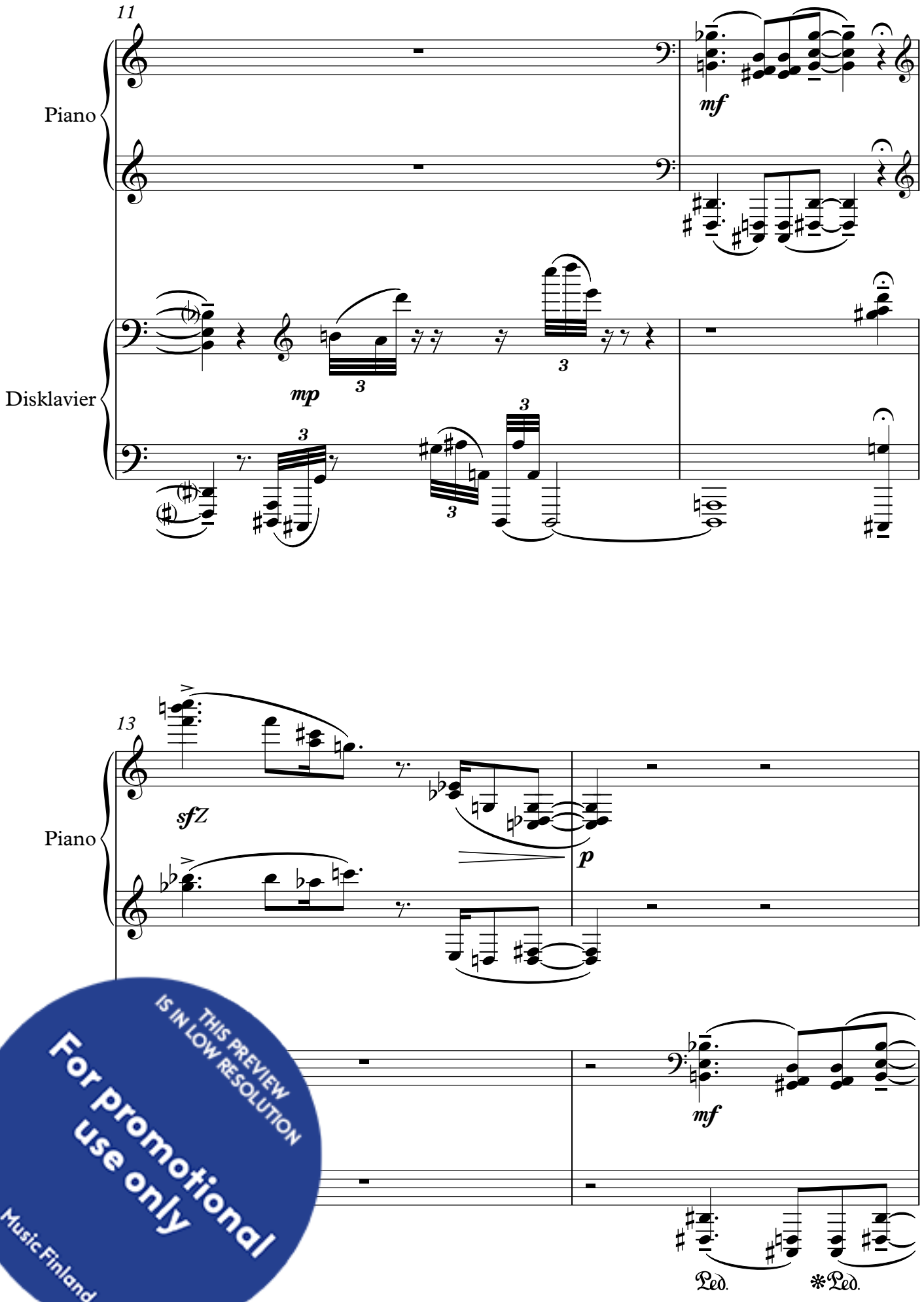

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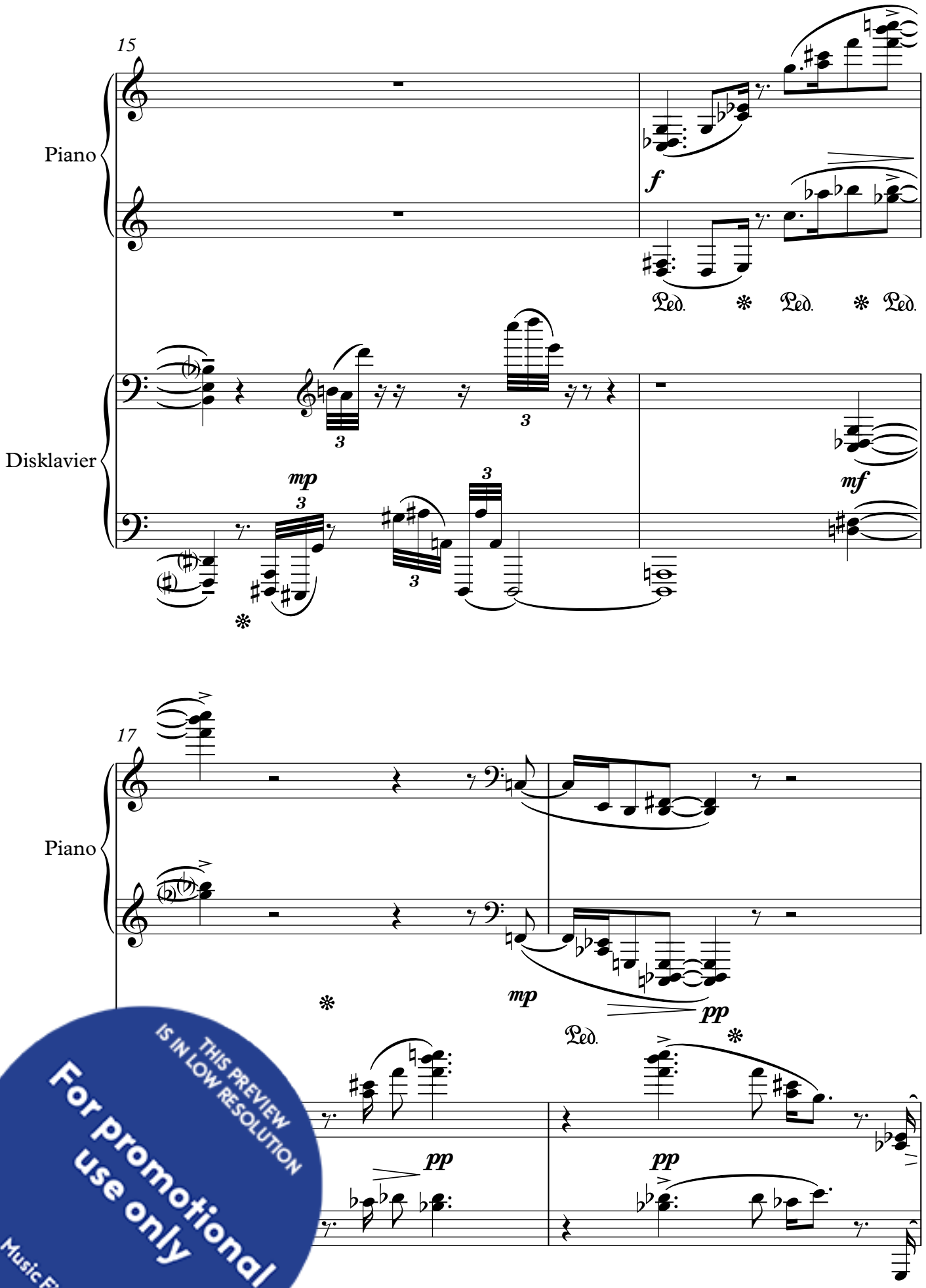

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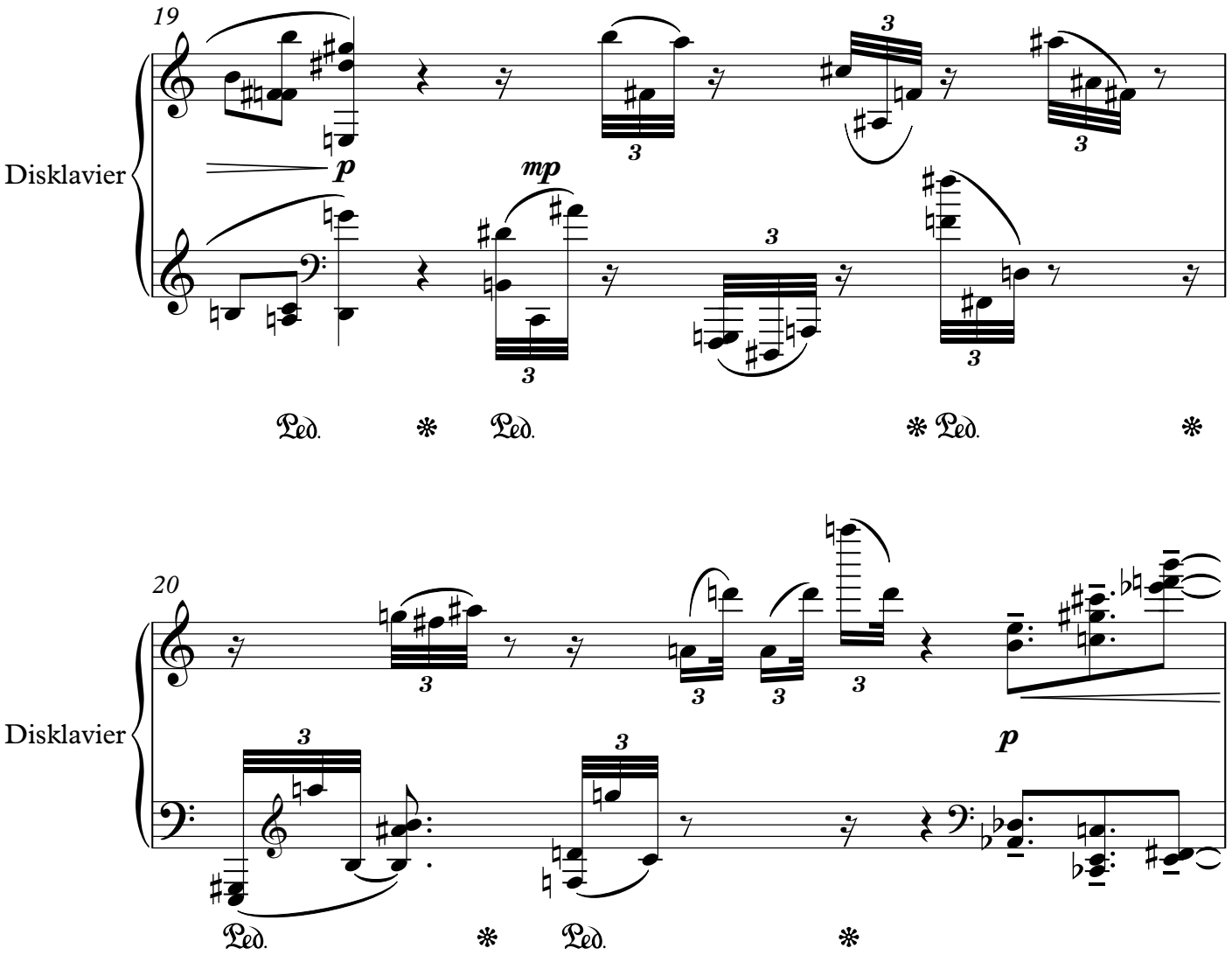

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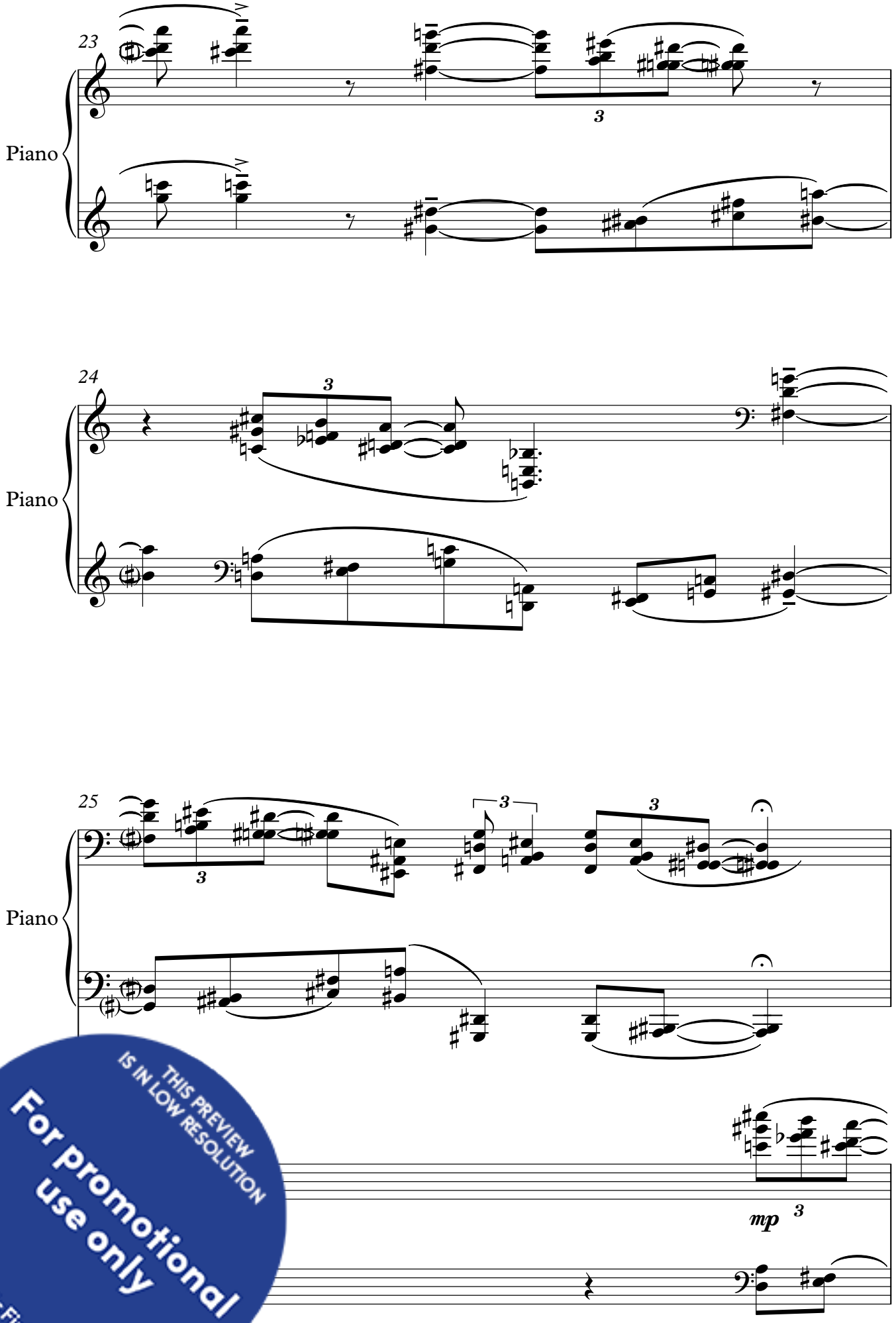

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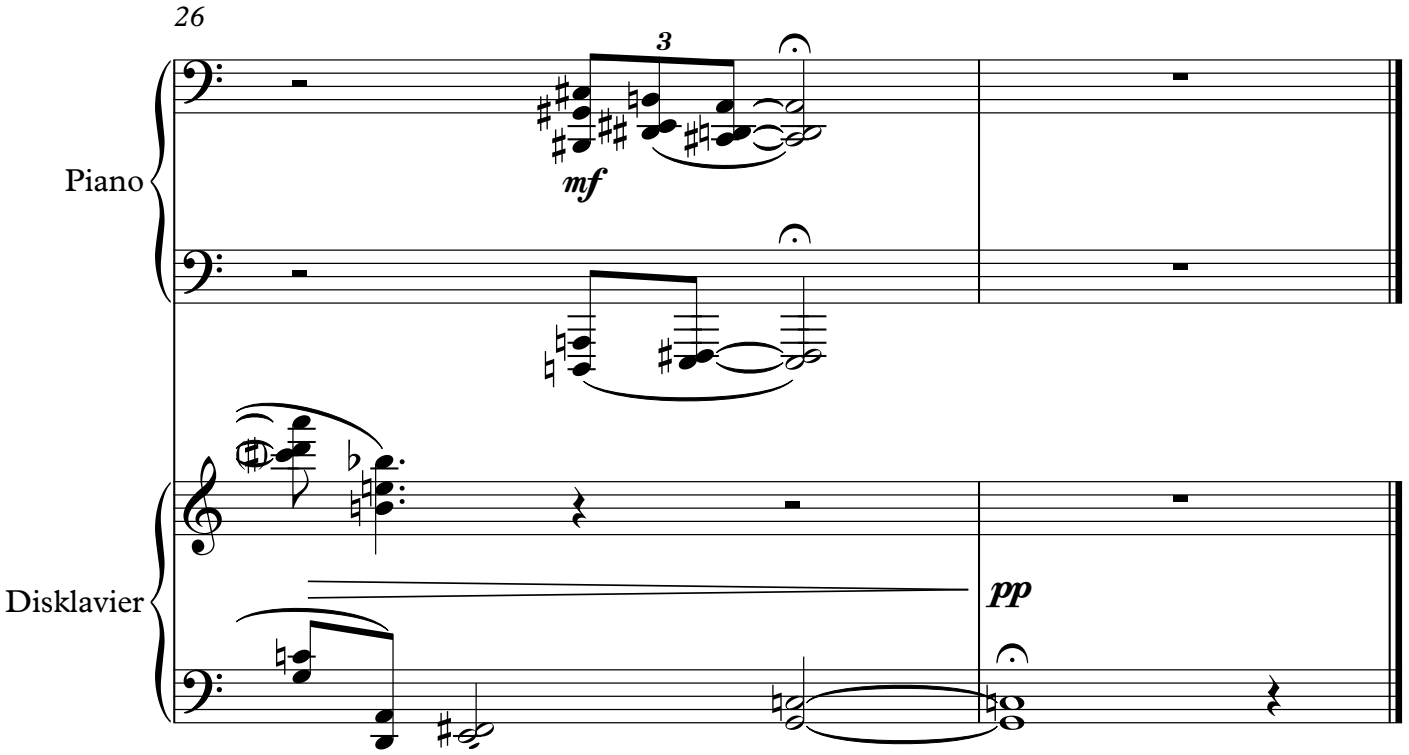

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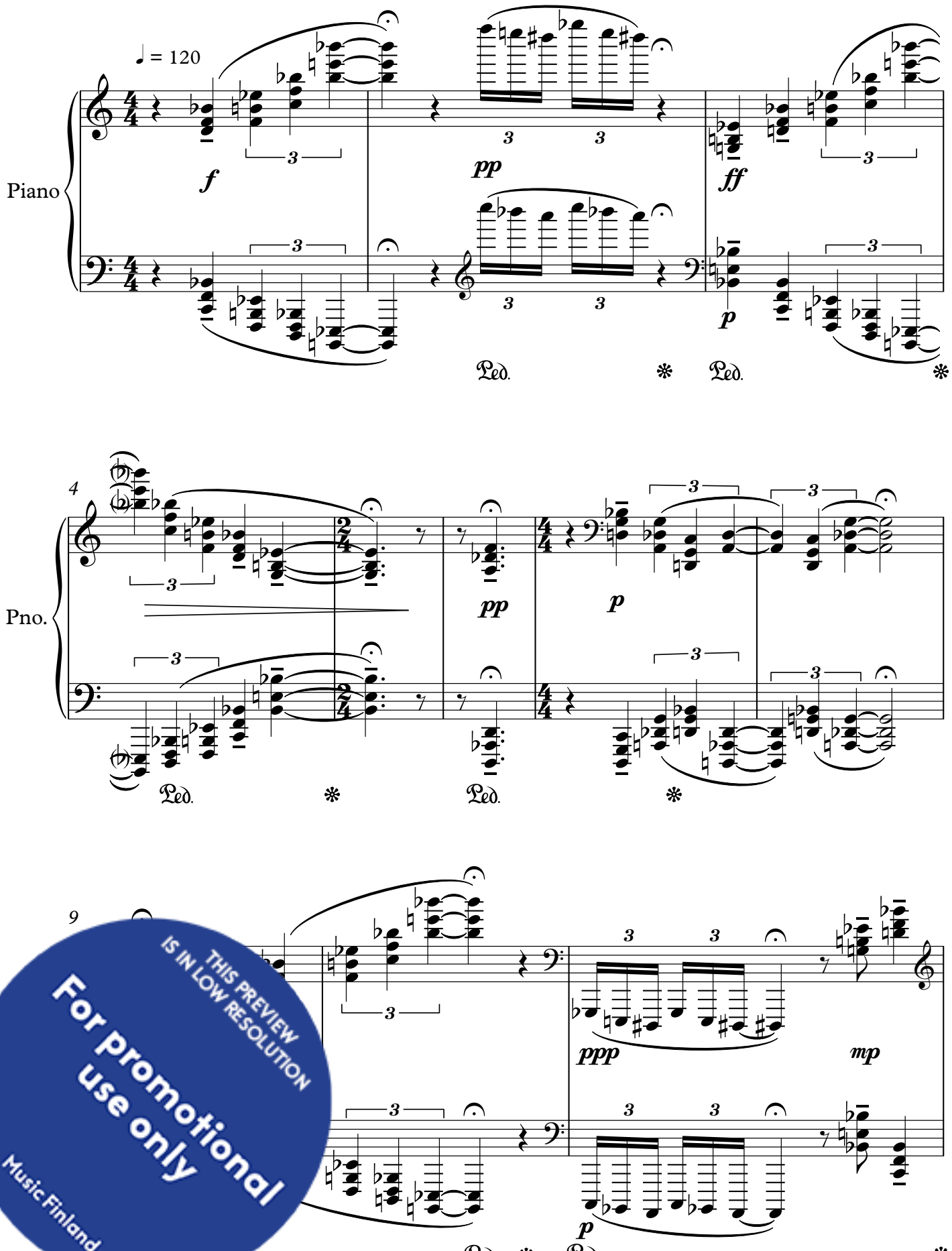
Path 2b



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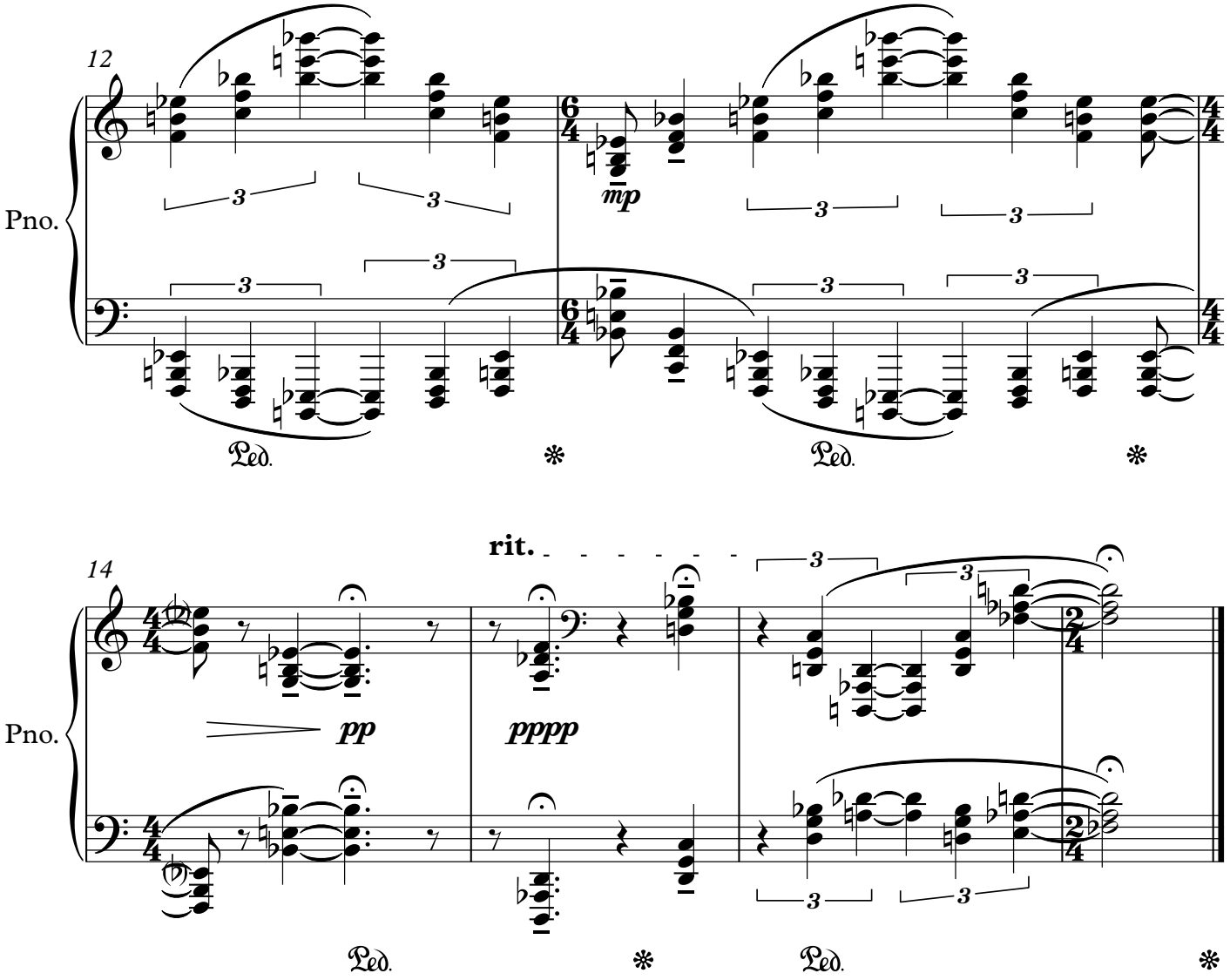

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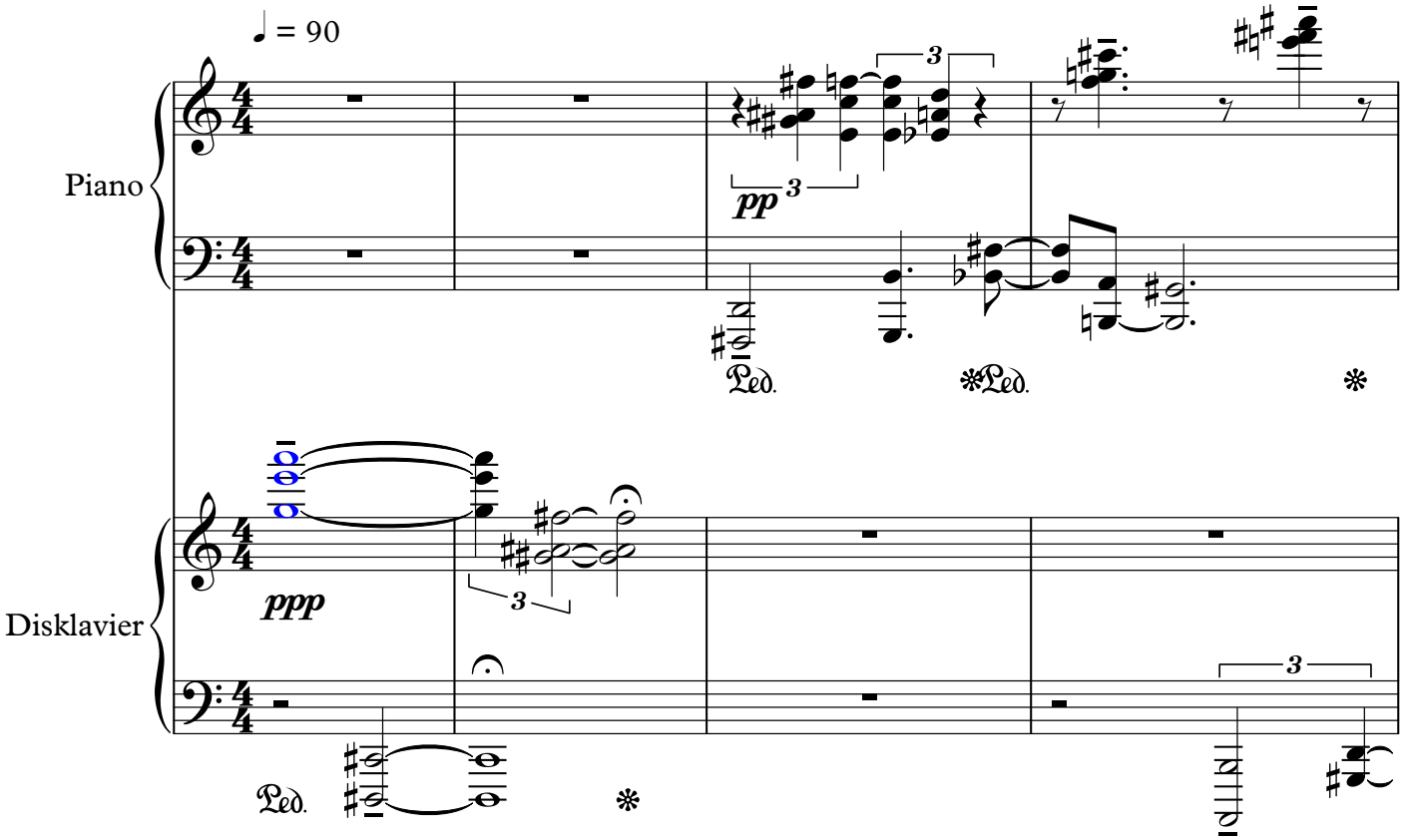
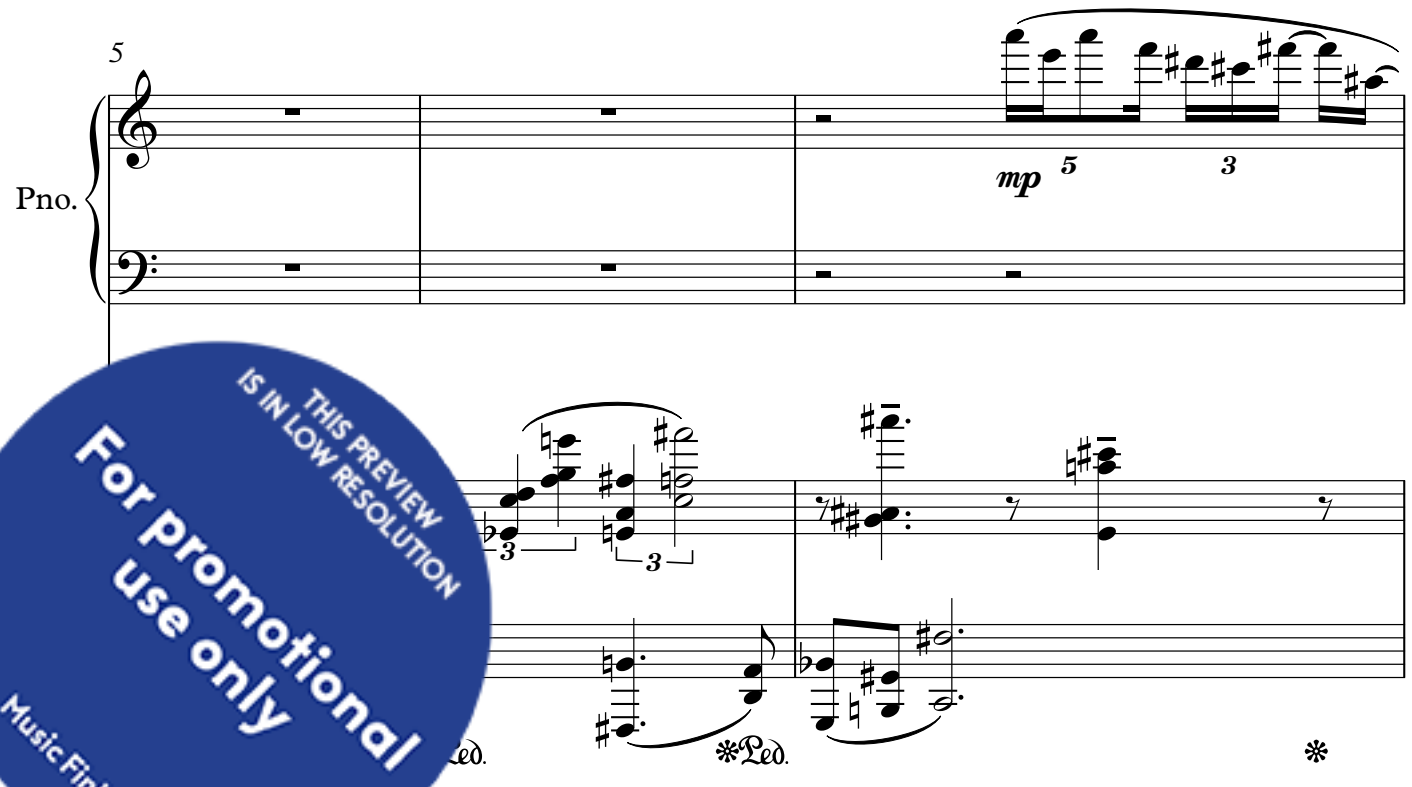
A Scary, Whispering Forest (3b)





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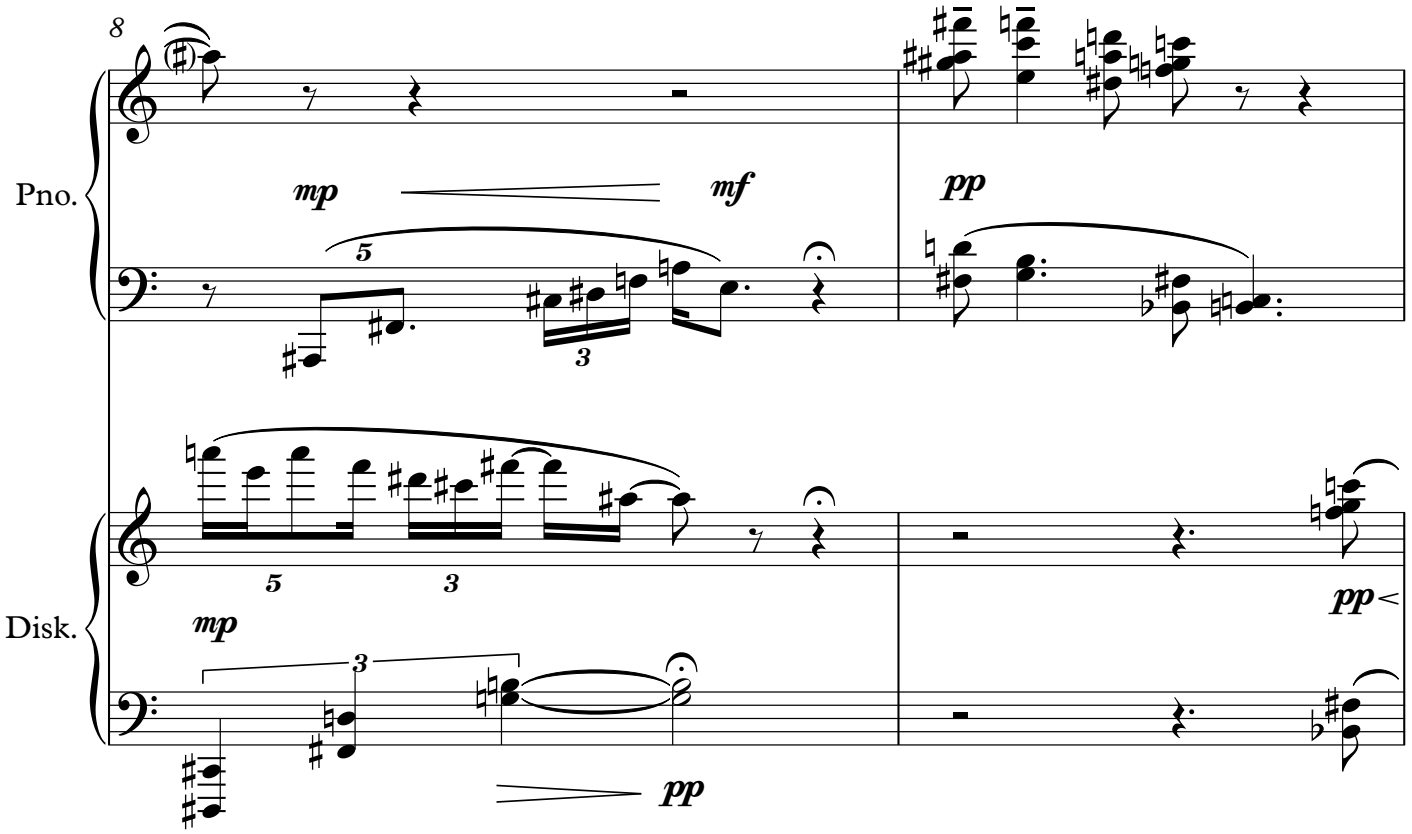

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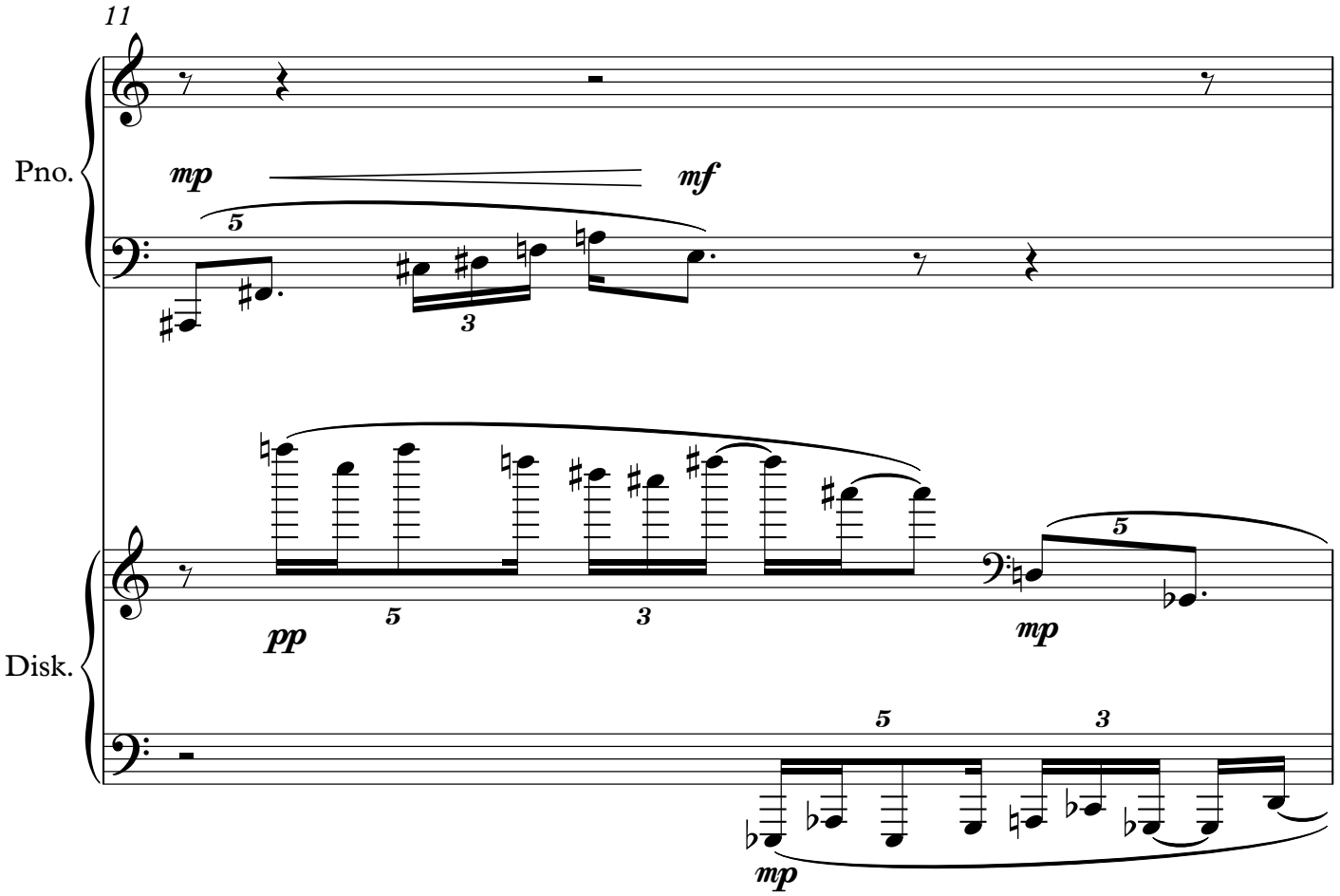

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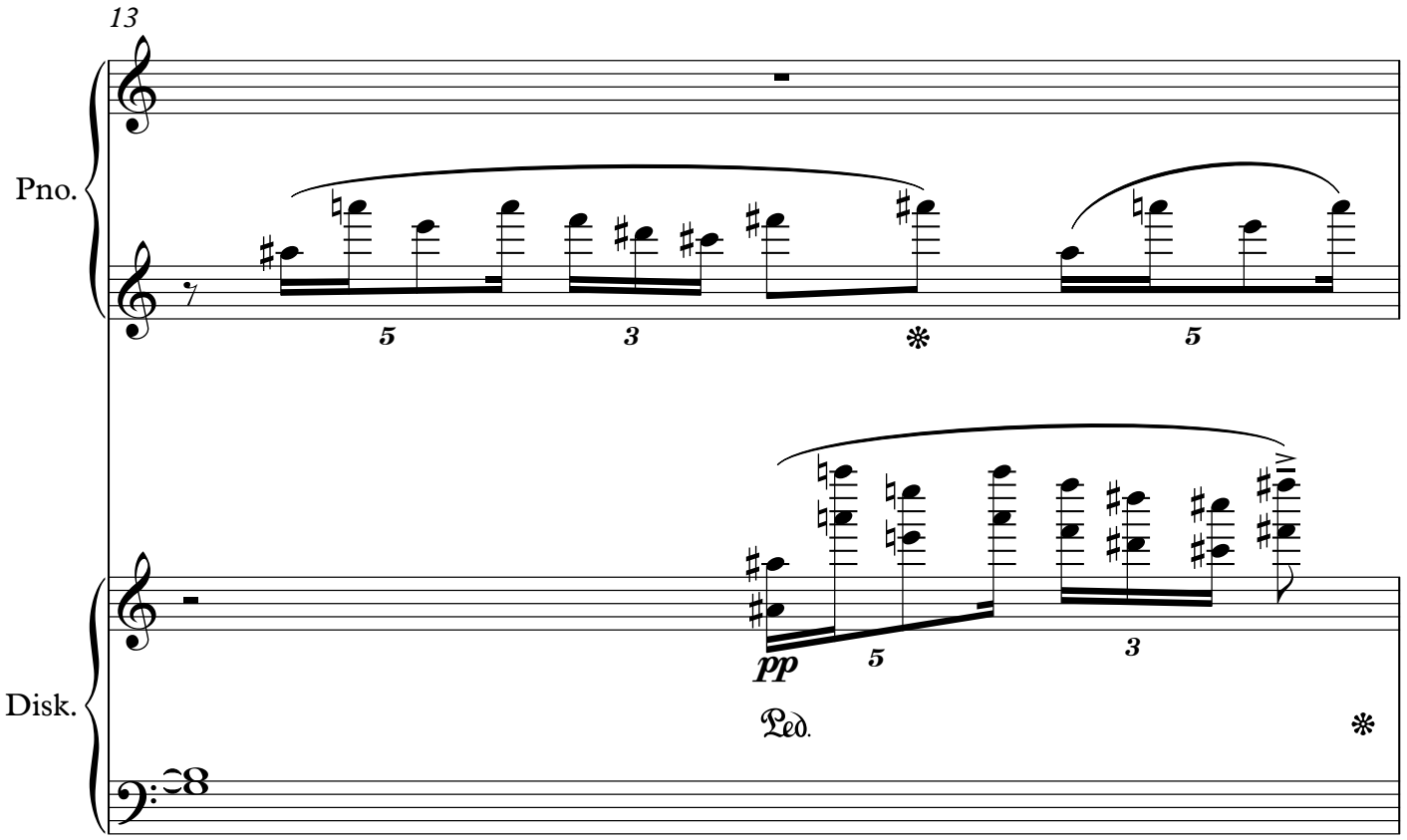

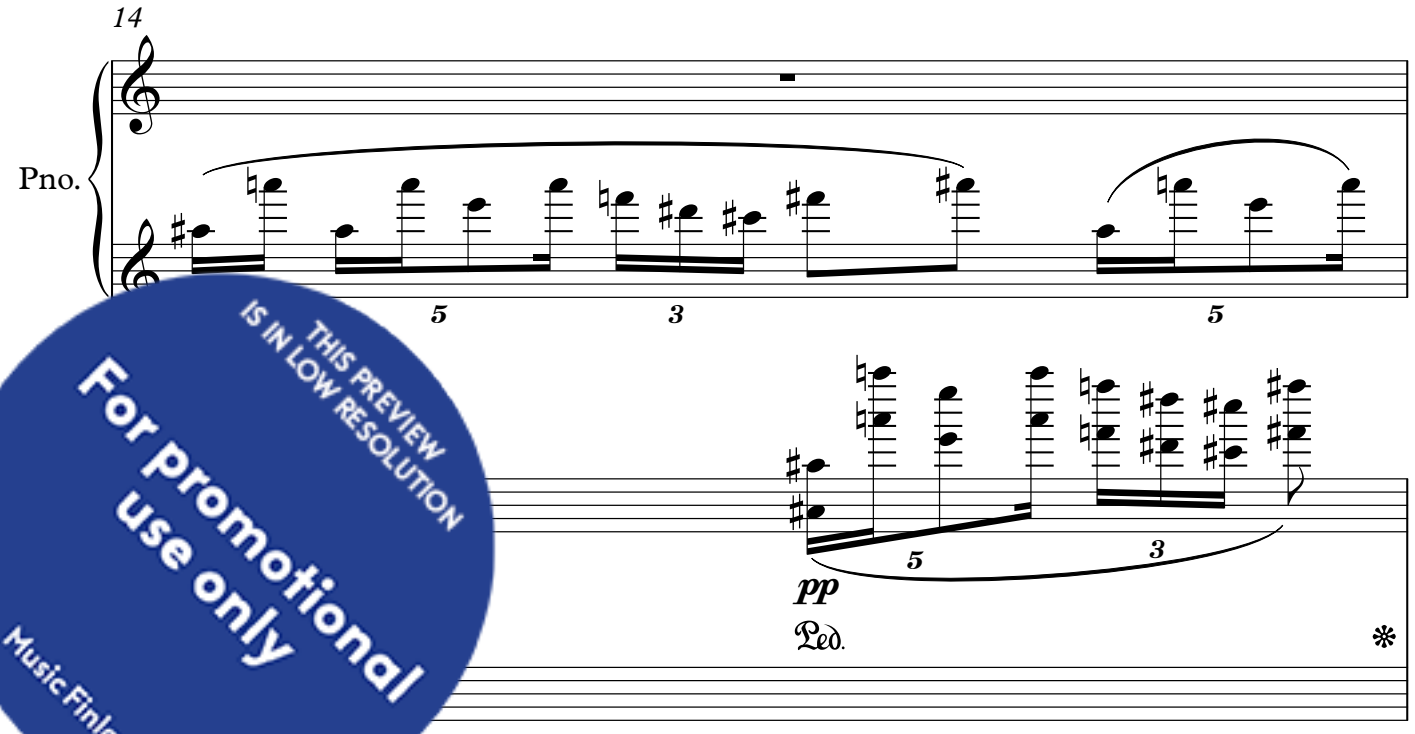

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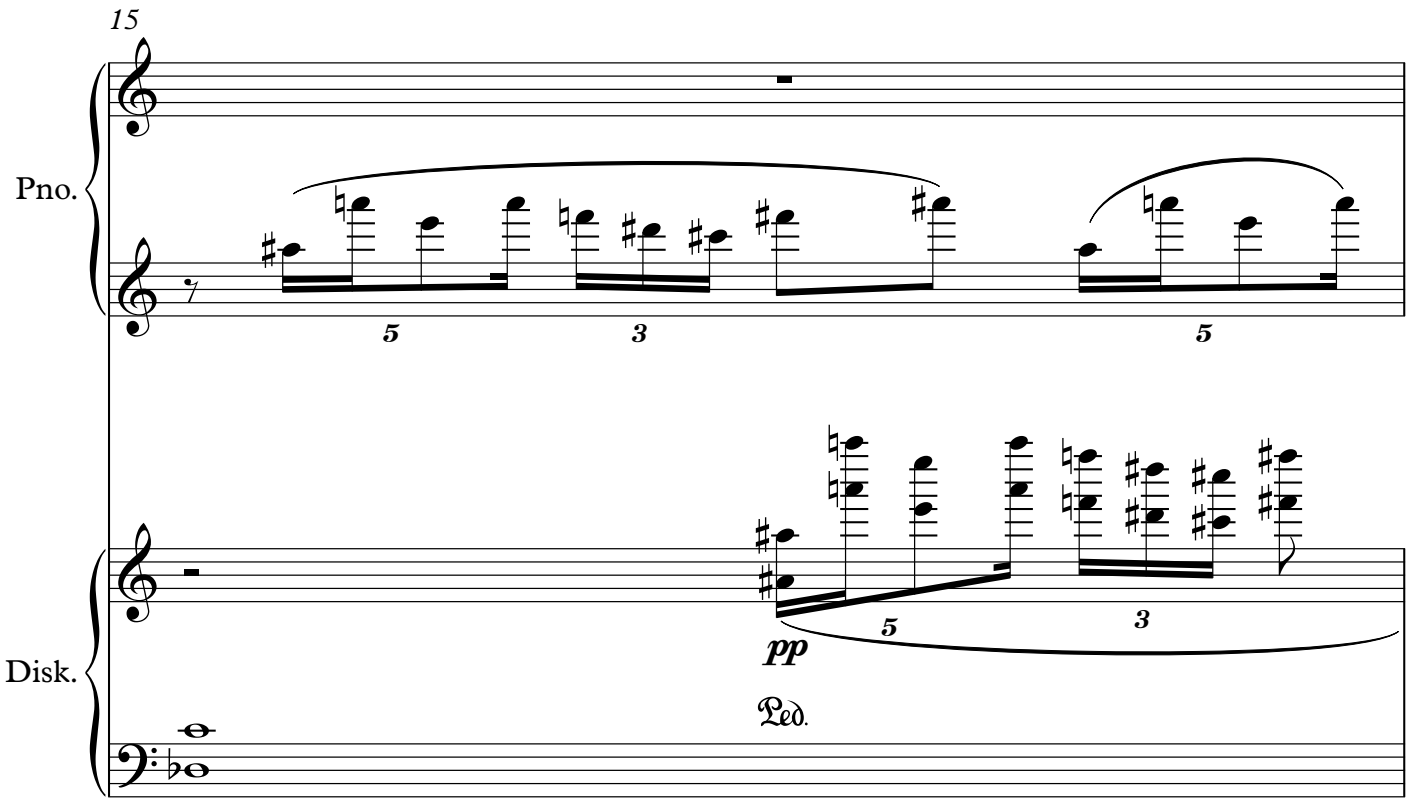

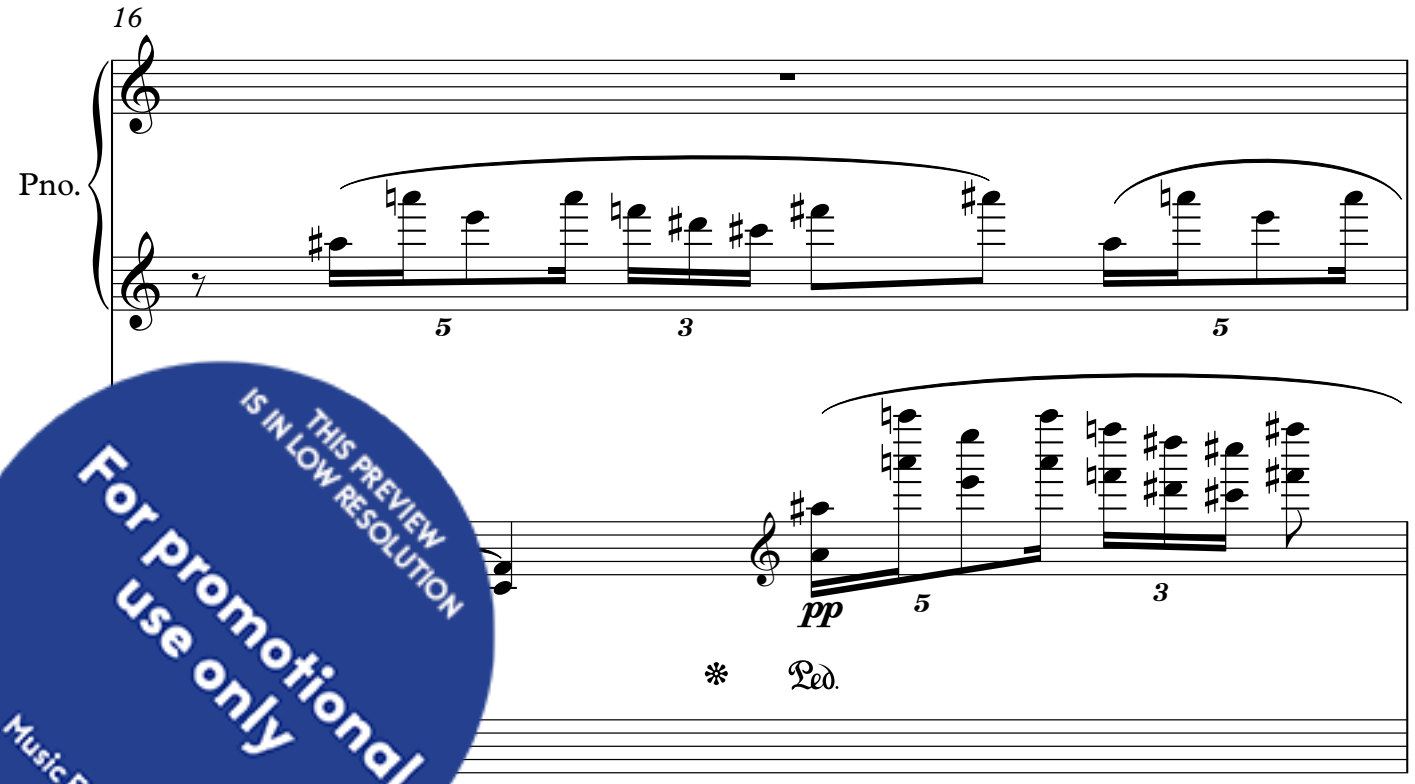

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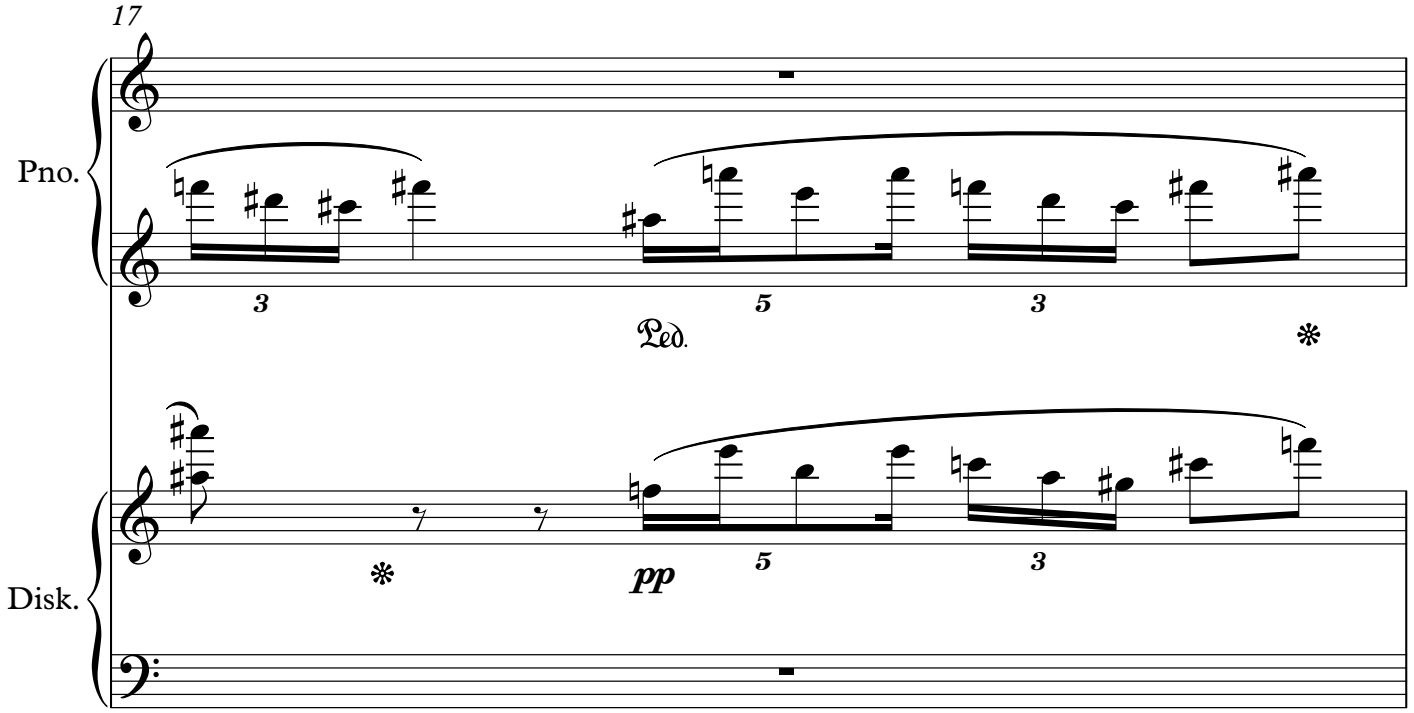

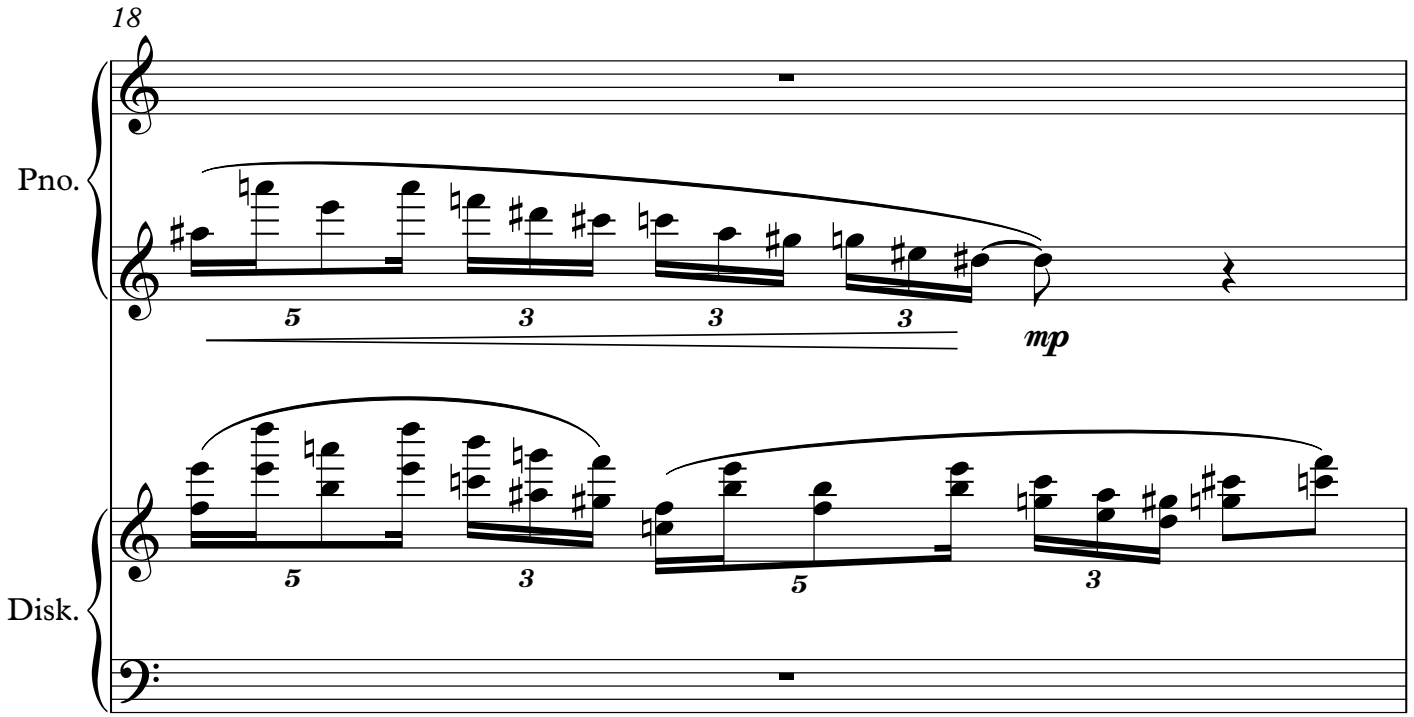

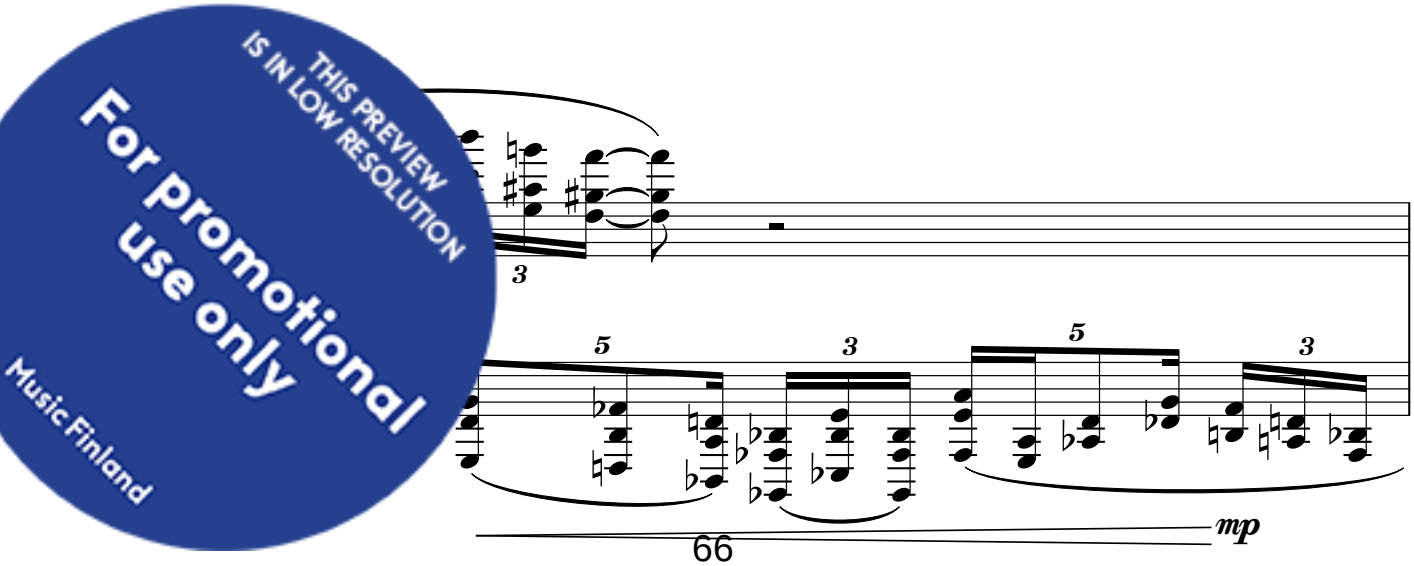

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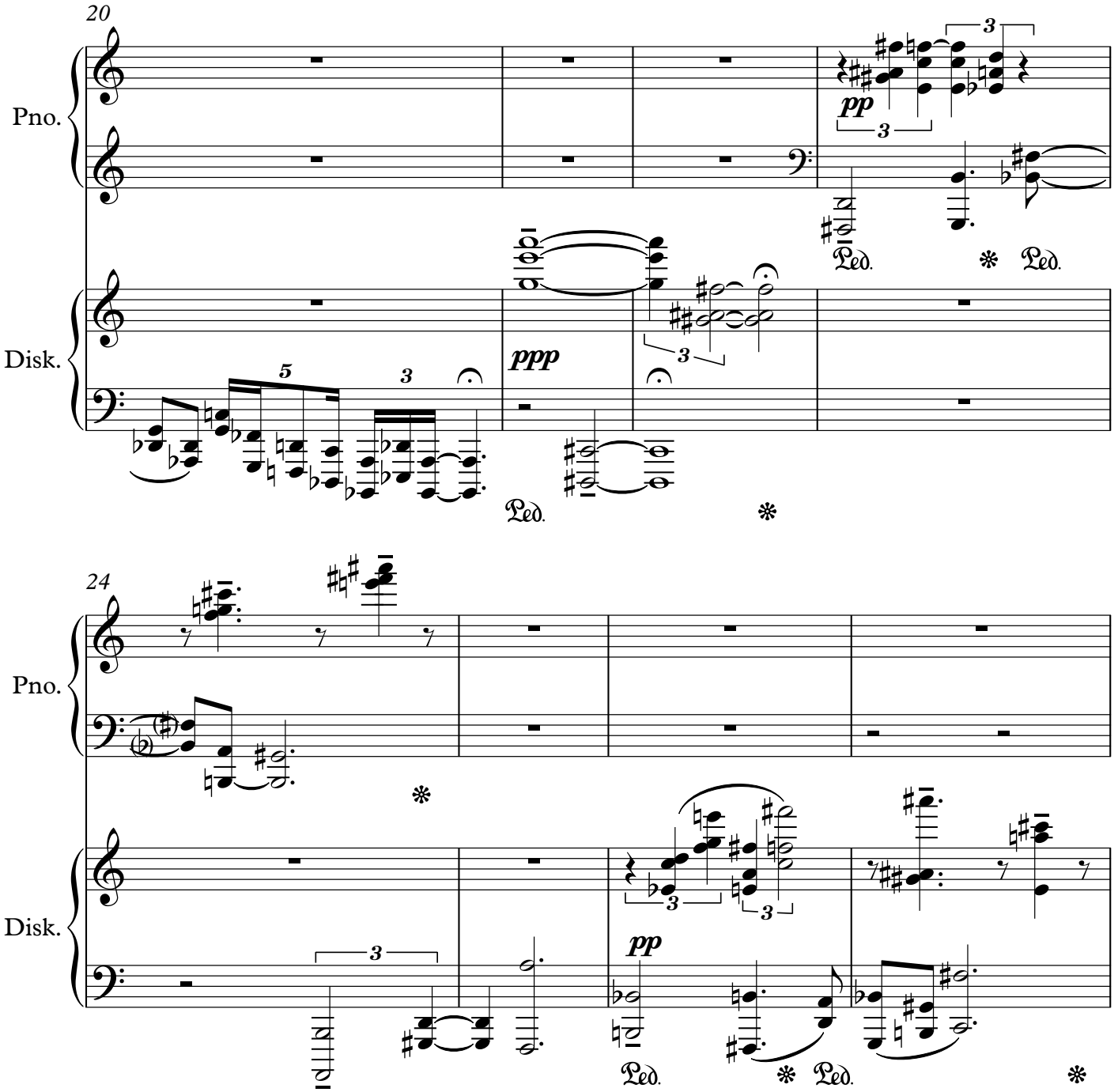

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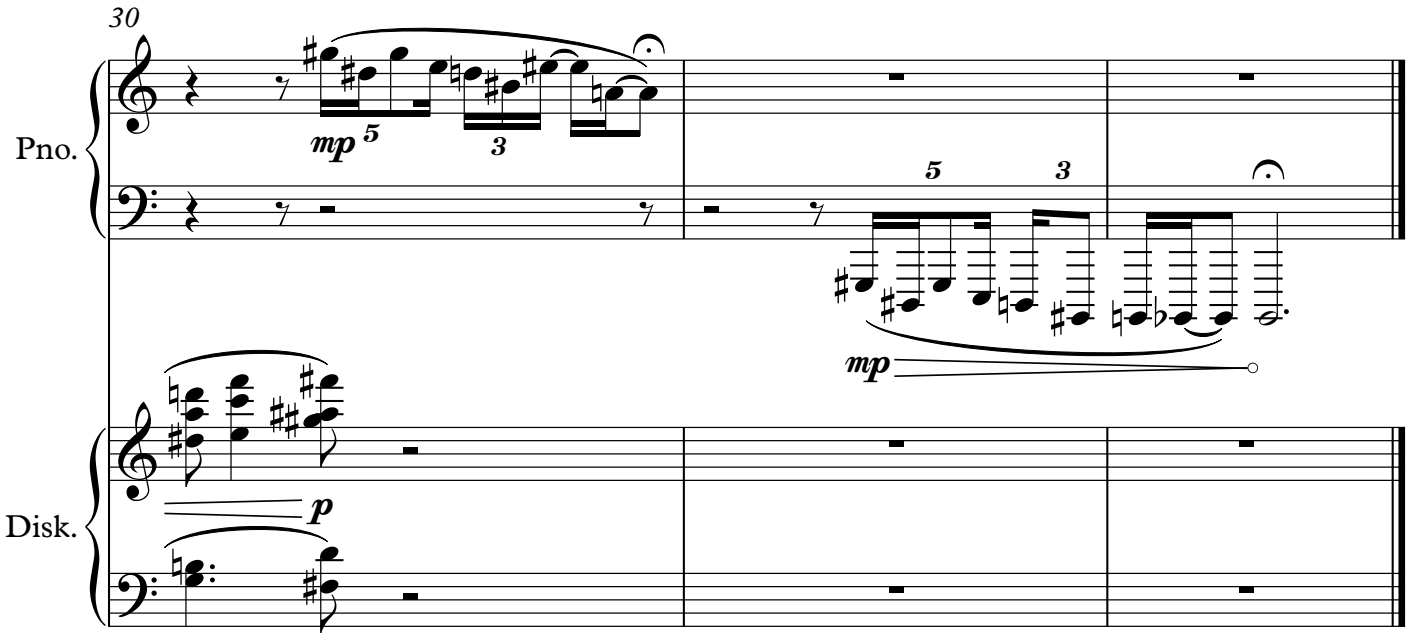

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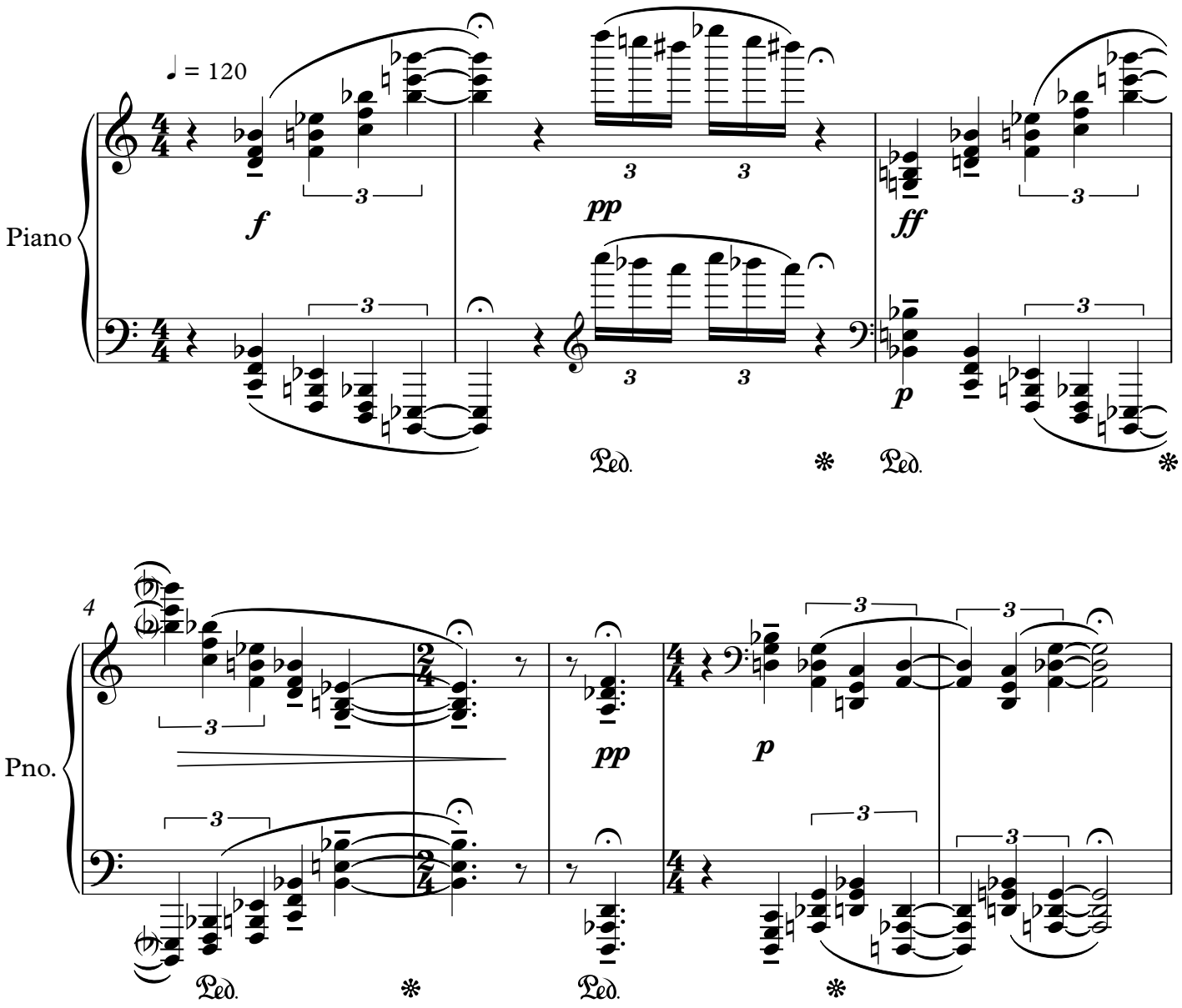
Path 2c



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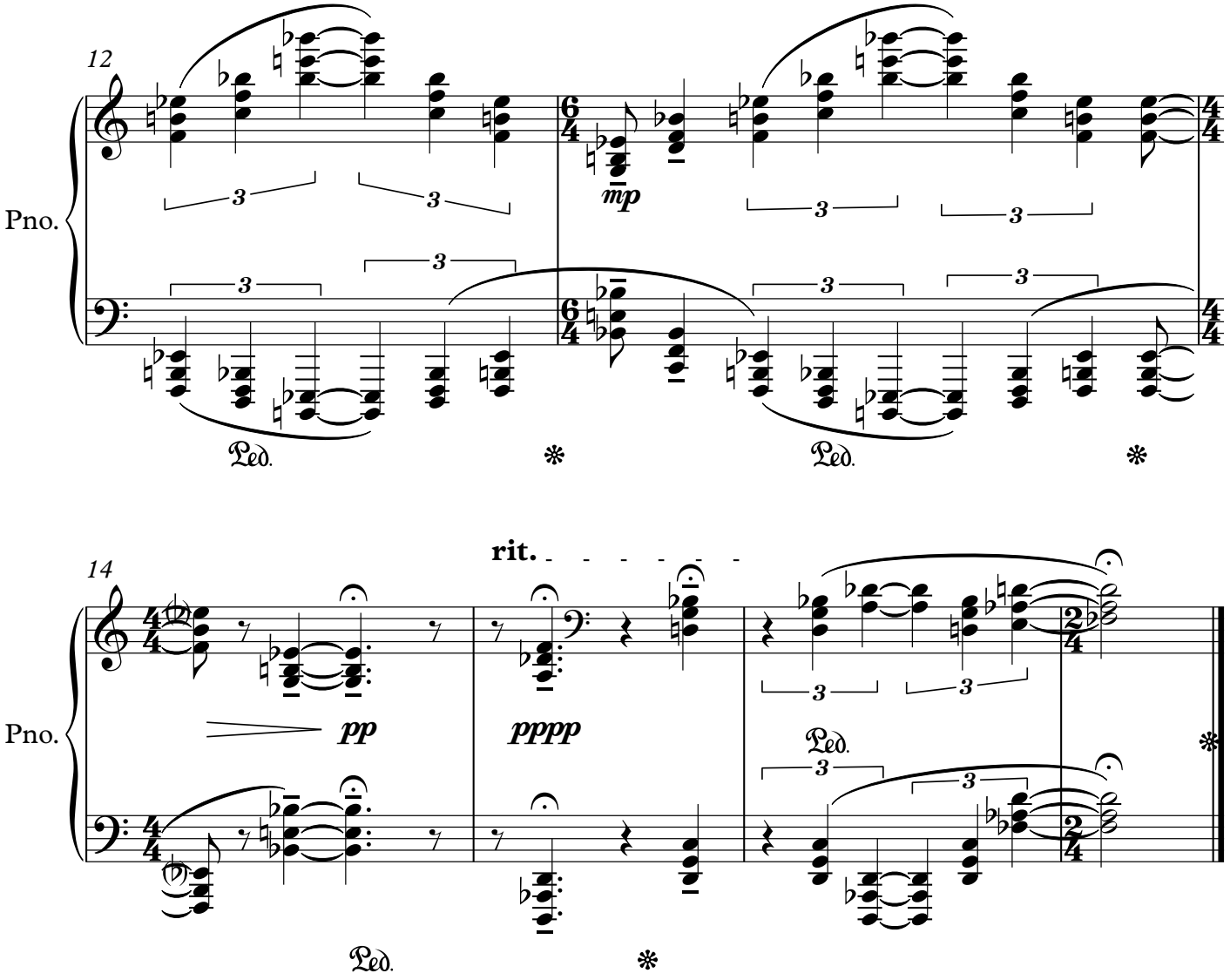

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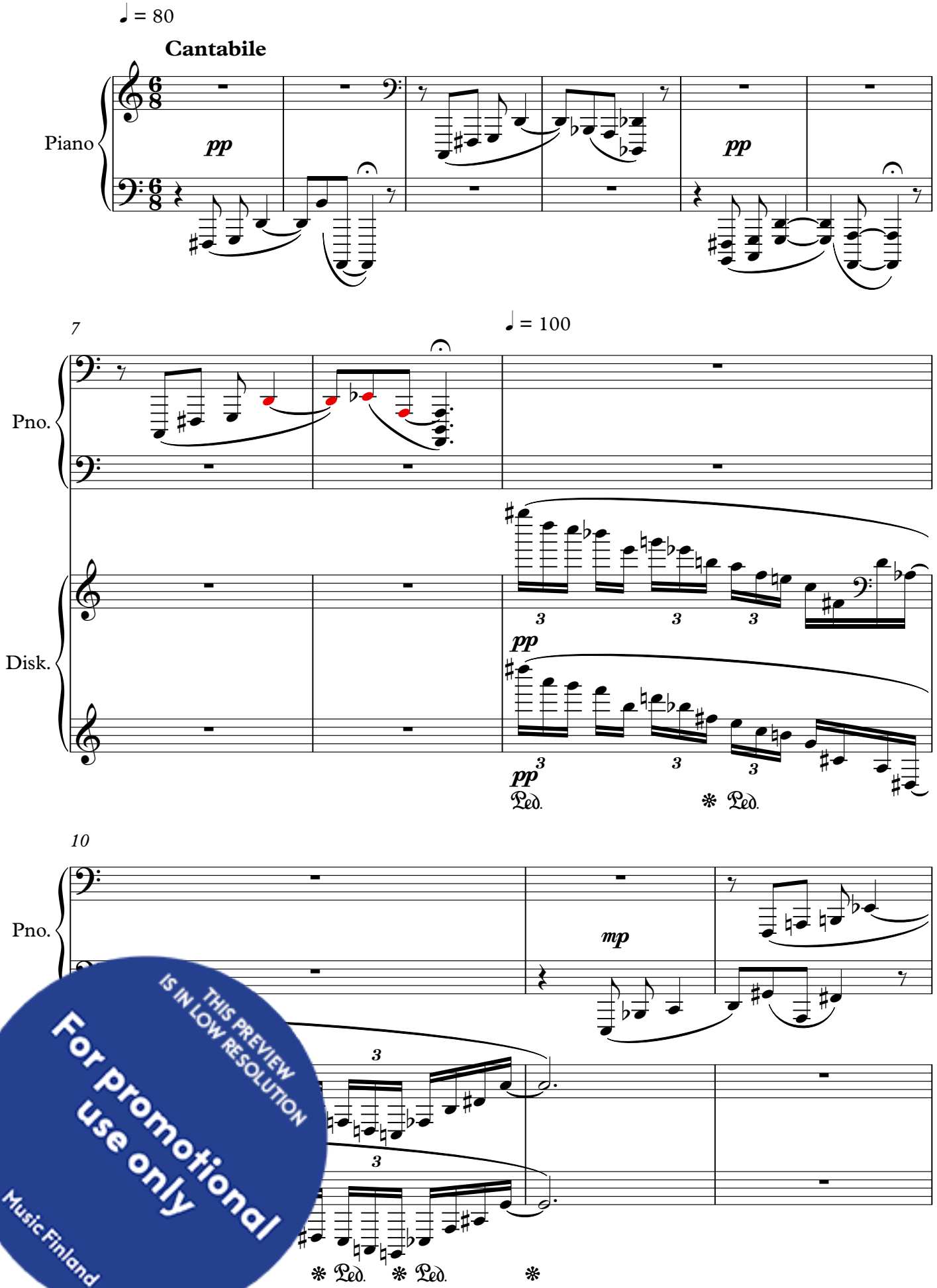
A Hallucination (4b)



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13

Pno.

Disk.

pp

Ped. ✻ Ped. ✻ Ped. ✻ Ped.

15

Pno.

p

Disk.

✻

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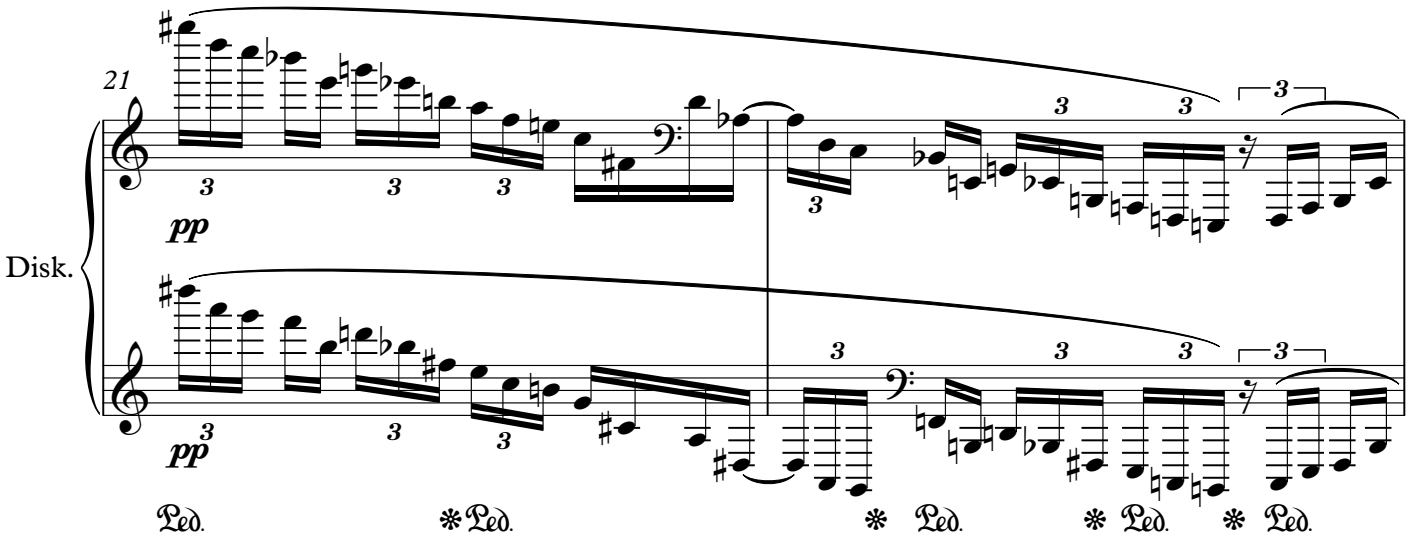

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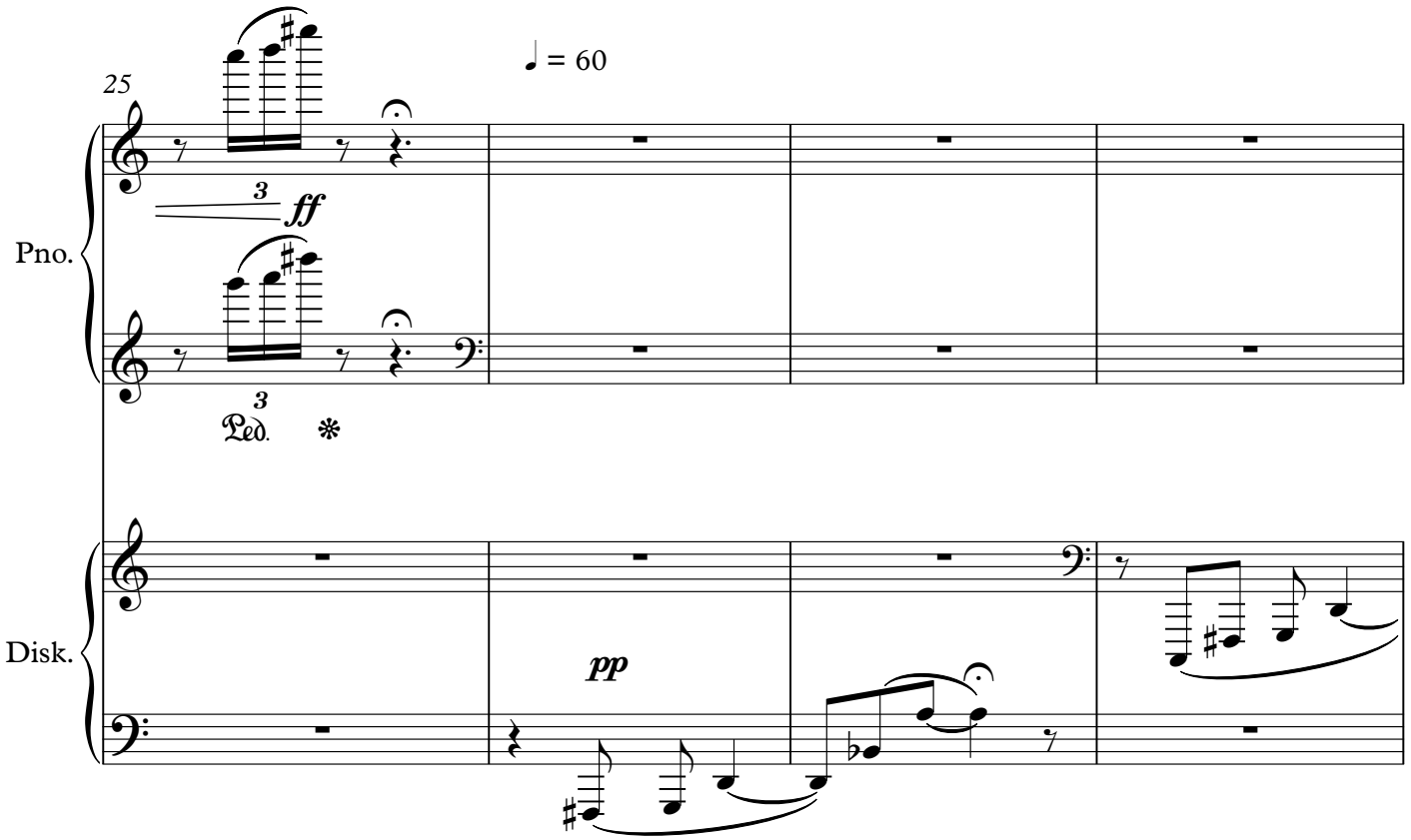

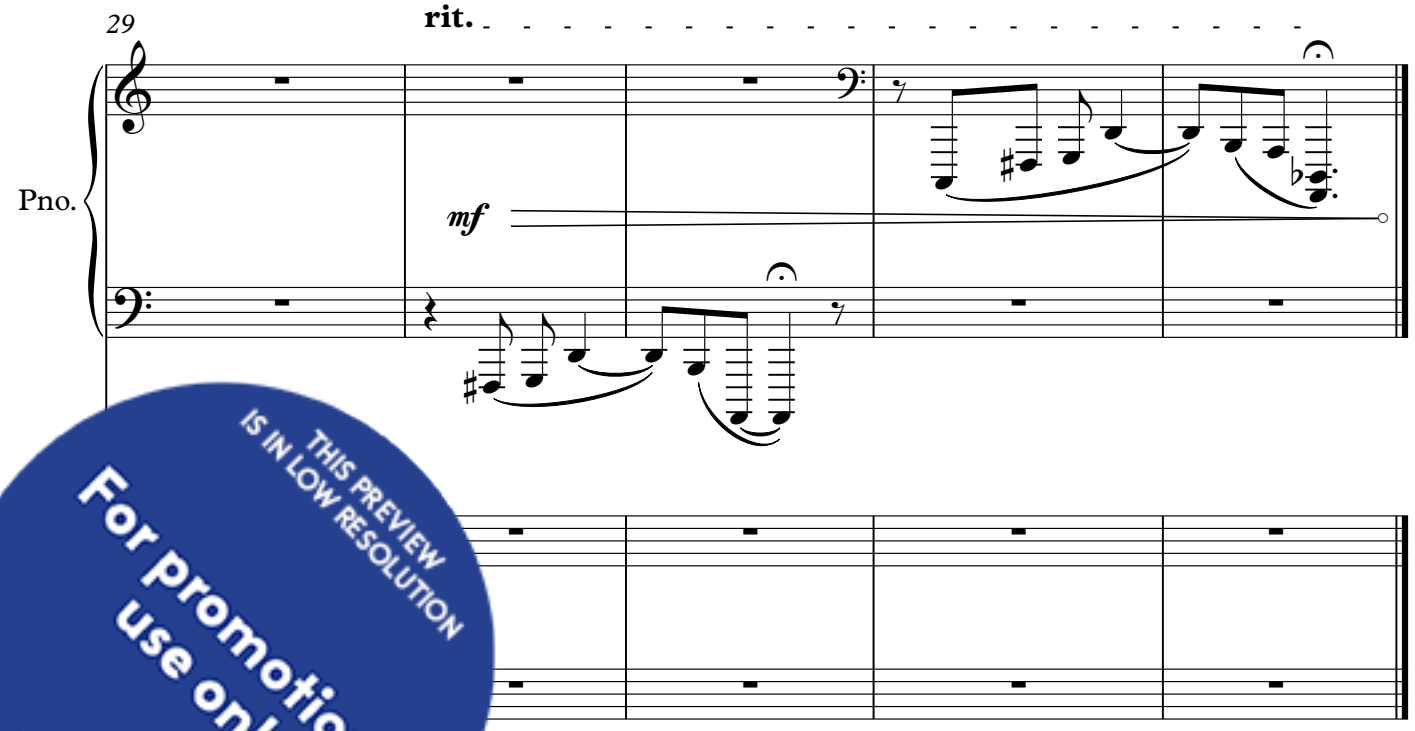

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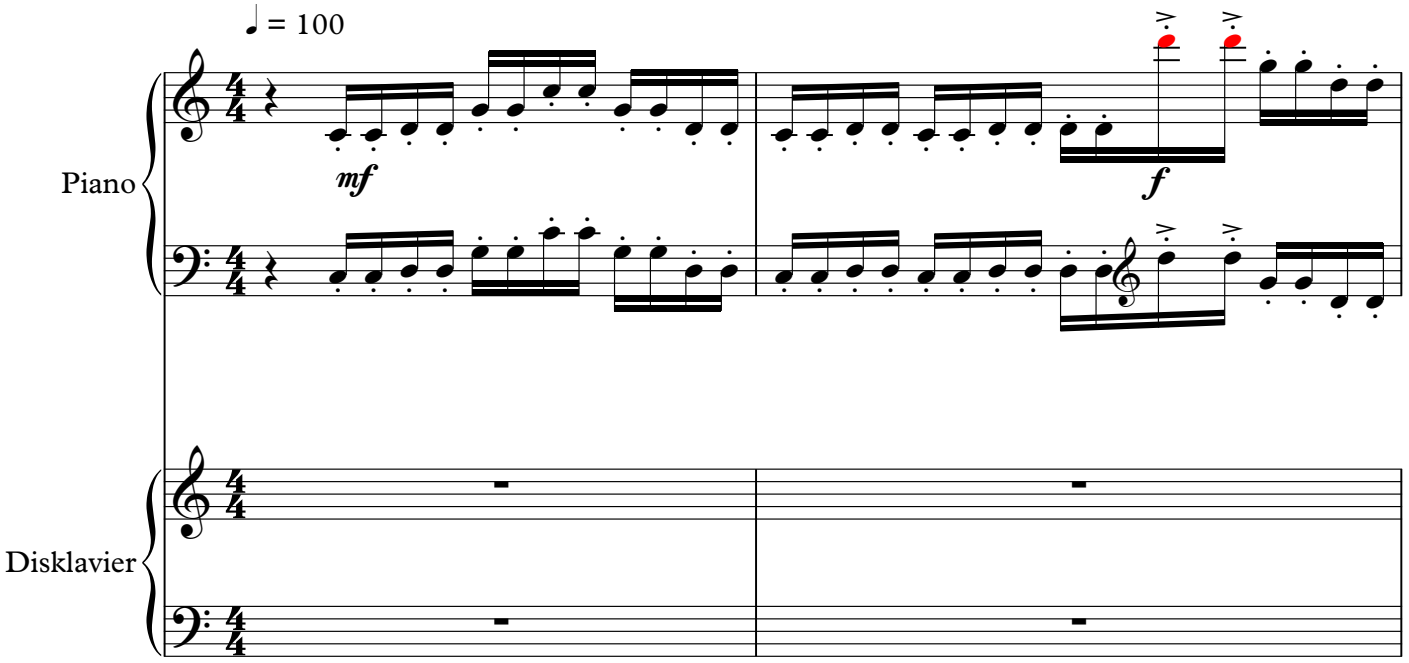
Birds Attack (5b)



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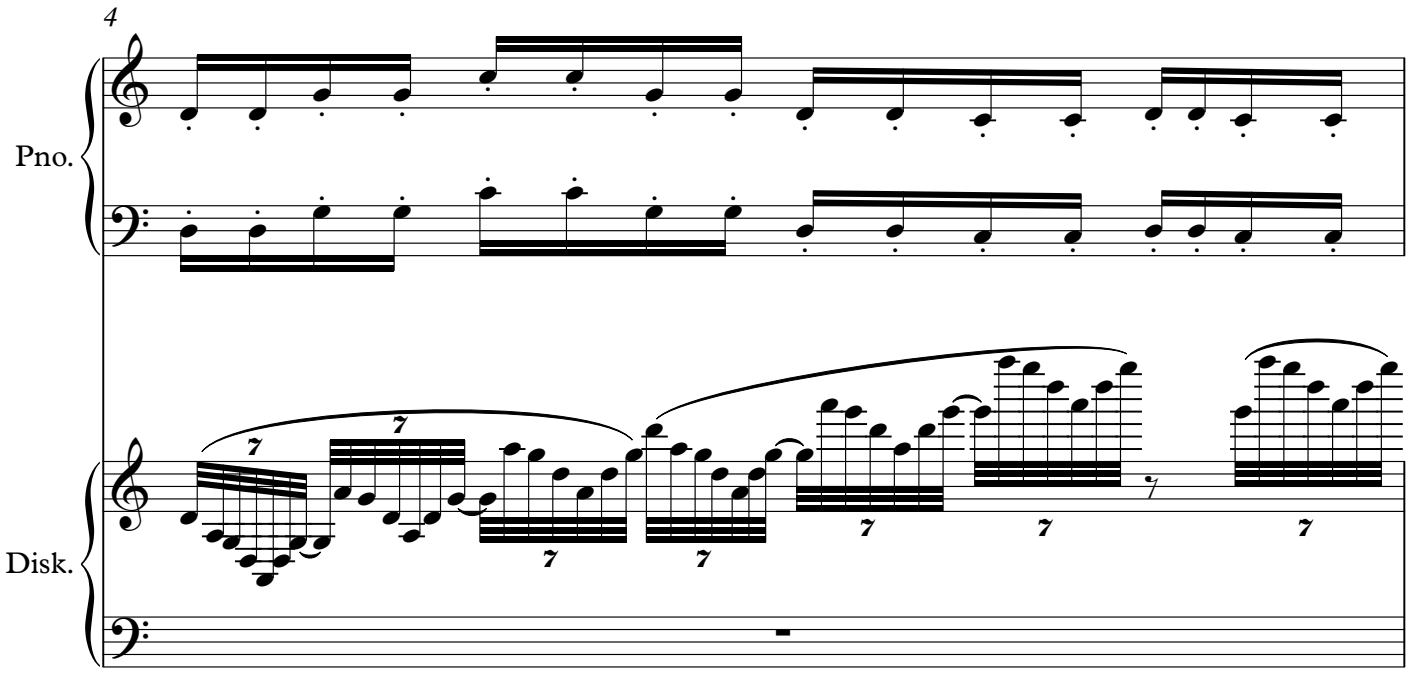

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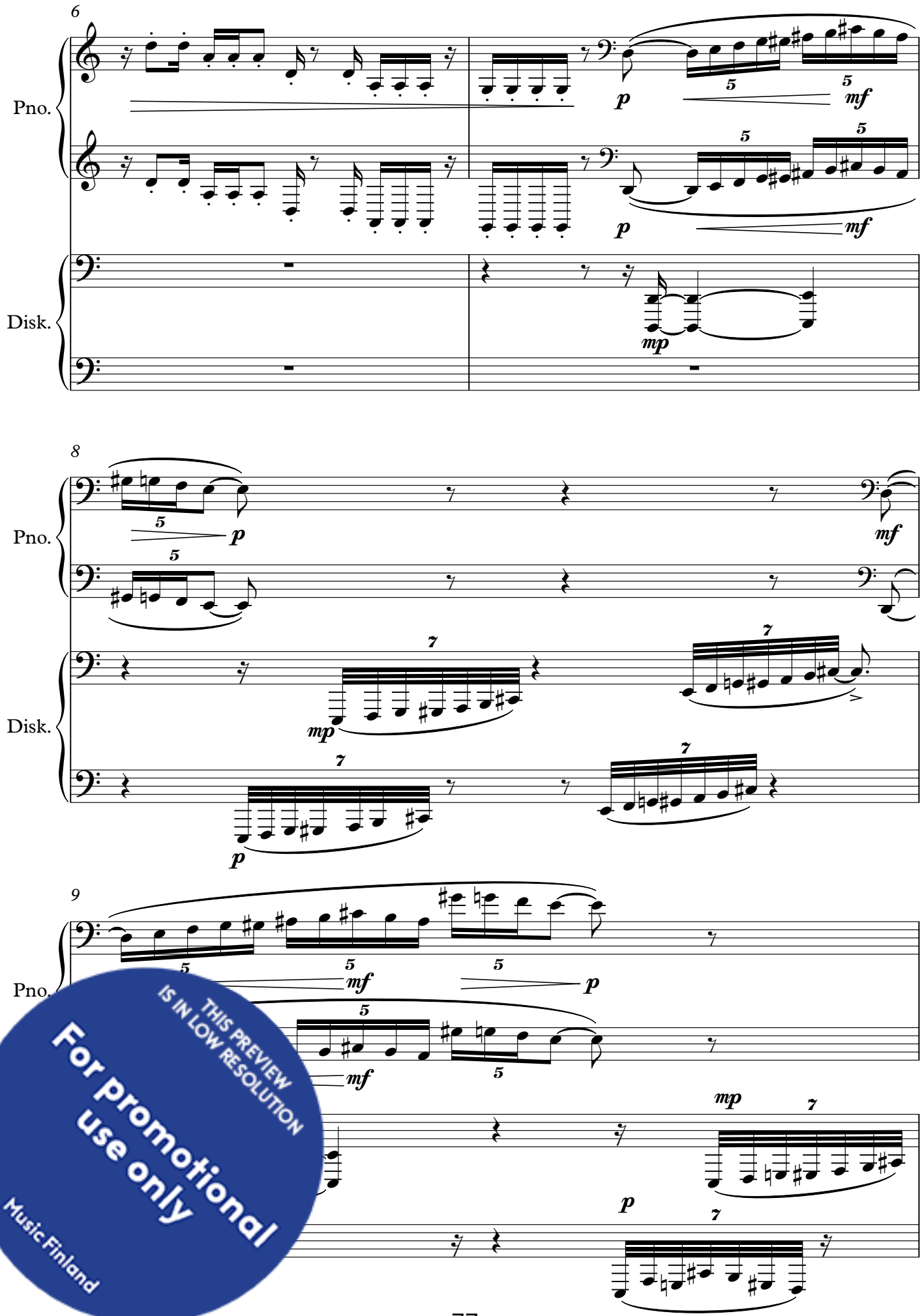

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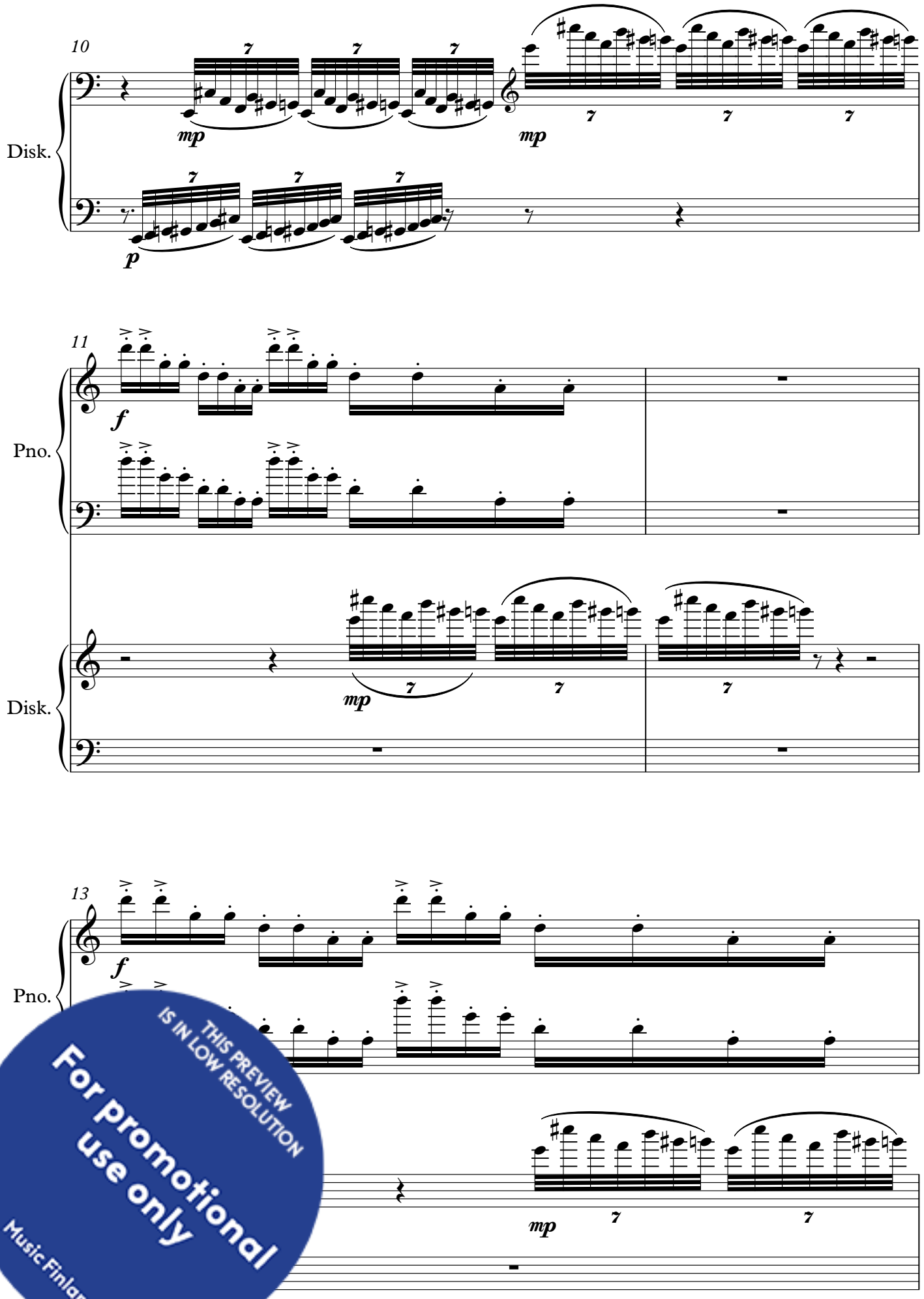

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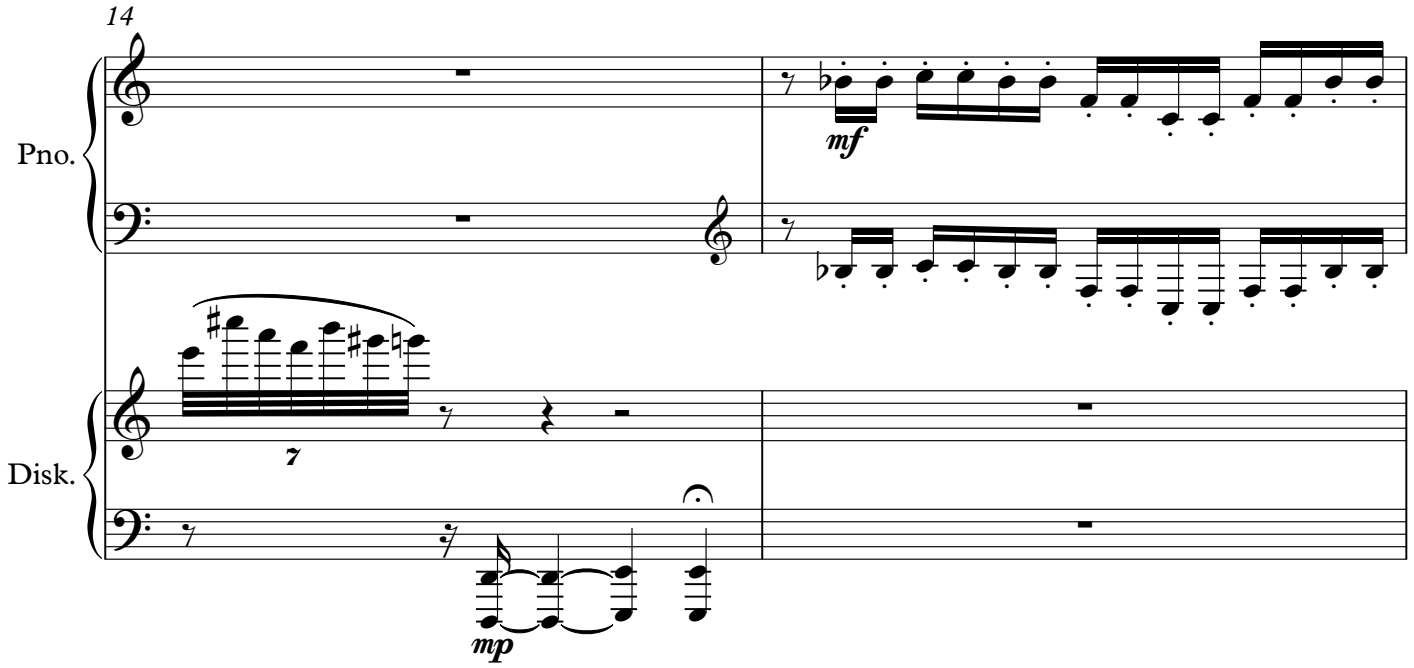

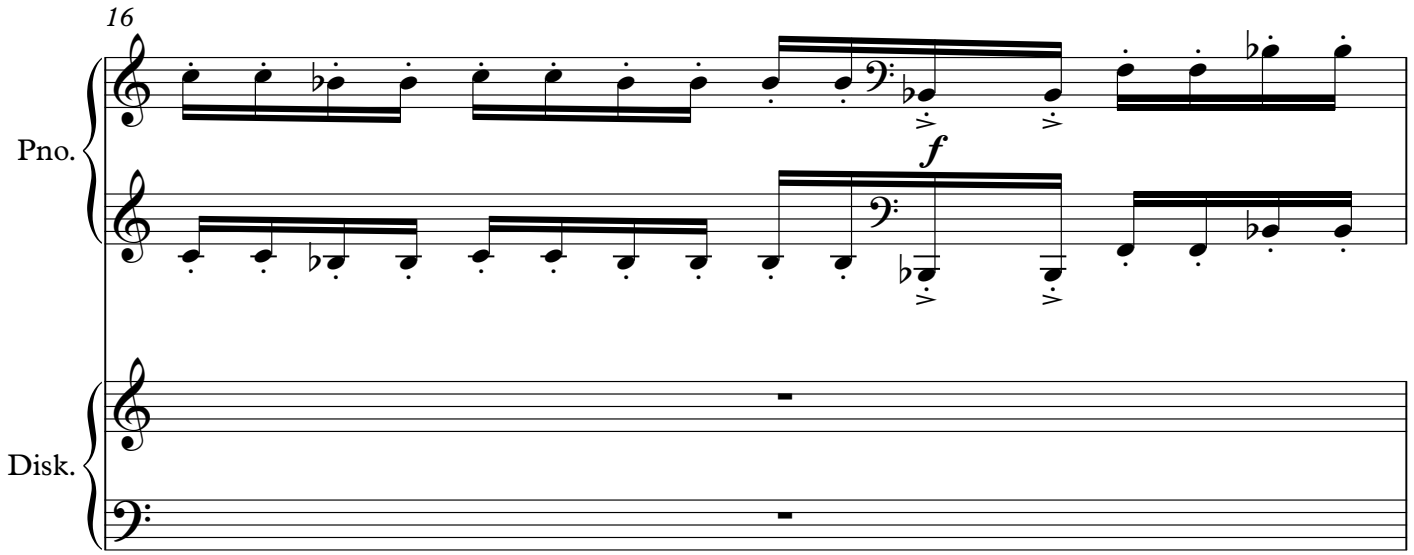

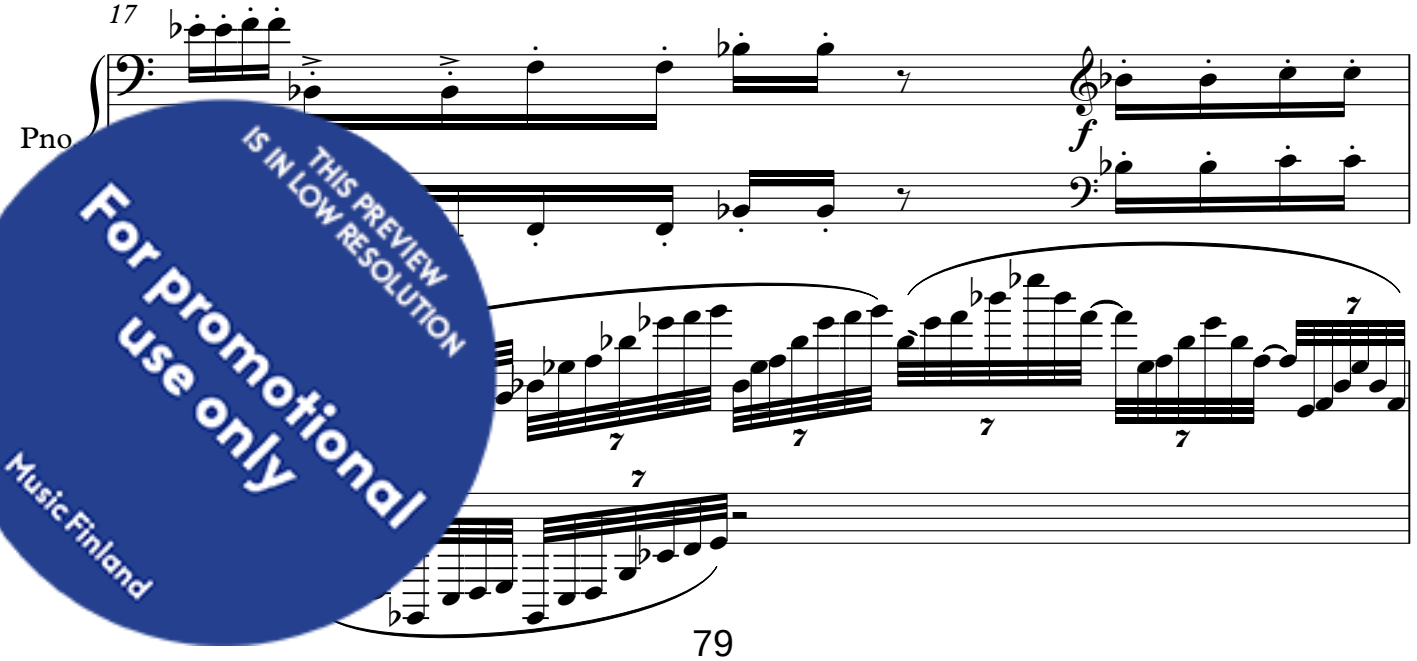

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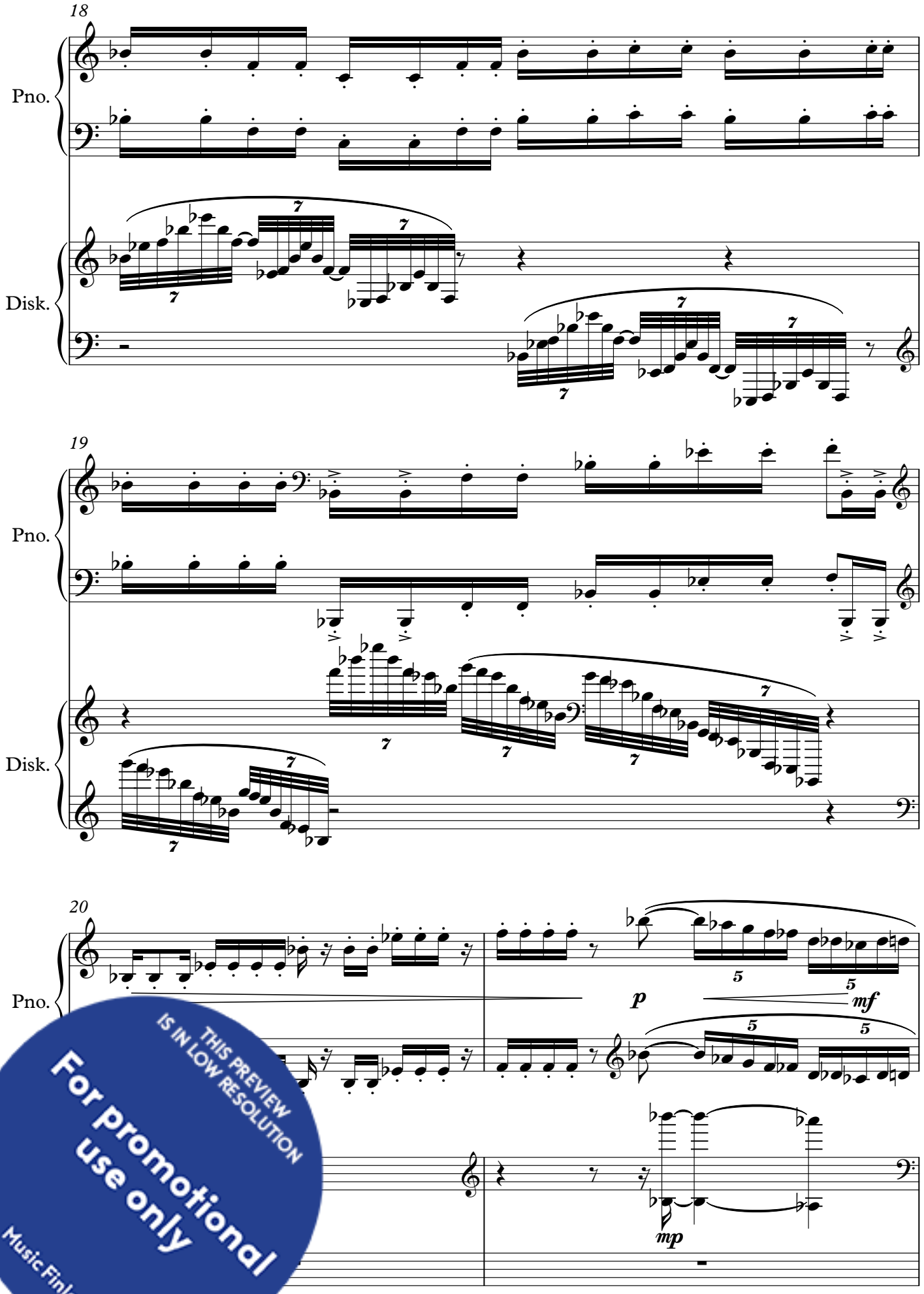

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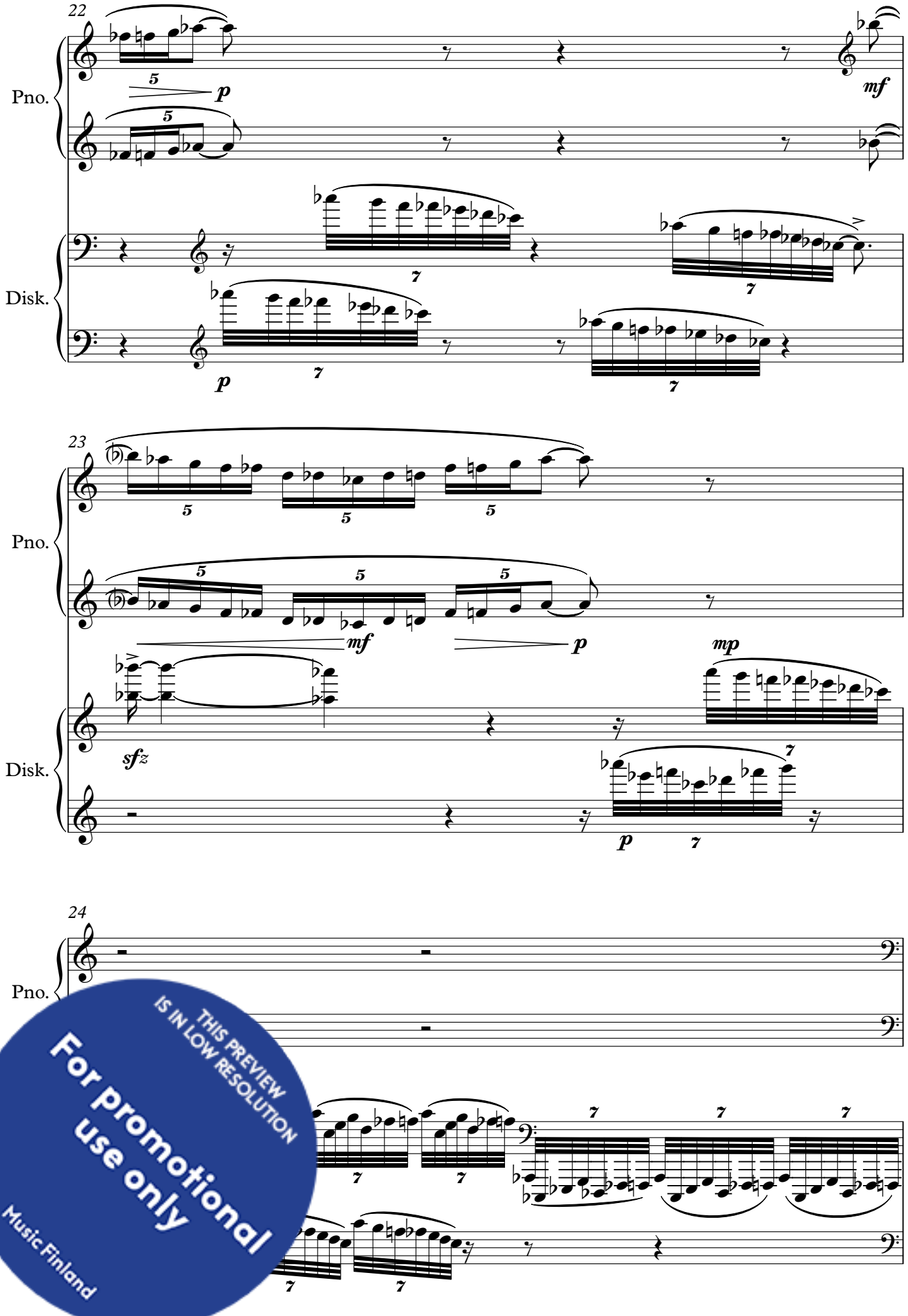

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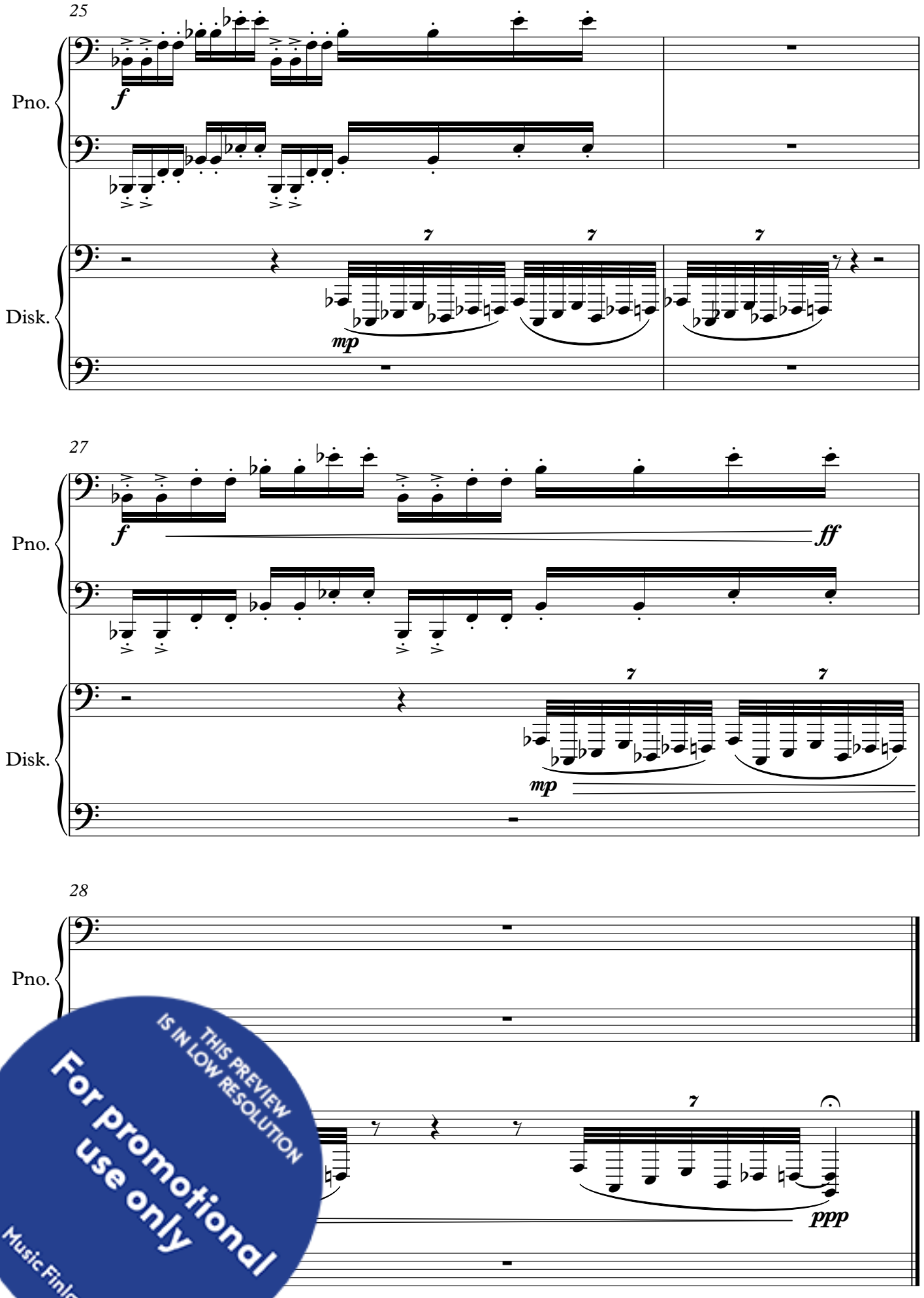

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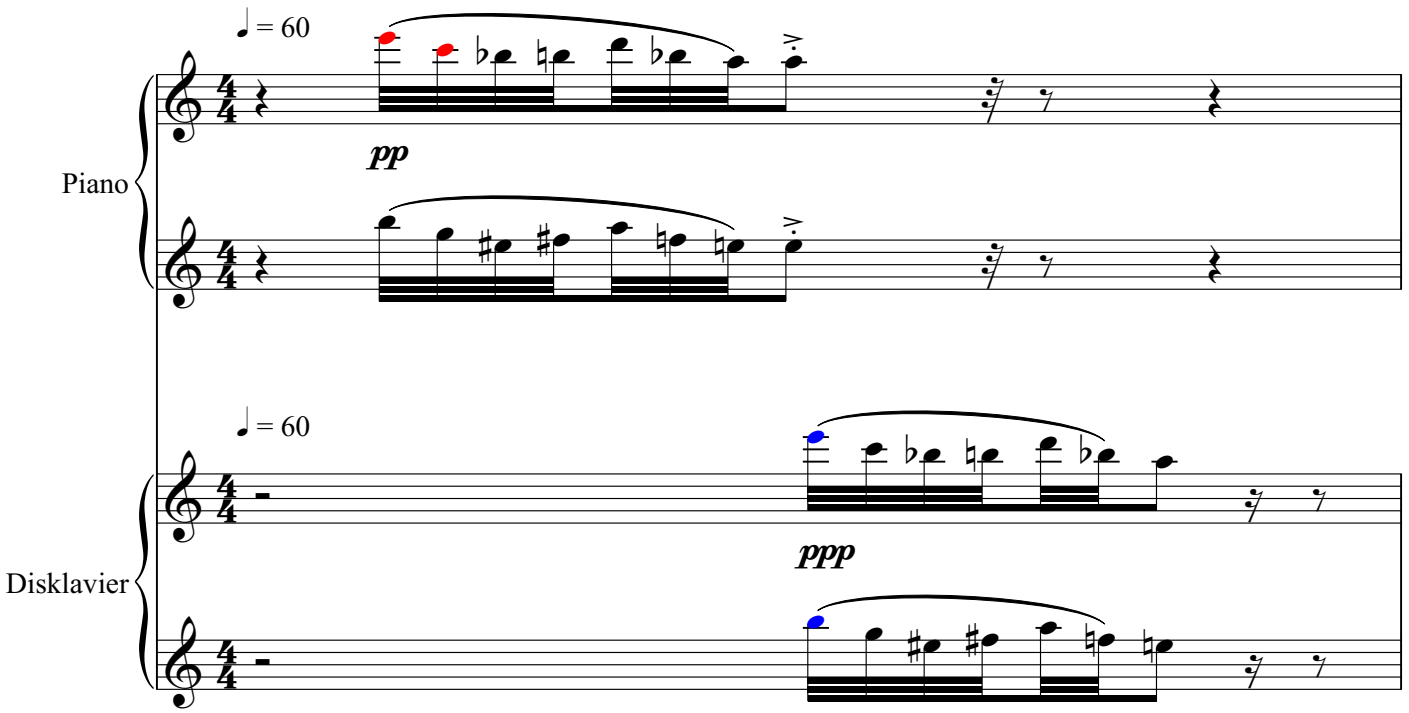
Echo (1c)



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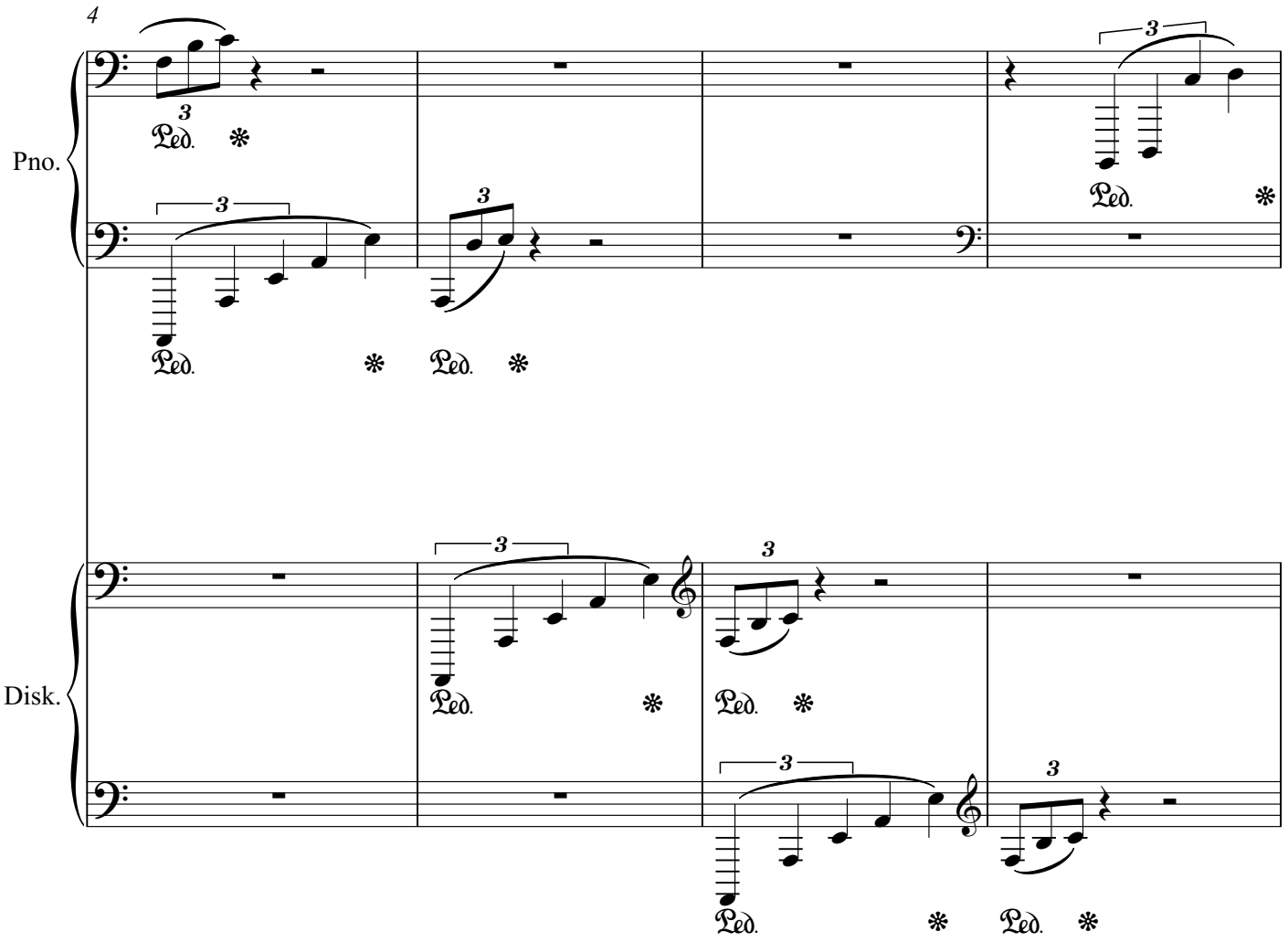
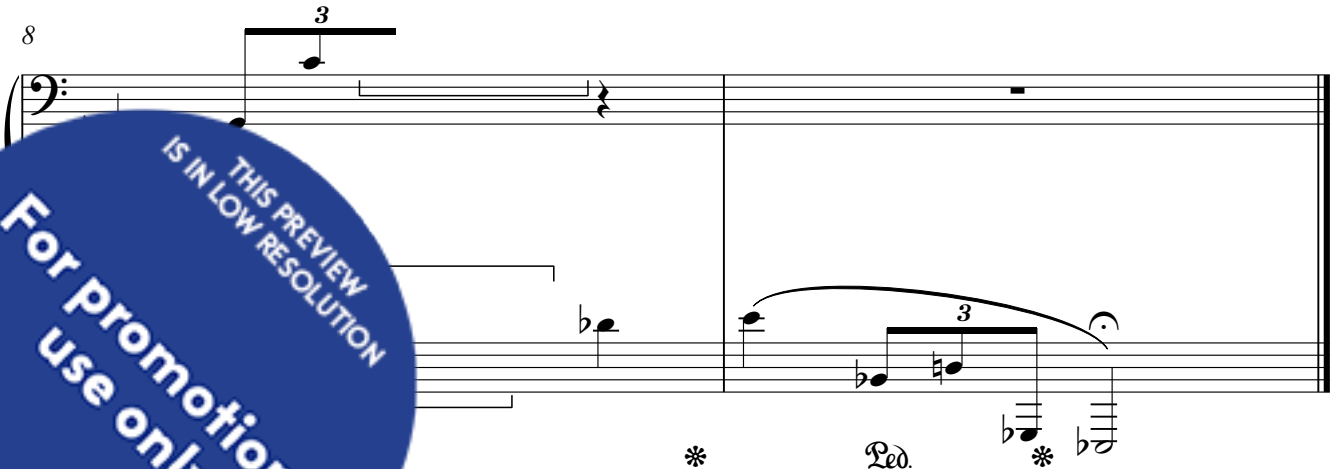


Play any number of
ad lib. pitches within
the time indicated



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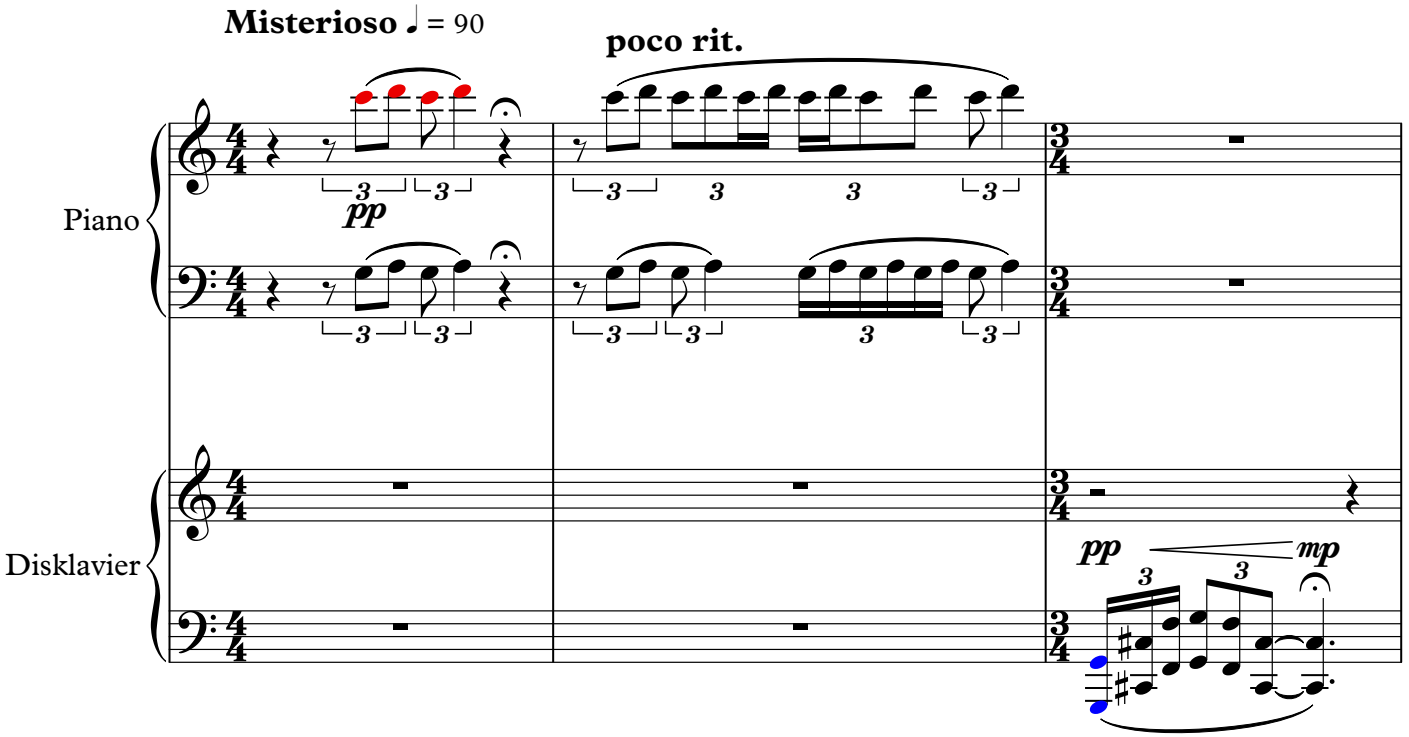
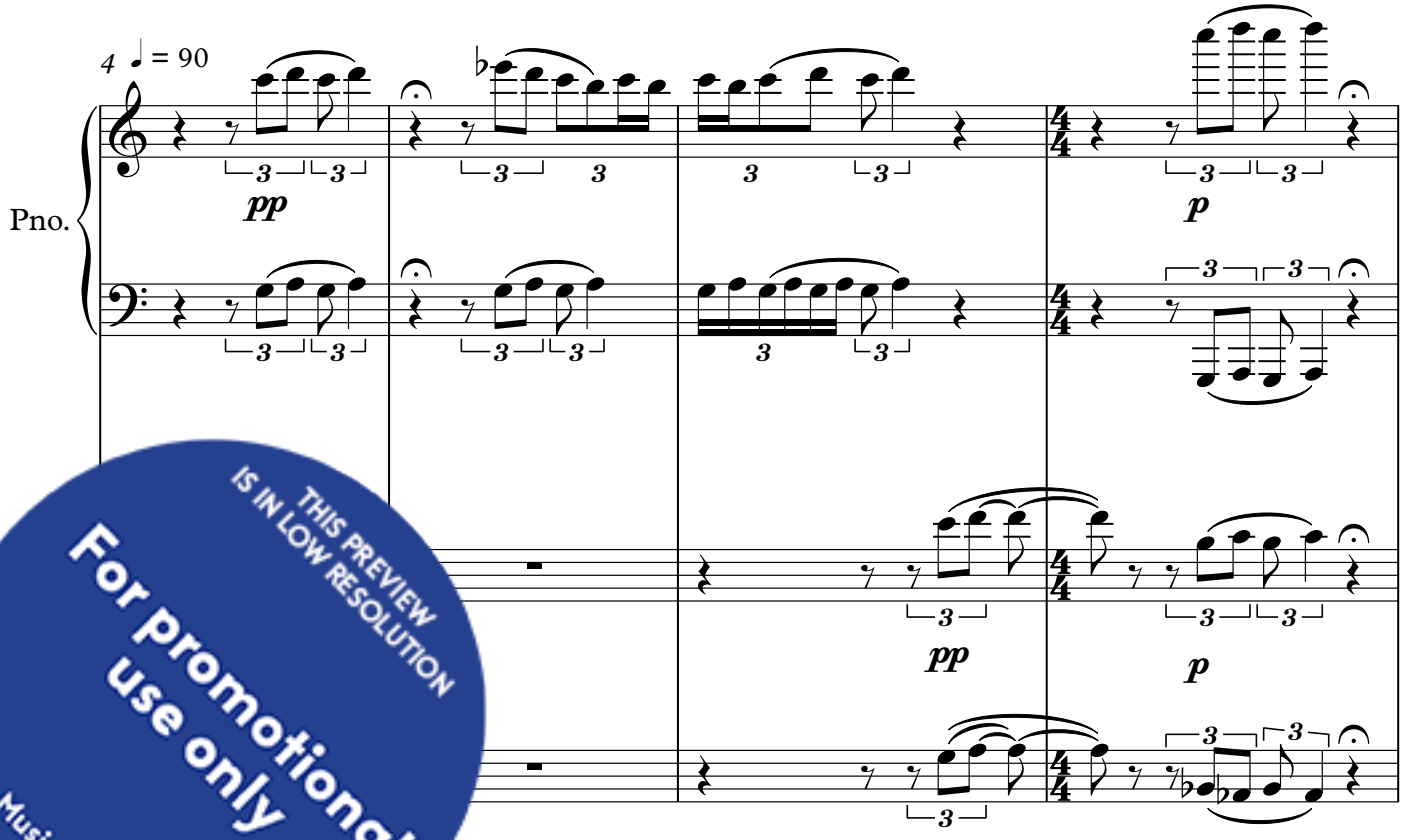
Path 3a





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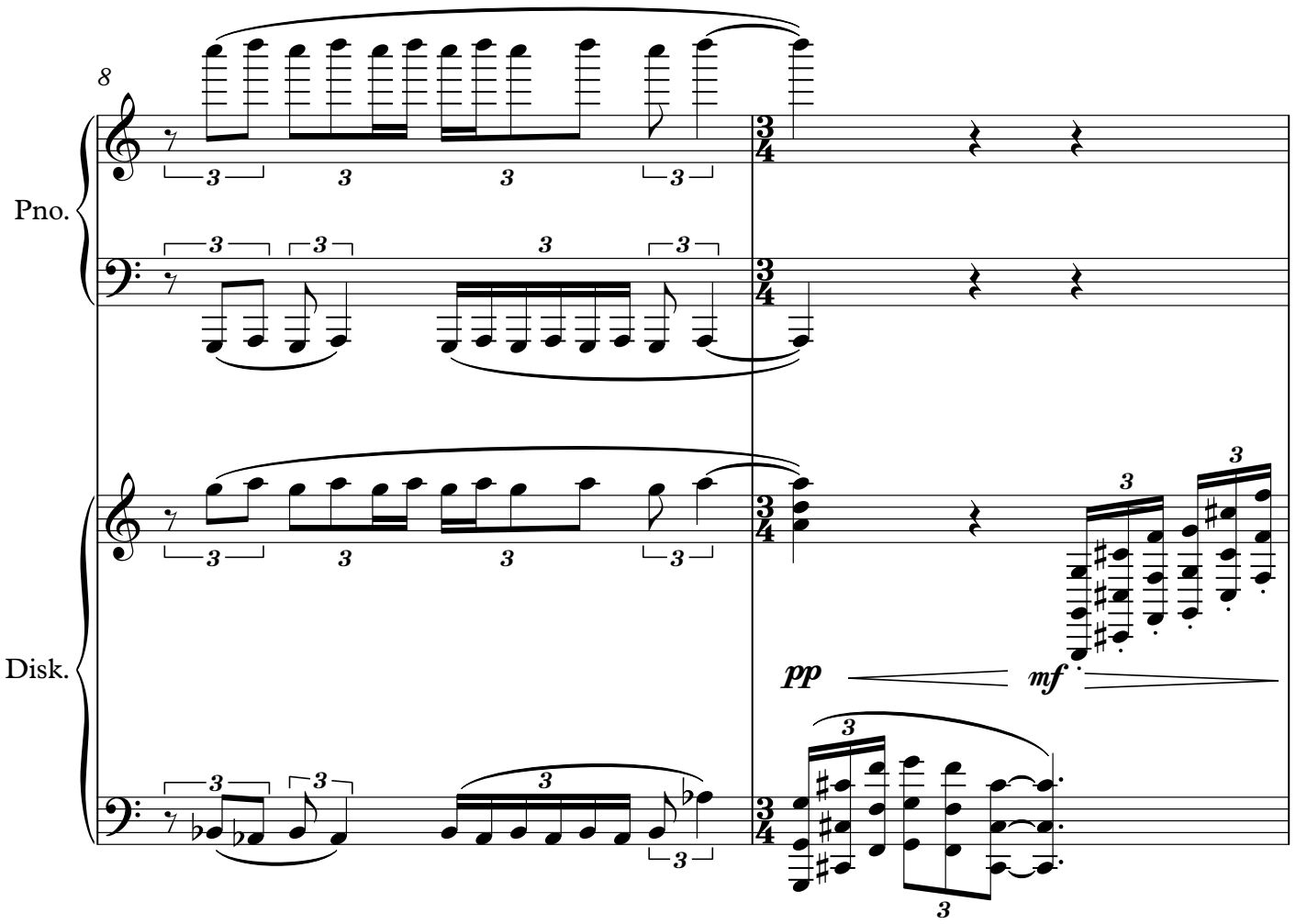

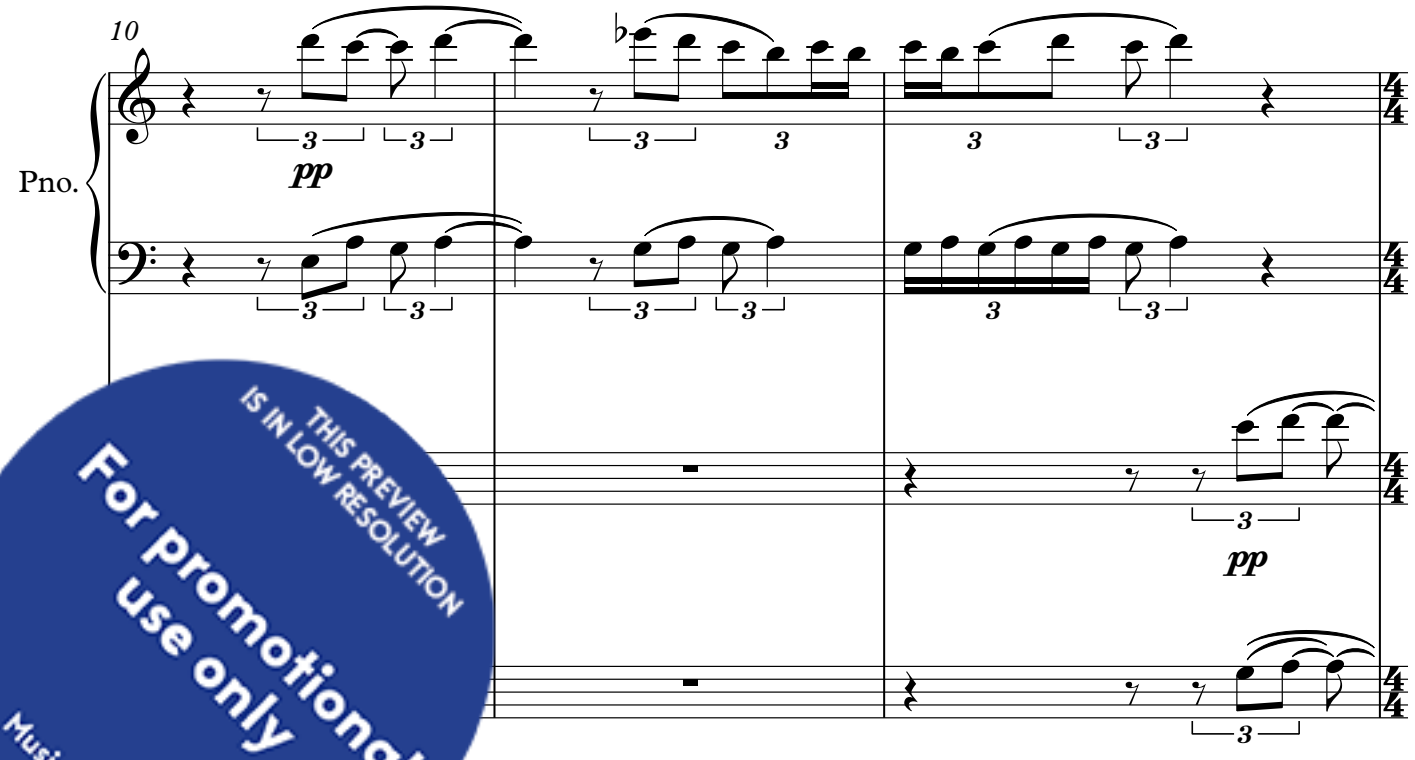

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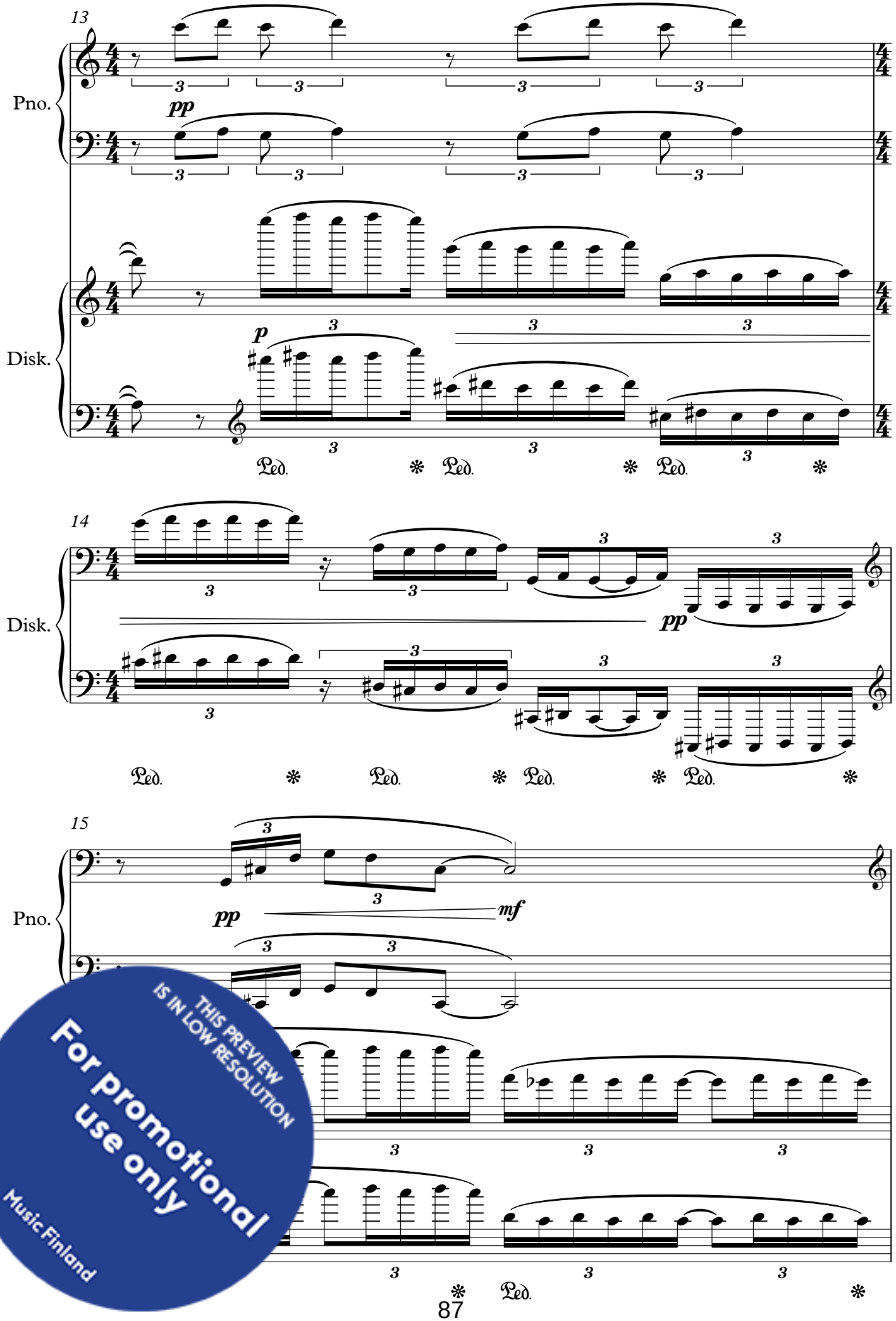

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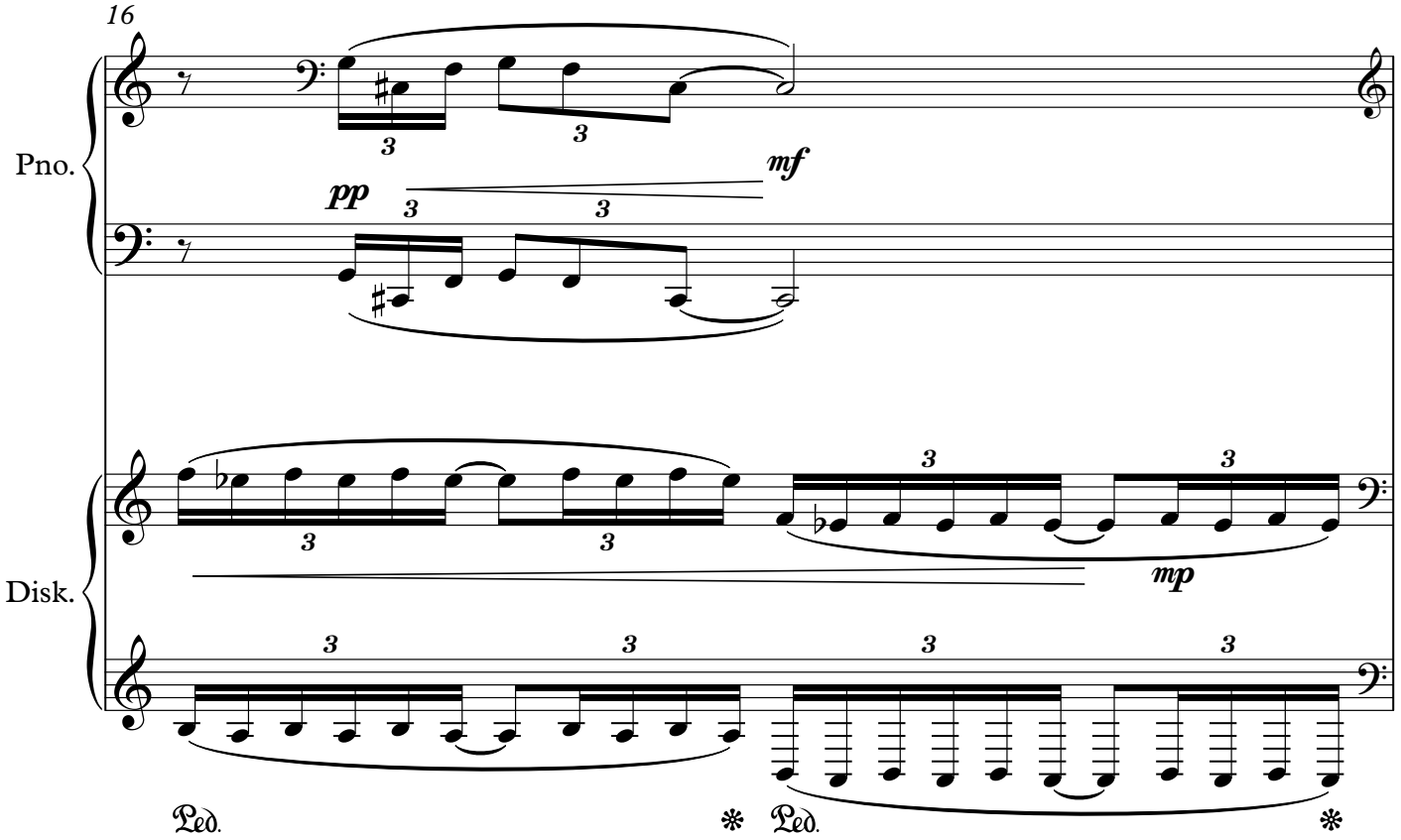

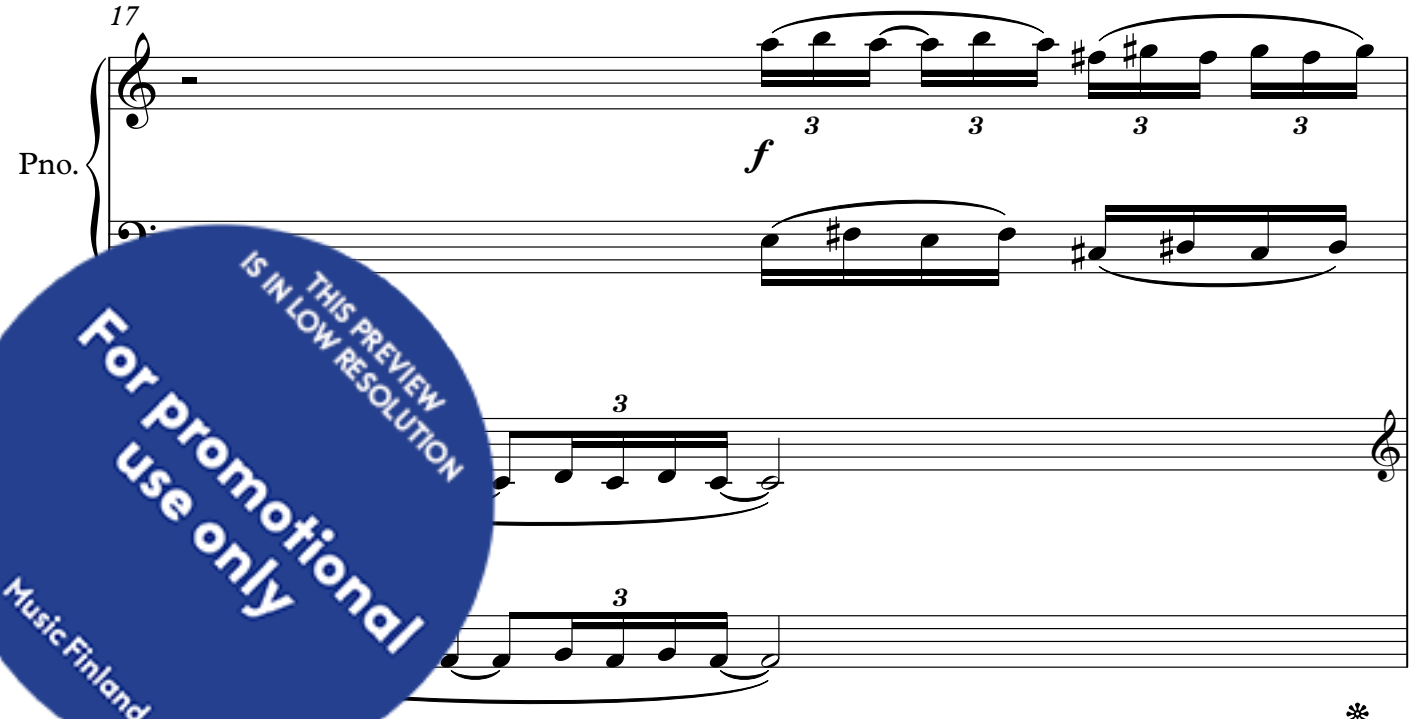

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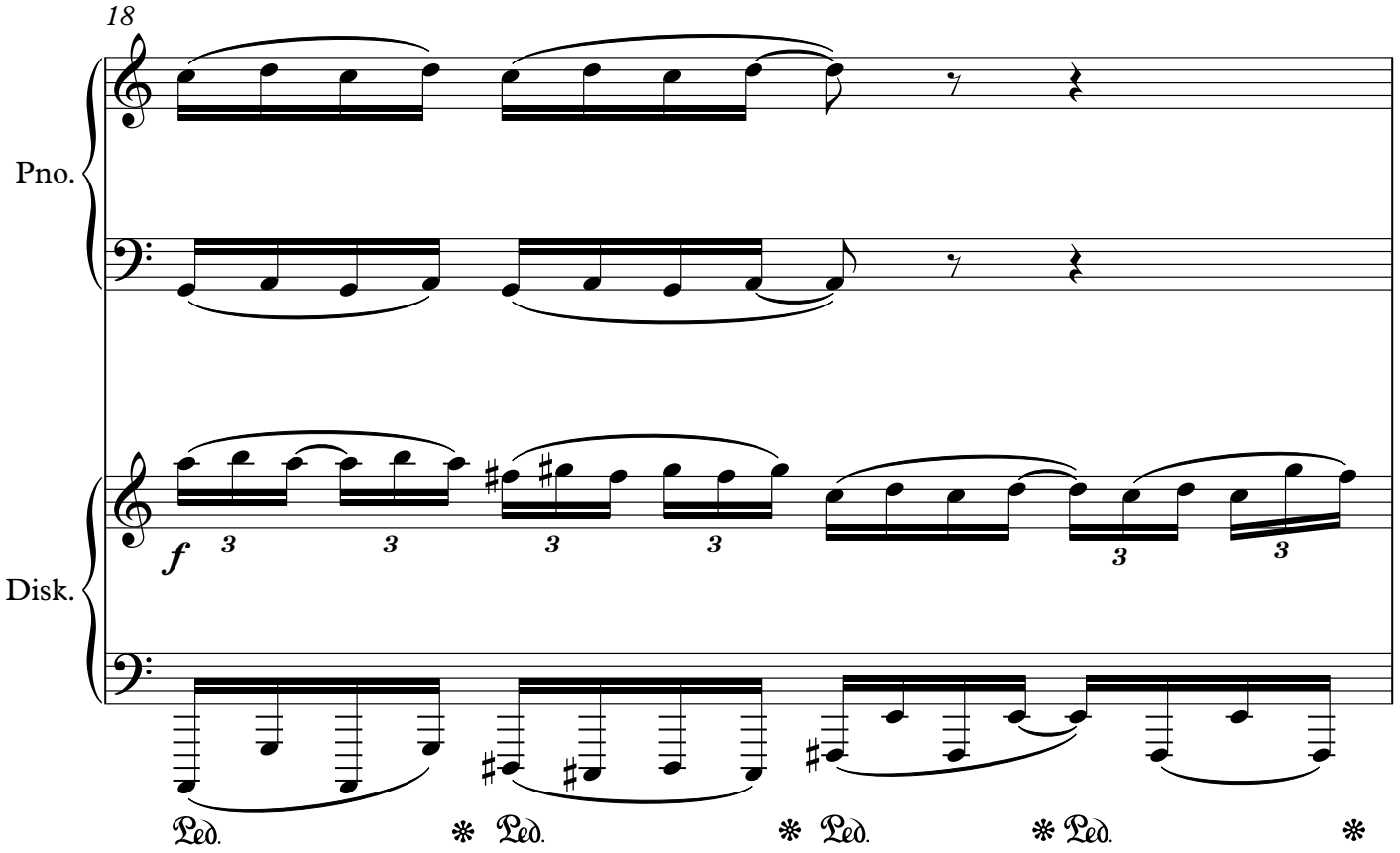

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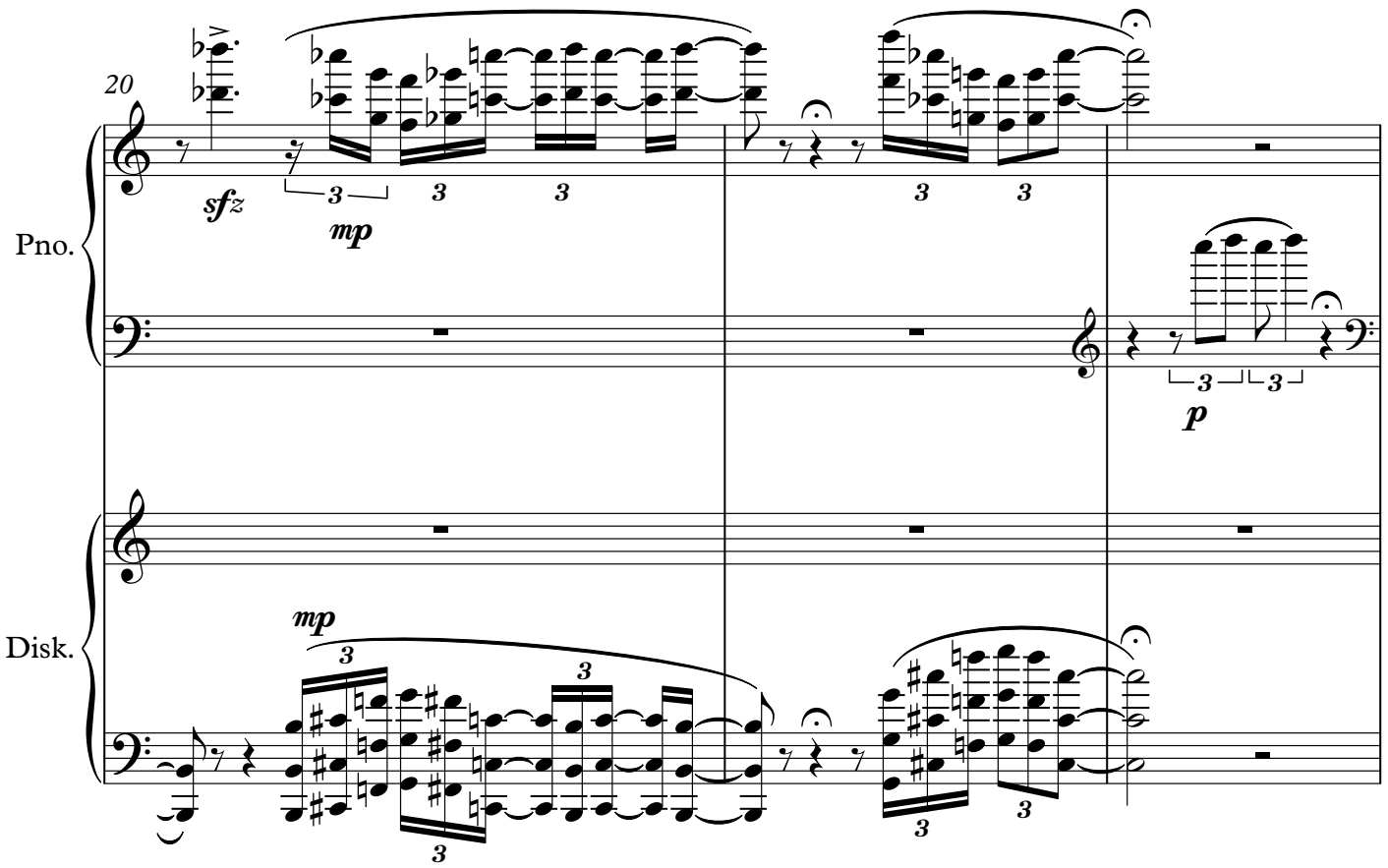

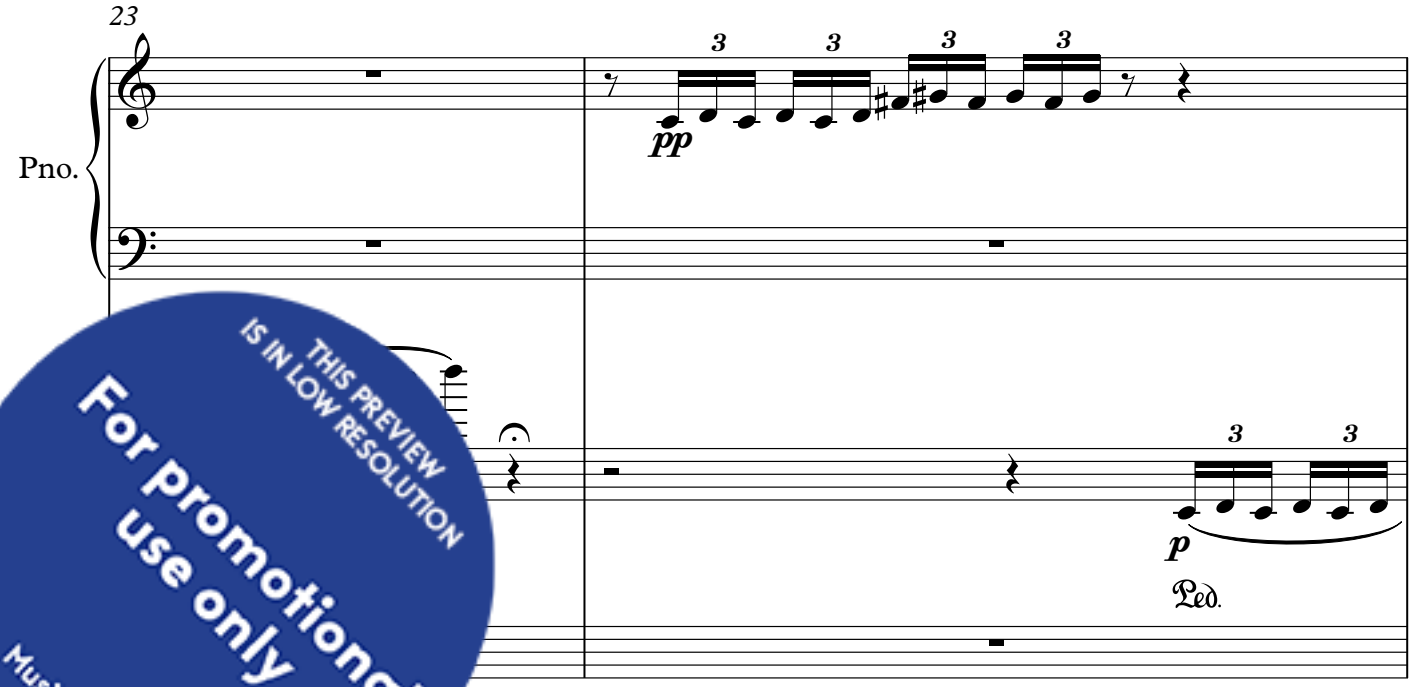

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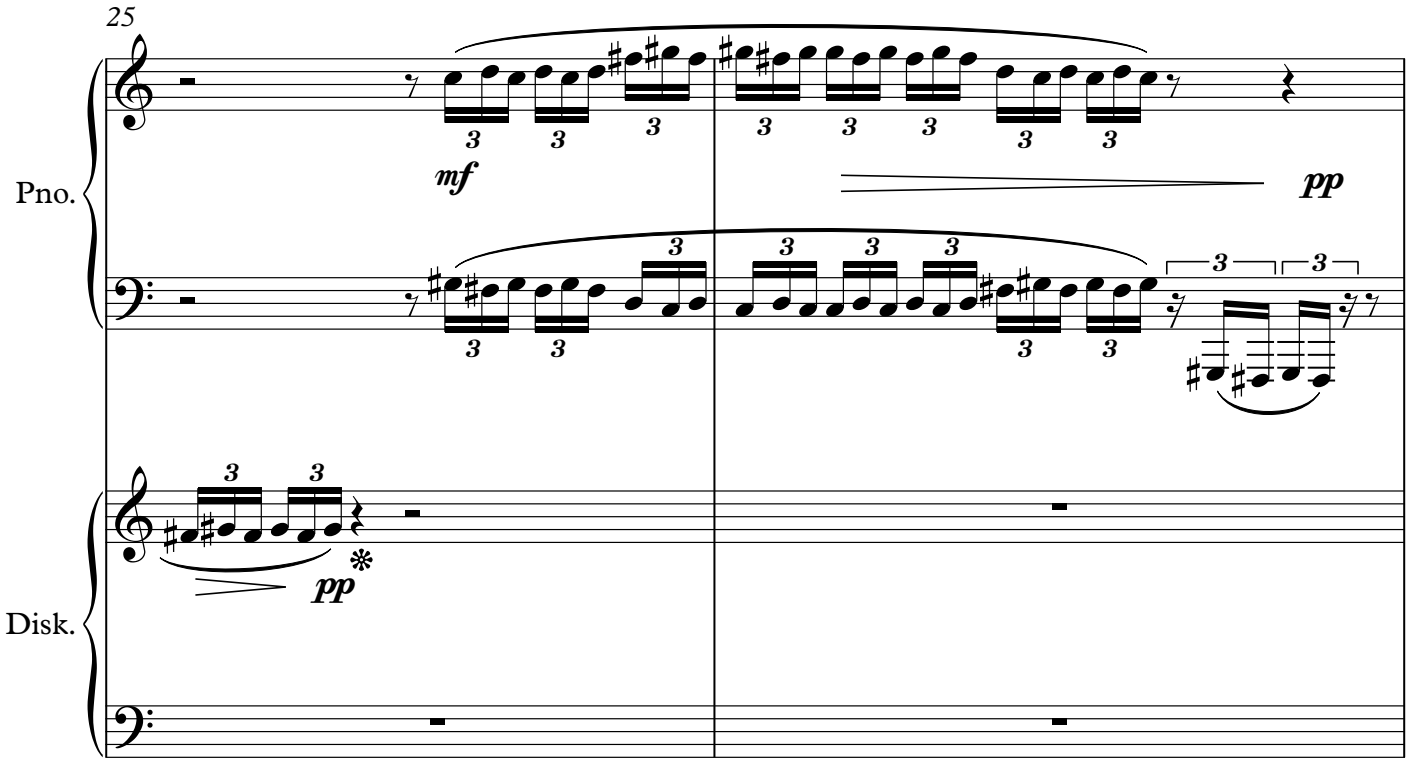

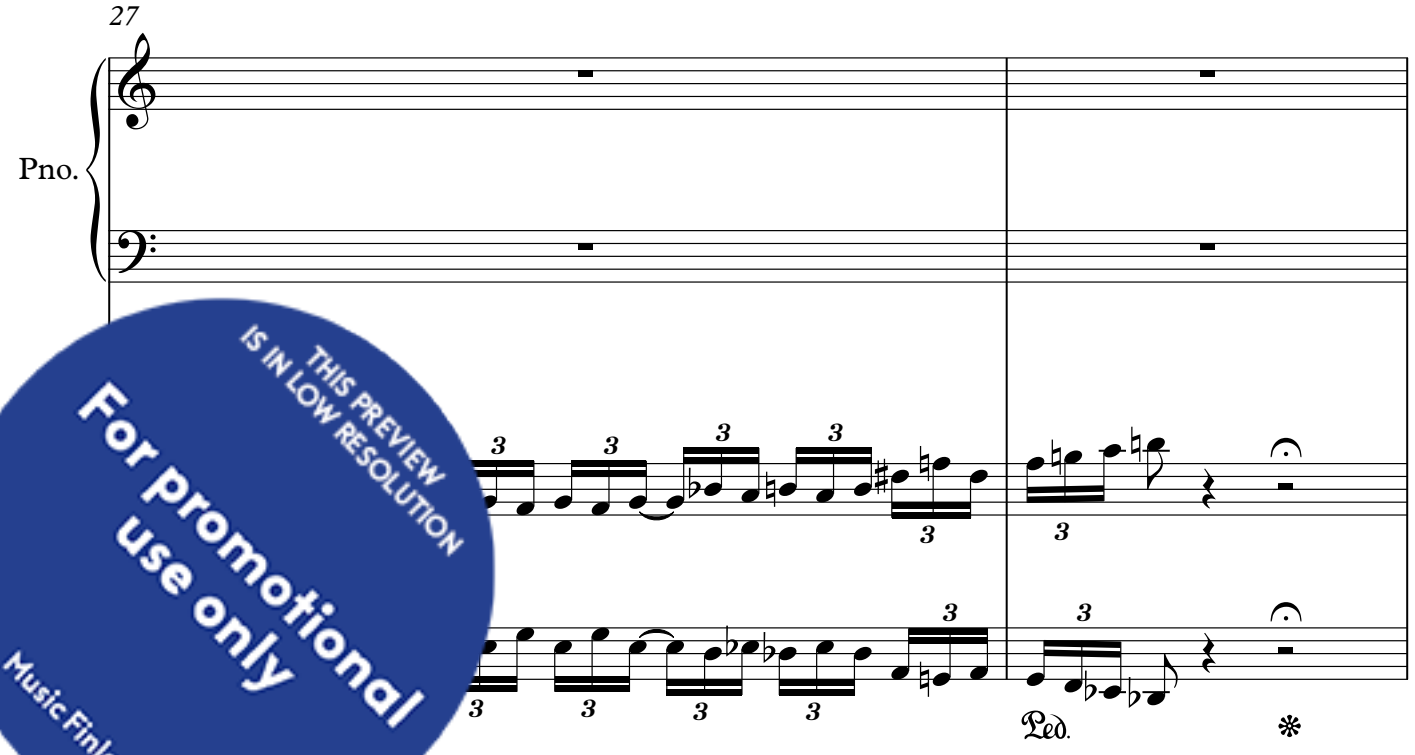

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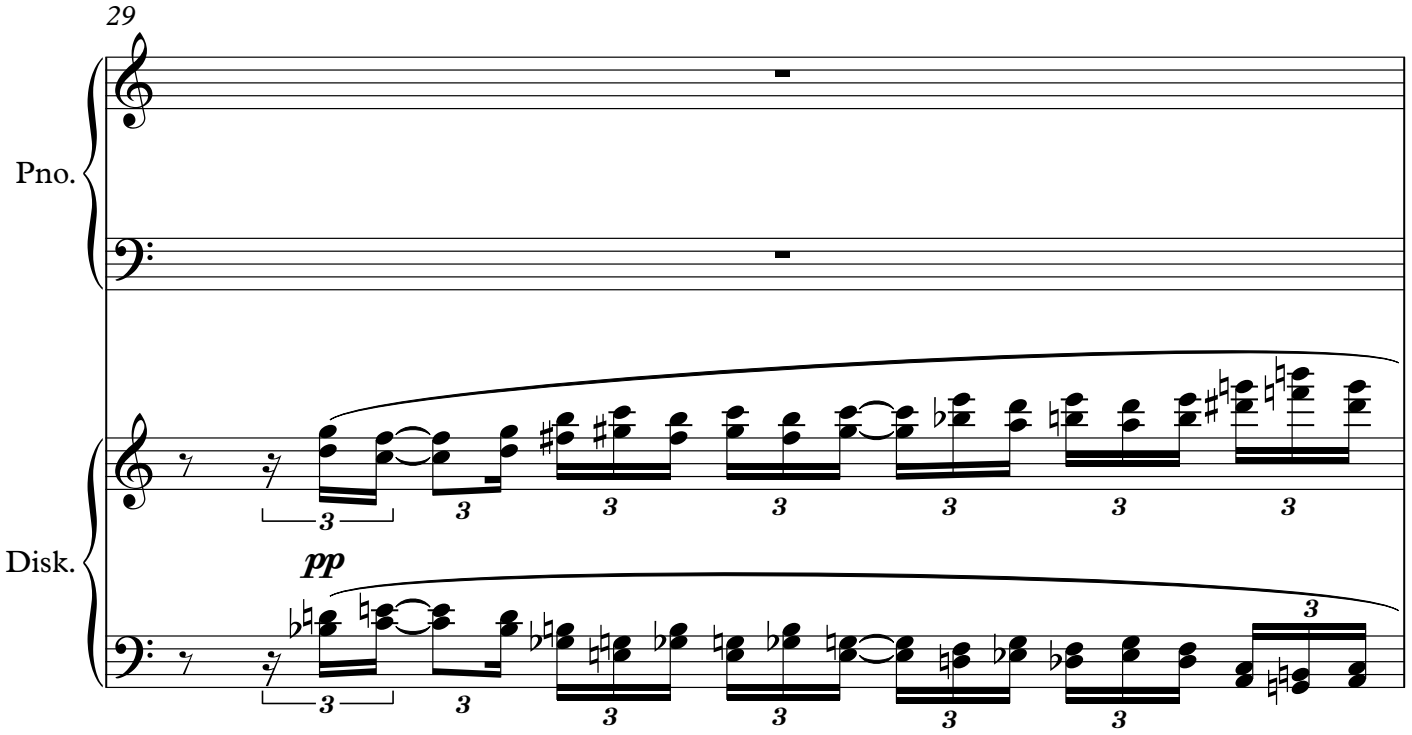

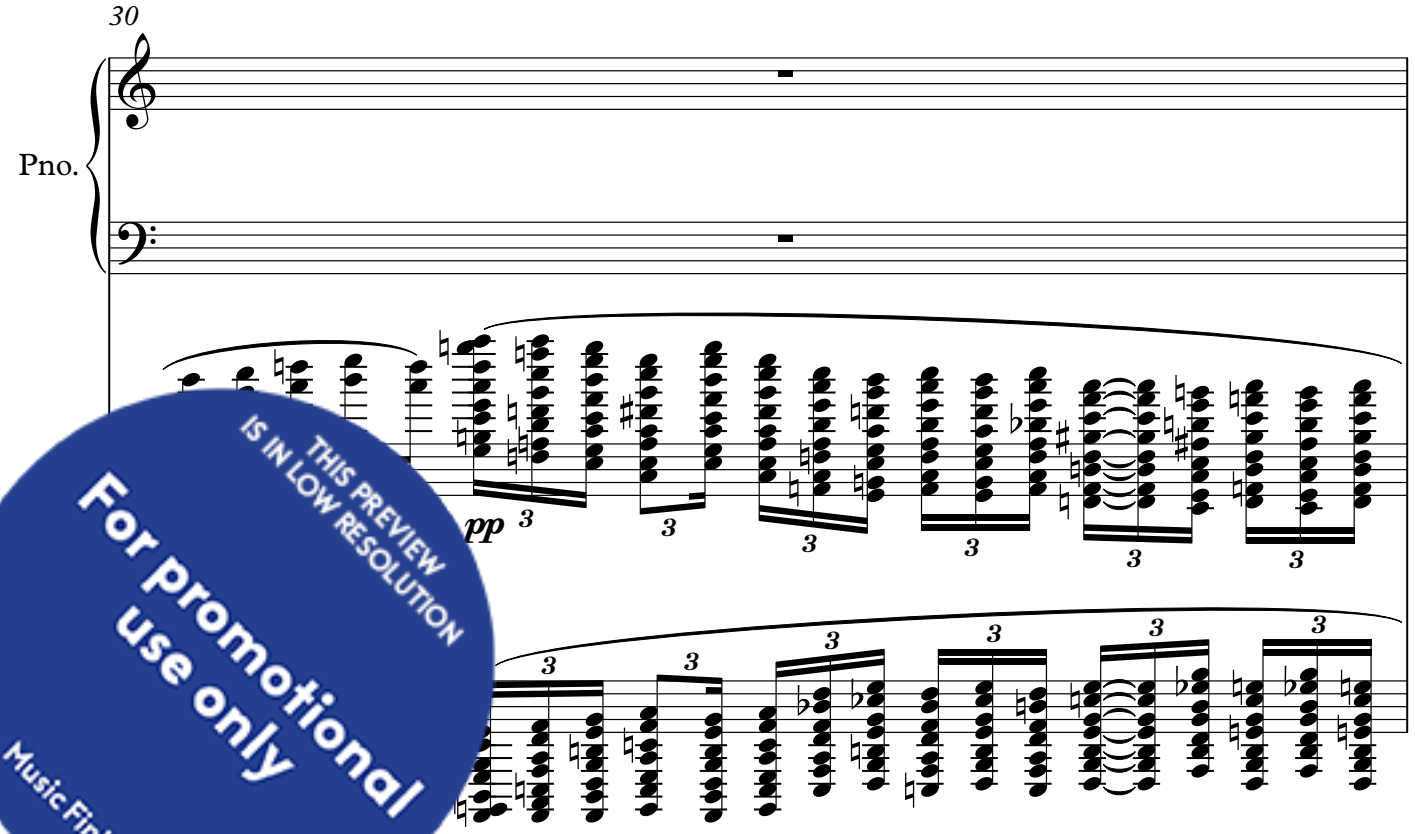

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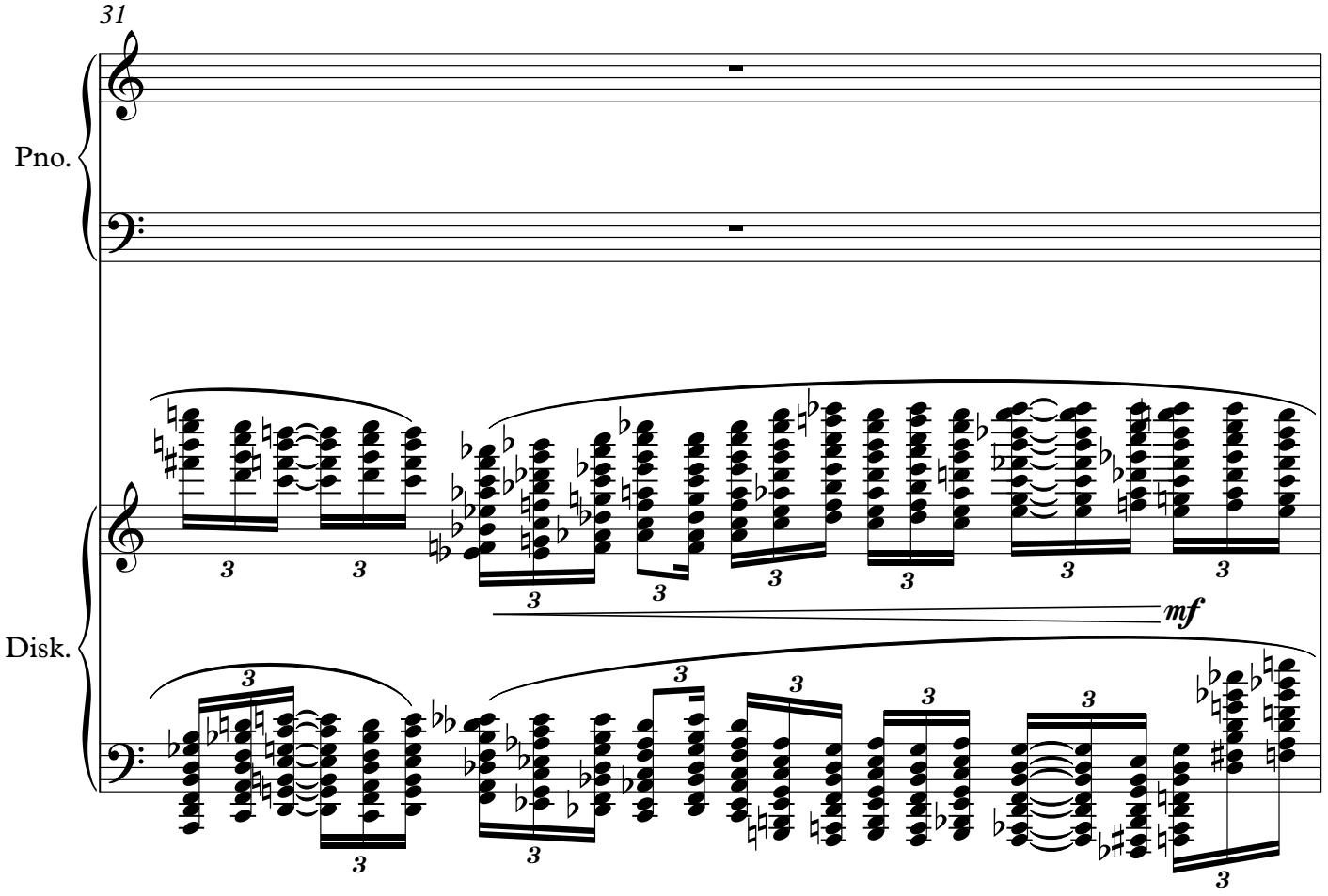

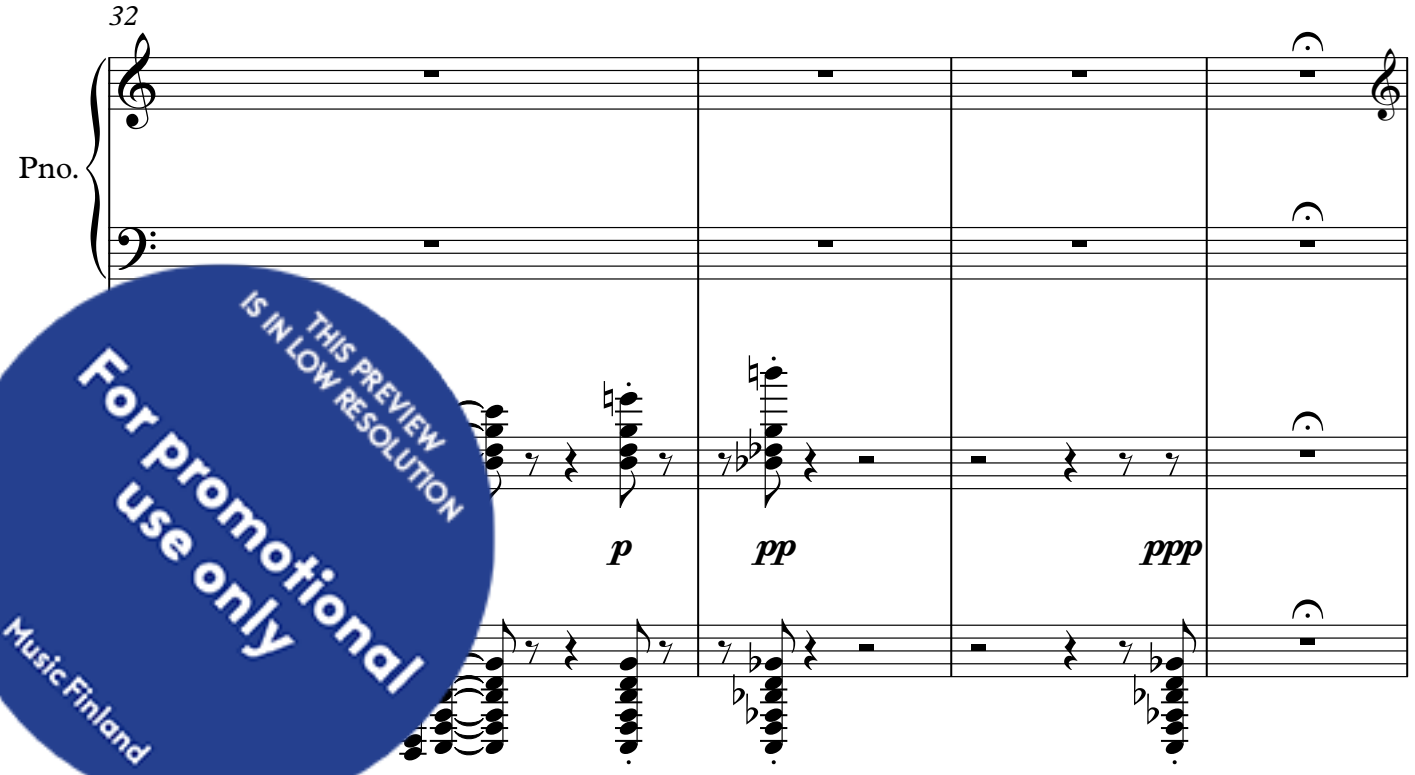

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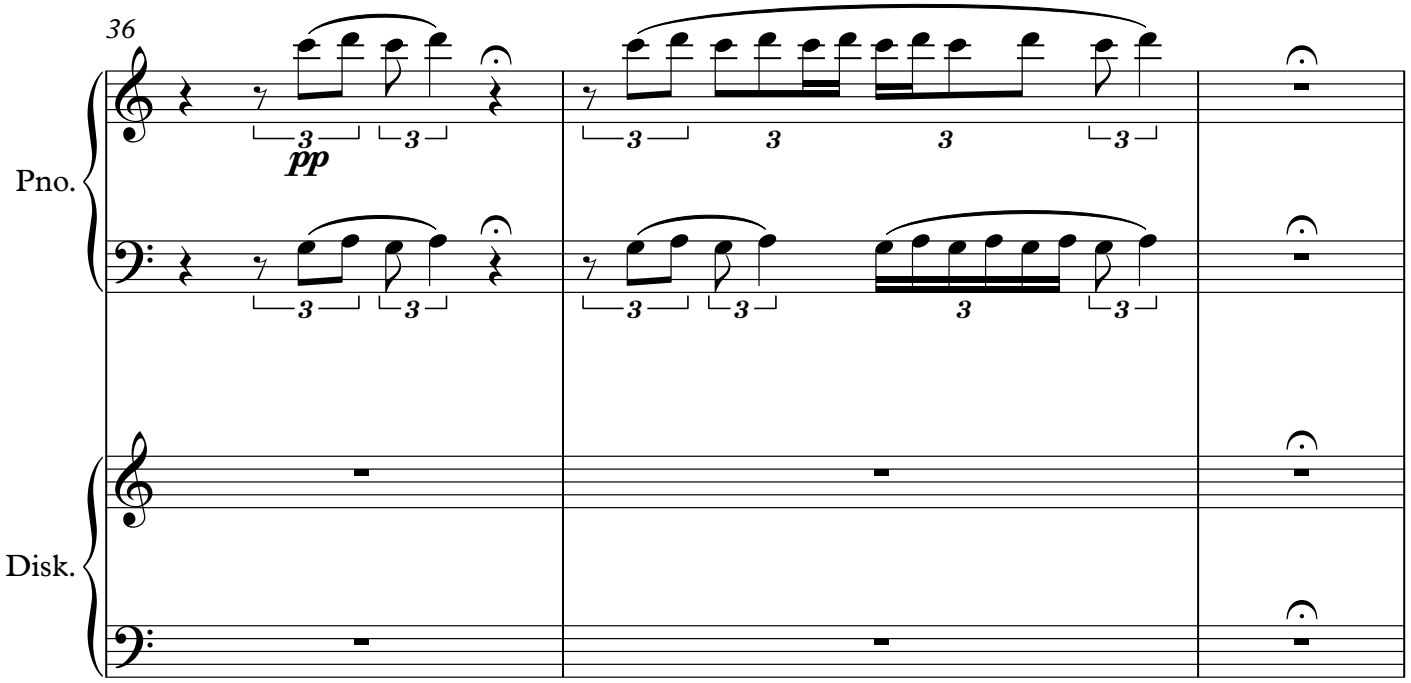

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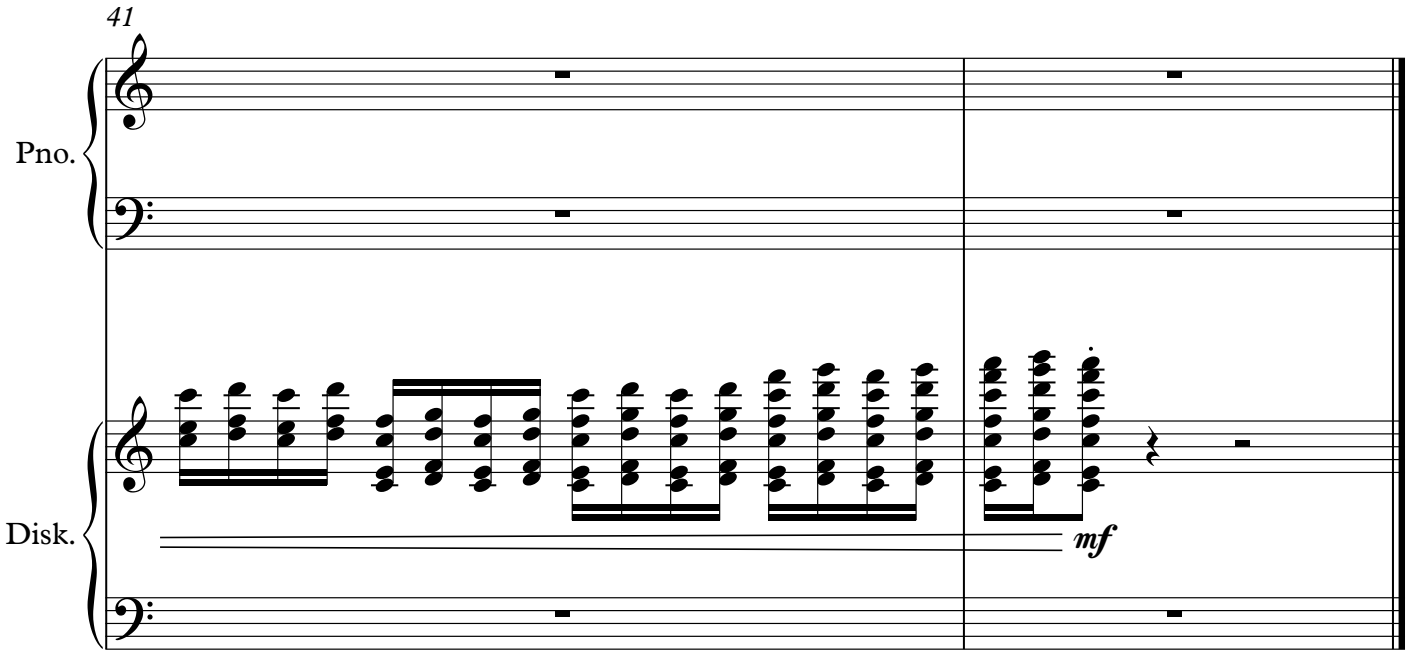

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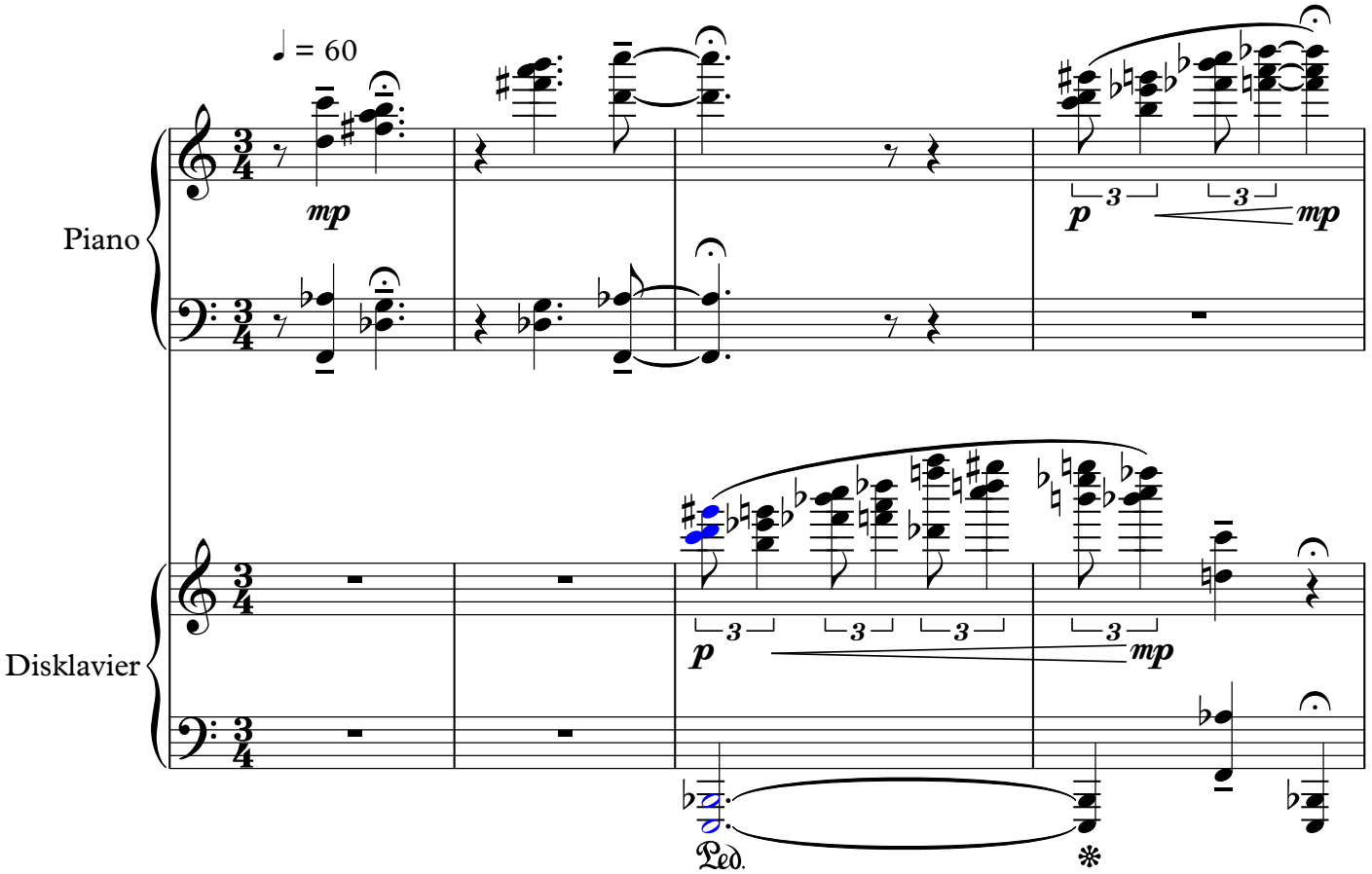
The Herd of Cows (2c)



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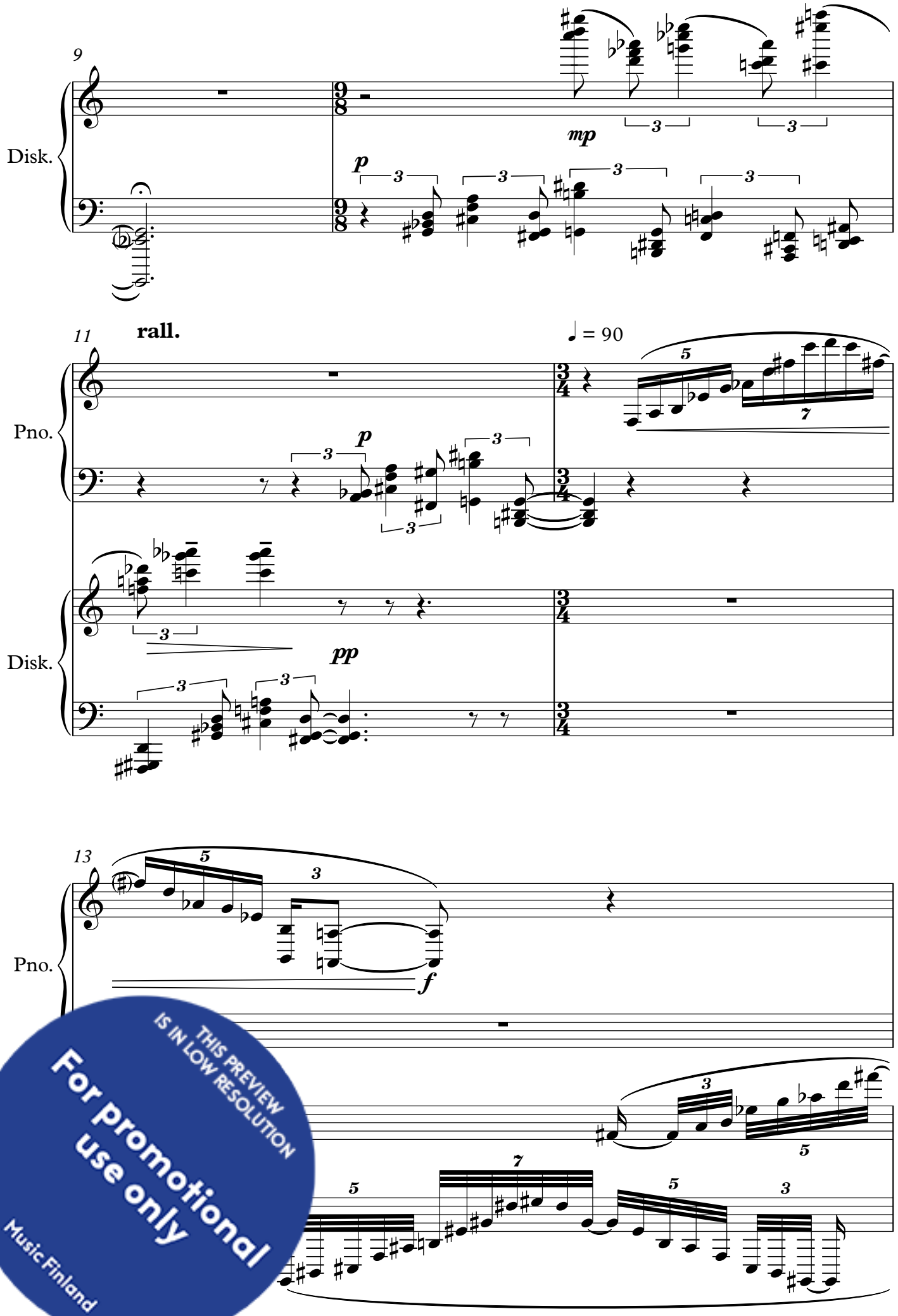

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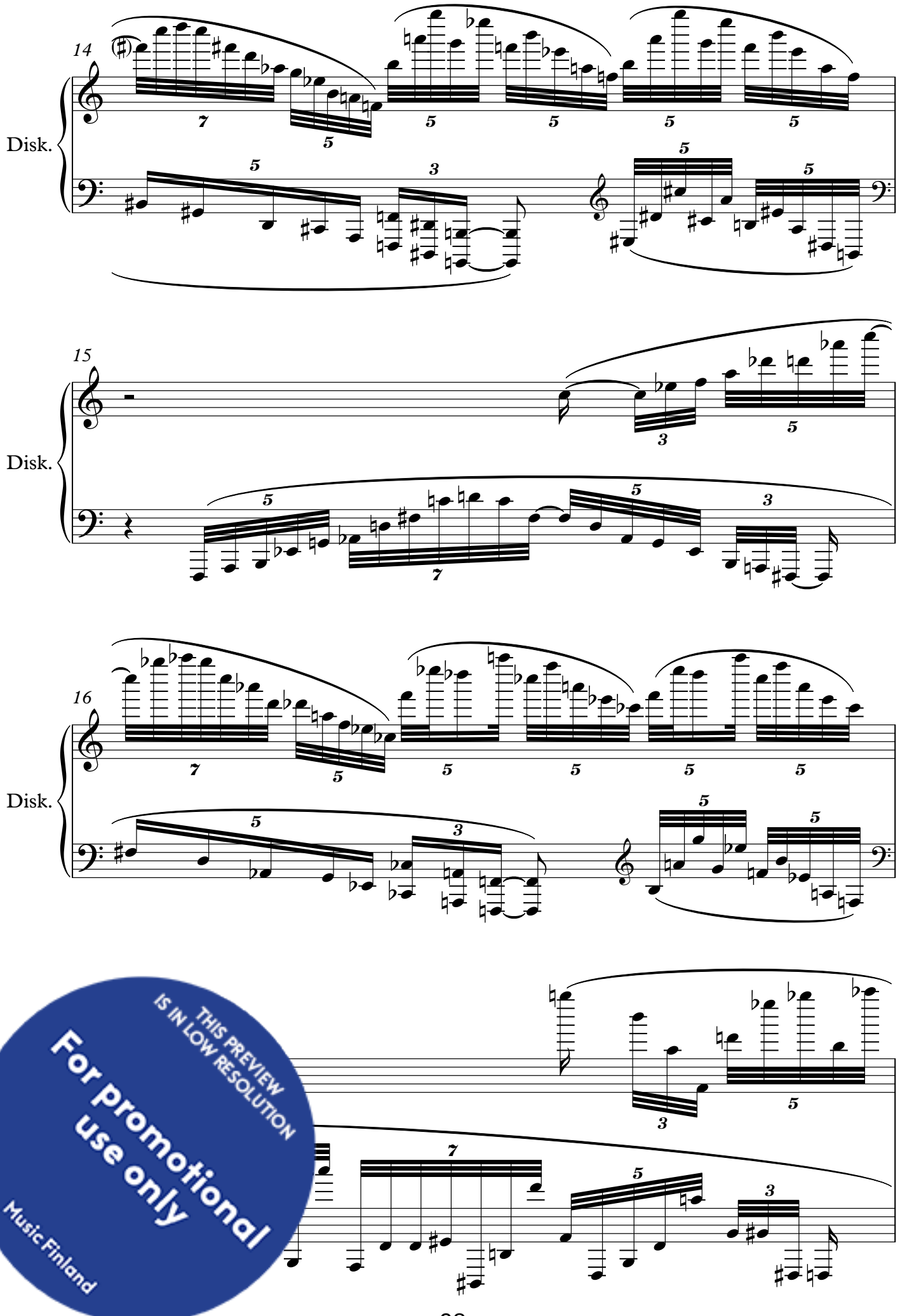

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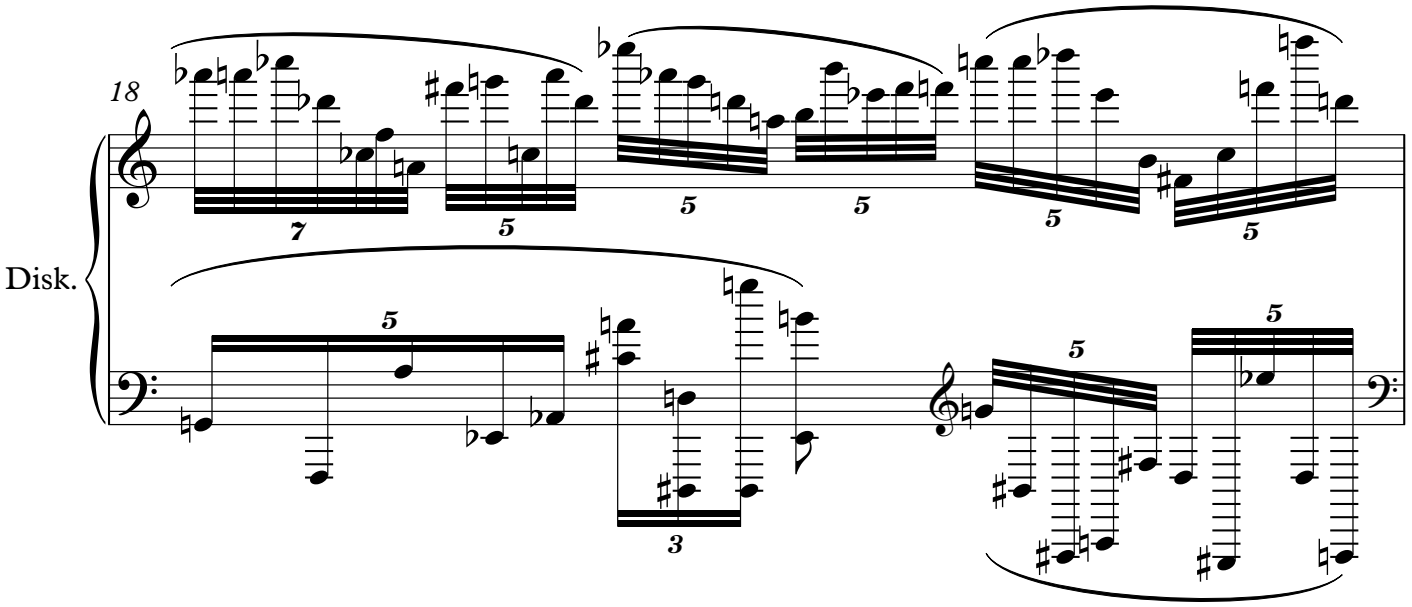

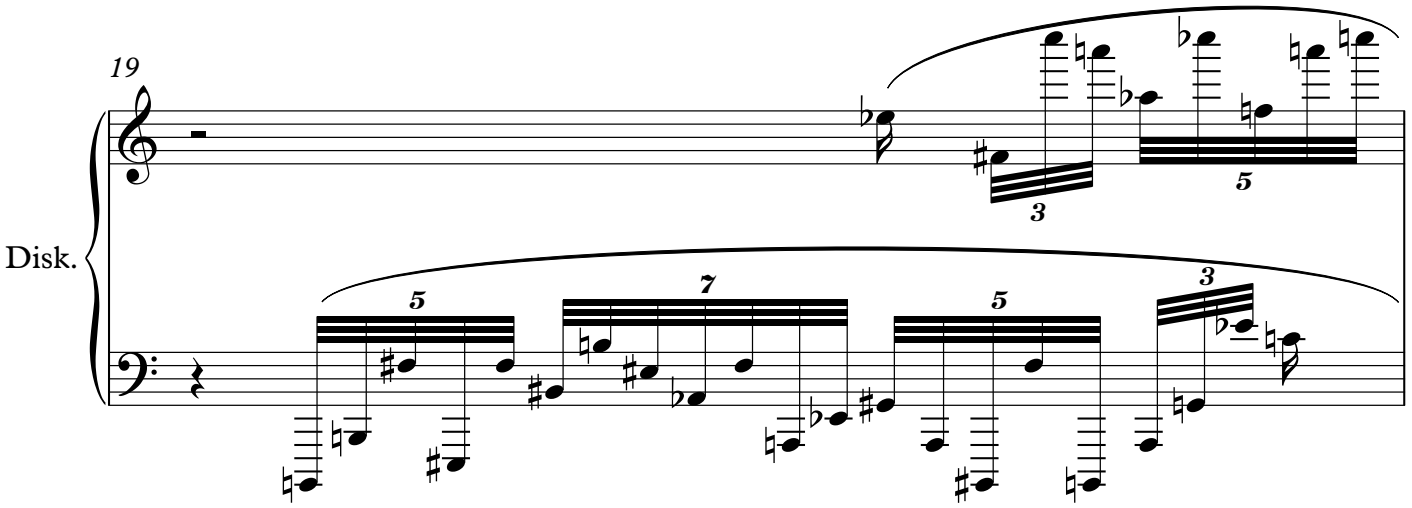

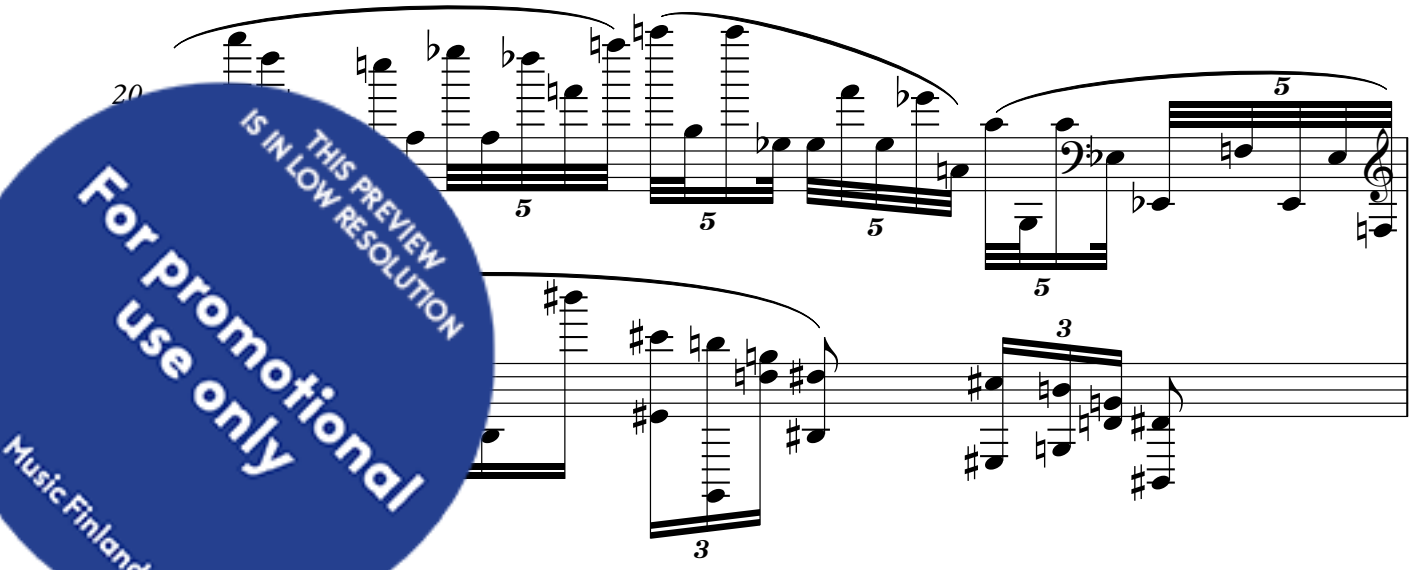

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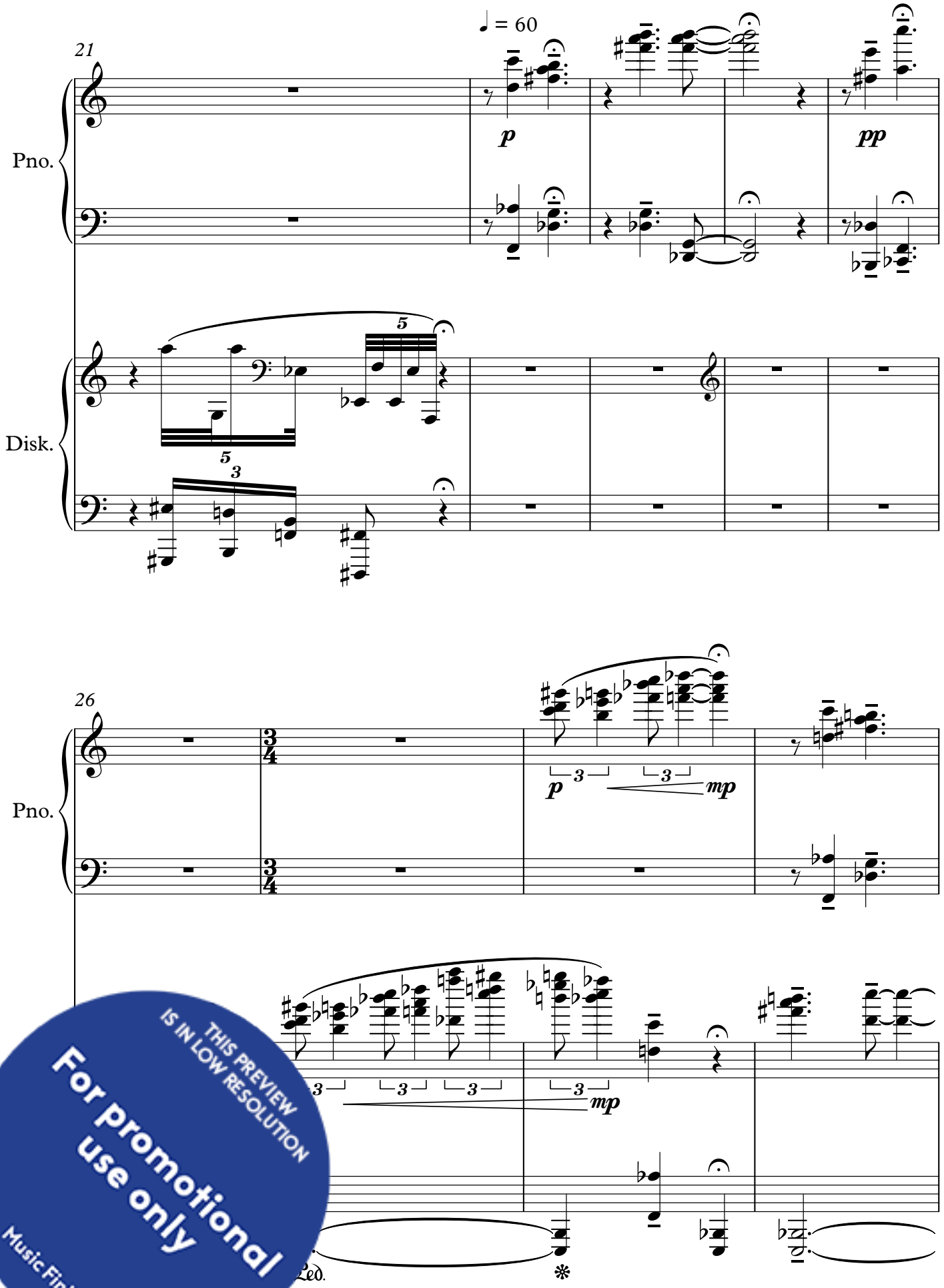

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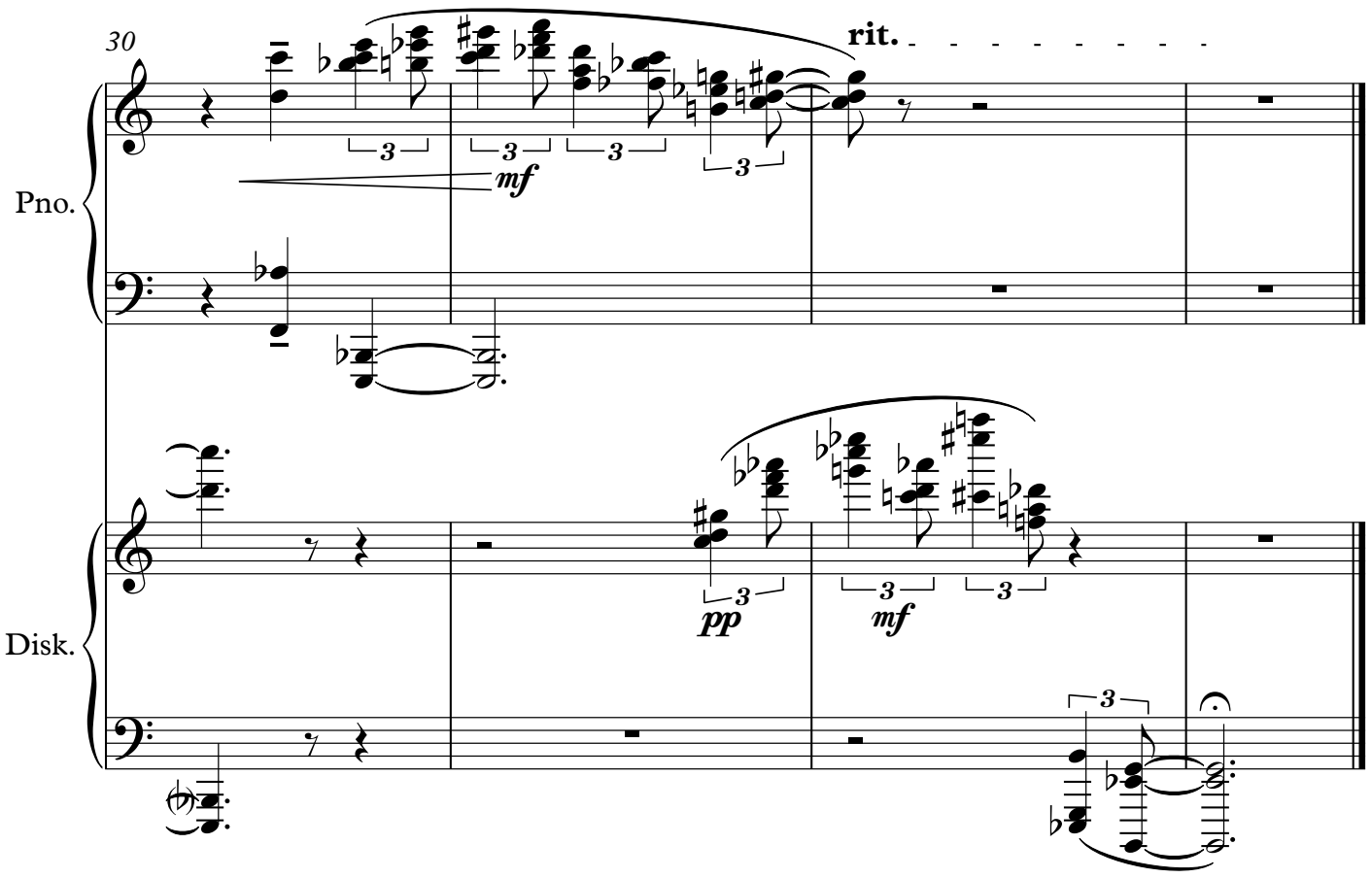

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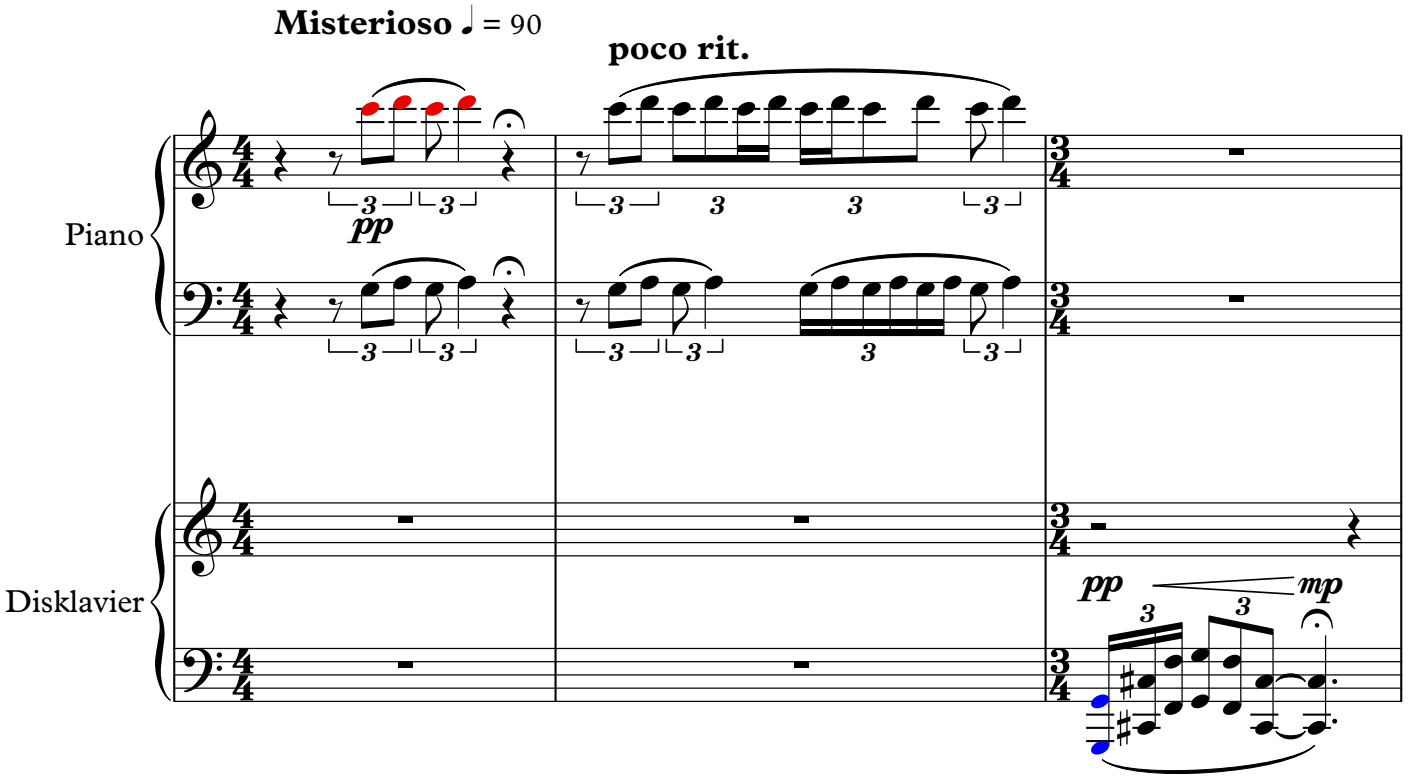
Path 3b



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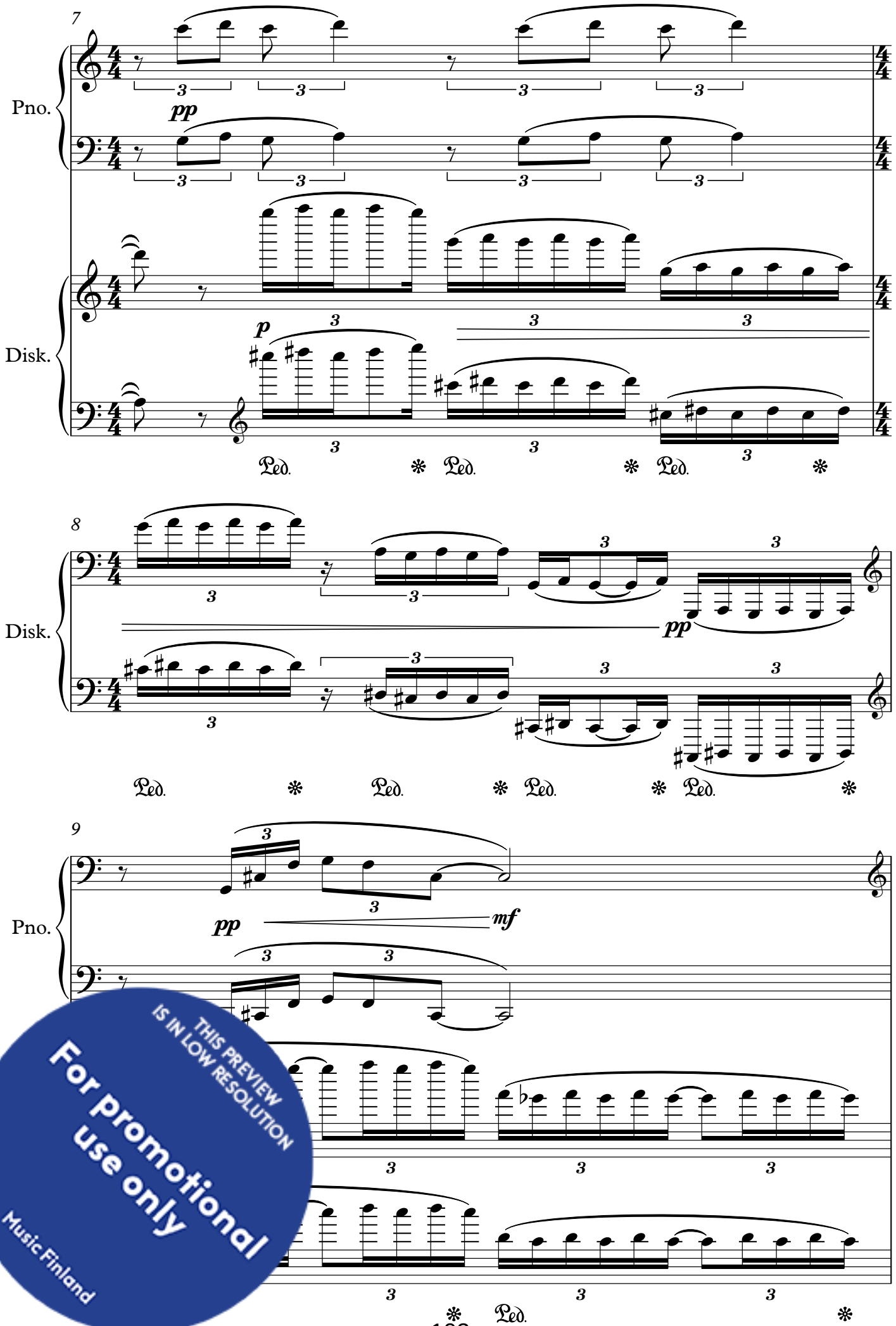

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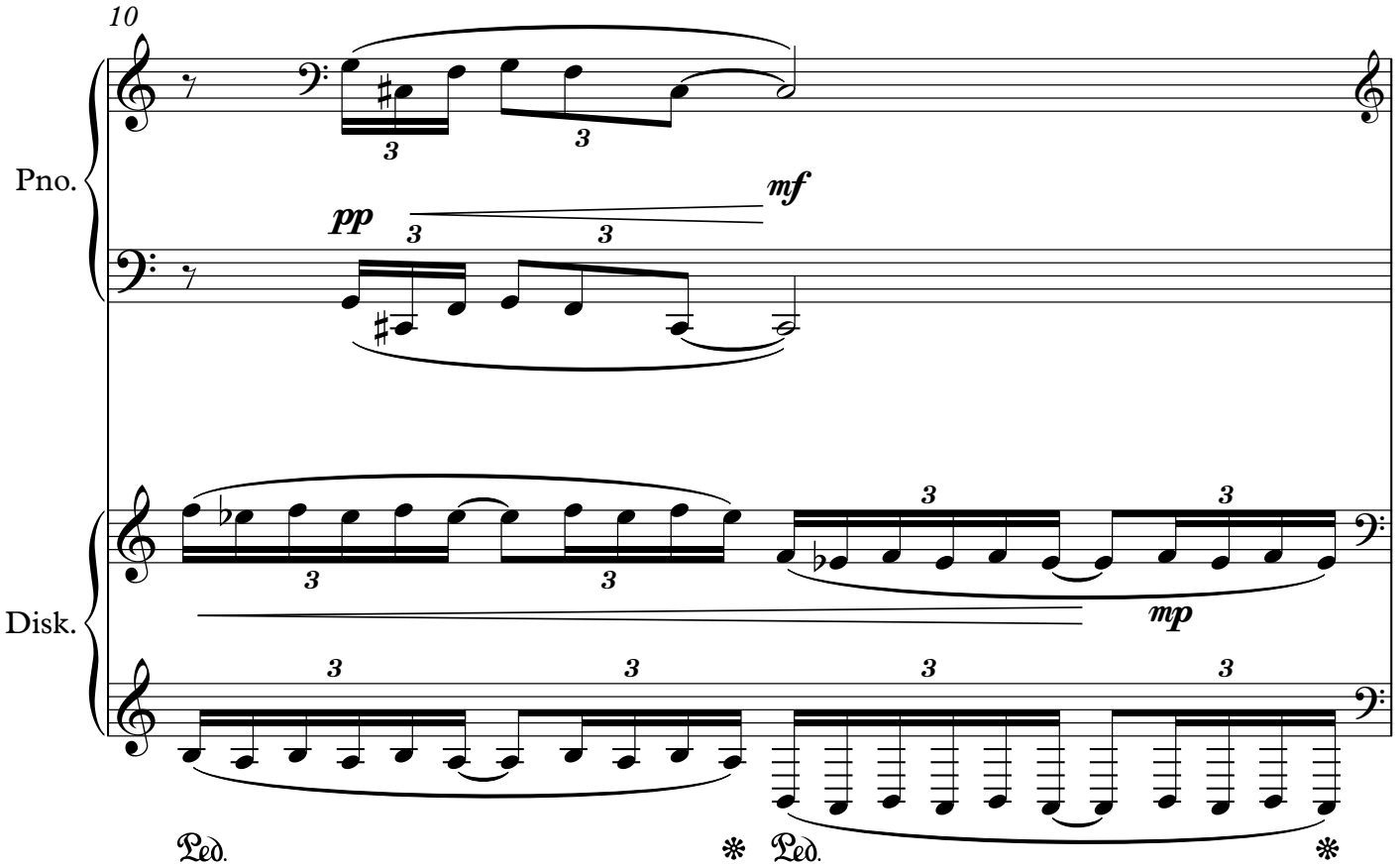

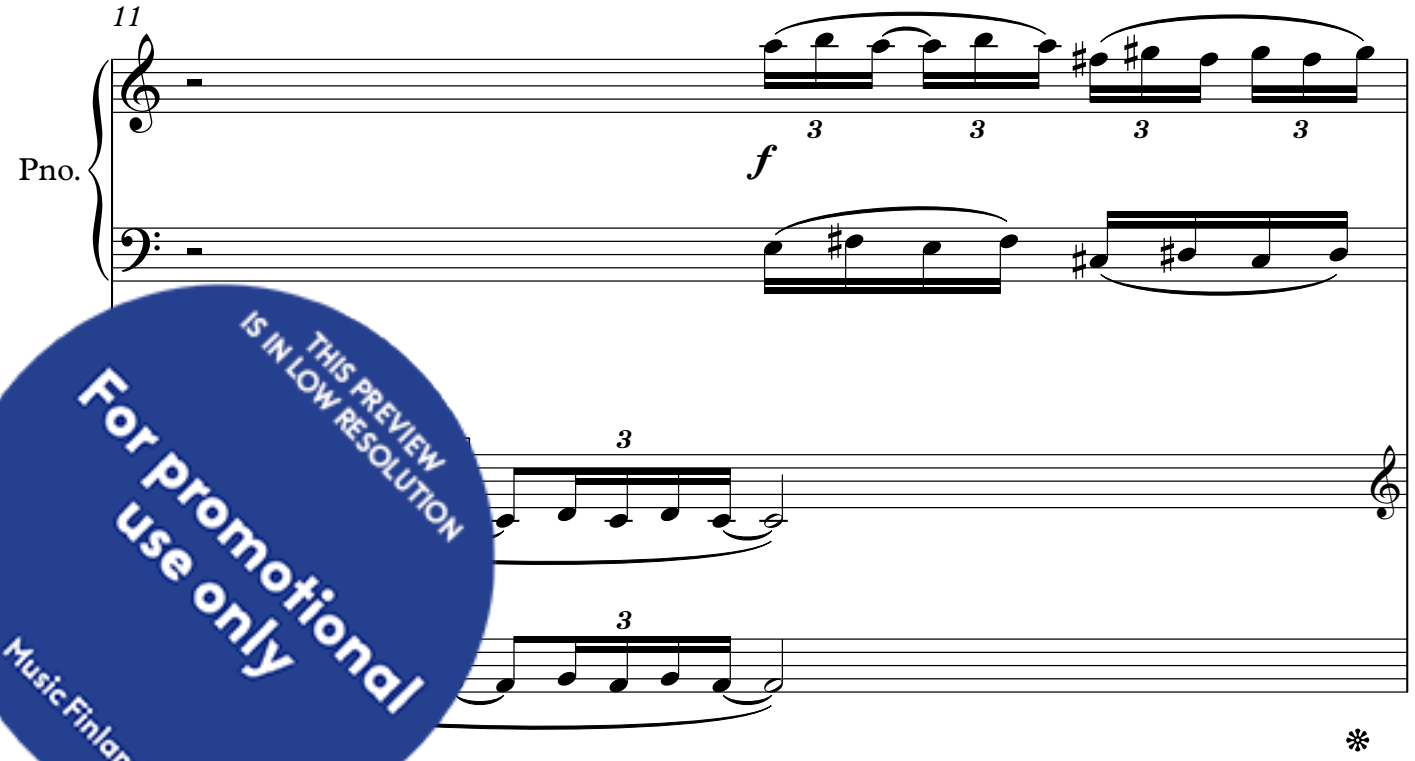

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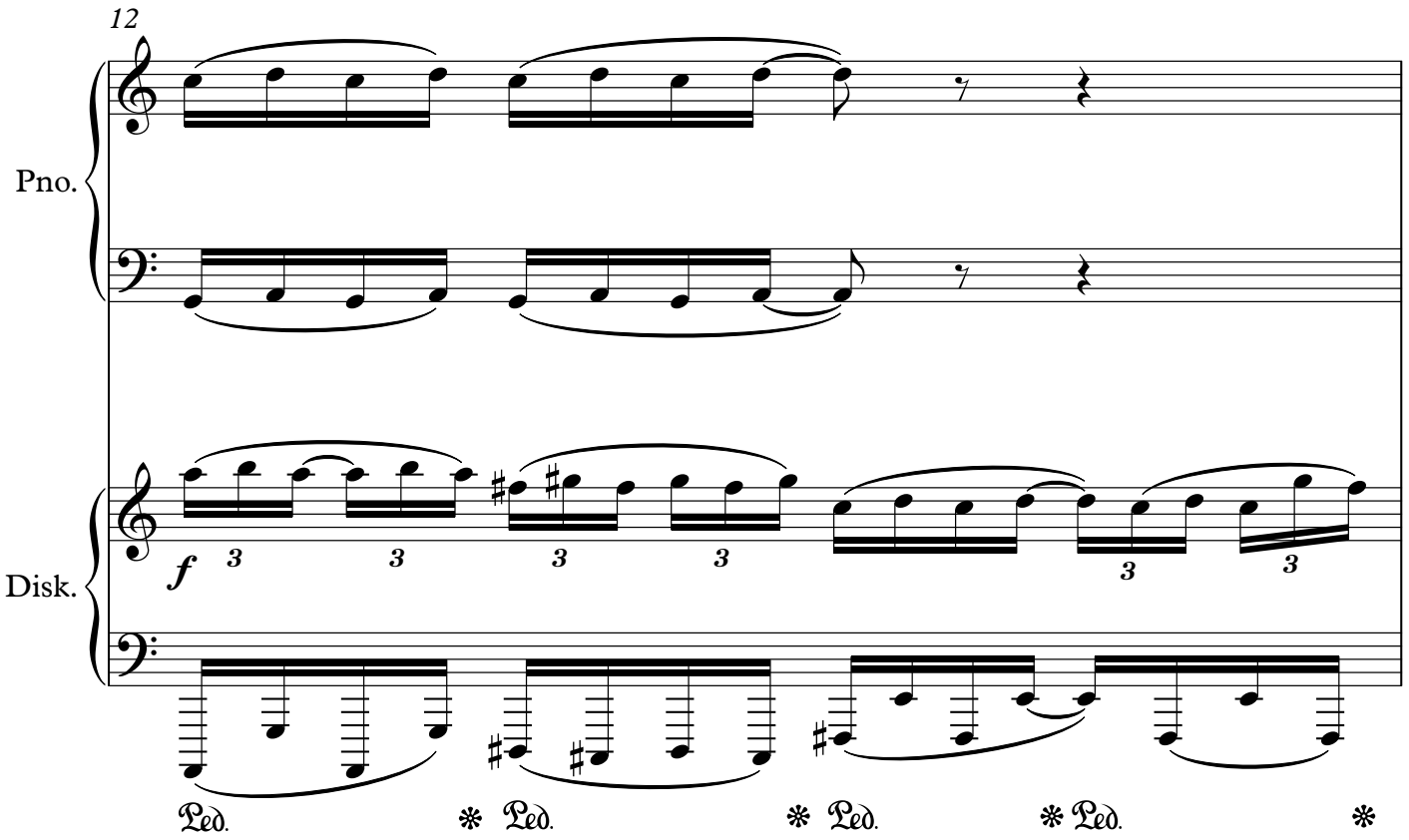

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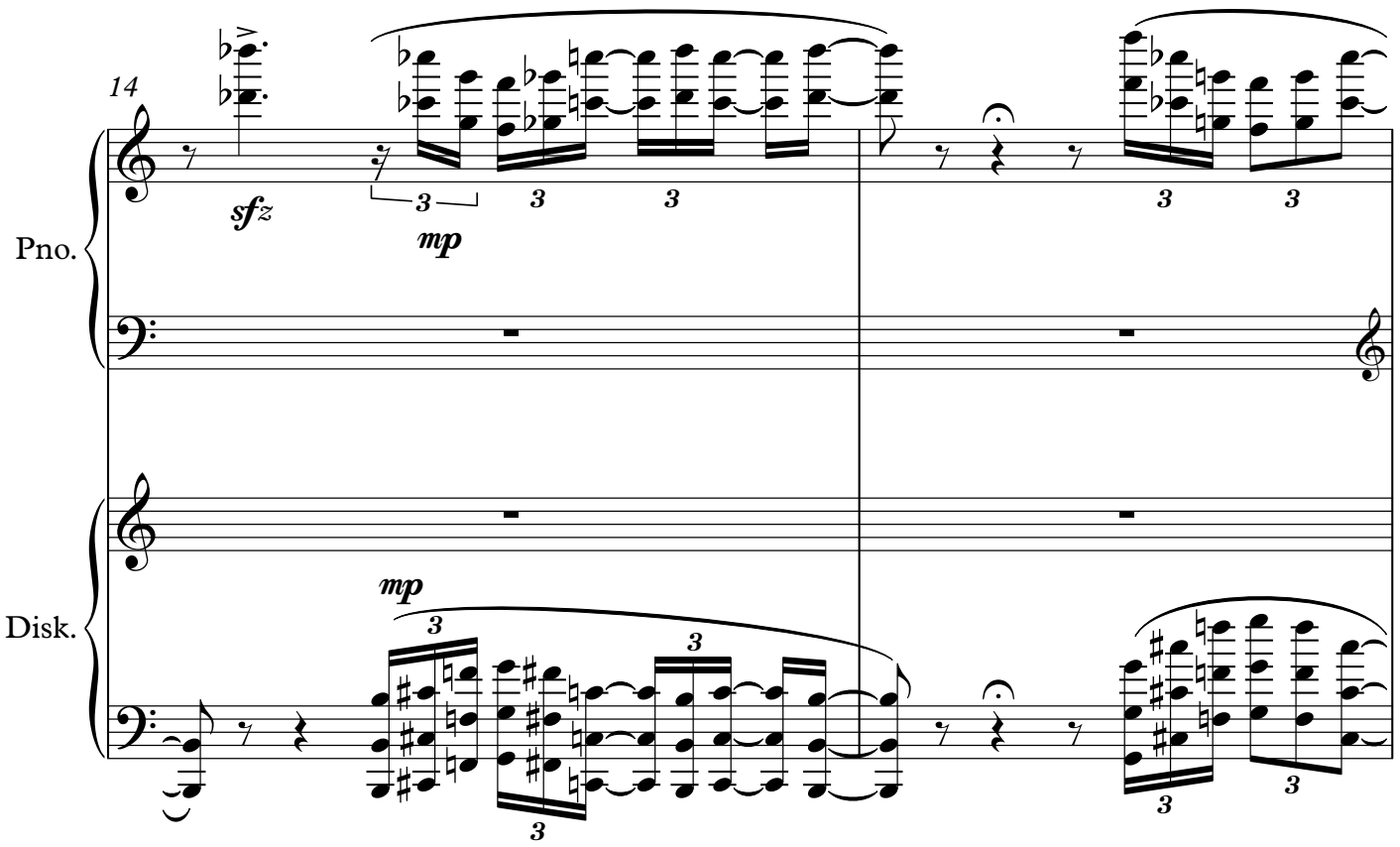

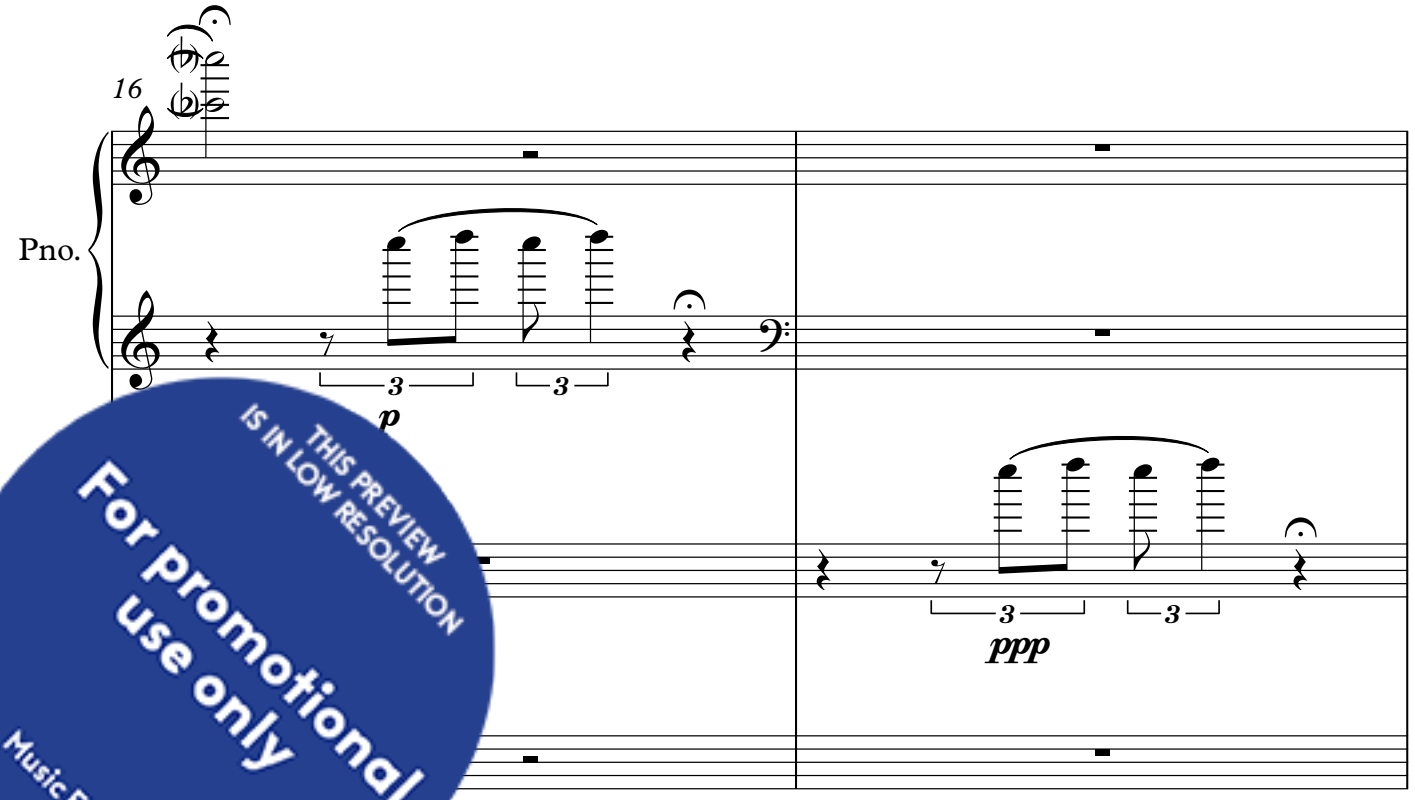

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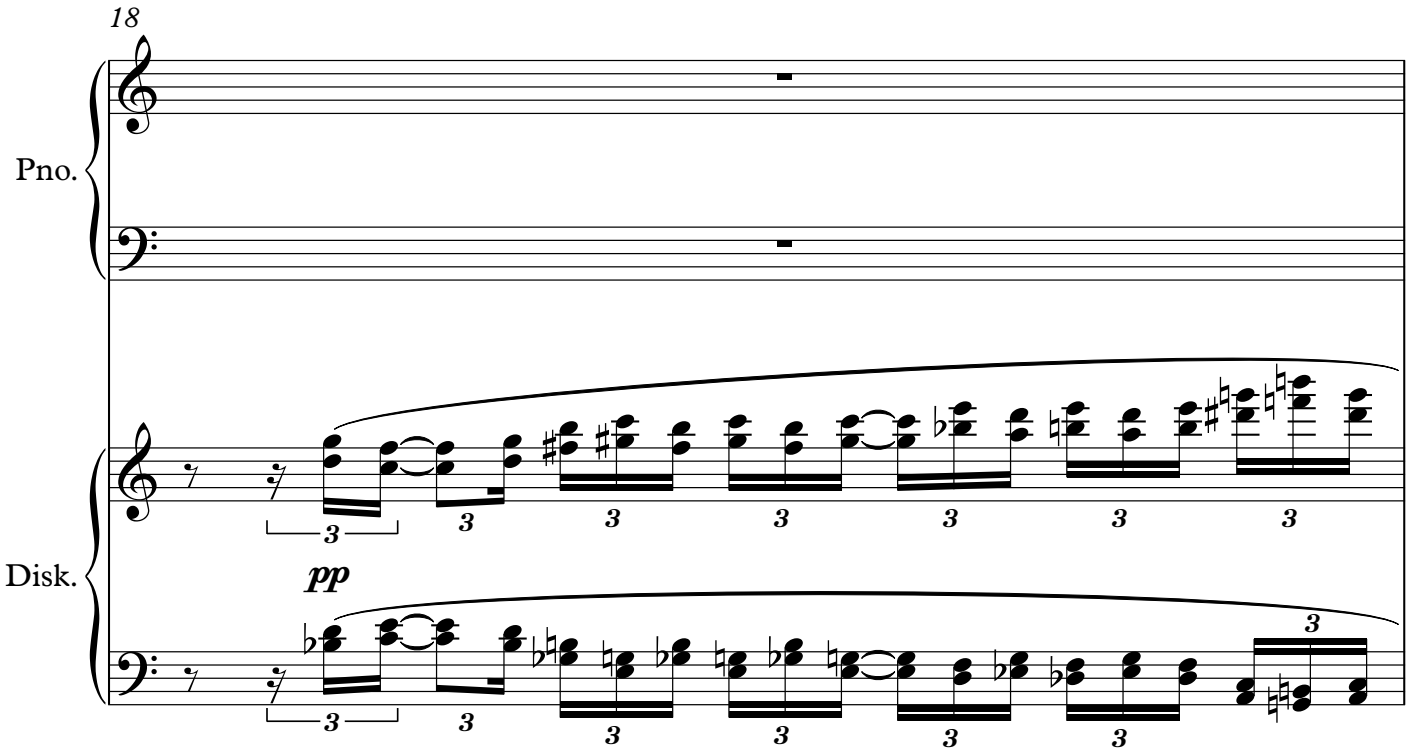

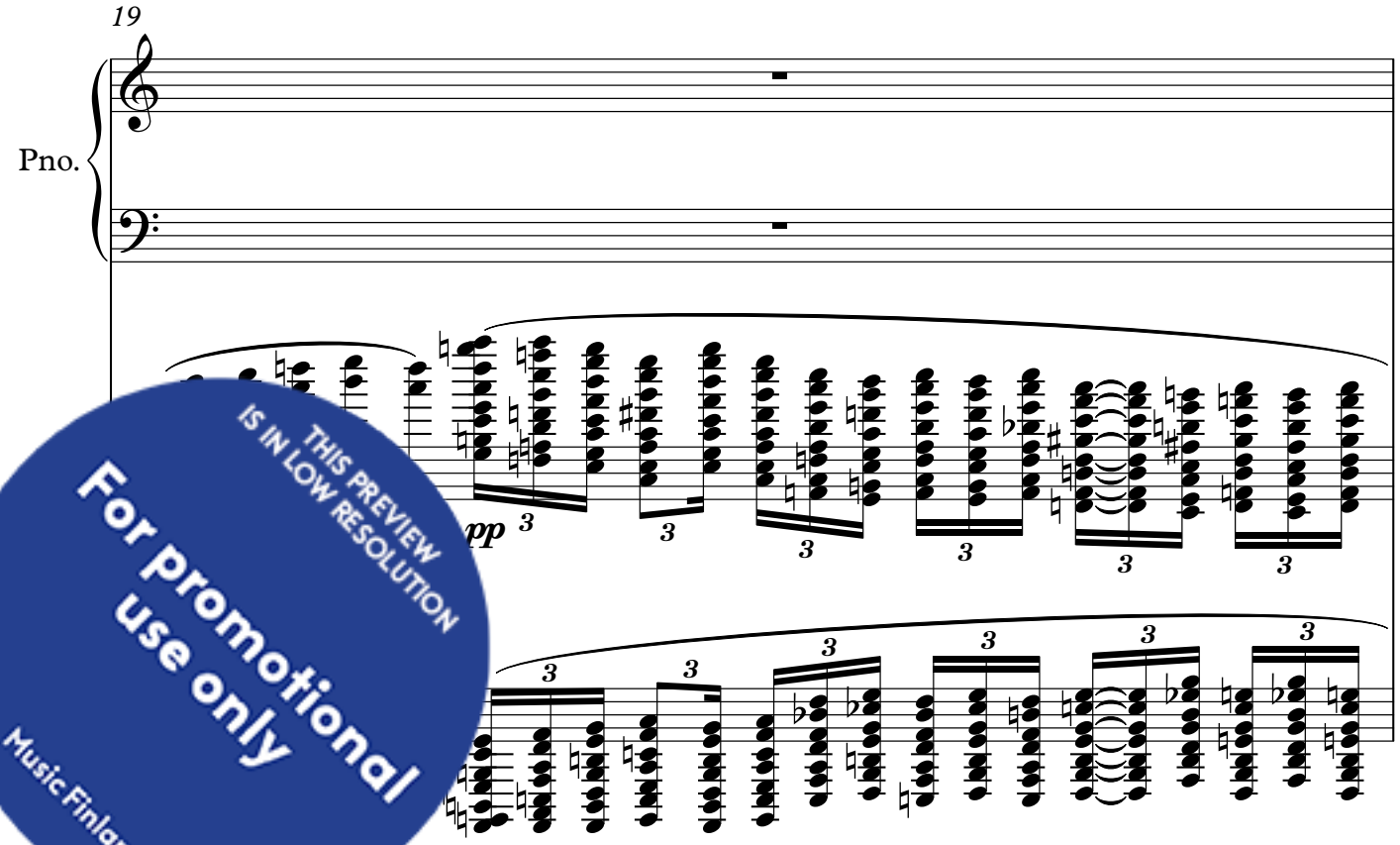

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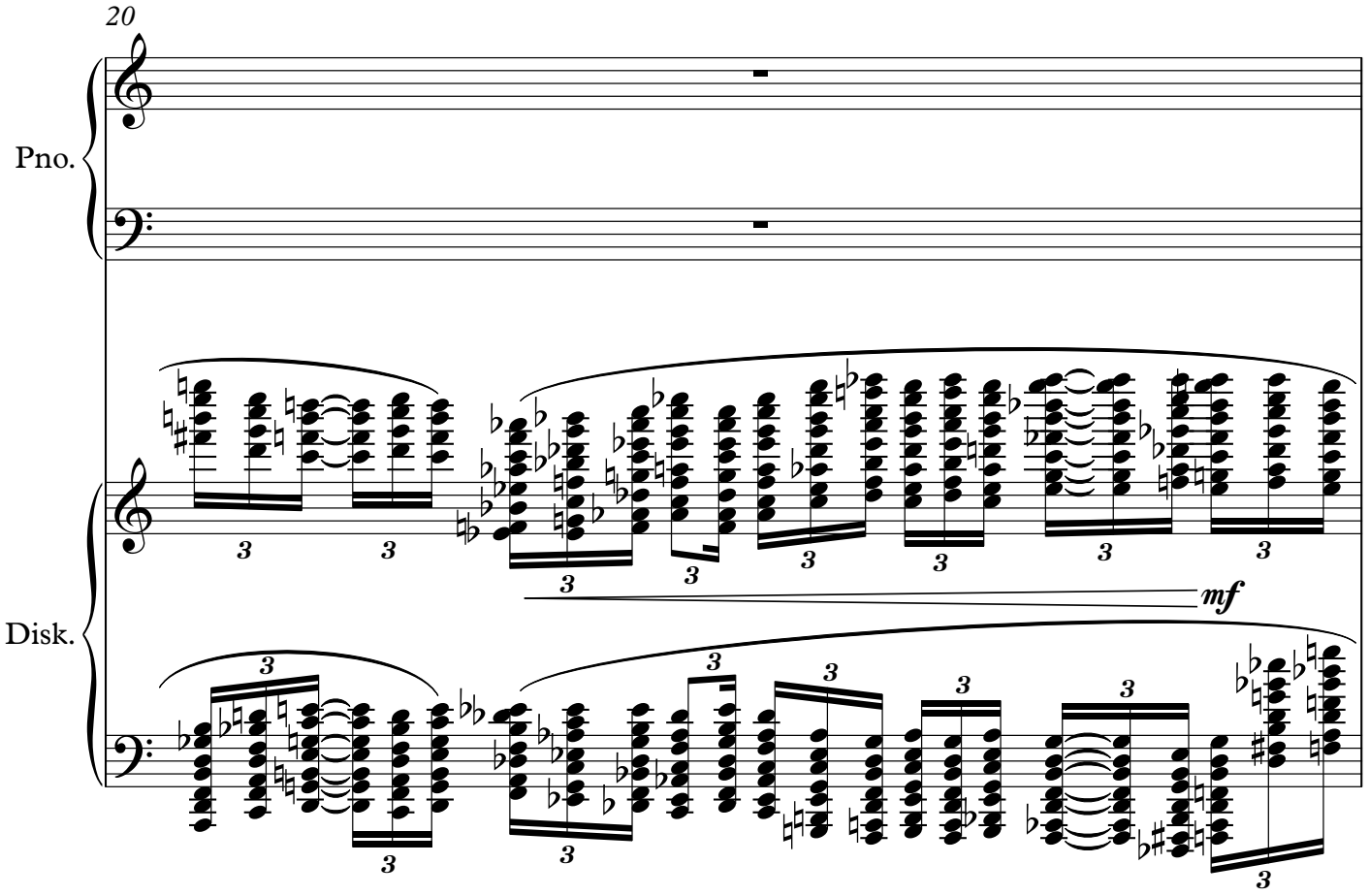

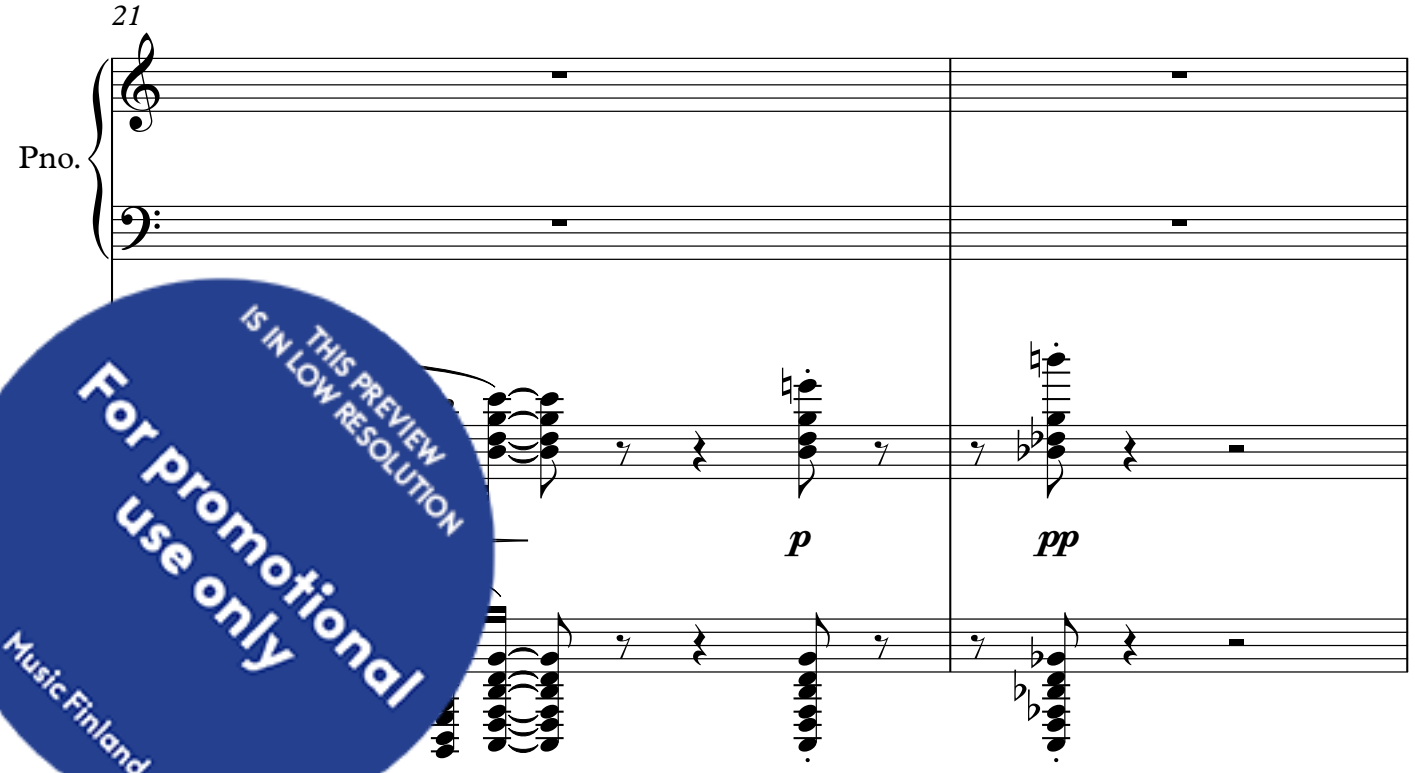

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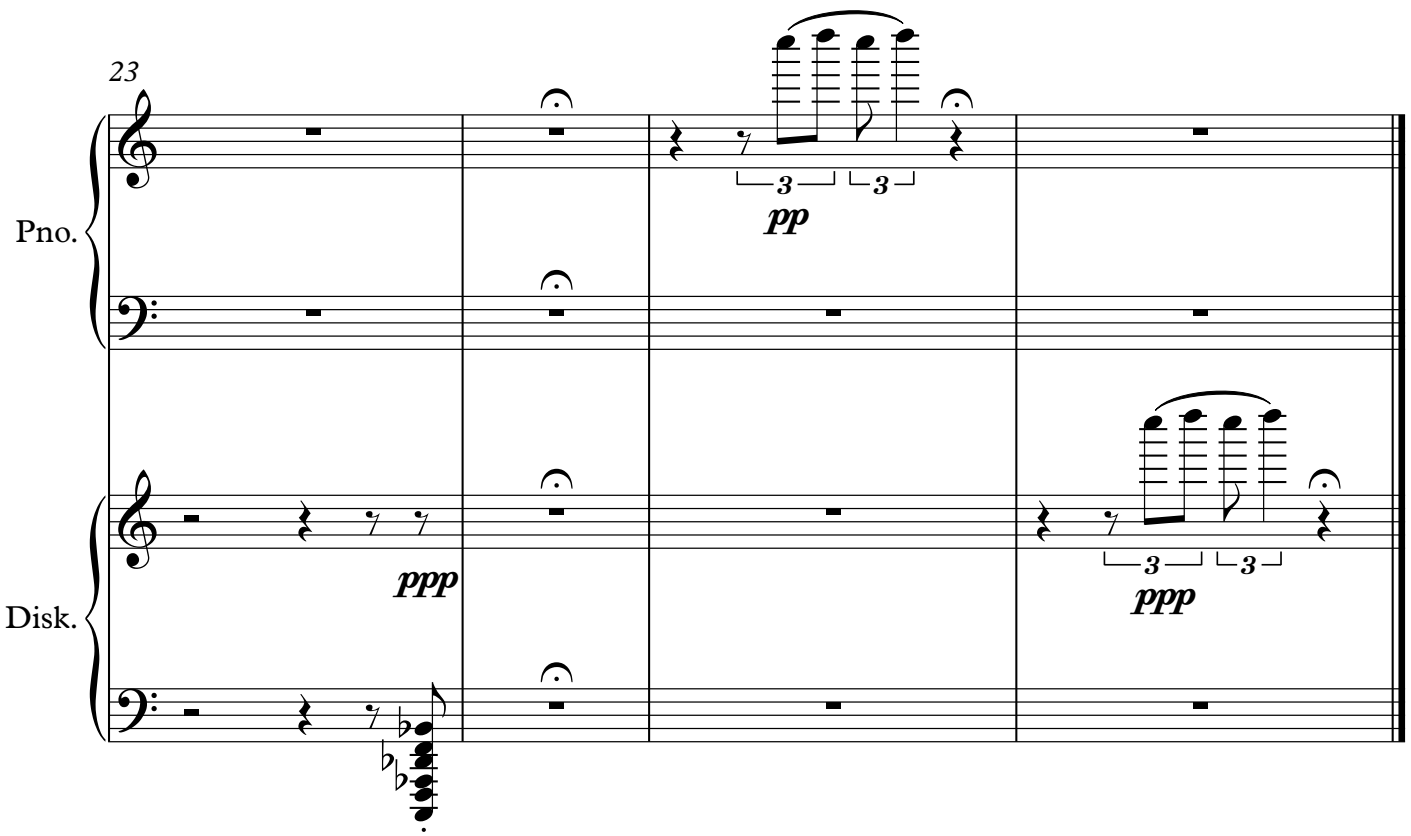

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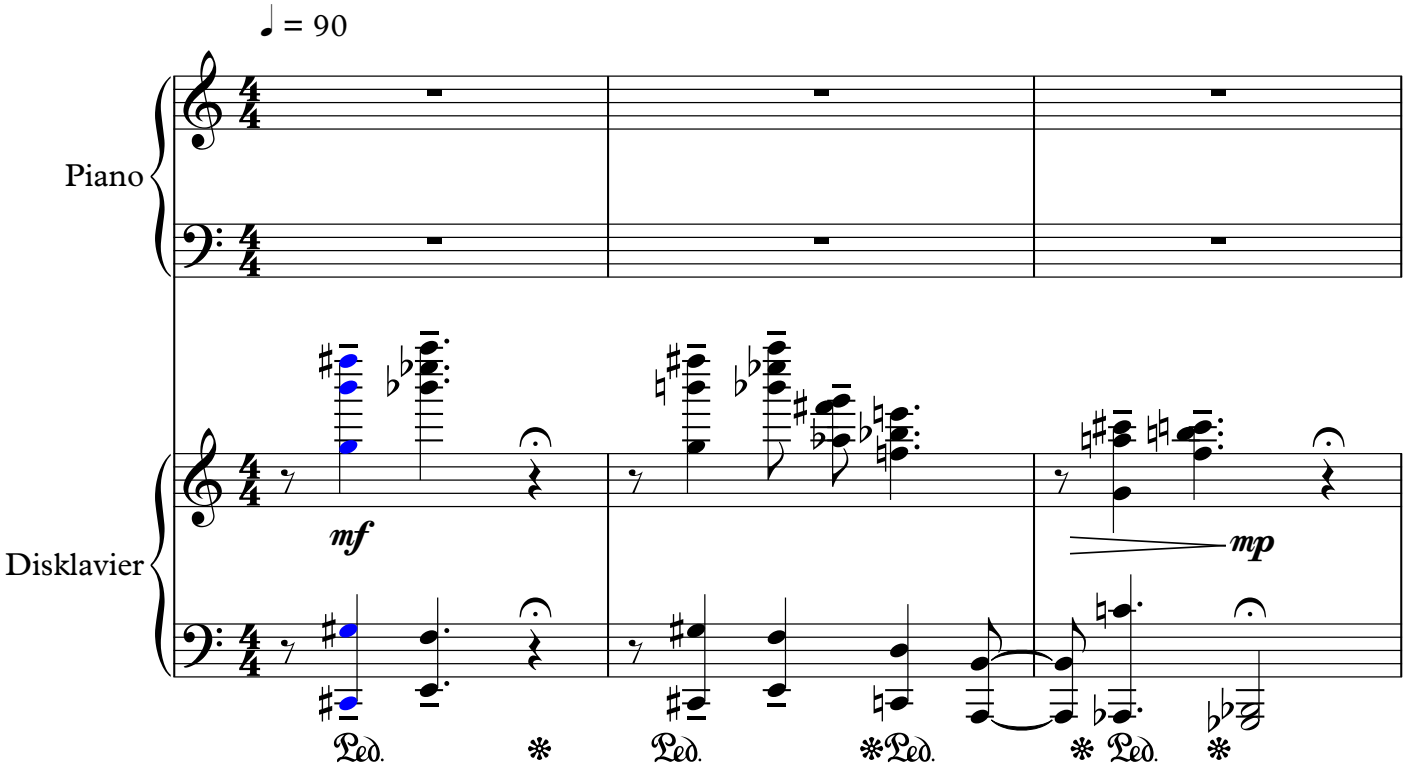
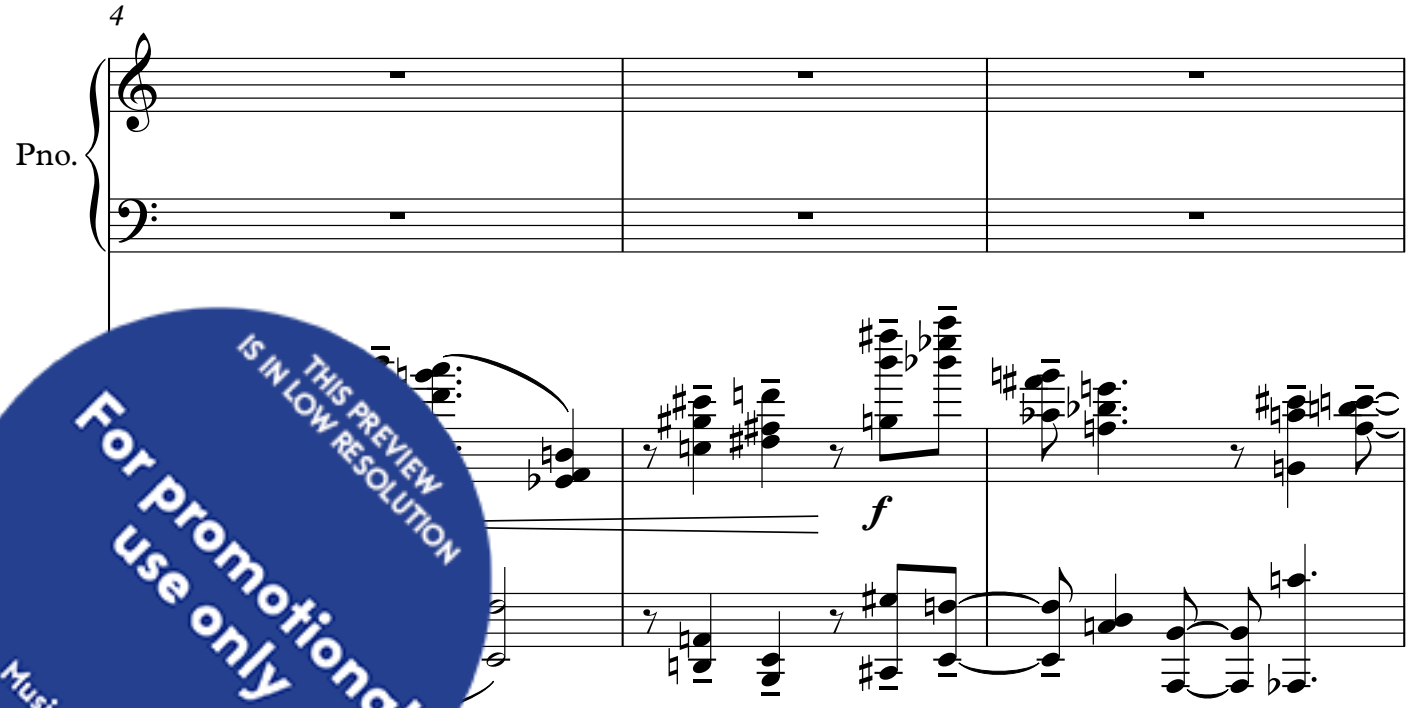
A Talkative Stranger (3c)





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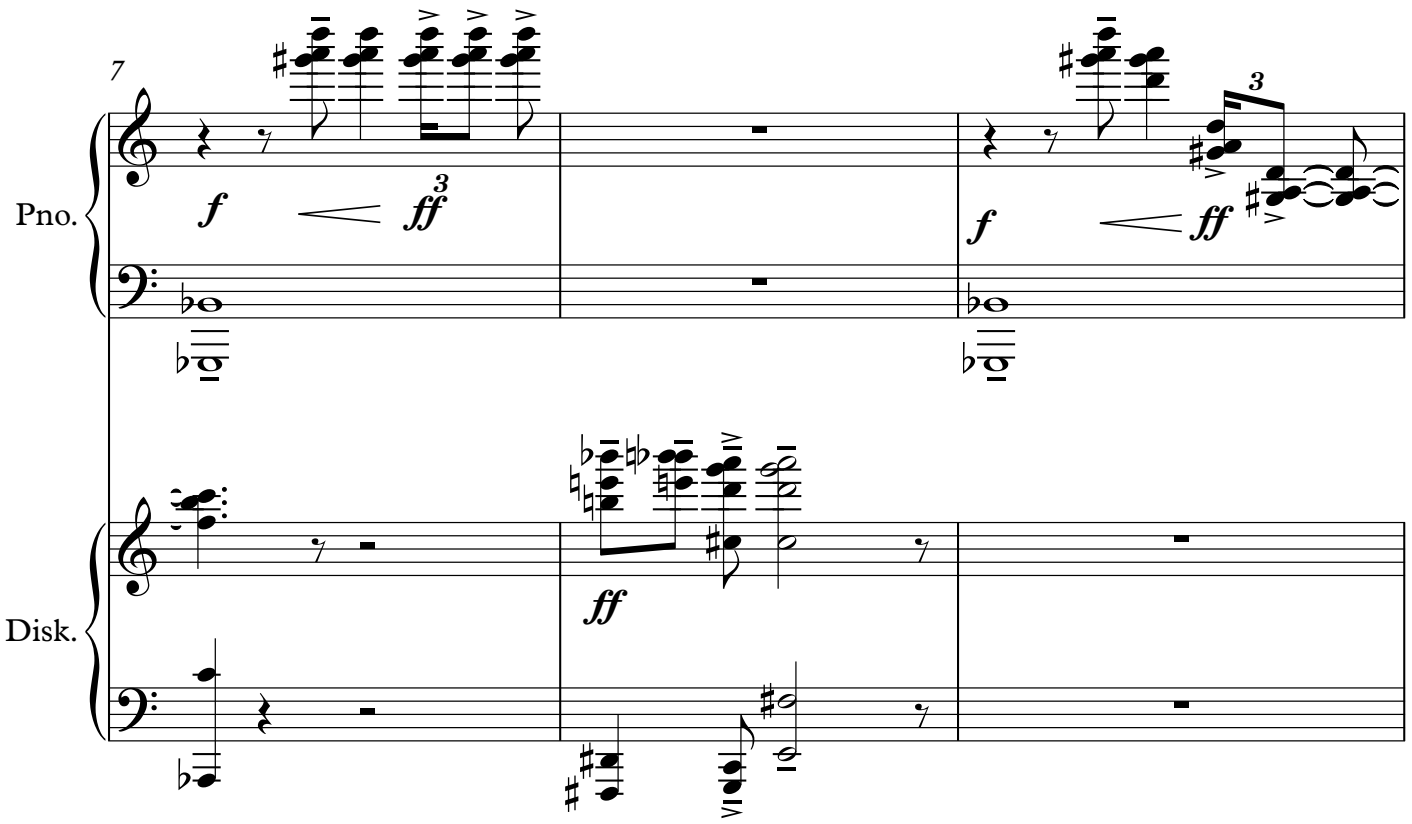

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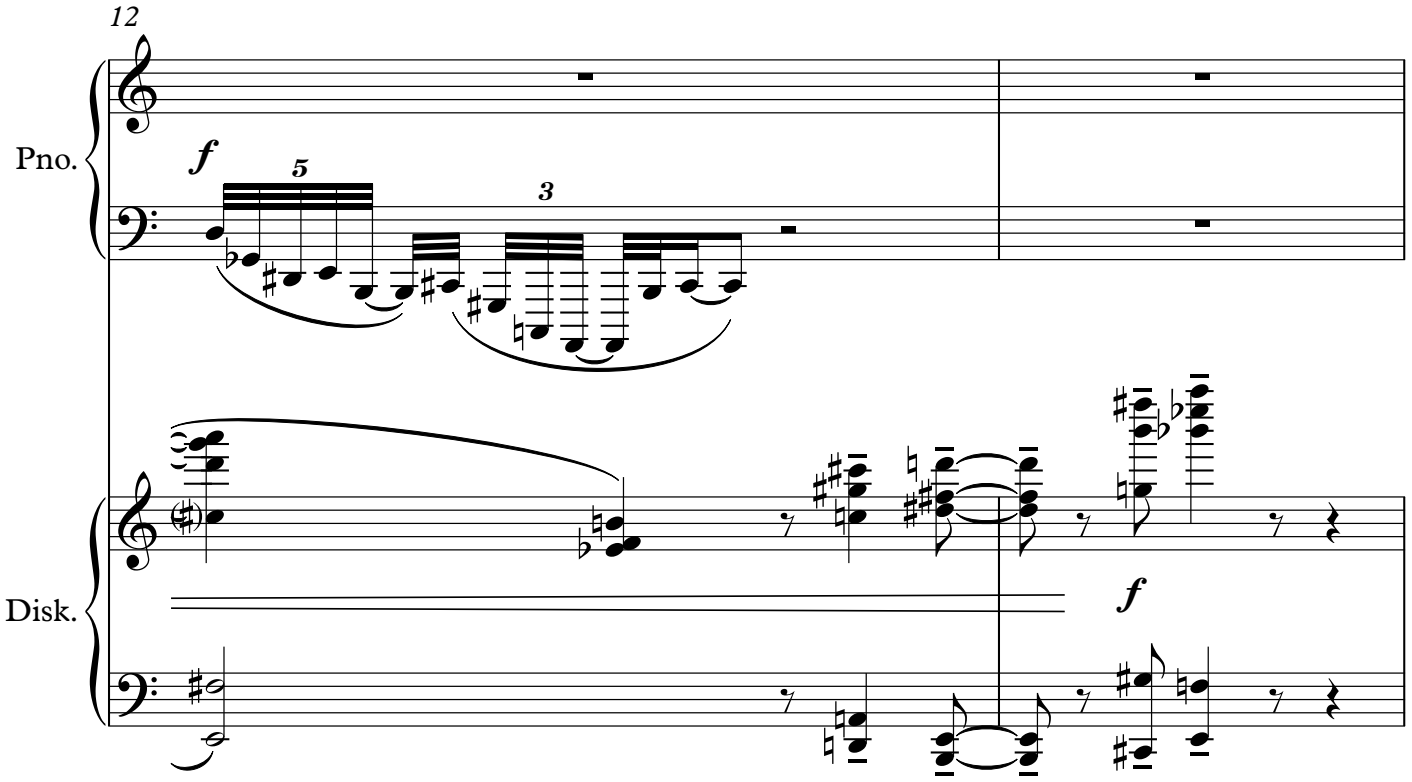

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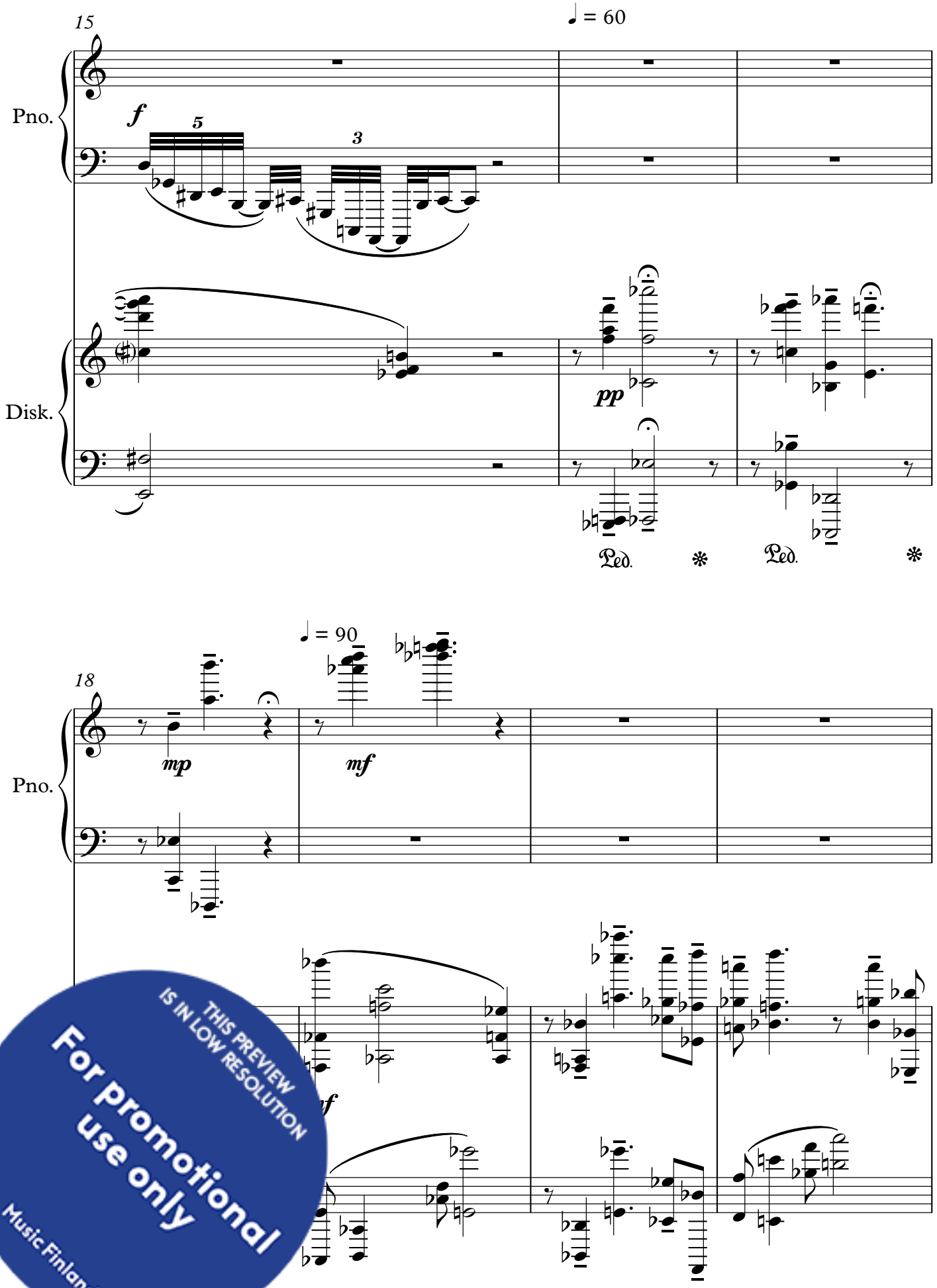

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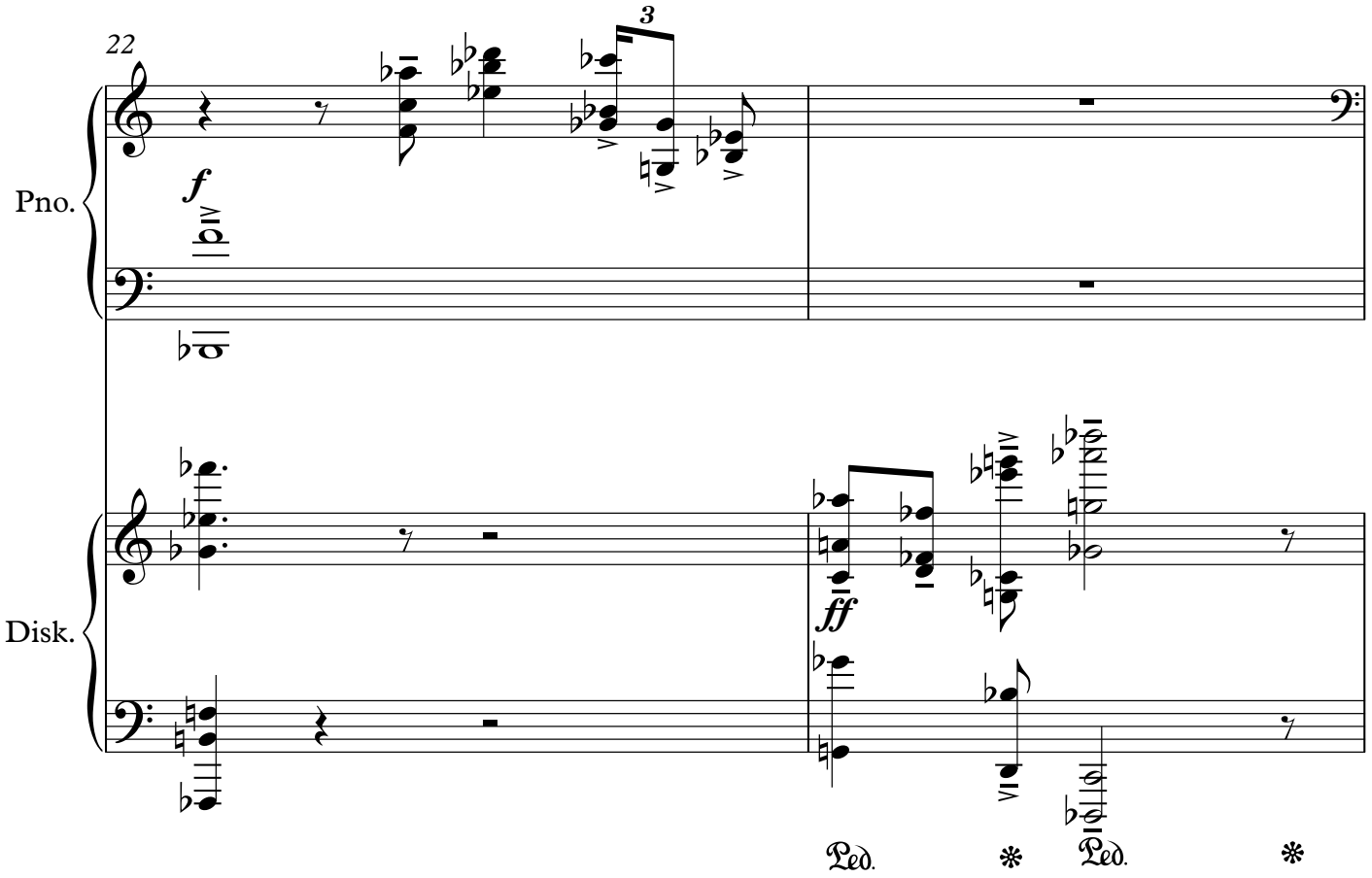

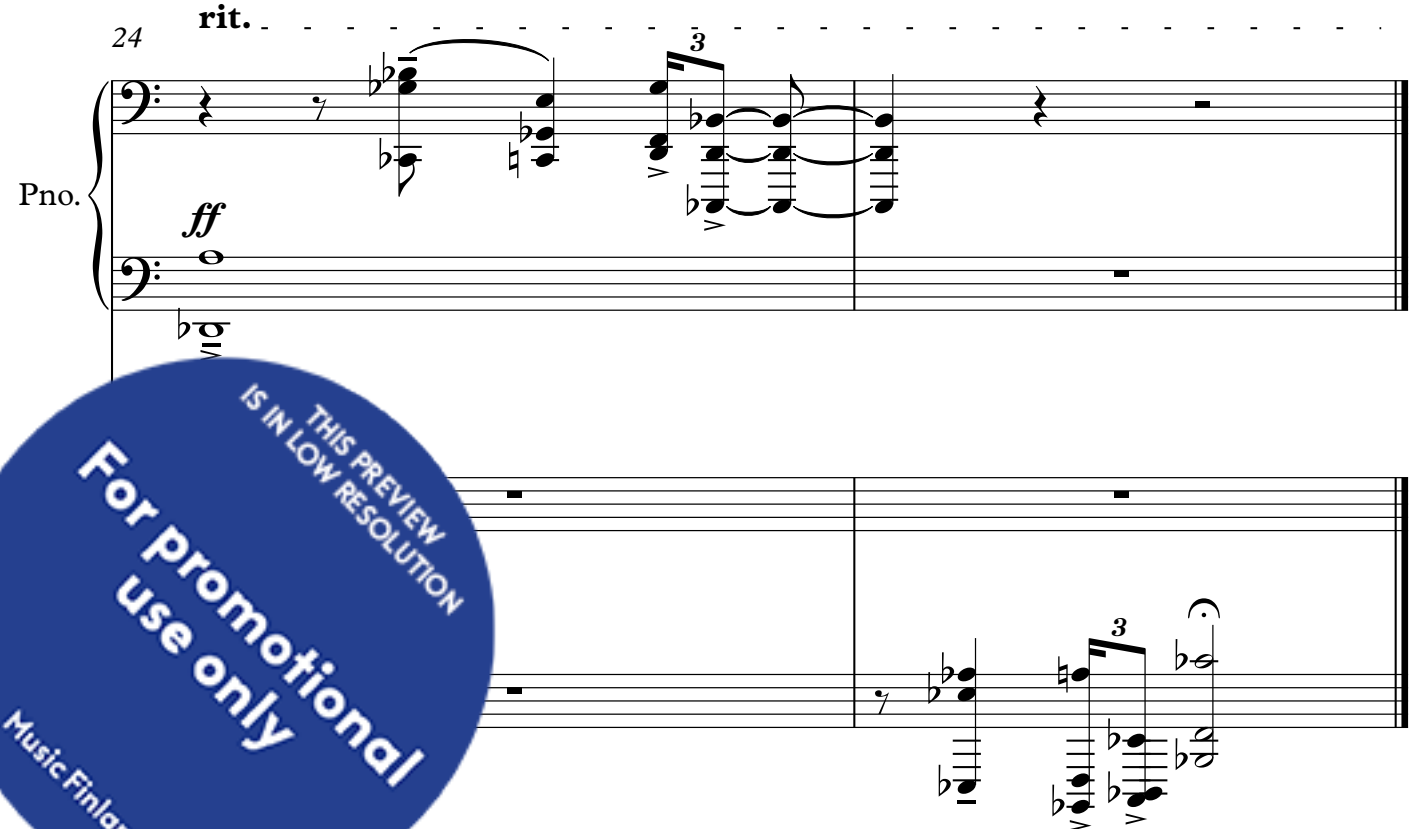

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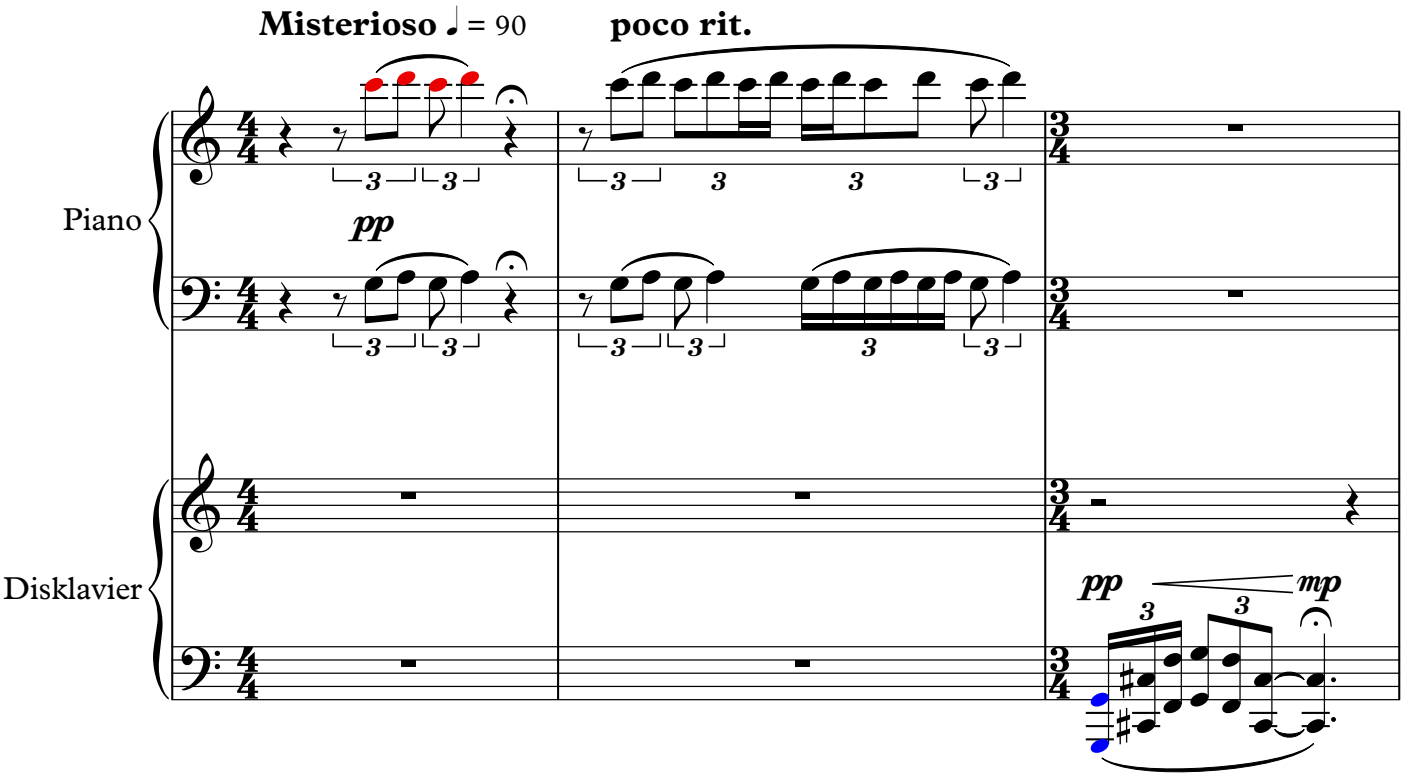
Path 3c



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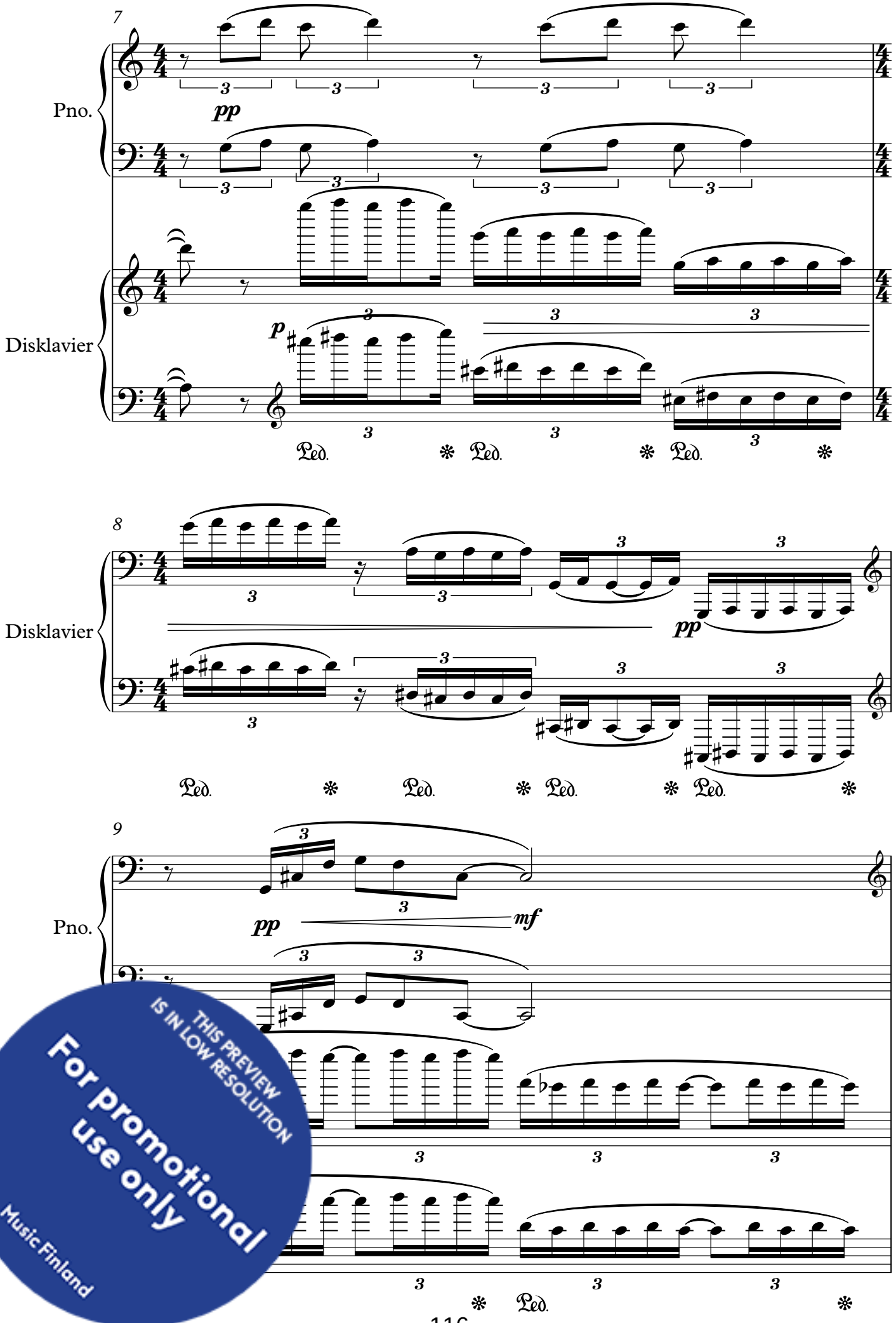

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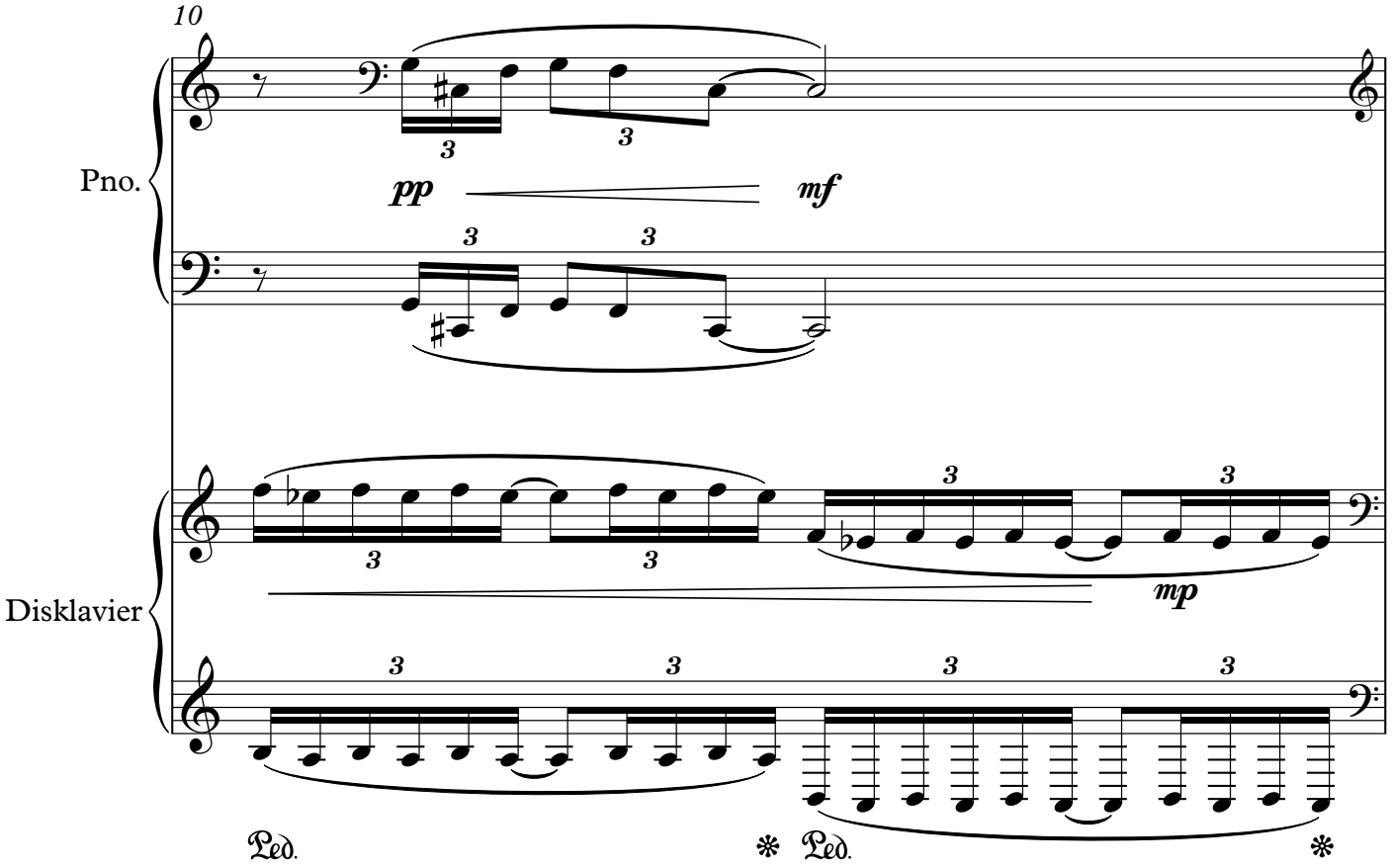

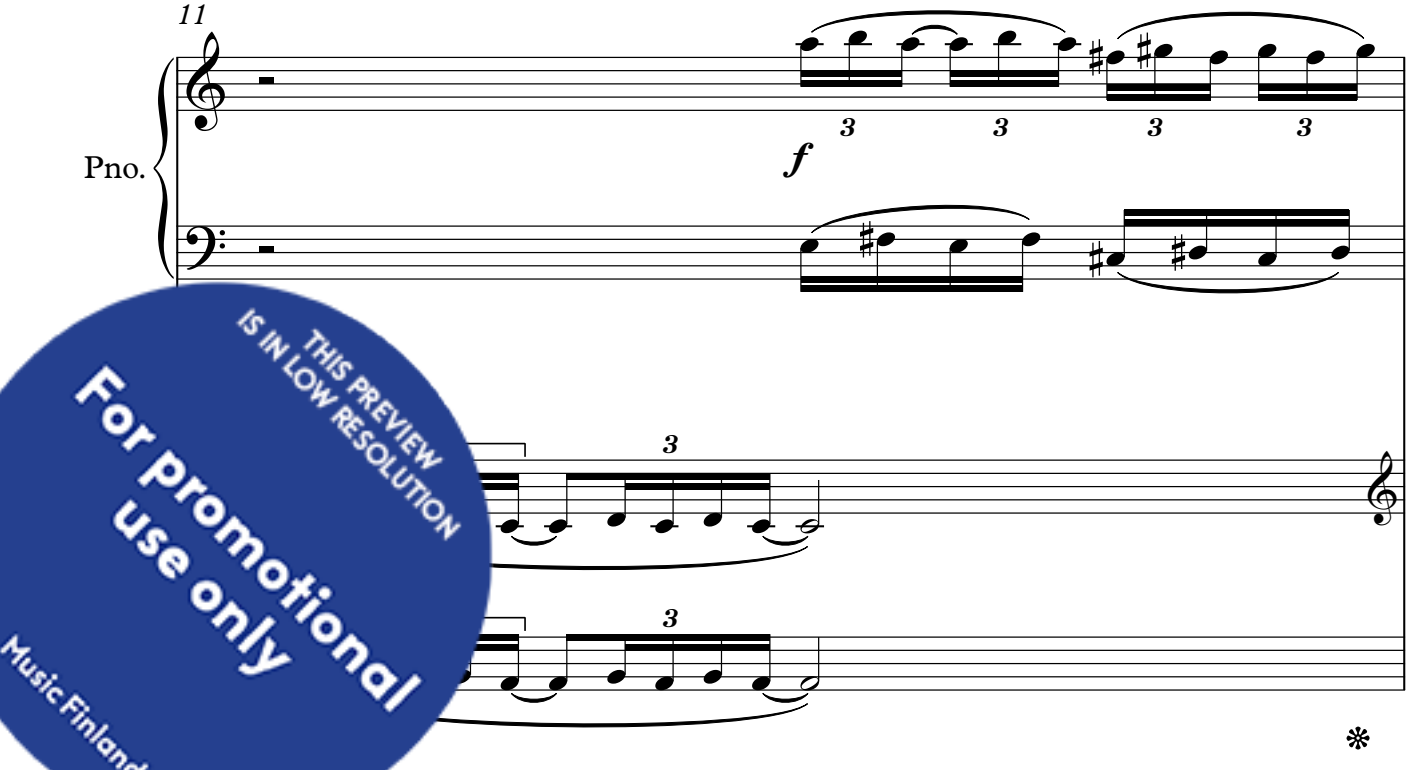

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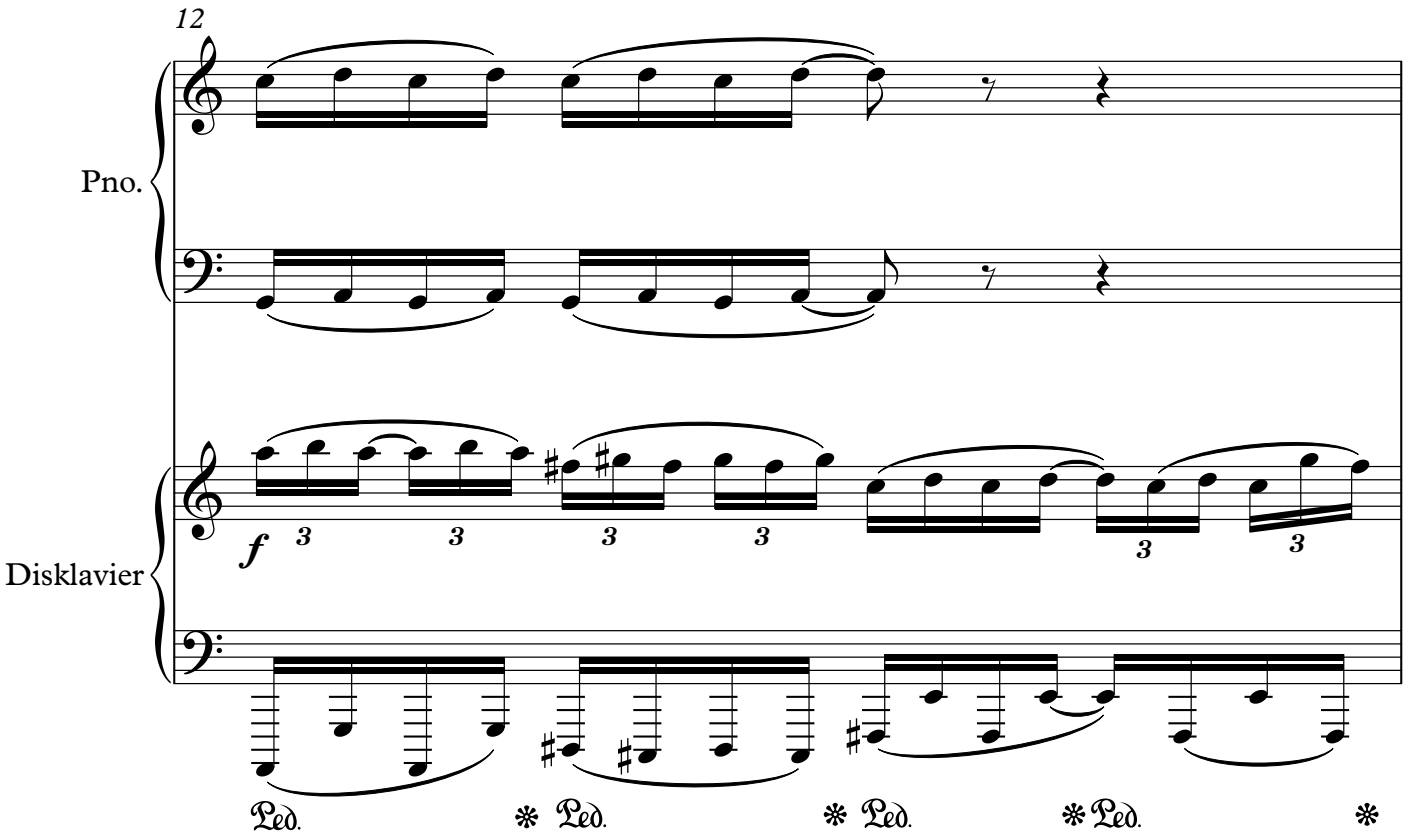

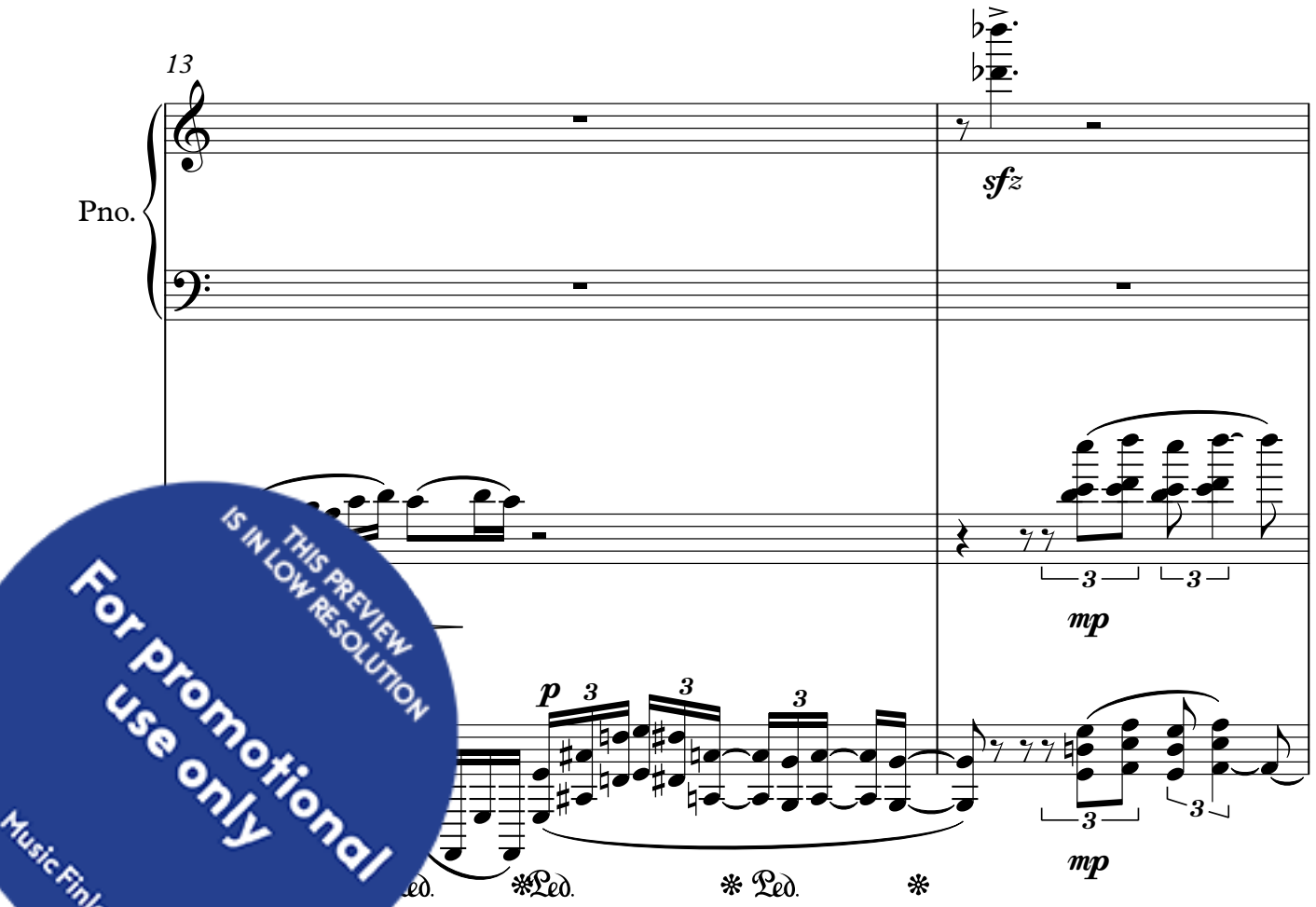

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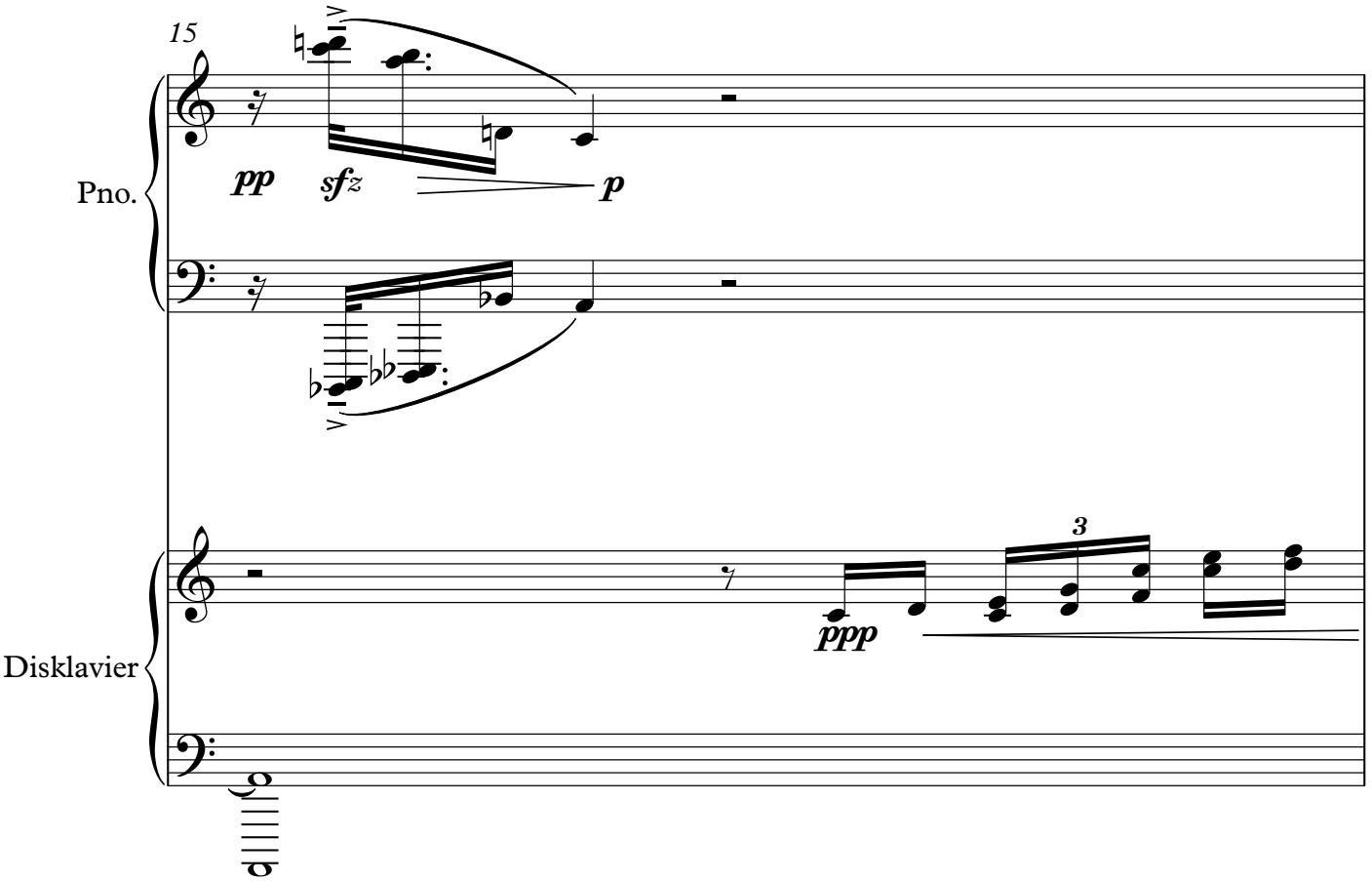

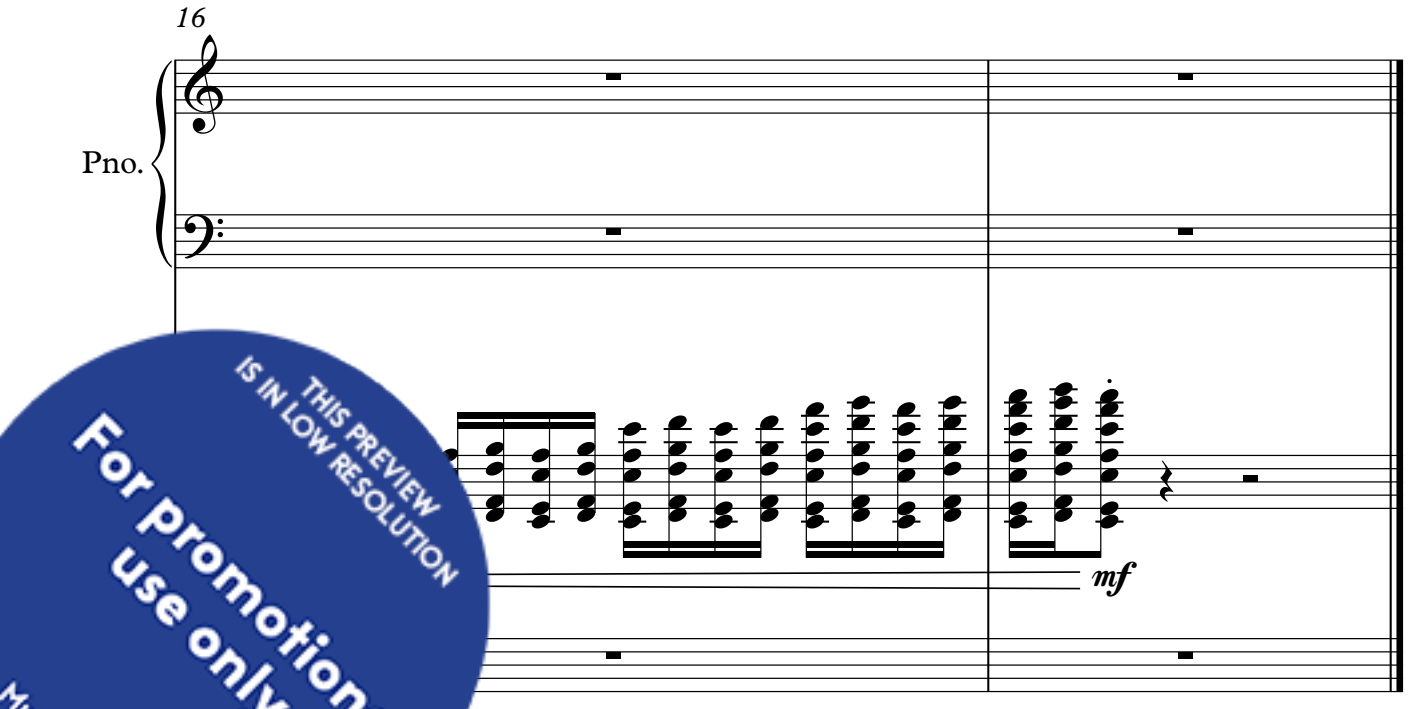

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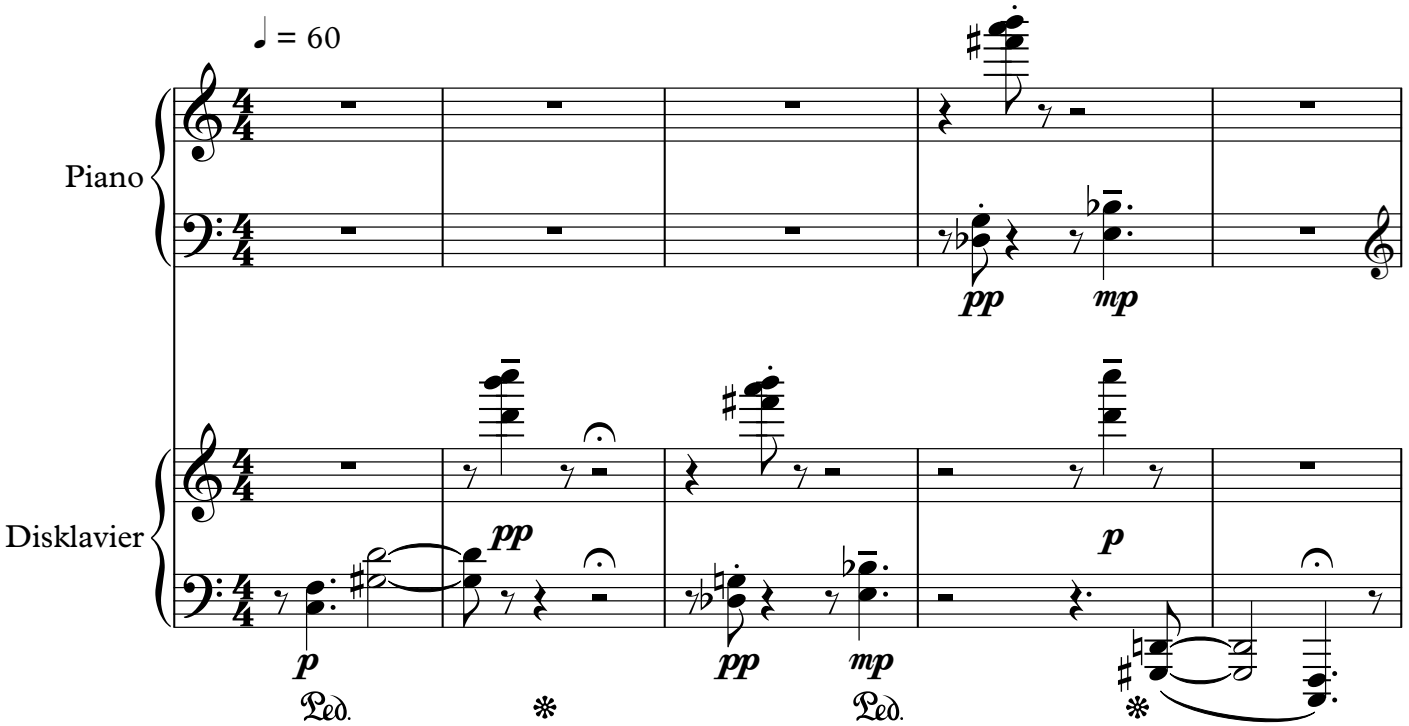
An Apple Tree (4c)



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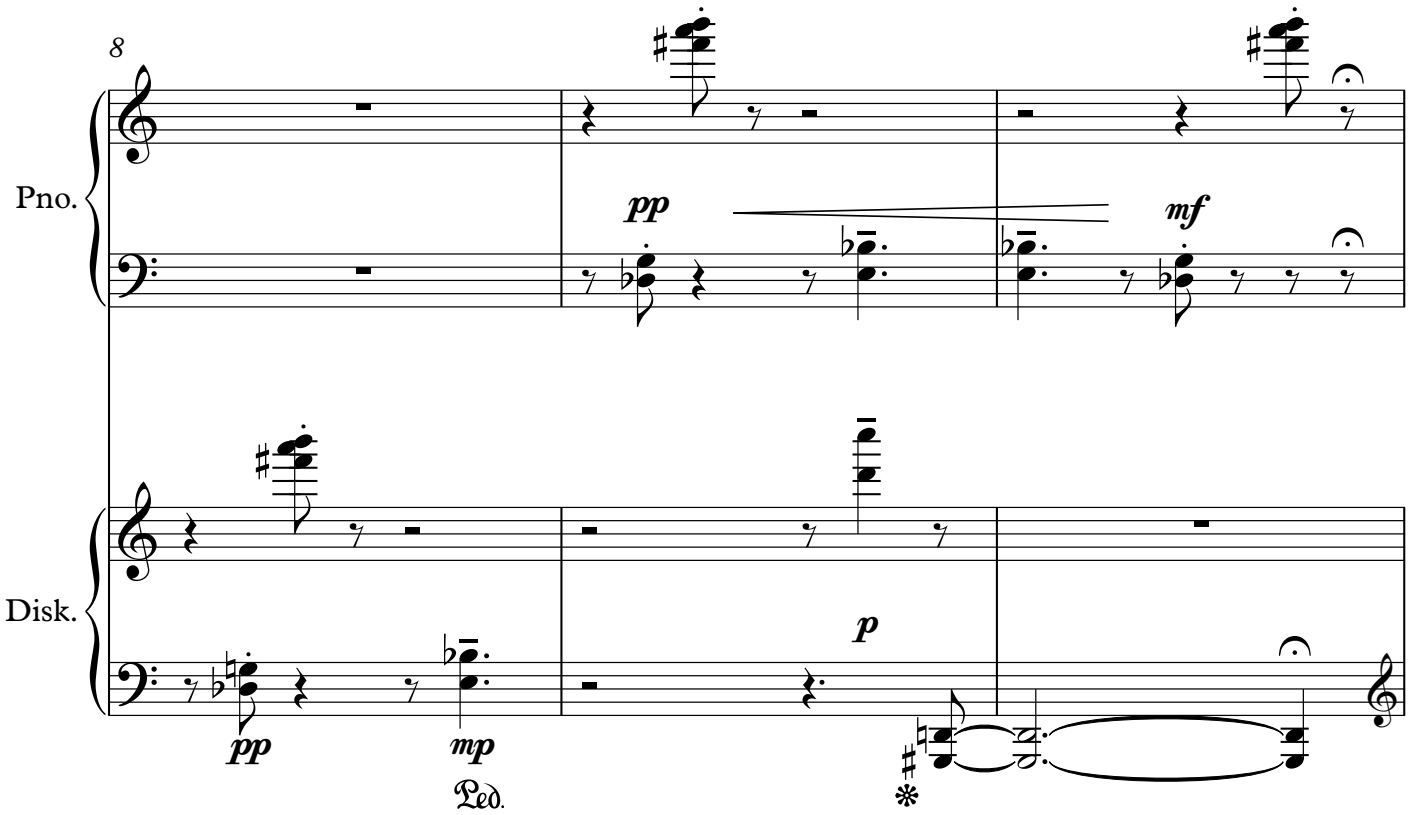

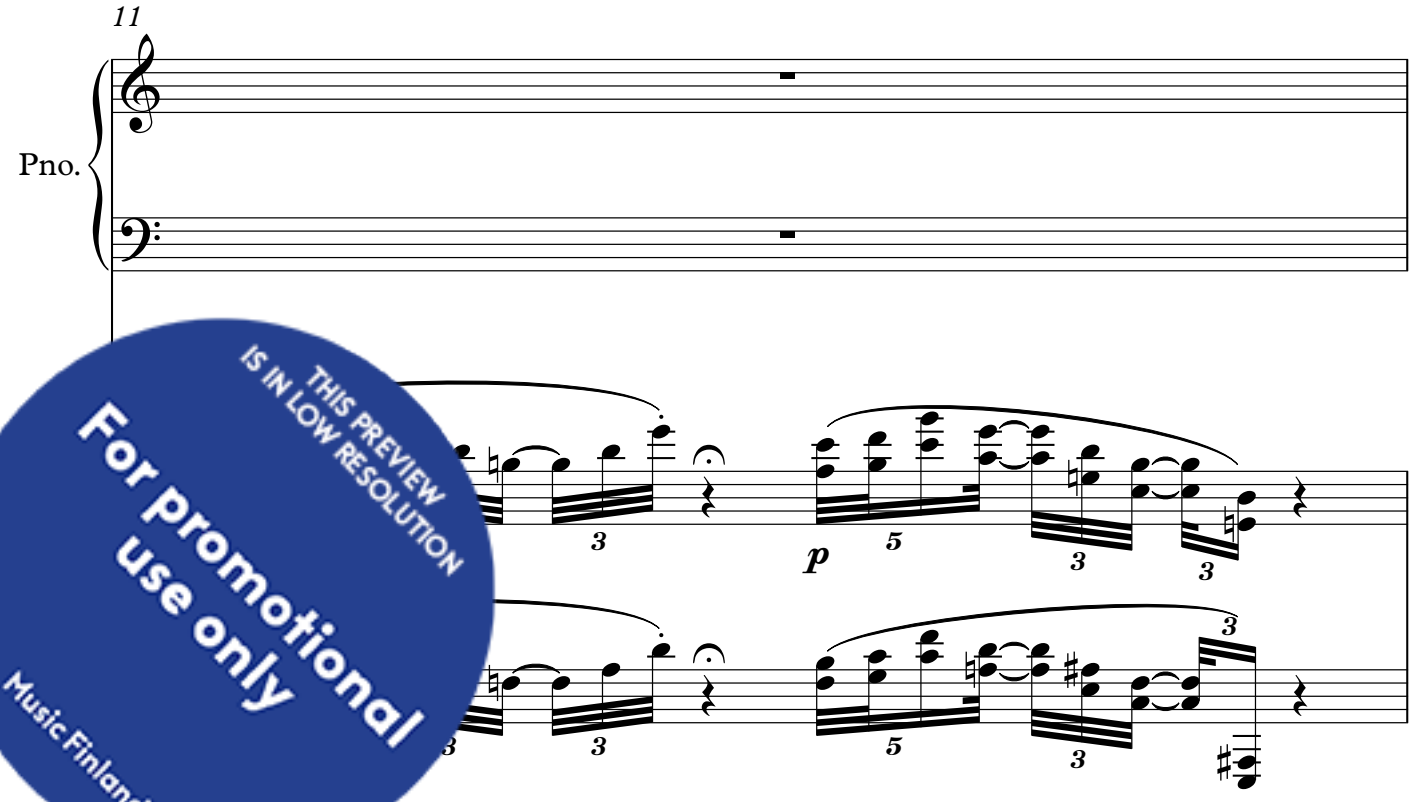

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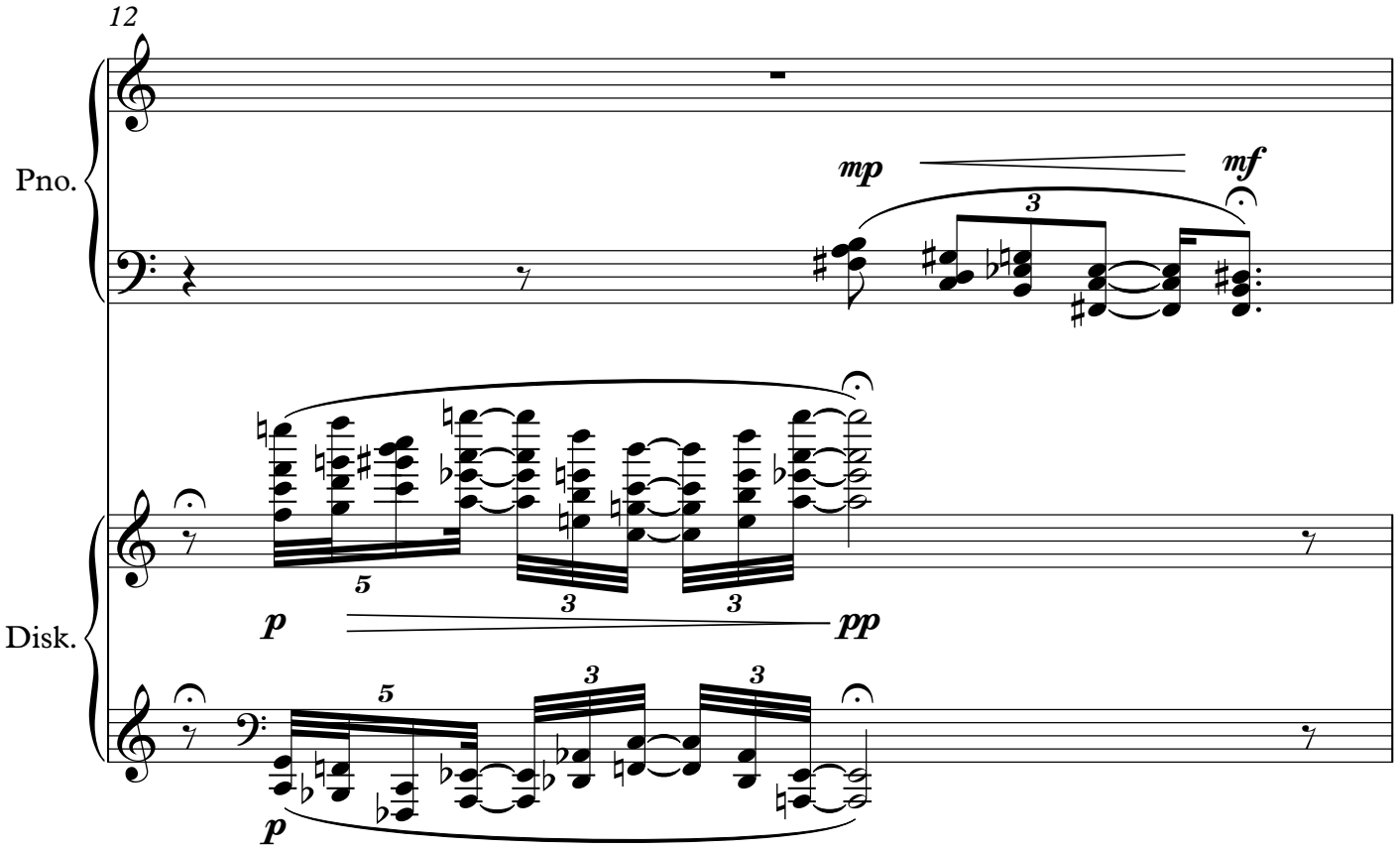

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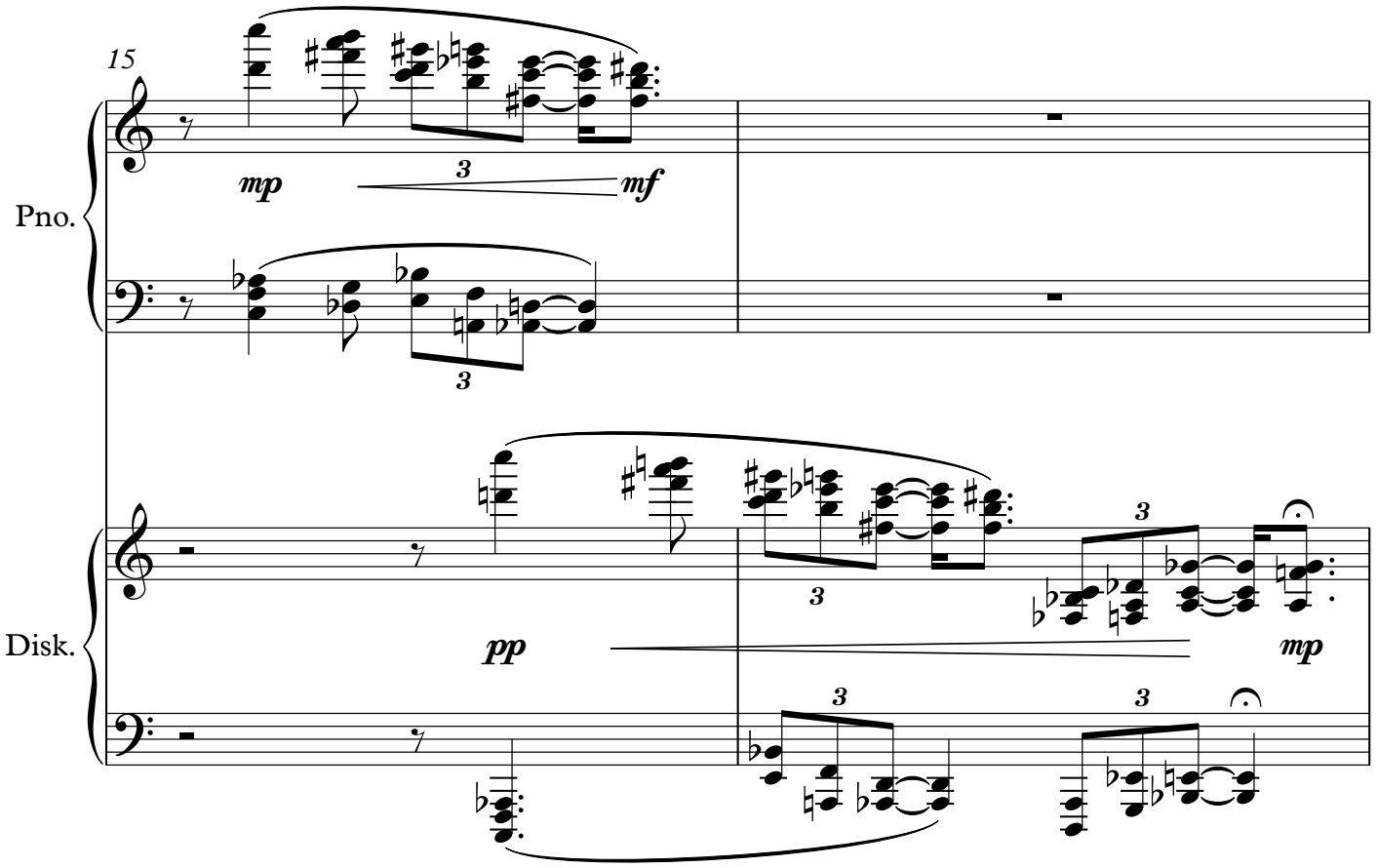

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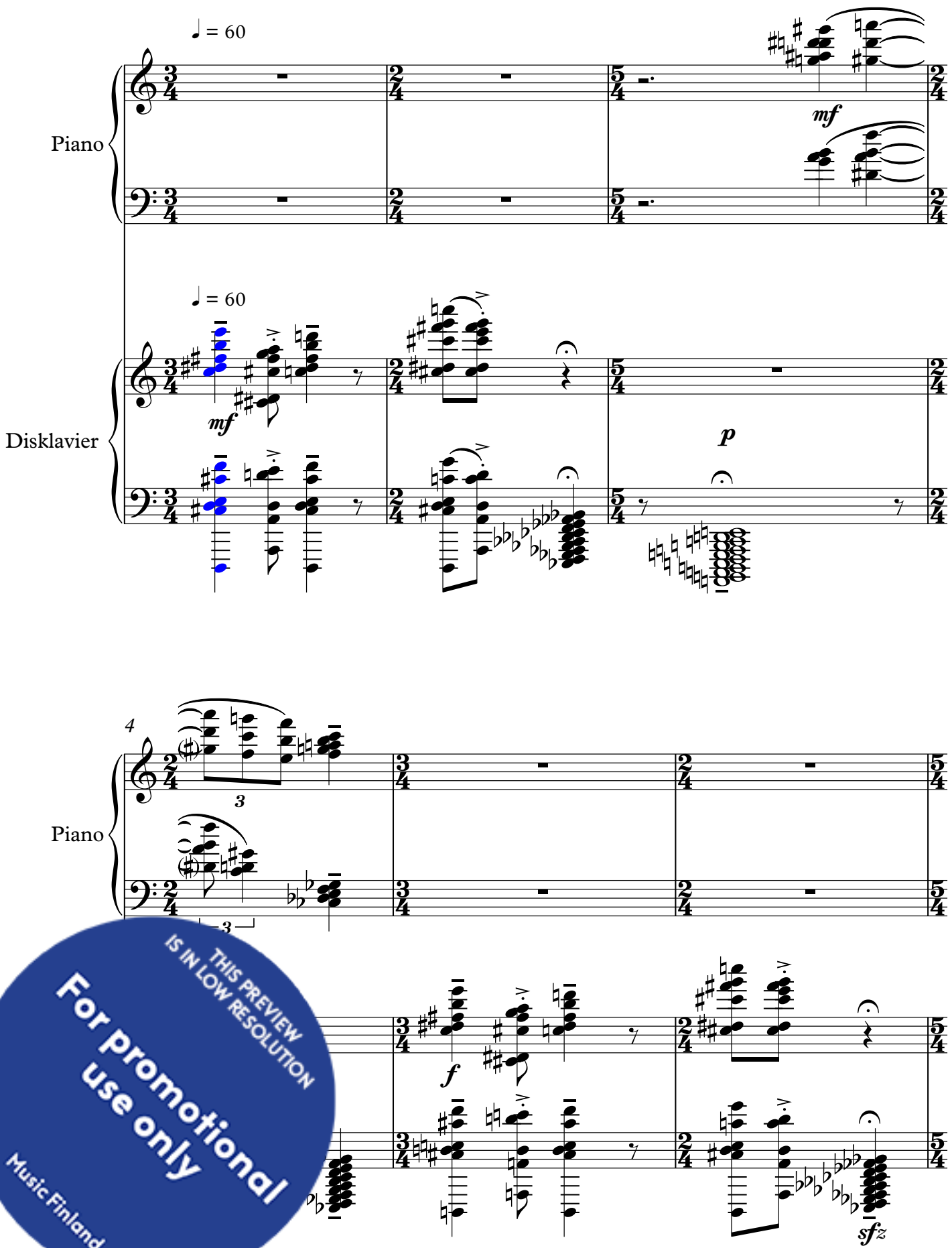
5 c Falling Trees



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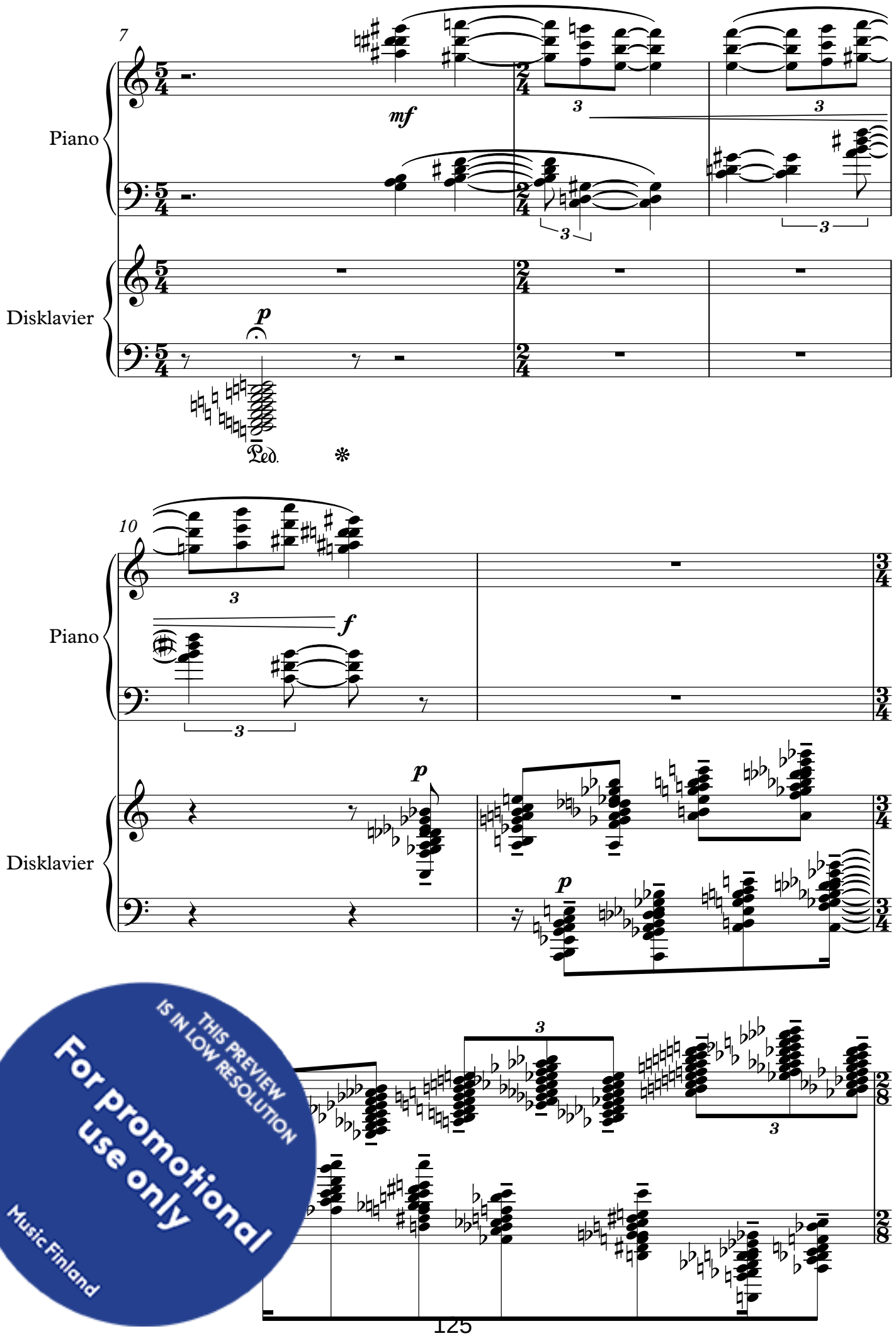

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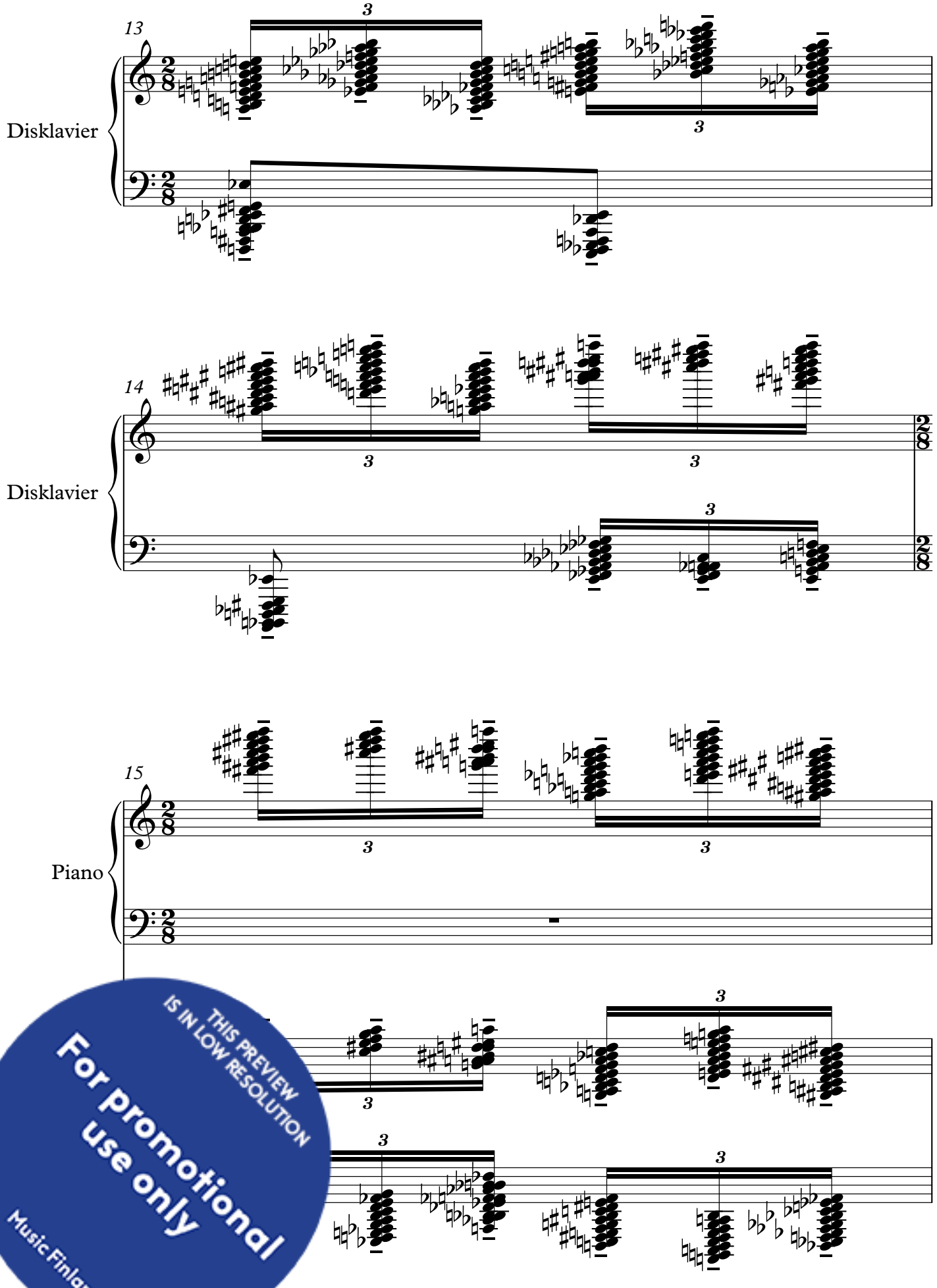

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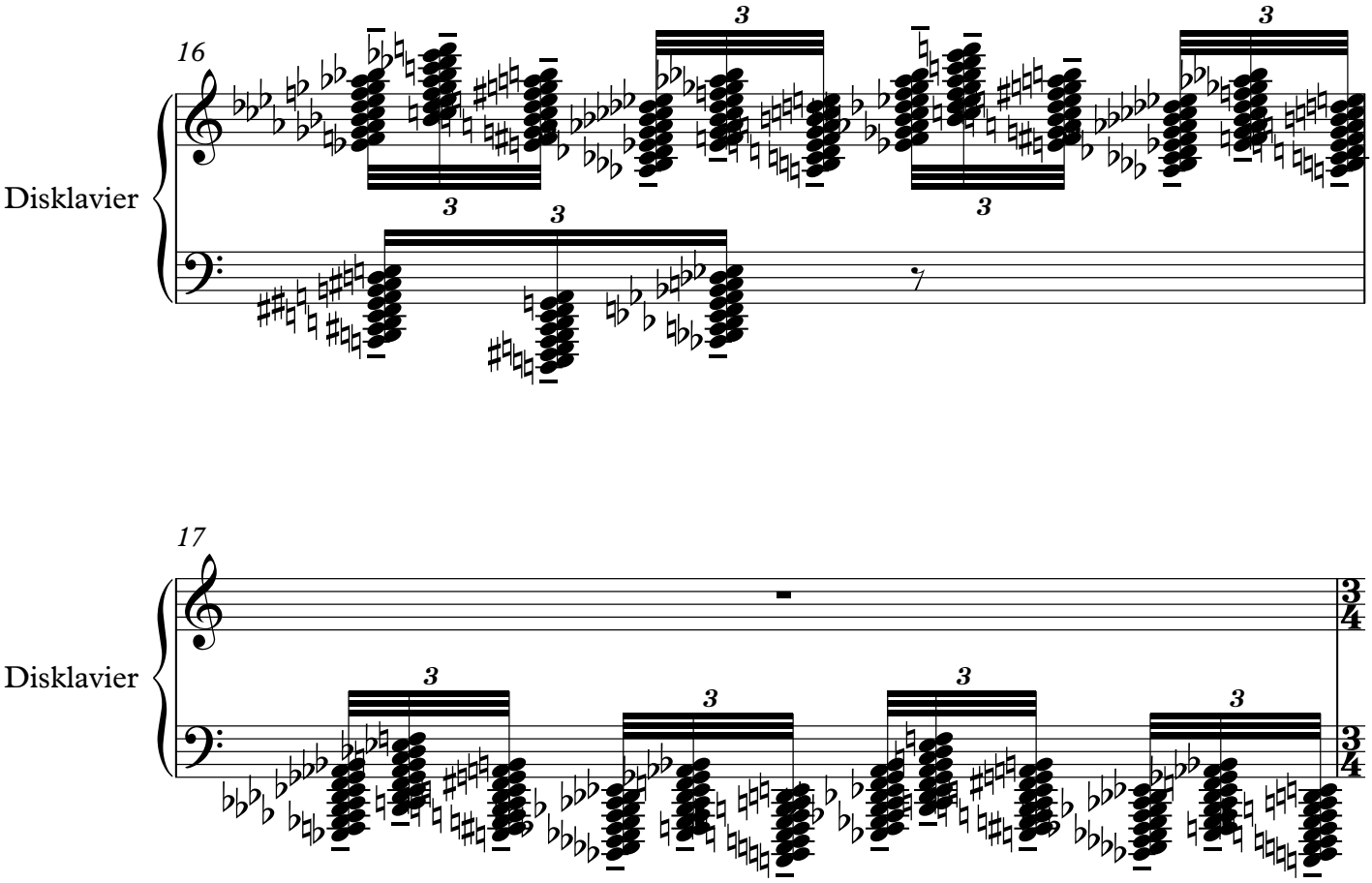

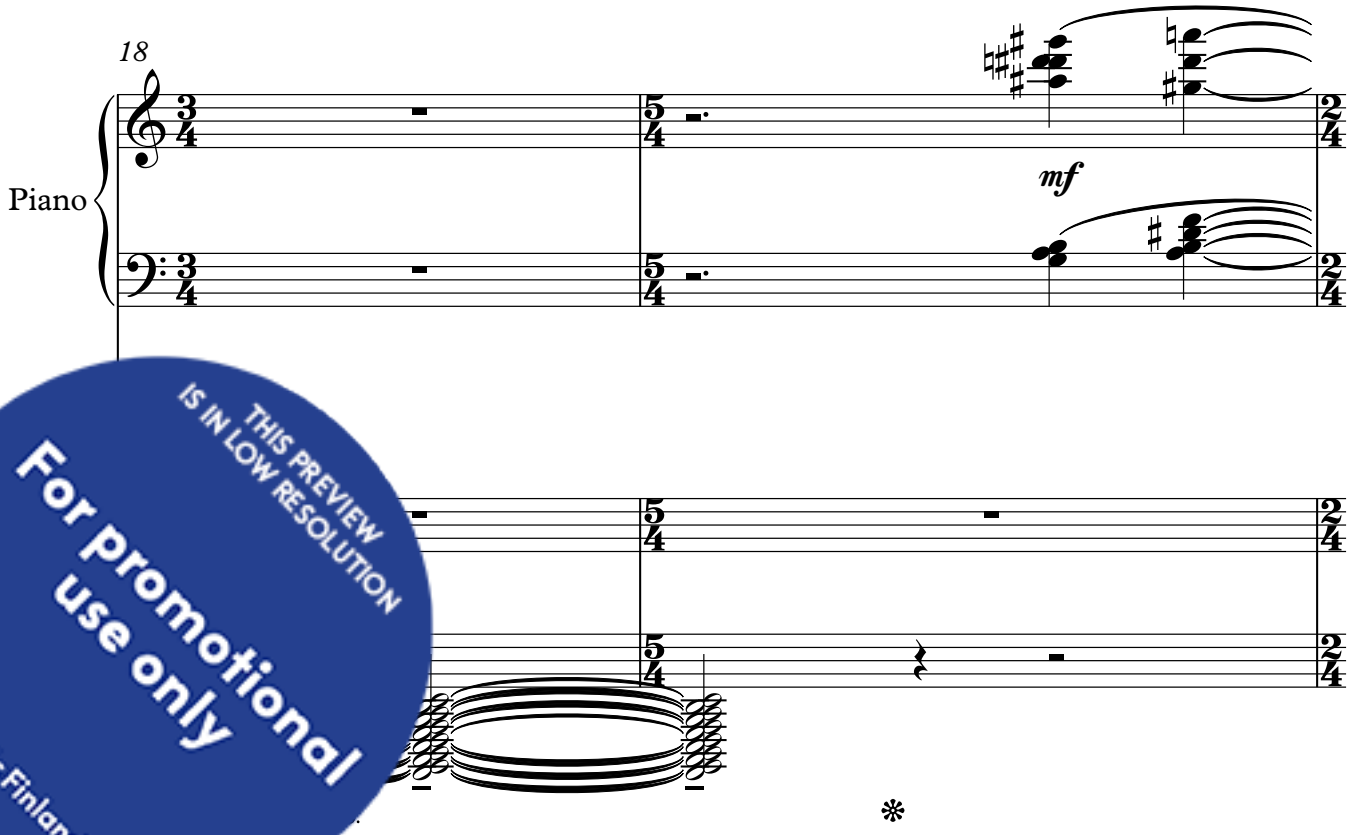

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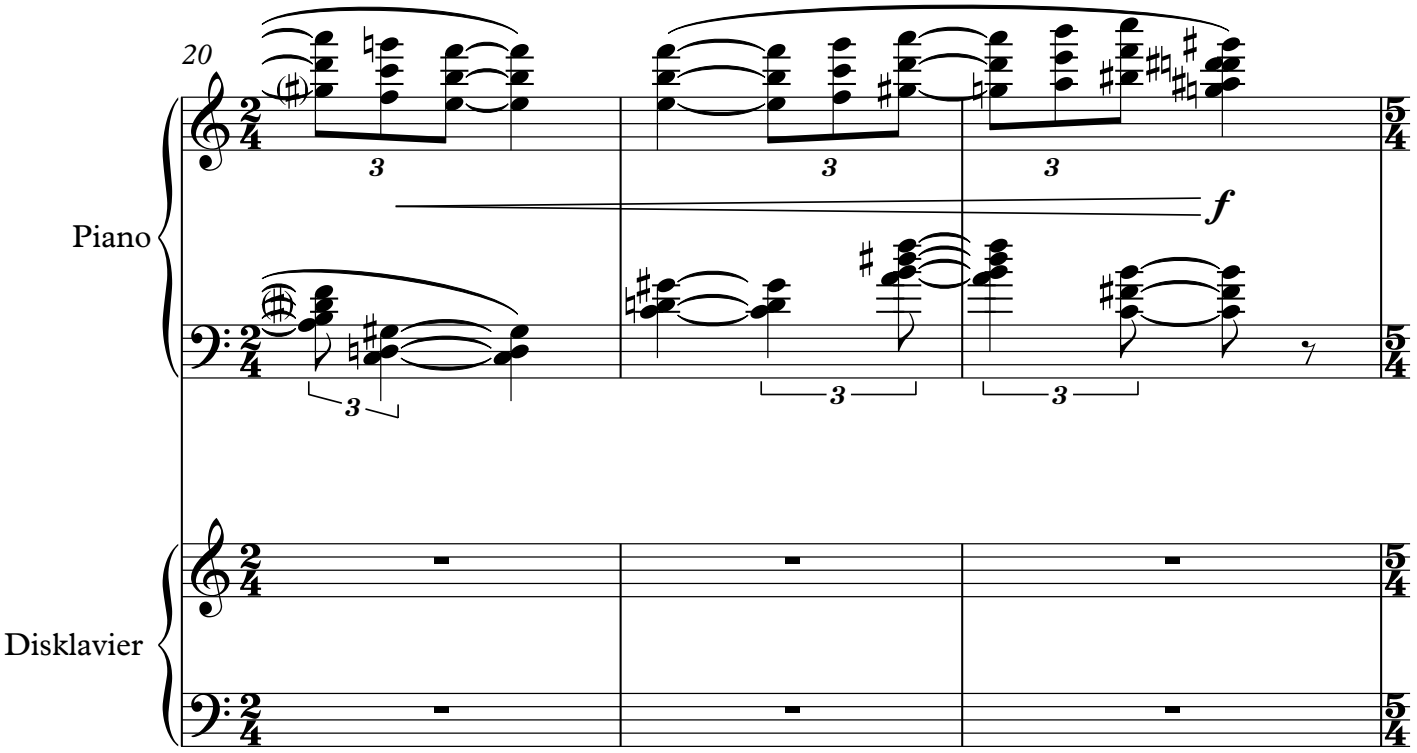

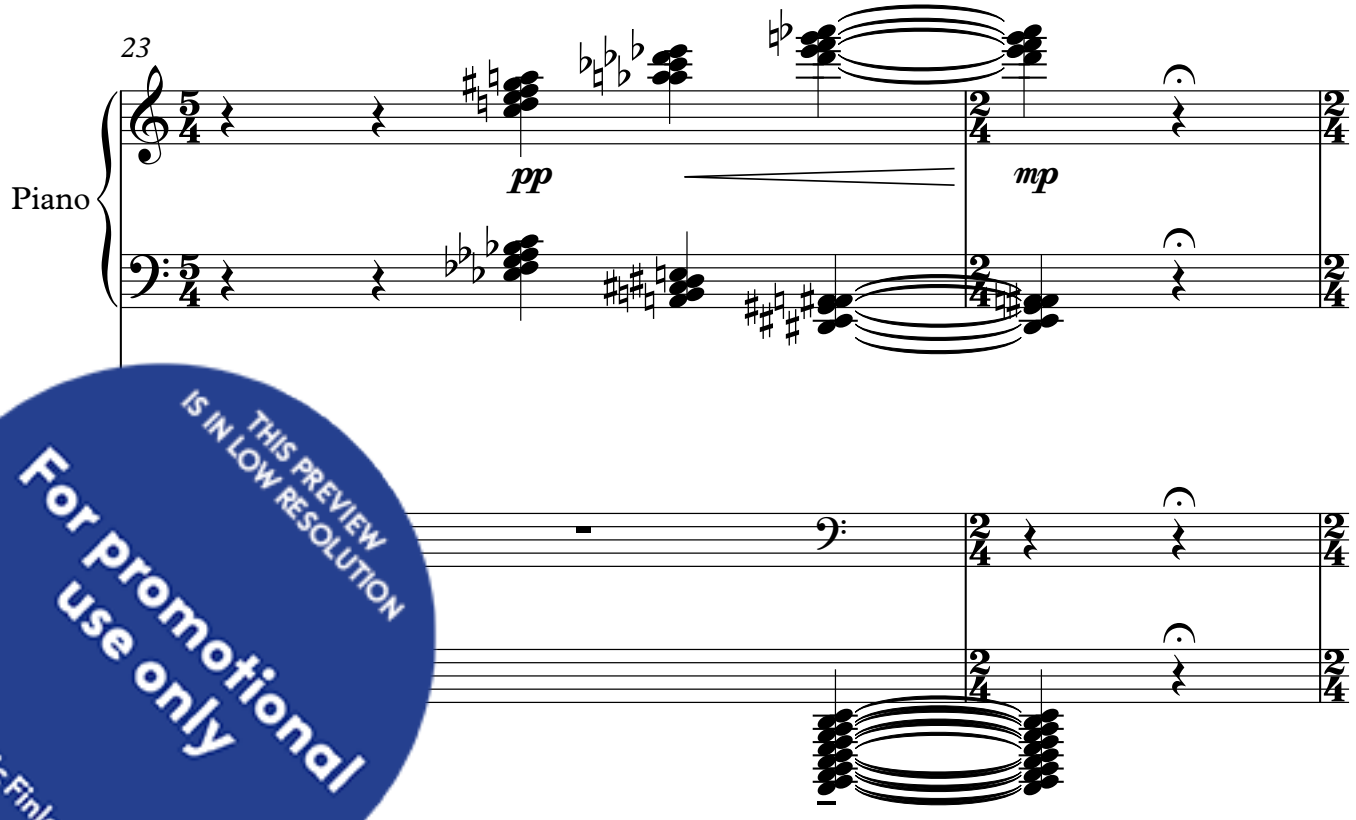

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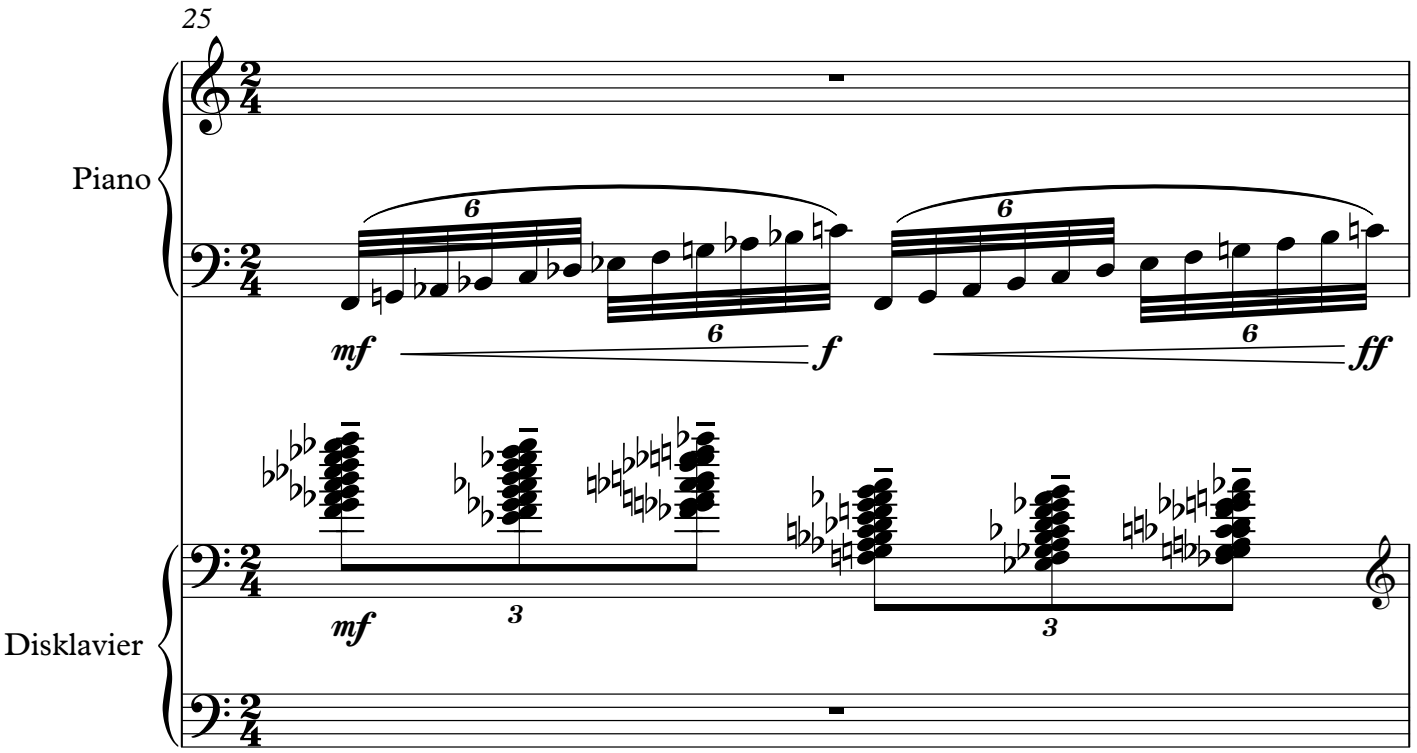

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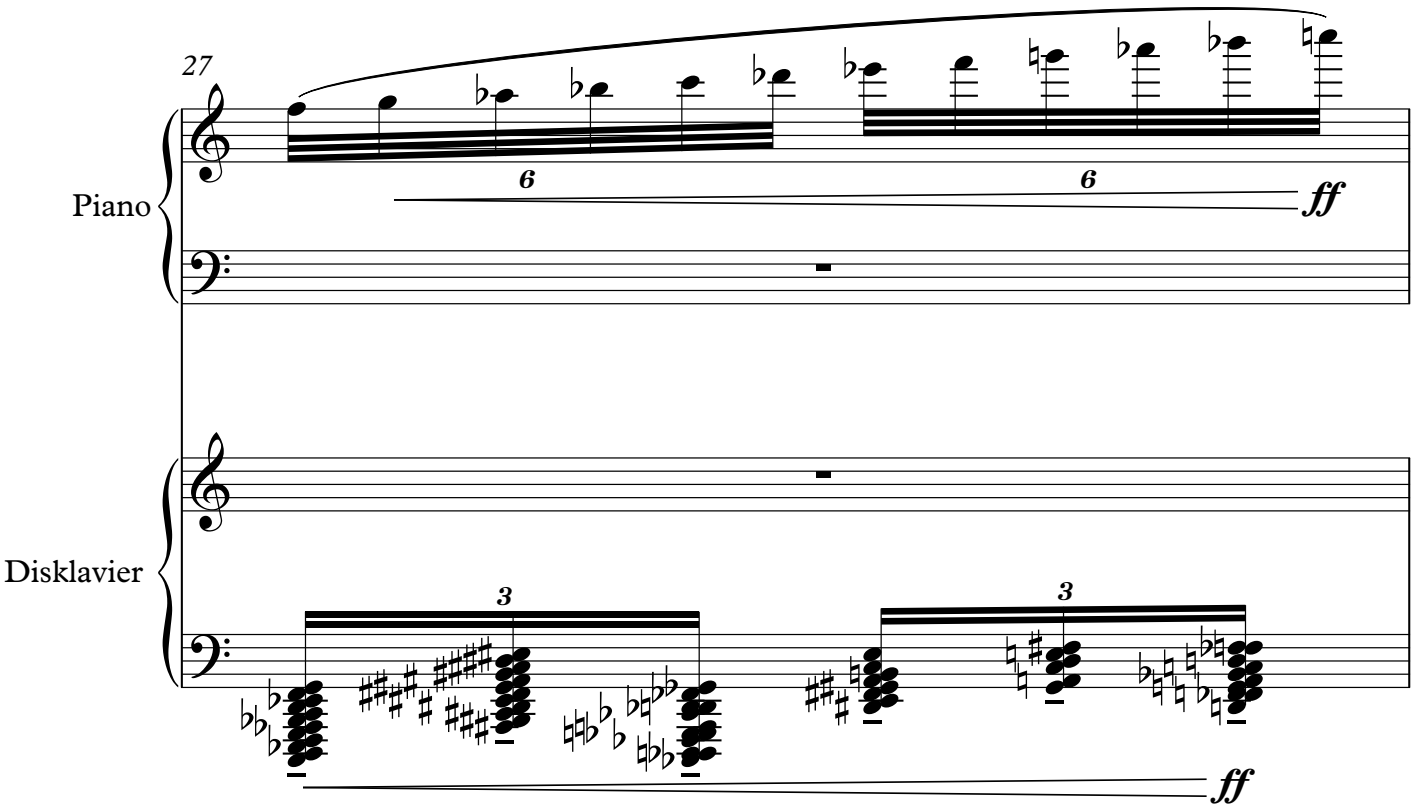

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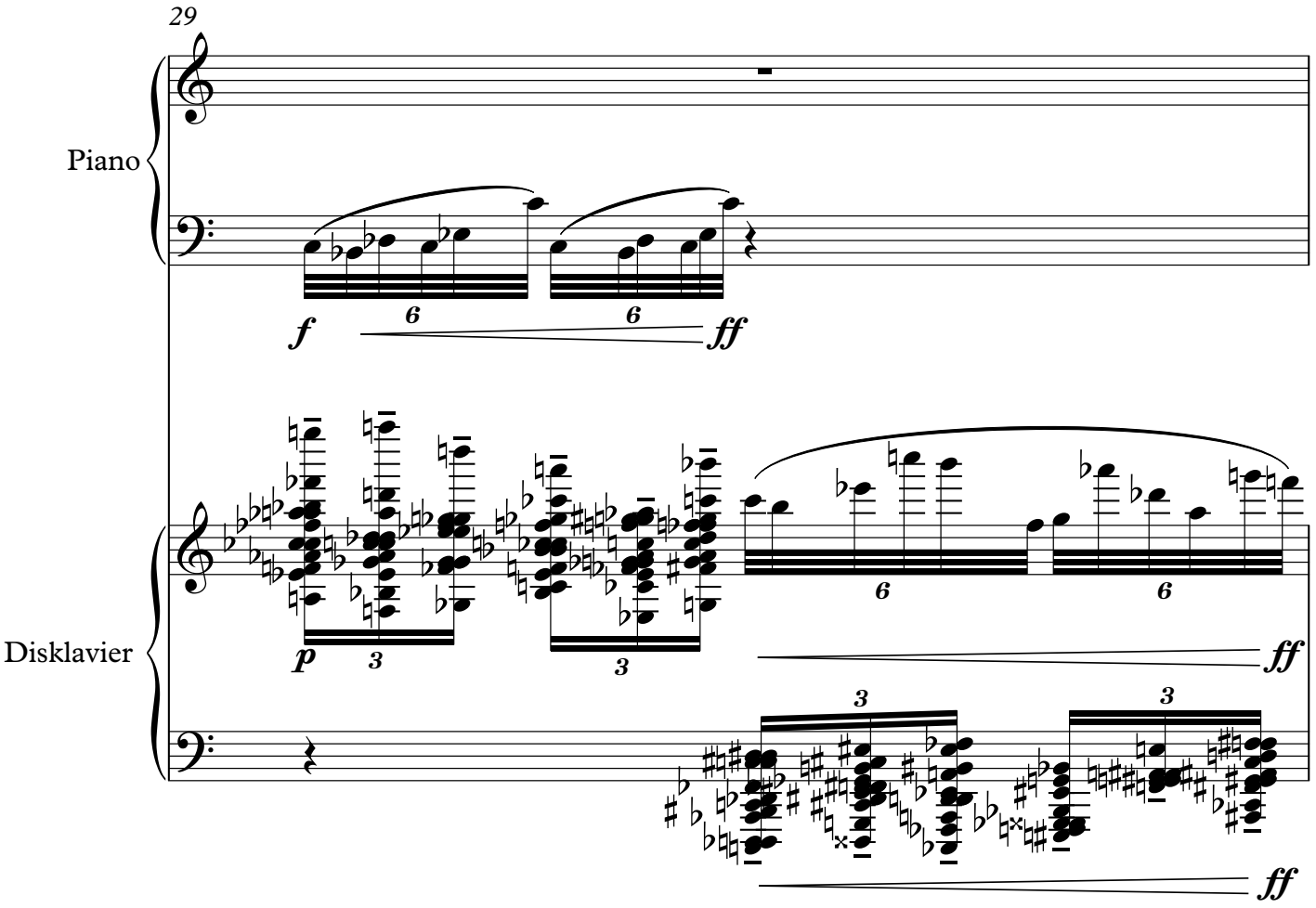

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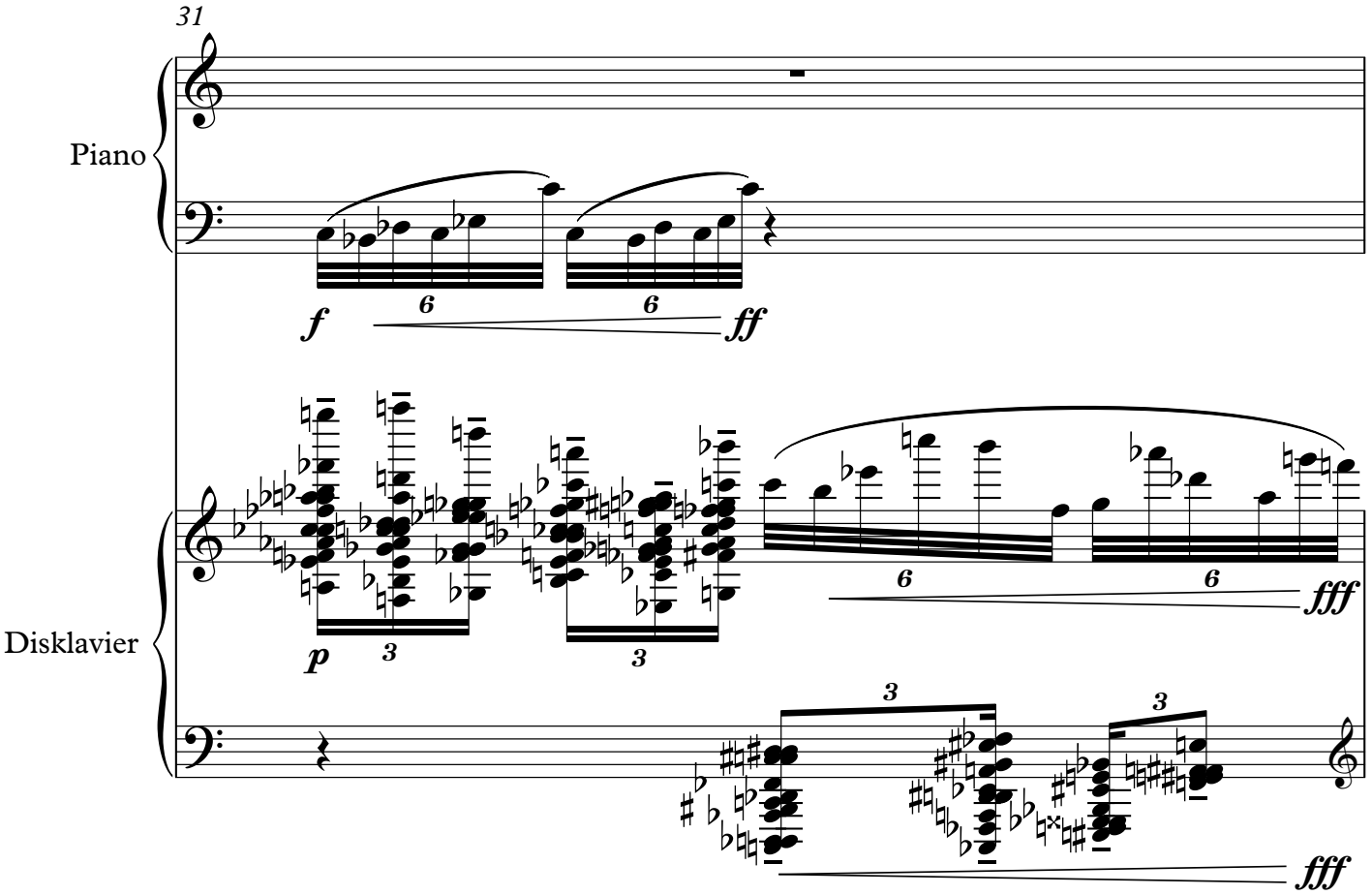

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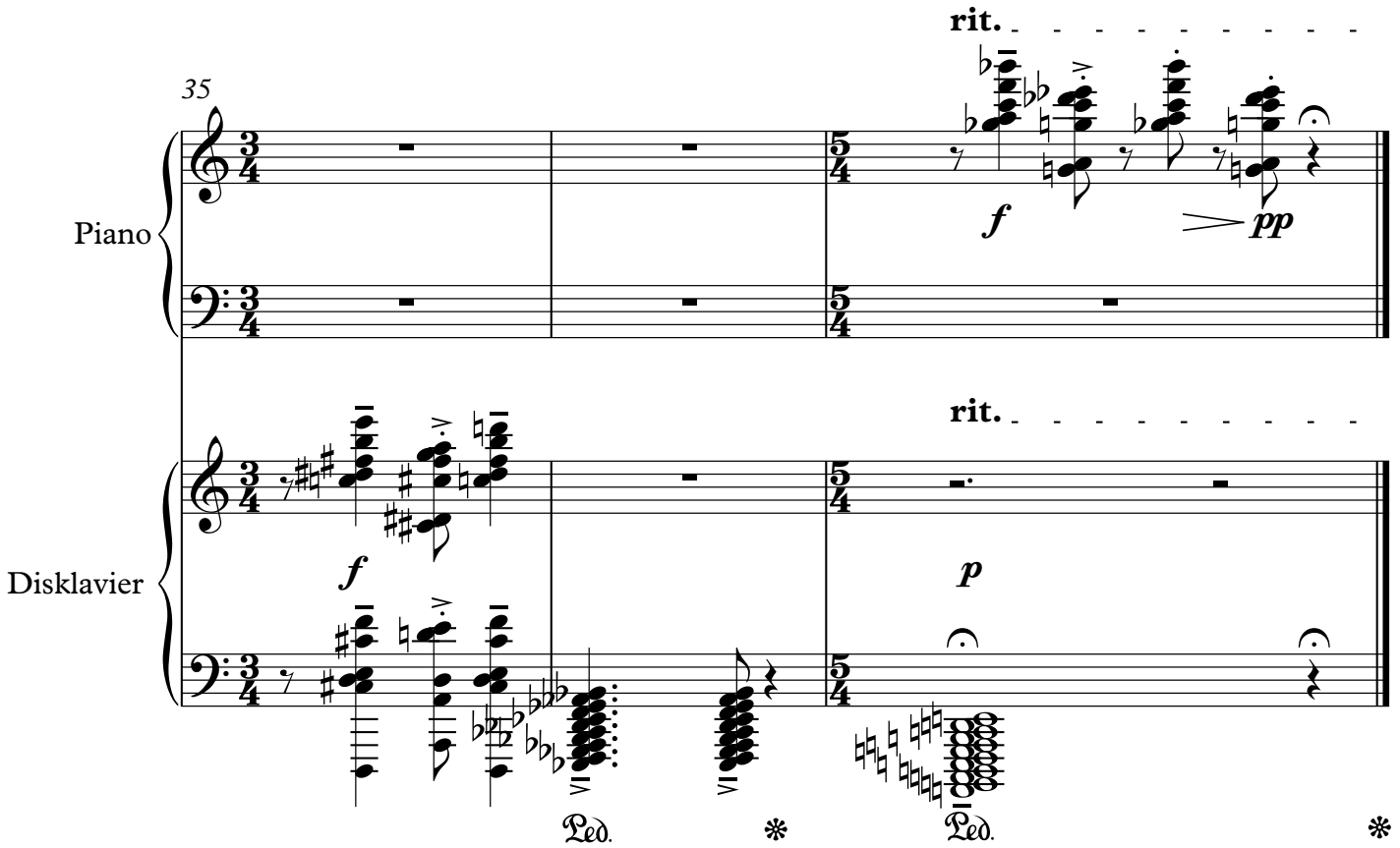

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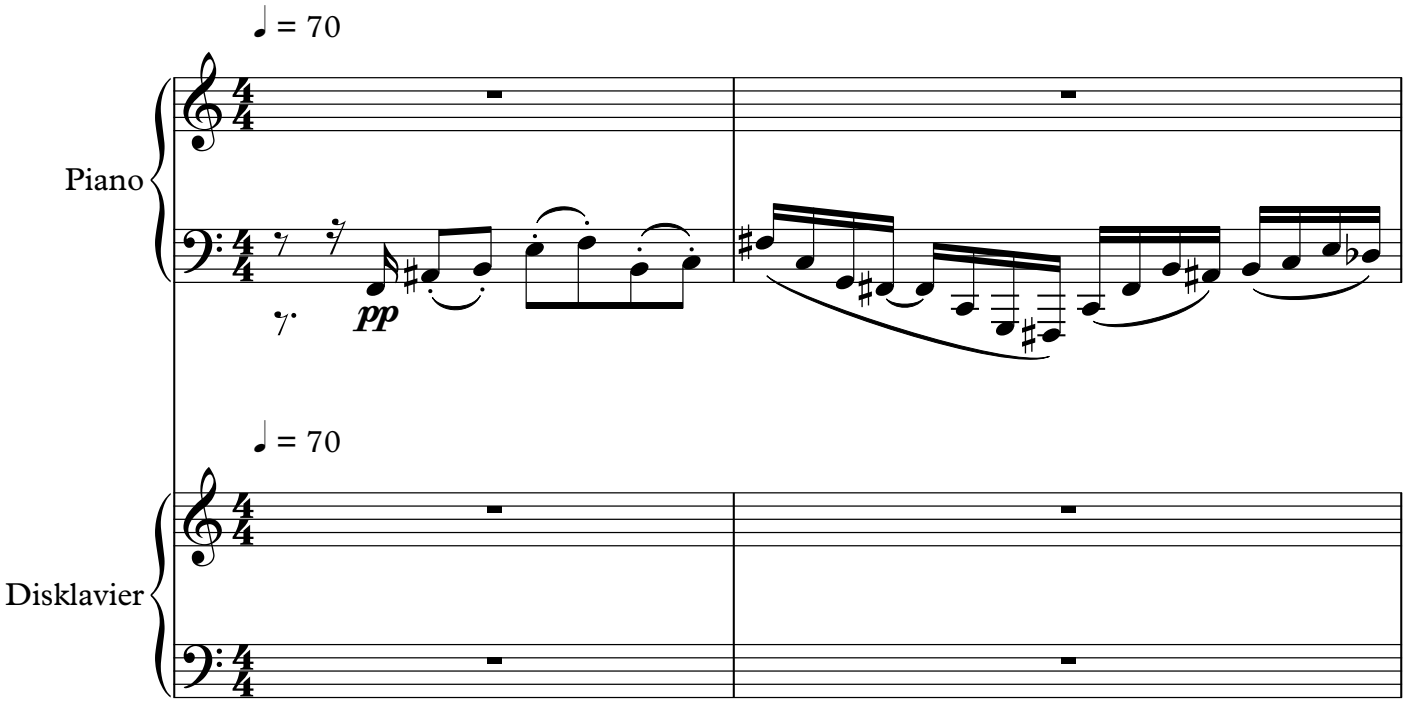
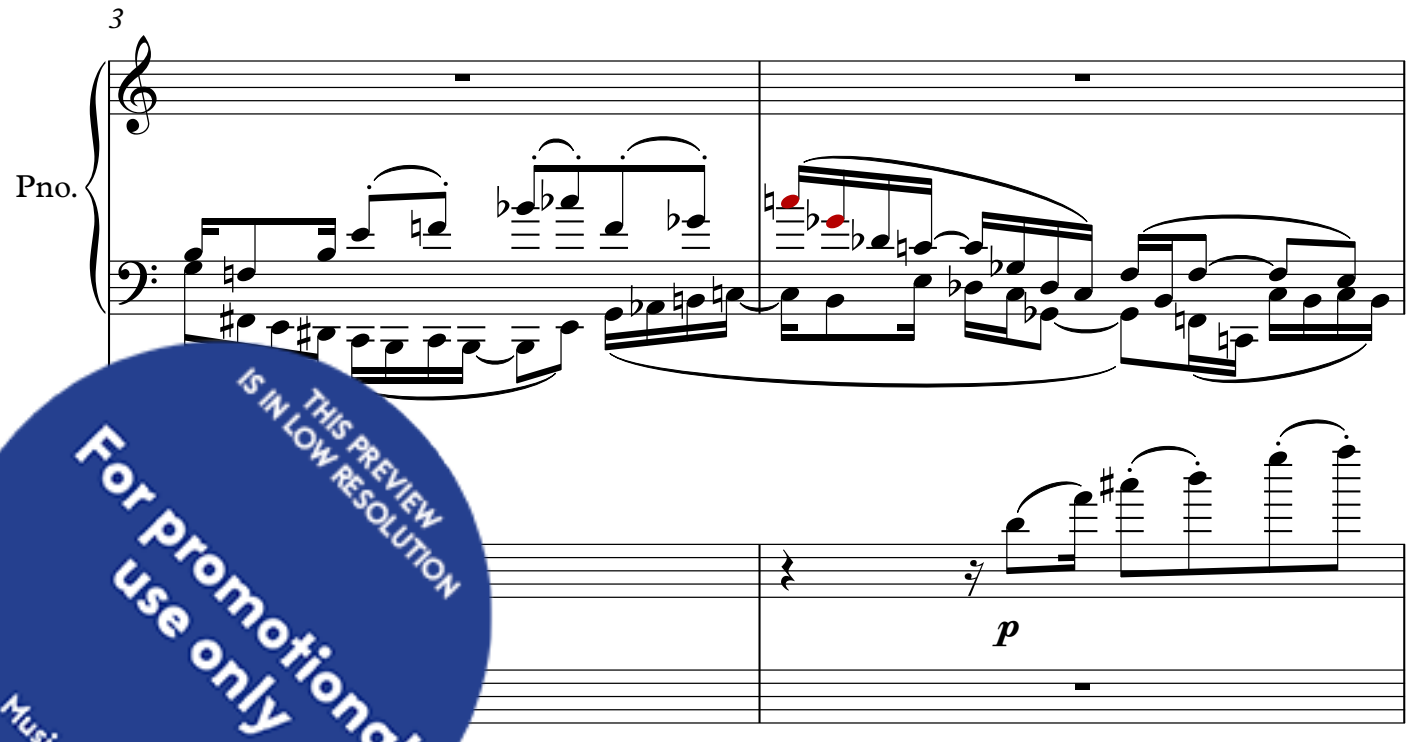
The Summit





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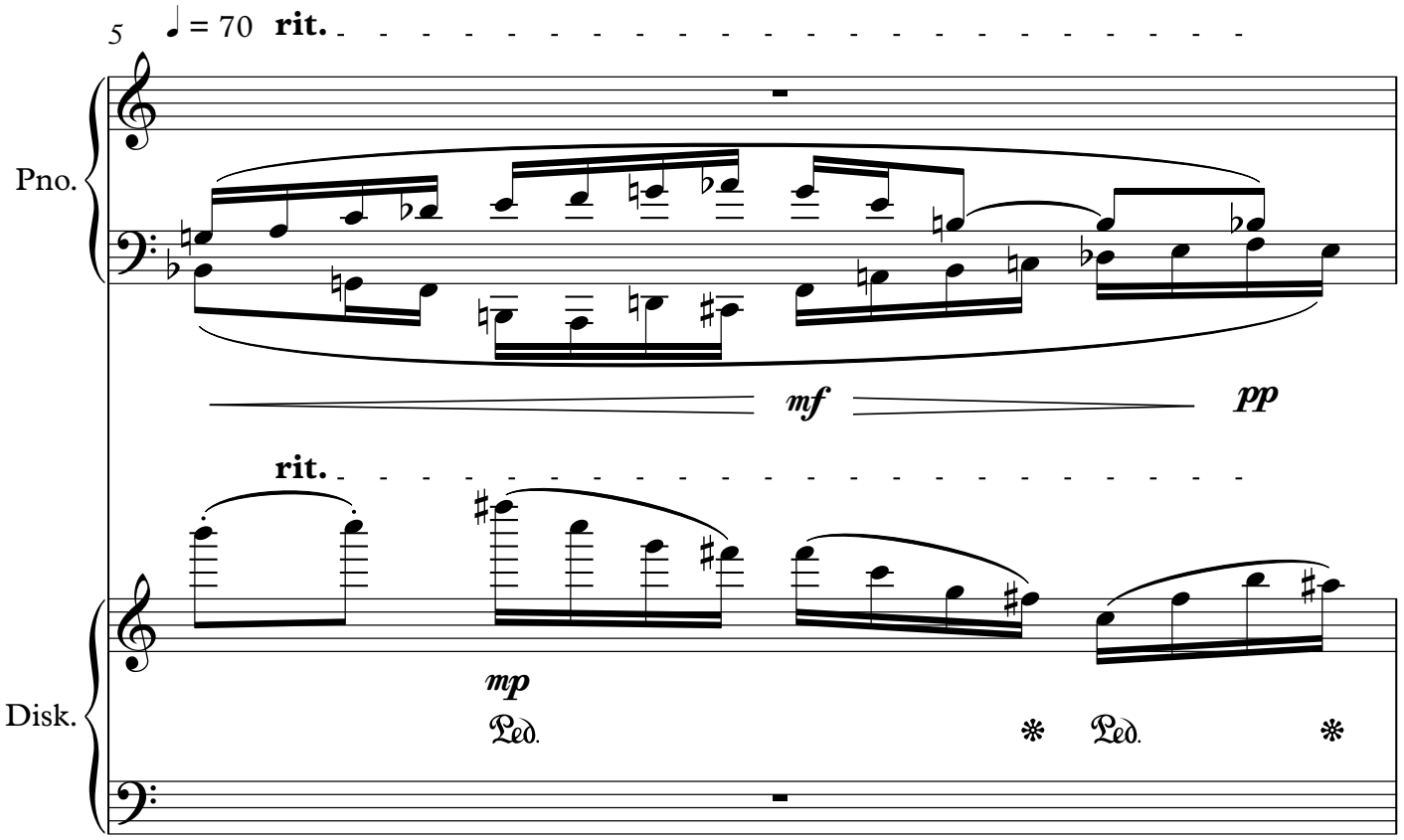

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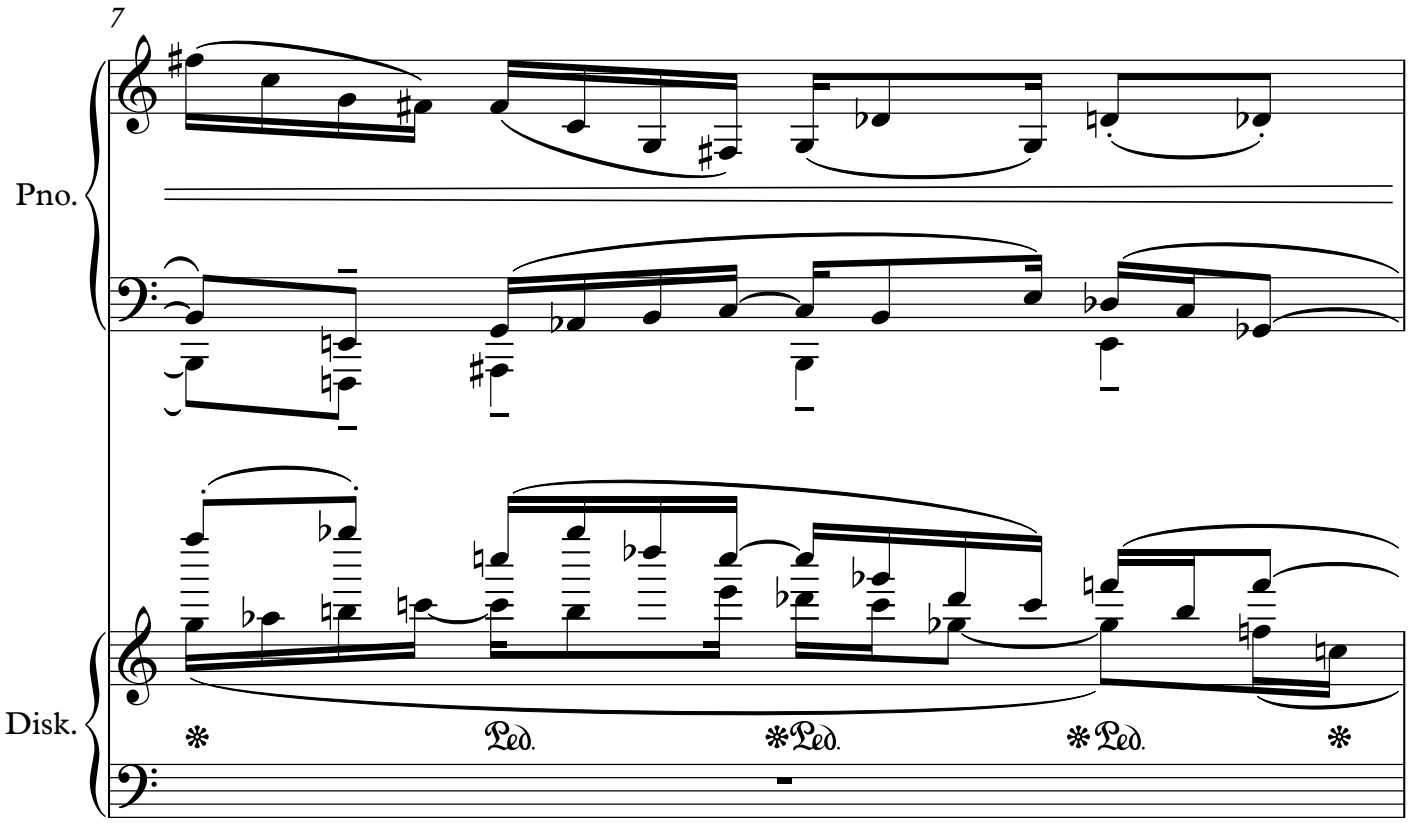

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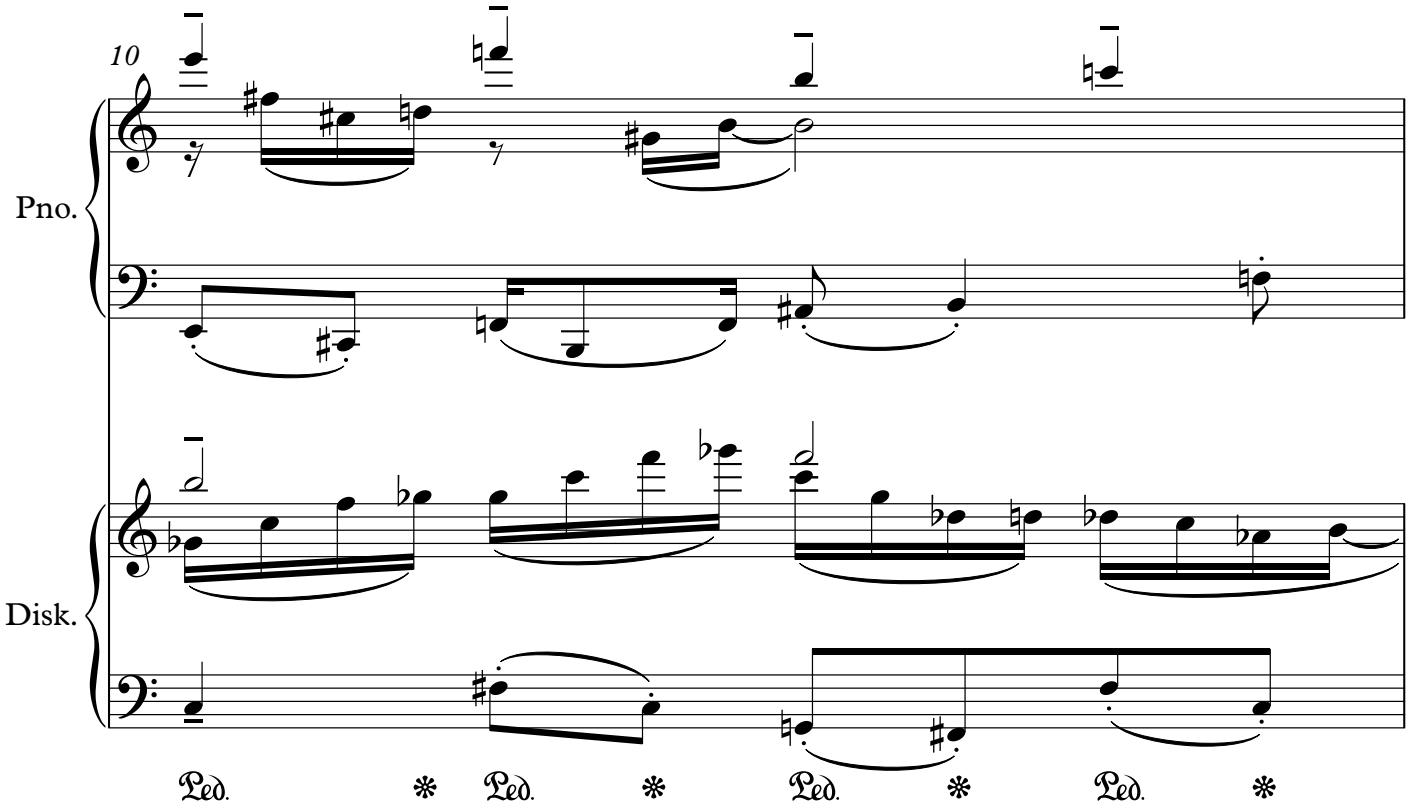

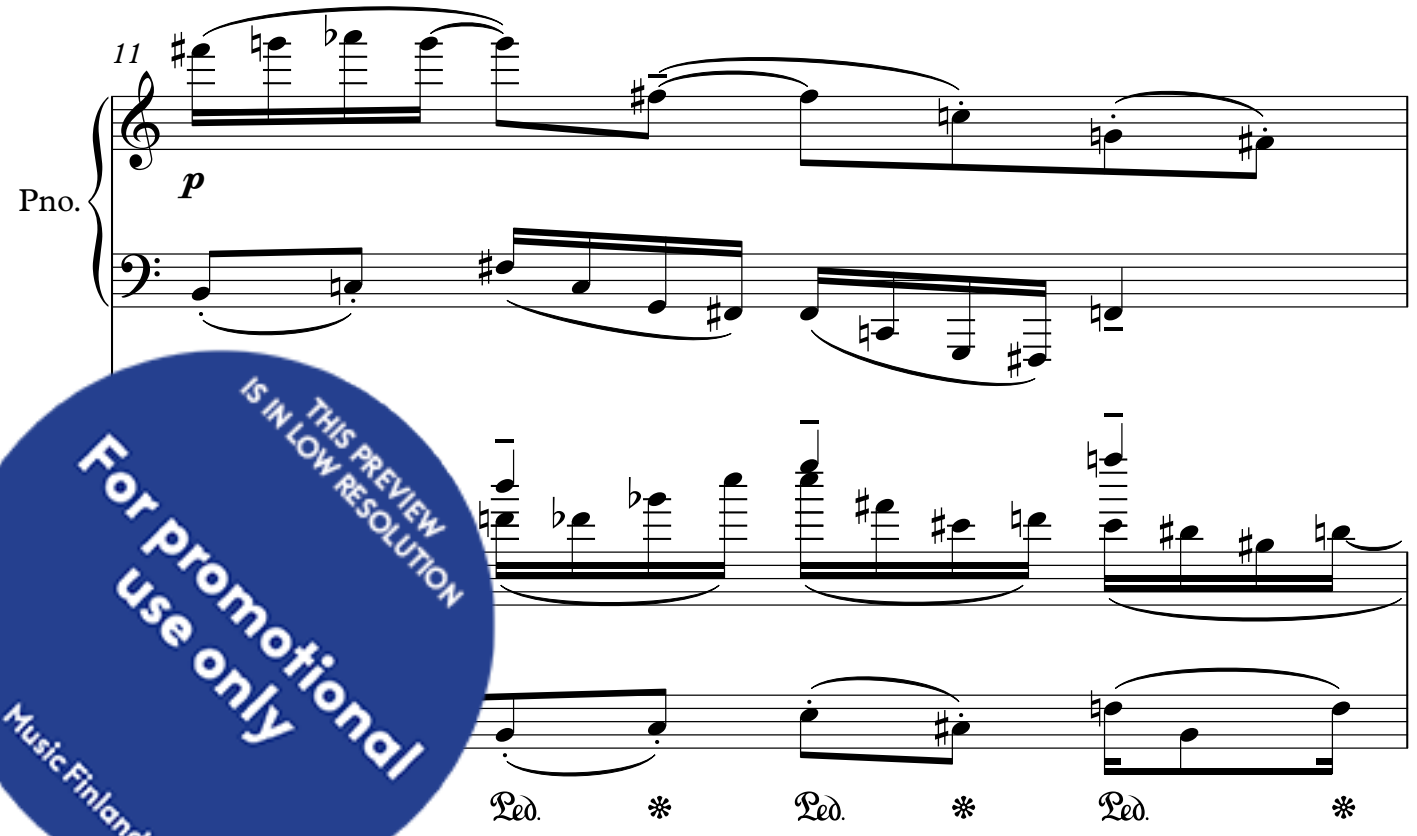

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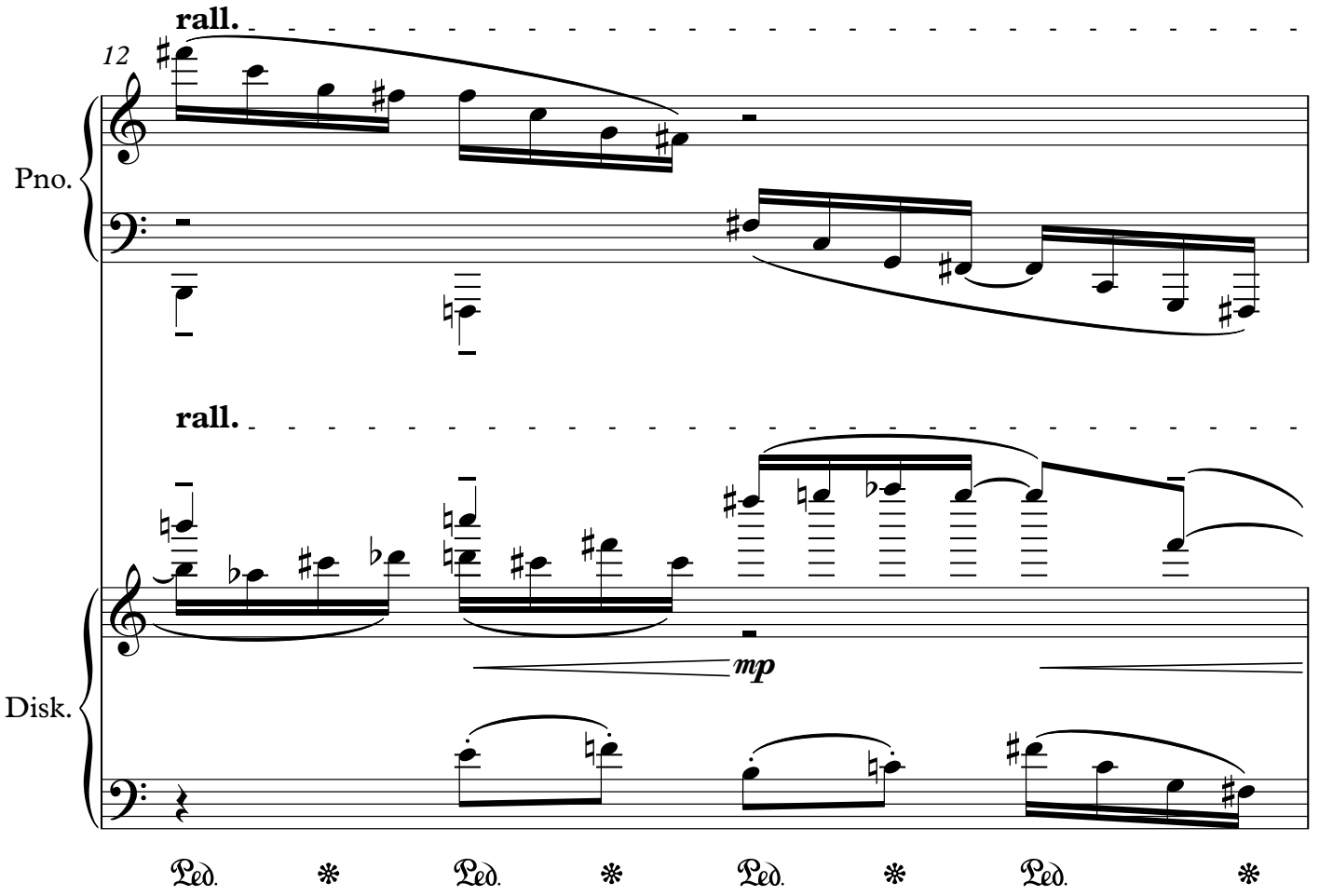

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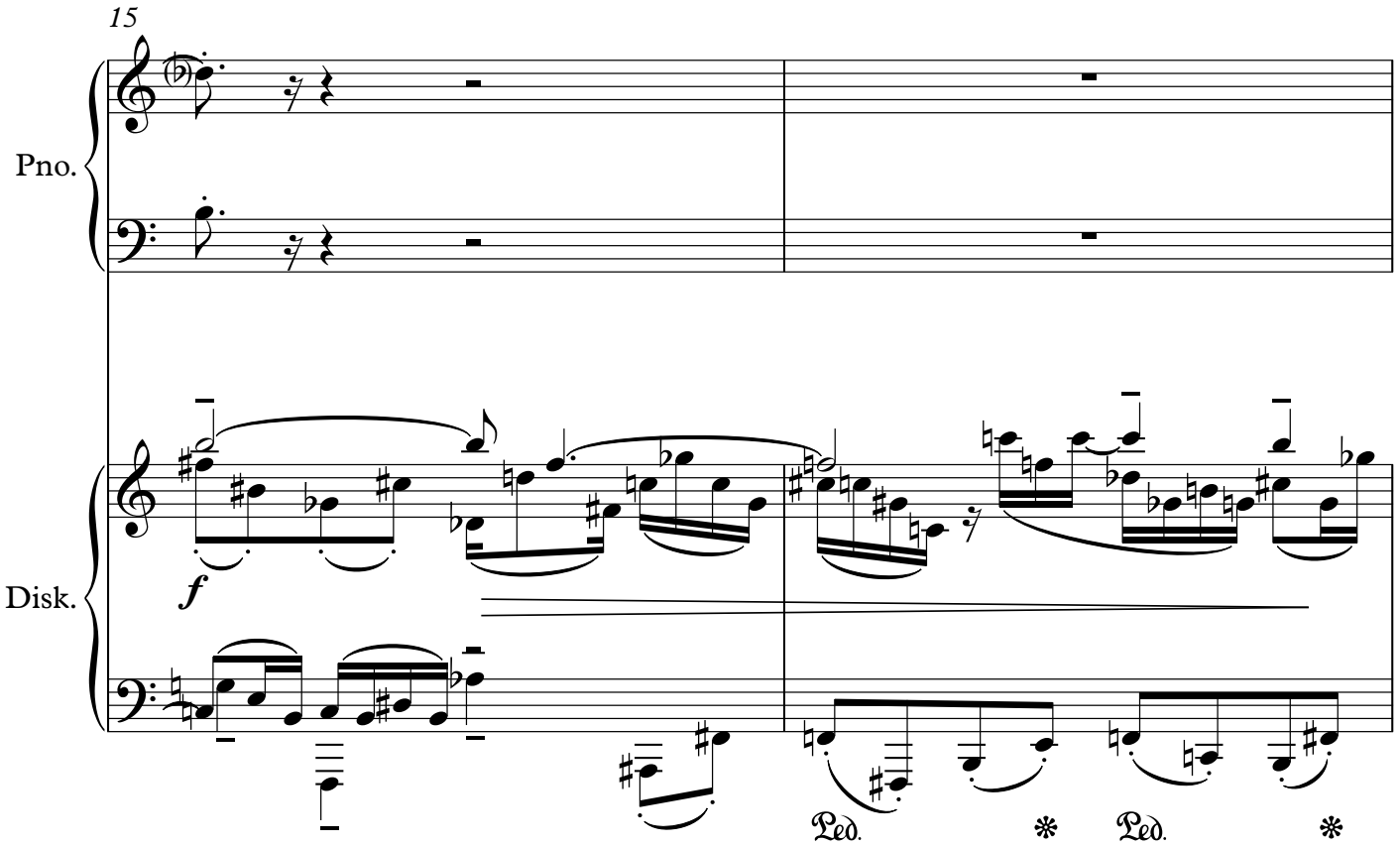

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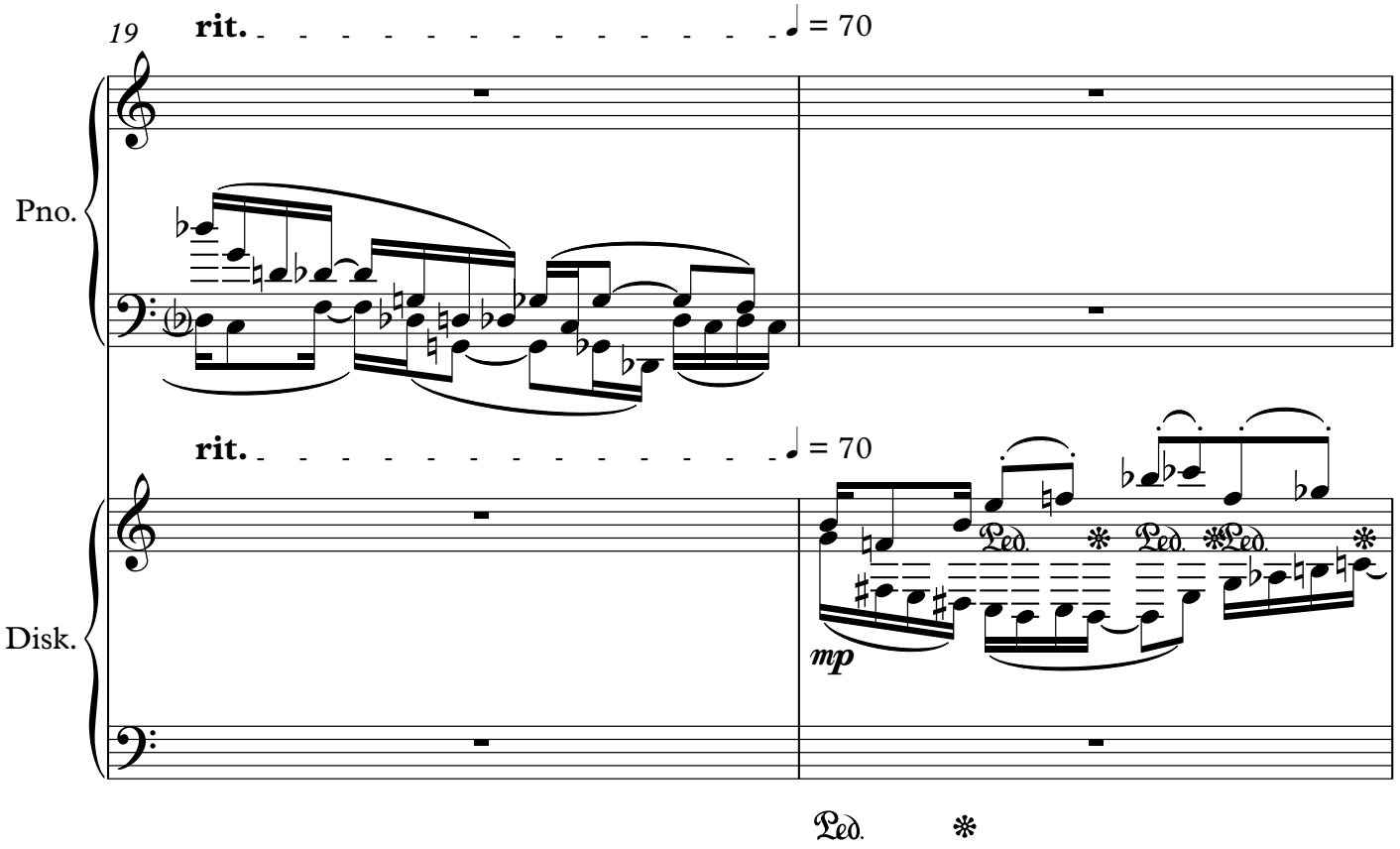

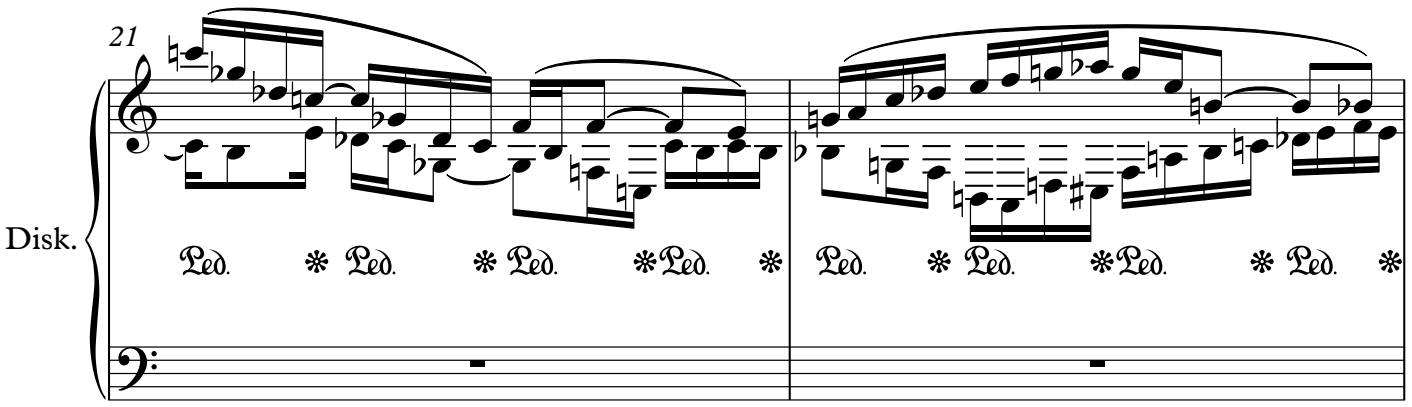

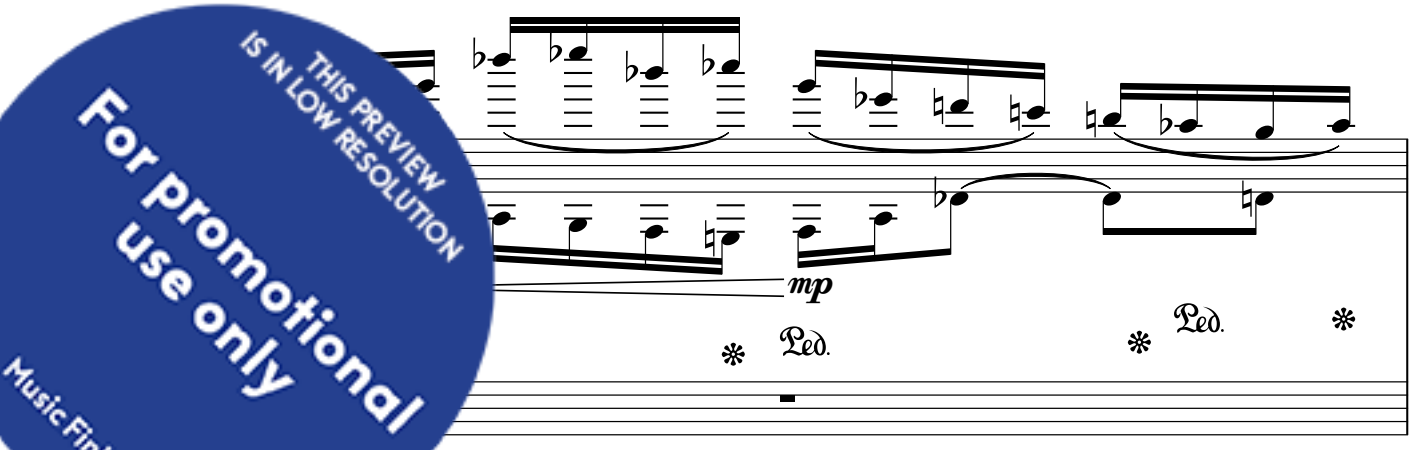

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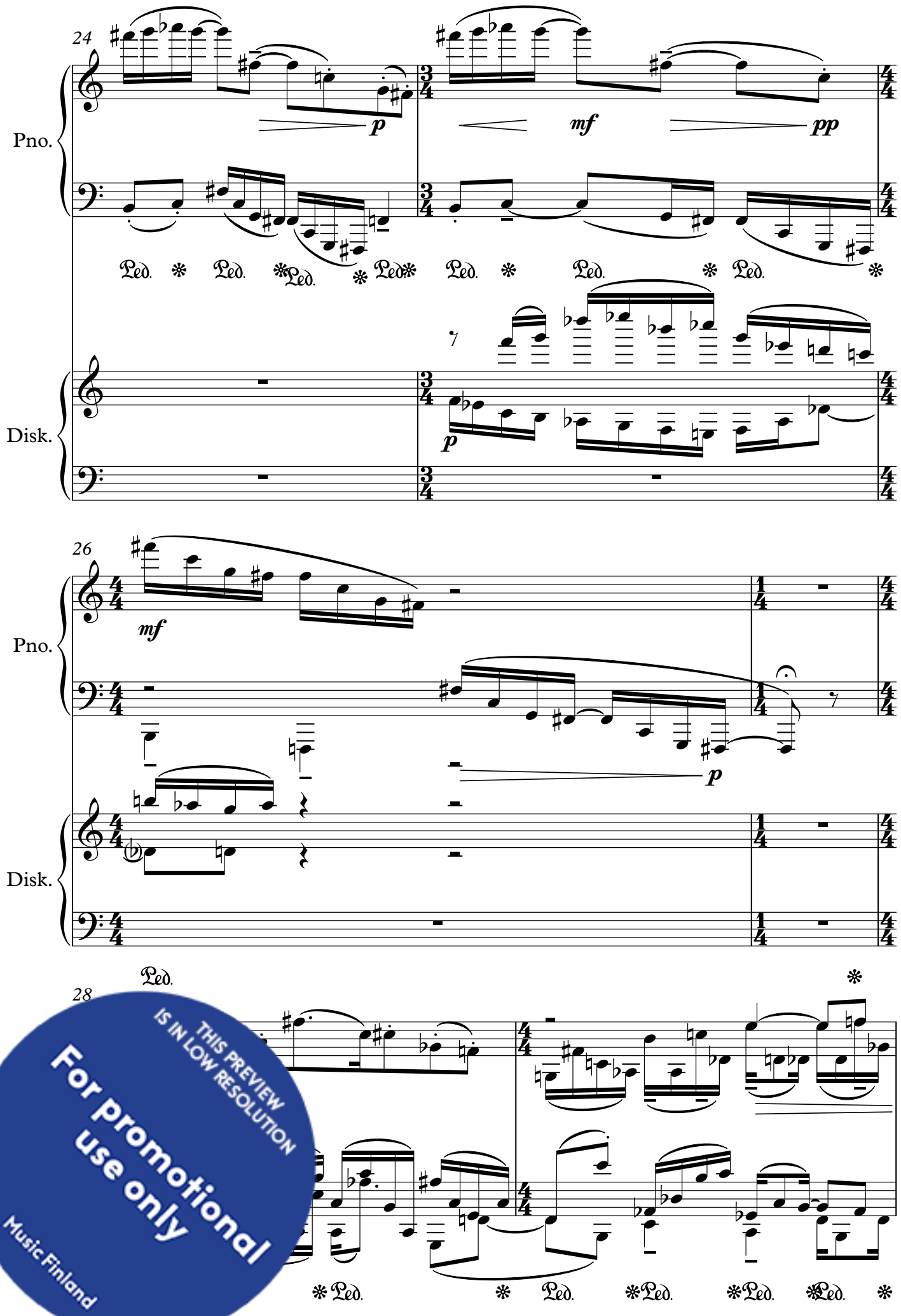

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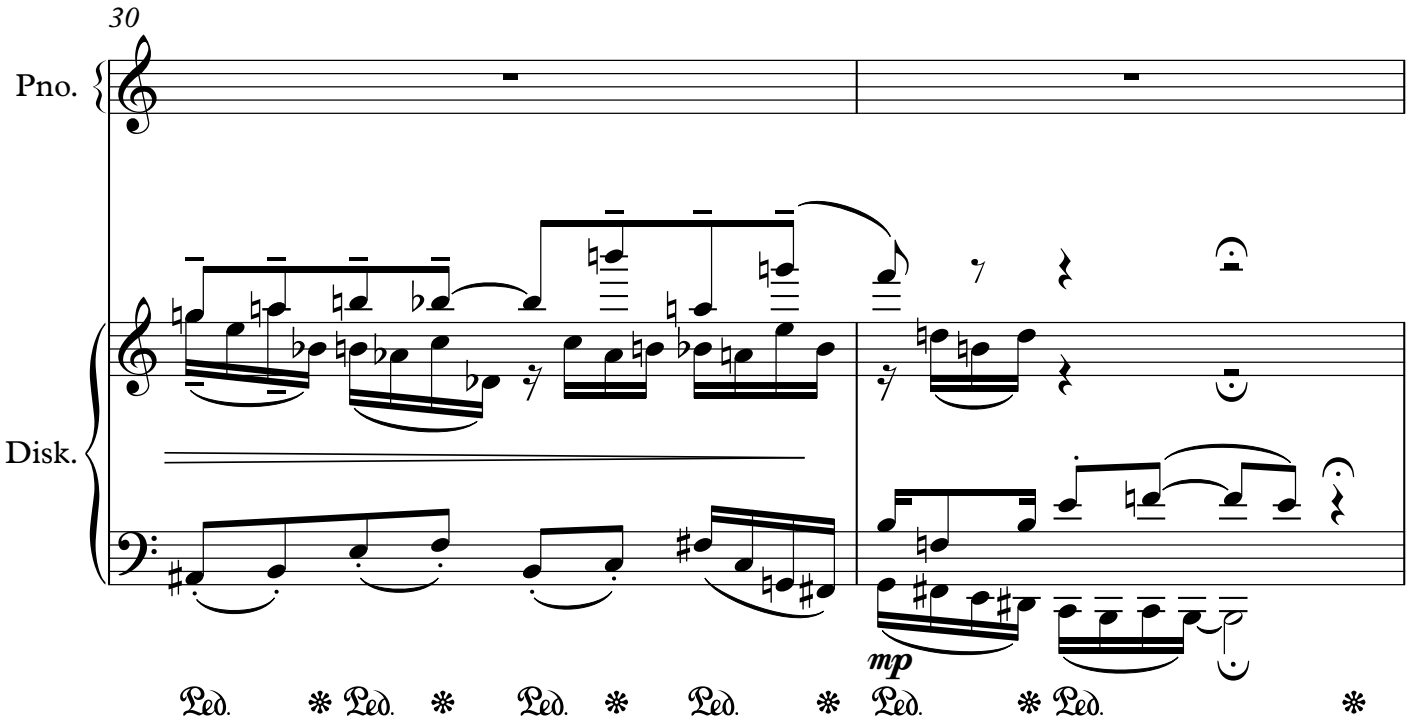

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