
A Template for Academic Presentations

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Outline

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- ➋ Study Design
- ➌ Results
- ➍ Discussion
- ➎ References

Choice of a Reasonable Aspect Ratio

When preparing a presentation, we often do not know whether the native aspect ratio of the projector in the seminar room/lecture hall will be 4 : 3 or 16 : 9 (or 16 : 10).

In this case, it may be a good idea to choose an **intermediate aspect ratio**, see <https://github.com/josephwright/beamer/issues/497>. The idea behind this recommendation is that it minimizes the average loss of available space.

Hence, these templates include a presentation in the **14 : 9 aspect ratio** (see https://en.wikipedia.org/wiki/14:9_aspect_ratio): while it is imperfect for probably every projector that you will encounter, it is good on average for all of them.

(Please note that $14 : 9 \doteq 1.556$, which is very close to the “officially” recommended $20 : 13 \doteq 1.5385$.)

Introduction

Introduction 1

Background

- Temporal discounting is key concept in economics.
- Normative model: exponential discounting. However, observed decisions are hard to explain (e.g., Dohmen et al., 2012).
- One alternative: the “focusing model” by Köszegi and Szeidl (2013).

Research Question

- The composition of latex and of typical rubbers is given below.
- Is it true that trees are regularly tapped and the coagulated latex which exudes is collected and worked up into rubber?

Introduction 2

Preview of the Results

- There is no feasible method at present known of preventing the inclusion of the resin of the latex with the rubber during coagulation.
- ⇒ Although the separation of the resin from the solid caoutchouc by means of solvents is possible, it is not practicable or profitable commercially.

Study Design

Study Design 1: Design of the Study

*Great Minds Discuss Ideas.
Average Minds Discuss Events.
Small Minds Discuss People.*

—<https://quoteinvestigator.com/2014/11/18/great-minds/>

- The latex of the best rubber plants furnishes from 20% to 50% of rubber.
- As the removal of the impurities of the latex is one of the essential points to be aimed at, it was thought that the use of a centrifugal machine to separate the caoutchouc as a cream from the watery part of the latex would prove to be a satisfactory process.

Study Design 2: Design of the Study

The watery portion of the latex soaks into the trunk, and the soft spongy rubber which remains is kneaded and pressed into lumps or balls:

$BAL_{1:1}^I$, $BAL_{1:1}^{II}$: Each payment transferred on single day.

$UNBAL_{1:n}^I$: Earlier payoff concentrated, while later payoff dispersed over $n = 2, 4$, or 8 dates.

$UNBAL_{n:1}^{II}$: Earlier payoff dispersed over $n = 2, 4$, or 8 dates, while later payoff concentrated.

Study Design 3: Control Experiment

- Control for alternative explanations.
- Many of the example sentences were taken from <http://sentence.yourdictionary.com/latex>.

Study Design 4: An Example enumerate List

1. First item in a list
 - a. First item in a list
 - i. First item in a list
 - ii. Second item in a list
 - iii. Third item in a list
 - iv. Fourth item in a list
 - b. Second item in a list
 - c. Third item in a list
 - d. Fourth item in a list
2. Second item in a list
3. Third item in a list
4. Fourth item in a list

Study Design 5: An Example `itemize` List

- First item in a list
 - First item in a list
 - ▶ First item in a list
 - ▶ Second item in a list
 - ▶ Third item in a list
 - ▶ Fourth item in a list
 - Second item in a list
 - Third item in a list
 - Fourth item in a list
- Second item in a list
- Third item in a list
- Fourth item in a list

Study Design 6: Some Example Text

Let's include some Greek letters: α , β

Hello, here is some text without a meaning. This text should show what a printed text will look like at this place. $\sin^2(\alpha) + \cos^2(\beta) = 1$. If you read this text, you will get no information $E = mc^2$. Really? Is there no information? Is there a difference between this text and some nonsense like “Huardest gefburn”? Kjift – not at all! A blind text like this gives you information about the selected font, how the letters are written and an impression of the look. $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{ab}$. This text should contain all letters of the alphabet and it should be written in of the original language. $\frac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\frac{a}{b}}$. There is no need for special content, but the length of words should match the language. $a\sqrt[n]{b} = \sqrt[n]{a^n b}$.

Study Design 7: Some Example Formulas

Let's include some additional Greek letters: γ , ϕ

$$p(R, \phi) \sim \int_{-\infty}^{\infty} \frac{\tilde{W}_n(\gamma) \exp\left[iR/a \left(\sqrt{k^2 a^2 - \gamma^2} \cos \phi\right)\right]}{(k^2 a^2 - \gamma^2)^{3/4} H_n^{(1)}\left(\sqrt{k^2 a^2 - \gamma^2}\right)} d\gamma$$

Let's also include some upright Latin letters: d , e

$$\int_a^b f(x) dx = F(b) - F(a)$$

Study Design 8: Additional Example Formulas (with upright π)

Only variables are set in italics according to ISO style—hence, we use upright “d,” “e,” and “ π ” (`\mathup{d}`, `\mathup{e}`, and `\mathup{\pi}`}, respectively).

Theorem (Simplest form of the *Central Limit Theorem*)

Let X_1, X_2, \dots be a sequence of i.i.d. random variables with mean 0 and variance 1 on a probability space $(\Omega, \mathcal{F}, \mathbb{P})$. Then

$$\mathbb{P}\left(\frac{X_1 + \dots + X_n}{\sqrt{n}} \leq y\right) \rightarrow \mathfrak{N}(y) := \int_{-\infty}^y \frac{e^{-v^2/2}}{\sqrt{2\pi}} dv \quad \text{as } n \rightarrow \infty,$$

or, equivalently, letting $S_n := \sum_1^n X_k$,

$$\mathbb{E}f\left(S_n/\sqrt{n}\right) \rightarrow \int_{-\infty}^{\infty} f(v) \frac{e^{-v^2/2}}{\sqrt{2\pi}} dv \quad \text{as } n \rightarrow \infty, \text{ for every } f \in \mathfrak{b}\mathcal{C}(\mathbb{R}).$$

Results

Results 1: Overview

1. As a secondary function we may recognize the power of closing wounds, which results from the rapid coagulation of exuded latex in contact with the air:
 - a. In some cases (*Allium*, *Convolvulaceae*, etc.) rows of cells with latex-like contents occur.
 - b. However, the walls separating the individual cells do not break down.
2. The rows of cells from which the laticiferous vessels are formed can be distinguished (6.3 p.p. vs. 2.6 p.p.; $p < 0.01$).

Results 2: Our Main Results

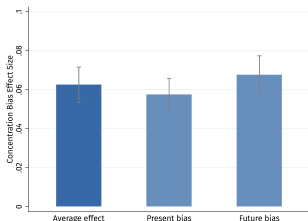
The charts are taken from Dertwinkel-Kalt et al. (2017).

(A) Difference between treatment and control condition.

(B) Heterogeneity.

A

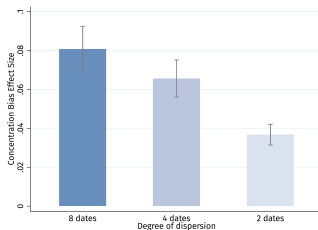
Result 1



$BAL_{1:1}^I - UNBAL_{1:\bullet}^I$

B

Result 2

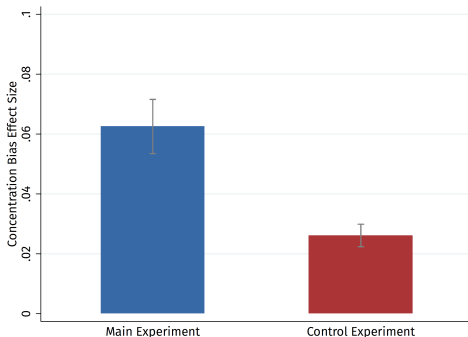


$UNBAL_{\bullet:1}^{II} - BAL_{1:1}^{II}$

Results 3: Main vs. Control Experiment

Rule out some alternative explanations.

Result 3



Discussion

Discussion 1

- The latex exhibits a neutral, acid, or alkaline reaction, depending on the plant from which it was obtained.
- The latex is therefore usually allowed to coagulate on the tree (Kőszegi and Szeidl, 2013).
 - ⇒ The latex, which is usually coagulated by standing or by heating, is obtained from incisions.
- See also Bordalo, Gennaioli, and Shleifer (2013).

Discussion 2: Conclusion

- When exposed to air, the latex gradually undergoes putrefactive changes accompanied by coagulation.
- The addition of a small quantity of ammonia or of formalin to some latices has the effect of preserving them.
- There is, however, reason to believe the following.
- The coagulation of latex into rubber is not mainly of this character.

Discussion 3: An Automated Animation

The automated transition to the next slide (= page in the PDF document) only works in full-screen mode.

- The feature is available in Adobe Acrobat and Acrobat Reader.
- Unfortunately, it is (currently, January 10, 2019) not available in macOS Preview, Skim, and SumatraPDF.



Figure: Step 1—Angle: 30.0°

Discussion 3: An Automated Animation

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Figure: Step 2—Angle: 60.0°

Discussion 3: An Automated Animation

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Figure: Step 3—Angle: 90.0°

Discussion 3: An Automated Animation

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Figure: Step 4—Angle: 120.0°

Discussion 3: An Automated Animation

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Figure: Step 5—Angle: 150.0°

Discussion 3: An Automated Animation

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Figure: Step 6—Angle: 180.0°

Discussion 3: An Automated Animation

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Figure: Step 7—Angle: 210.0°

Discussion 3: An Automated Animation

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Figure: Step 8—Angle: 240.0°

Discussion 3: An Automated Animation

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Figure: Step 9—Angle: 270.0°

Discussion 3: An Automated Animation

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Figure: Step 10—Angle: 300.0°

Discussion 3: An Automated Animation

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Figure: Step 11—Angle: 330.0°

Discussion 3: An Automated Animation

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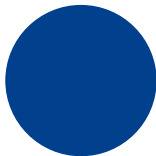


Figure: Step 12—Angle: 360.0°

References

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Appendix

Backup Slides

Appendix: Modeling Concentration Bias

Subjects consider a sequences of consequences c from choice set C .

- **Standard discounted utility:** Suppose that the instantaneous utility function u satisfies $u' > 0$ and $u'' \leq 0$, and that earlier consequences are preferred over later consequences of the same magnitude, i.e., $D(t) \leq 1$:
$$U(c) := \sum_{t=1}^T D(t) u(c_t), \quad \text{where, e.g.,} \quad D(t) = \delta^t \text{ or } D(t) = \frac{1}{1+kt}.$$
- **Focusing model (Kőszegi and Szeidl, 2013):**
$$\tilde{U}(c, C) := \sum_{t=1}^T g_t D(t) u(c_t), \quad \text{where}$$
$$g_t \equiv g[\max_{c' \in C} u(c'_t) - \min_{c' \in C} u(c'_t)]$$
 - Weighting function $g[\cdot]$ increases in difference of maximum and minimum possible utility at a point in time.
 - Subjects overweight intertemporal consequences with a greater range.