

Regular Lecture 10

Revisions

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Theorem Proving

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Drafting

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Starting from this rough first draft, you transform it into an acceptable **second draft** and an excellent **third draft**.

If you remember only one thing from this book, please let it be this:
revise the hell out of everything you write.
— Kirsten Ghodsee, *From Notes to Narrative:
Writing Ethnographies That Everyone Can Read* (2016)

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You would not usually circulate this draft. Let it be your little **secret**.

Recycling vs. Rewriting

If you have written about a similar topic before, it may be tempting to reuse old text.

Do not do this. The old text will likely not fit in the new context. It will be too short, too long, or written for a different audience. It might also be copyrighted by a publisher.

Use old text as inspiration, but **write new text**.

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Once your second draft is ready, circulate it among colleagues and friends to get their **feedback**.

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You can share the third draft with a **wider public**.

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Avoid **major changes** close to the final deadline.

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Make sure you **thank** anyone who helped you.

In a peer-reviewed paper, you can even acknowledge the anonymous reviewers.

Compressing

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There are two basic approaches, which can be combined:

- ▶ With the **amputation**, you remove entire sections, paragraphs, or sentences.
- ▶ With the **haircut**, you reword individual sentences or paragraphs.

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You can often omit the largely pointless outline at the end of the introduction of a paper (*This paper is structured as follows: ...*).

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- ▶ Look for **needless words** and **metadiscourse**.
- ▶ Look for consecutive sentences that can be **merged**.
- ▶ Look for paragraphs ending with a **word alone** on their last line.
- ▶ Look for item lists and displayed equations that can be **inlined**.
- ▶ Look for mathematical proofs that can be shortened or given in **outline**.

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The abstract, introduction, background, conclusion, and any other **noncore** sections of a paper are prime candidates for a haircut.

Example of Haircut

Before (172 words):

In thread-based object-oriented languages, synchronous method calls usually provide the mechanism to transfer control from caller to callee, blocking the caller until the call is completed. This model of control flow is well-suited for sequential and tightly coupled systems but may be criticized in the concurrent and distributed setting, not only for unnecessary delays but also for the reasoning complexity of multithreaded programs. Concurrent objects propose an alternative to multithread concurrency for object-oriented languages, in which each object encapsulates a thread of control and communication between objects is asynchronous. Creol is a formally defined modeling language for concurrent objects which clearly separates intra-object scheduling from inter-object communication by means of interface encapsulation, asynchronous method calls, and internal processor release points. This separation of concerns provides a very clean model of concurrency which significantly simplifies reasoning for highly parallel and distributed object-oriented systems. This paper gives an example-driven introduction to these basic features of Creol and discusses how this separation of concerns influences analysis of Creol models.¹

¹Einar Broch Johnsen, Jasmin Christian Blanchette, Marcel Kyas, and Olaf Owe, “Intra-Object versus Inter-Object: Concurrency and Reasoning in Creol,” *Electronic Notes in Theoretical Computer Science* 243, pp. 89–103, 2009.

Example of Haircut

After haircut (131 words):

In thread-based object-oriented languages, control is usually transferred from caller to callee via synchronous method calls, which block the caller. This model is well suited for sequential and tightly coupled systems, but in concurrent and distributed settings, it causes needless delays and complicates reasoning about programs.

Concurrent objects are an alternative in which each object encapsulates a thread of control and objects communicate asynchronously. Creol is a formally defined modeling language for concurrent objects that cleanly separates intra-object scheduling from inter-object communication through interface encapsulation, asynchronous method calls, and internal processor release points. This separation of concerns greatly simplifies reasoning for highly parallel and distributed object-oriented systems. This paper introduces these Creol features with examples and discusses how the separation of concerns influences the analysis of Creol models.

Example of Haircut

In thread-based object-oriented languages, synchronous method calls usually provide the mechanism to transfer control from caller to callee, blocking the caller until the call is completed.

VS.

In thread-based object-oriented languages, control is usually transferred from caller to callee via synchronous method calls, which block the caller.

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... and of Amputation

After haircut and amputation (110 words):

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Appendices and Technical Reports

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Using a mechanism called conditional compilation, $\text{\LaTeX}$ can be used to generate multiple variants of a document from a **single source**. You can prepare a paper and its technical report **together**.

Conditional Compilation in Action

Let us analyze two research papers and their technical reports:

- ▶ Ahmed Bhayat and Giles Reger, “**A Combinator-Based Superposition Calculus for Higher-Order Logic**,” *IJCAR 2020*, pp. 278–296, Springer, 2020.
- ▶ Alexander Bentkamp, Jasmin Blanchette, Sophie Tournet, Petar Vukmirović, and Uwe Waldmann, “**Superposition with Lambdas**,” *CADE-27*, pp. 55–73, Springer, 2019.