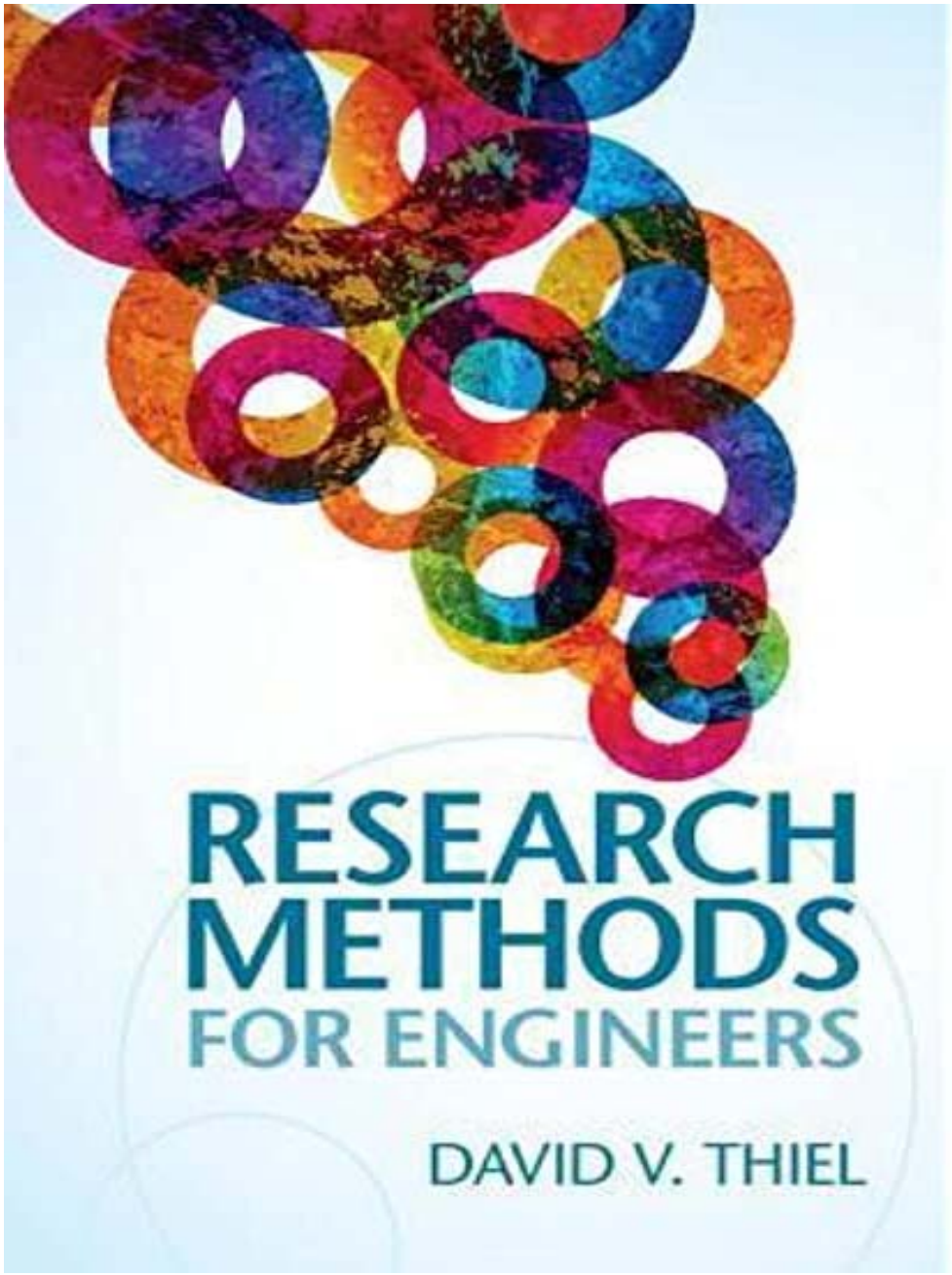
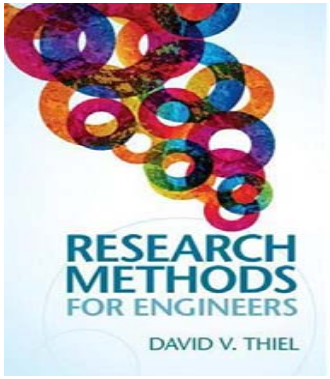
Fall 2021 VE496
Lecture notes
Week 2

Reading
Week 3, 4





Technical Communication as a series of ***actions***

✓ **Determine** your **purpose.**

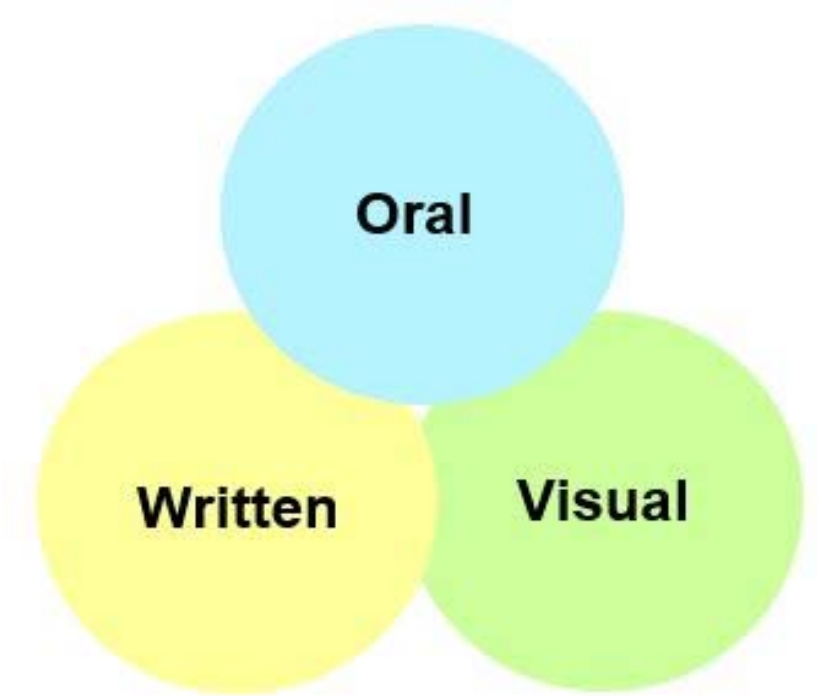
✓ **Assess** your **audience** needs.

✓ **Consider** the **context** of your communicative act

- **Establish** the scope of your coverage on a topic
- **Research** in relevant areas
- **Organize** your ideas
- **Select** the appropriate medium

Multi-modality

Technical communication is a design process using words, images, and voice.



Week 1 reading & homework:

Why Engineers Need to Work on Their Communication Skills

1. Better Speakers Make More Money
2. You Learn Faster by Teaching
3. The World Needs To Hear Your Message
4. Better Communicators Get Better Benefits

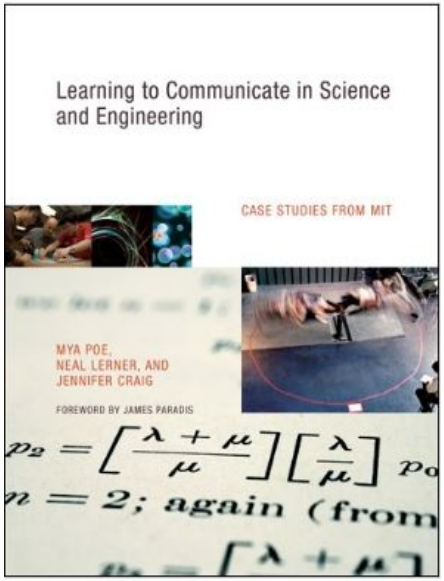
Your questions and comments

For the statement "Better speakers make more money", I cannot agree more because a leader or manager must be a good speaker. For engineers, the competitiveness will reduce with age and old engineers are very likely to be replaced with younger ones. The experienced engineers with good communication skills have more chances to get promoted and enter into management layers, which can extend their working career.

"Engineers who don't write well end up working for engineers who do write well."

Learning to Communicate in Science and Engineering: Case Studies from MIT

by Mya Poe, Neal Lerner, and Jennifer Craig



Regarding the author's points, I cannot agree more on the importance to develop good communication skills for engineers. Most engineers do feel it hard to express themselves, including me, which can lead to a low sense of presence from others despite their good technical skills.

Sometimes, as the author mentioned, many engineers regard those who speak well "with a bit of disdain", and that is quite an issue to deal with.

For the statement "You learn faster by teaching", I have a question that for an engineer who often teaches others or makes presentations, will he/she spend more time on communication skills training than technical skills training?

Anyway, an engineer should mainly work on technical skills and learn technical knowledge most of time instead of spending much time on trick of speaking and forget the duty of an engineer.

And from my perspective, I have some confusion about the second point. Actually, rubber duck debugging, known as a famous method of debugging, ask us to teach the duck how the program runs. However, it may not work if we teach the other people, I mean it's not that efficient for other people who are really green hands.

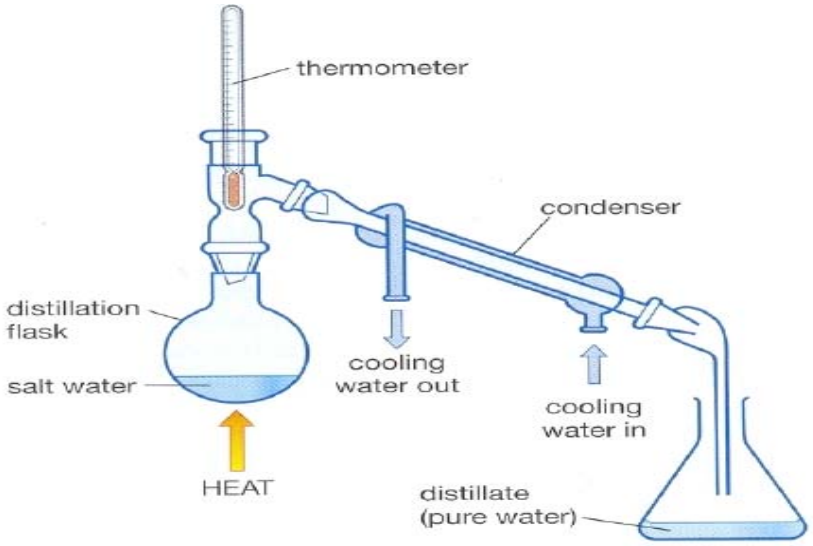
Because they don't have some prerequisite knowledge as we have. So we may refuse to teach them to help us to learn faster but to waste time on the useless teaching. Considering this problem, how does the second point work then?

As the article mentioned, when a person is going to teach someone else about something, one would get deeper understanding of the concerned contents. I basically agree that, but I fail to see any connection between communication and the deeper understanding one has about what he or she just taught to others. As the passage has mentioned, such improved understanding of a certain content results from the preparation before the teaching, or in other words before the communication. Thus, I think it's largely the preparation made before the speech, instead of the process of teaching or the process of communication, that makes one master the very content he or she is going to present.

I totally agree with all those points mentioned in this article. For me, I'm deeply impressed by the second point. For me, I always hold precious the chance of making presentations no matter it is required by the instructor or not. When I work with others in a group, I usually encourage other to present their thought rather than just divide the project to several parts and let them work on each part. The process of teaching and learning are not separable.

Main Benefit of writing

"The act of writing forces us to ***distill*** vague notions into clear ideas." Thomas Clive



I resonate a lot with second main point that better communicators learn thoroughly, based on my own experience. I took this course, Introduction to Logic Design, last semester and become its teaching assistant this semester. When I was a student, I thought I had a good command of its knowledge already. However, when I prepare for my recitation classes as a TA, I view this course from a whole different aspect and discover lots of problems I used to ignore because I am afraid of students asking a question I cannot answer.

Thanks to this teaching assistant experience, I dig deeper into this field than I would have done.

I agree with it because I have experience in being a TA for the physics course VPXXX. When I need to teach others, I have to spend more time than I learned the same lesson before. To familiarize and play those concepts vividly to students, I read many reference books to prepare for the recitation classes.

However, from my perspective, this article shows less about a feasible way to becoming a good communicator.

I know communication skills are important for engineers but so are profession skills. Considering the same amount of effort, will improving communication skill bring us more benefits than professional (technical) skills?

Some common misunderstanding is that good communication skills means good at bragging the product or bragging oneself so that he/she has a better chance of getting a promotion. Actually, I've heard of this happening in the workplace a lot.

The so-called demonstration of leadership is hurting people's perception of what good technical communication is really like. The communication is never about selling some product and getting paid. It's about interpersonal connection where one person's needs are clearly expressed, understood, processed and dealt with by another.

Questions: Do you think that the title of the last point "better benefit" is kind of similar to that of the first point "more money" and is there need to express the last point better?

The logic along the whole article is actually blurred due to the overlapping points, which is to say, the article could've been shorter and more precise. The redundant parts feels like the author tries to extend the article meaninglessly, just to show their so-called professionalism.

In my own opinion, communication may damage originality which may cause benefit decrease. For example, when you worked in a research group on a project and you suddenly had a creative idea. You shared your idea with your teammate and he used your idea to produce his own paper without noticing you. Then, your idea was stolen because of the communication. How can we solve this problem?

Why communicate?

What is your purpose or what do you want to achieve with your audience?

- To build *common grounds of understanding* with audience
- To help them learn about a subject or problem
- To persuade them to see a problem through your eyes and accept your solution for it
- To *motivate* them to take action

Types of Technical Communication:

Oral: Job interviews, speeches, presentations, meetings

Written: technical reports, proposals, research papers, resumes/CV, job applications, etc.

Electronic: Emails, text messages, videoconferencing, podcasts, blogs

Visual: Symbols, icons, tables, figures, drawings, illustration, photographs, video, etc.

Topics of interests:

- Information design
- Data visualization
- Statistical graphics

✓ **Understand-*ability***

✓ **Use-*ability***

Technical communicator **= *enabler***

The importance of
Contextual and ***Process*** skills

Contextual skills

The *circumstances* that form the setting for an event, statement, or idea

The parts of something written or spoken that immediately precede and follow a word or passage and clarify its meaning
.

Today's engineering students will spend more time explaining technology to different stakeholders.

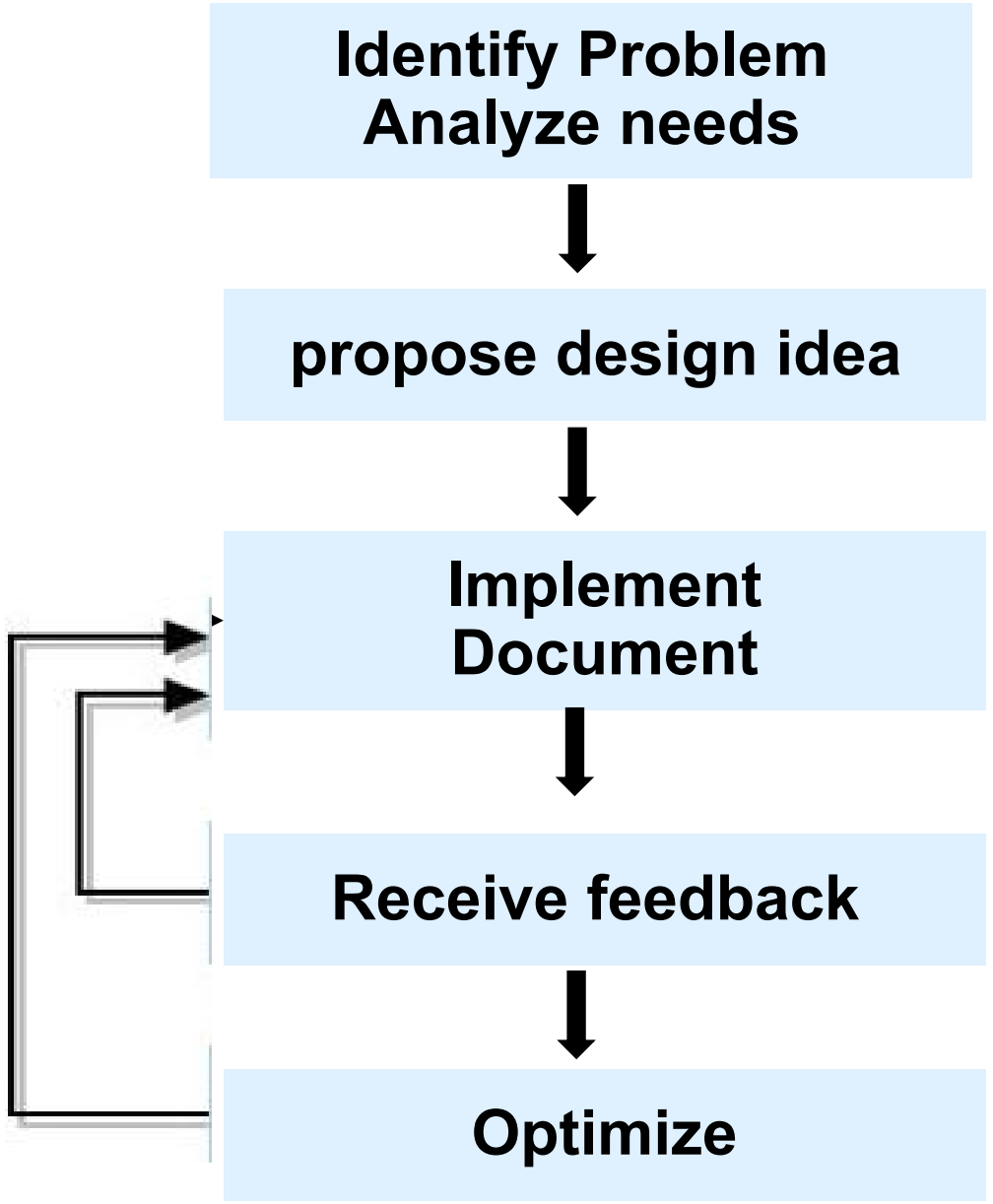
- Consumers
- Business partners
- Governments
- Legislators
- Lawyers/judges
- Environmentalists

Process skills

A series of actions or steps taken in order to achieve a particular end.

Skilled at giving **instructions**

- Defining terms
- Describing processes, mechanisms



Engineering work flow

Design review meetings in school or at work

Technical Communication:

- Interactive & adaptable
- Audience centered
- Reliant on teamwork
- Visual
- Bound ethically & legally
- International & cross-cultural

The Global Engineer: Seeing the "Big Picture"

English is the *lingua franca* (linguistic bridge):

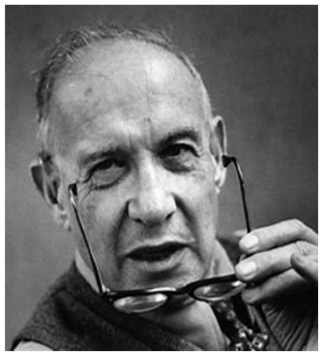
- Multilingual skills
- Confidence & competence in international environments
- Awareness of the social consequences of their work
- Understanding of other points of view and cultures

All images taken from http://cn.bing.com/images/search

Communicating ethically across cultures:

STEM in a time of controversy

- COVID-19 Pandemic
- Slowing growth in international student mobility
- US-China “technology war”



Peter Drucker
1909-2005

Austrian-born American management consultant, educator, and author.

He coined the term "***knowledge worker***" in 1959.

The Educated Person

POST-CAPITALIST SOCIETY deals with the environment in which human beings live and work and learn. It does not deal with the person. But in the knowledge society into which we are moving, individuals are central. Knowledge is not impersonal, like money. Knowledge does not reside in a book, a databank, a software program, they contain only information. Knowledge is always embodied in a person, carried by a person, created, augmented, or improved by a person, applied by a person, taught and passed on by a person, used or misused by a person. The shift to the knowledge society therefore puts the person in the center. In so doing it causes new challenges, new issues, new and quite unprecedented questions about the knowledge society's representative, the educated person.

In all earlier societies, the educated person was an ornament. He or she embodied *Kultur*—the German term which in its mixture of awe and derision is untranslatable into English (even "highbrow" does not come close). But in the knowledge society, the educated person is society's emblem, society's symbol, society's standardbearer. The educated person is the social "scribe type"—to use the sociologist's term. He or she defines society's performance capacity. But he or she also embodies society's values, beliefs, commitments. If the feudal knight was the clearest embodiment of society in the early Middle Ages, and the "bourgeois" under Capitalism, the educated person will represent society in the post-capitalist society in which knowledge has become the central resource.

This must change the very meaning of "educated person." It must change the very meaning of what it means to be educated. It will thus predictably make the definition of an "educated person" a crucial issue. With knowledge becoming the key resource, the educated person faces new demands, new challenges, new responsibilities. *The educated person now matters.*

For the last ten or fifteen years a vigorous—often shrill—debate has been raging in American Academia over the educated person. Should there be one? Could

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"***The Educated Person***" *from the book* *Post-capitalist Society*

Knowledge society puts the **person** in the center

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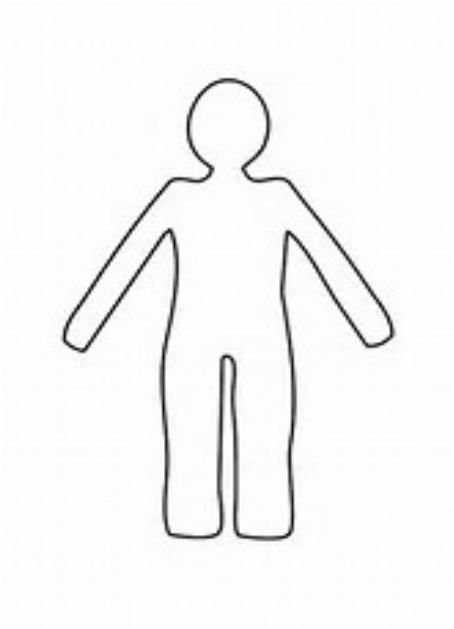
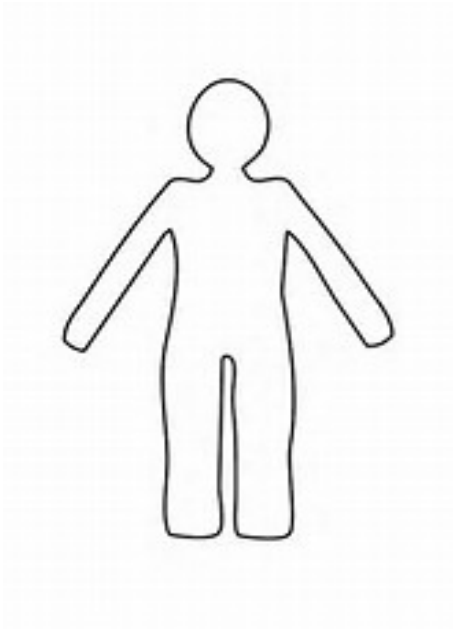


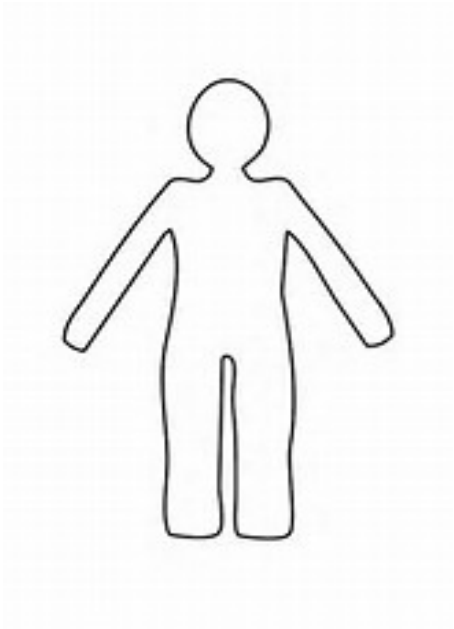
"*With knowledge becoming the key resource, the concept of the "educated person" becomes a crucial matter*."



"*The educated person needs to be able to bring his or her knowledge to bear on the present, not to mention molding the future*."

**Knowledge vs. information

The “**greatest challenge**” will be the change in knowledge :



- in its form and content
- in its meaning
- in its responsibility
- in what it means to be an educated person

Creating a Professional Portfolio

A portfolio is a collection of materials that you can use to demonstrate your qualifications and abilities.

- CV/Resume
- Samples of written work (Statement of Purpose)
- Examples of presentations (remote interview)
- Descriptions and evidence of projects
- Diplomas and certificates & awards
- Letters of reference

Thank you!

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