

CODE REVIEW COMPREHENSION

Reviewing Strategies Seen Through
Code Comprehension Theories

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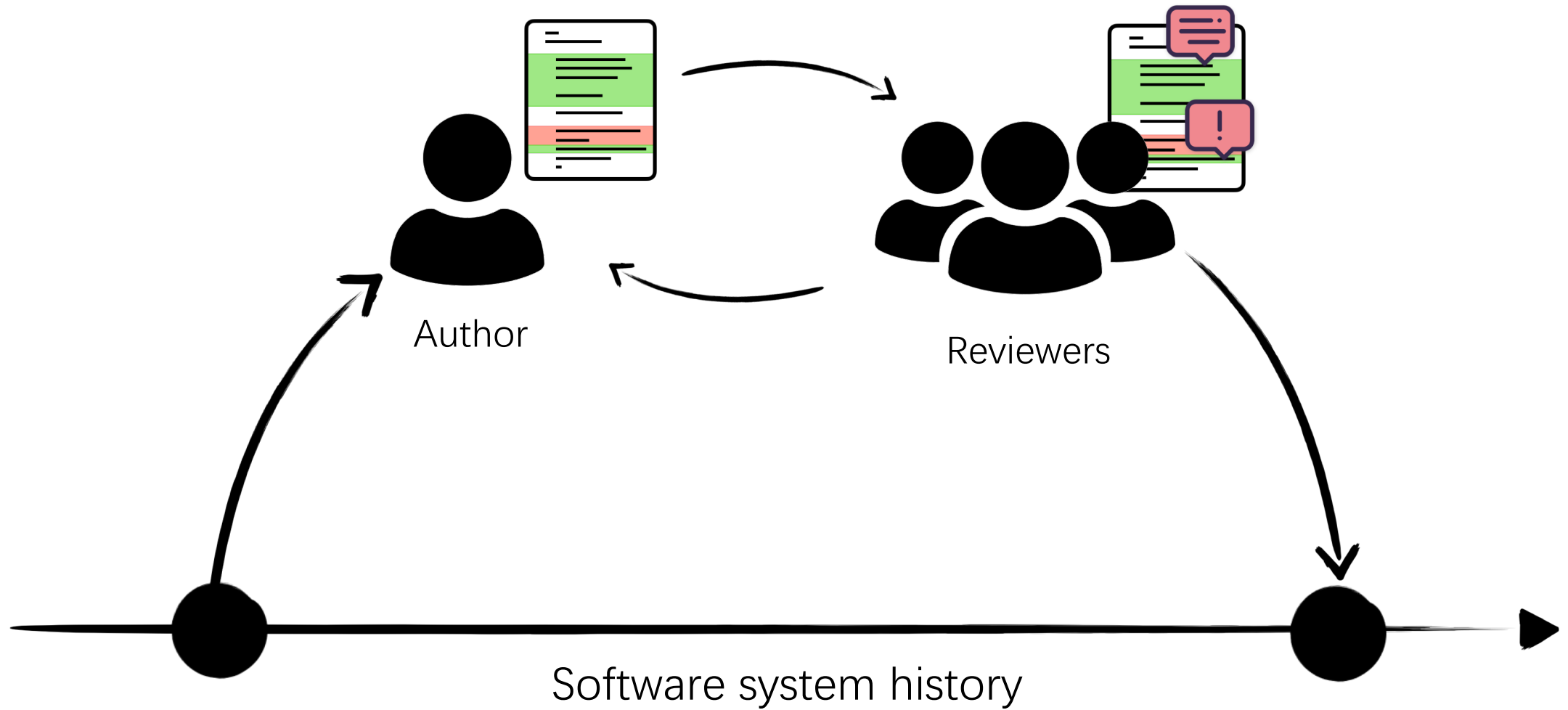


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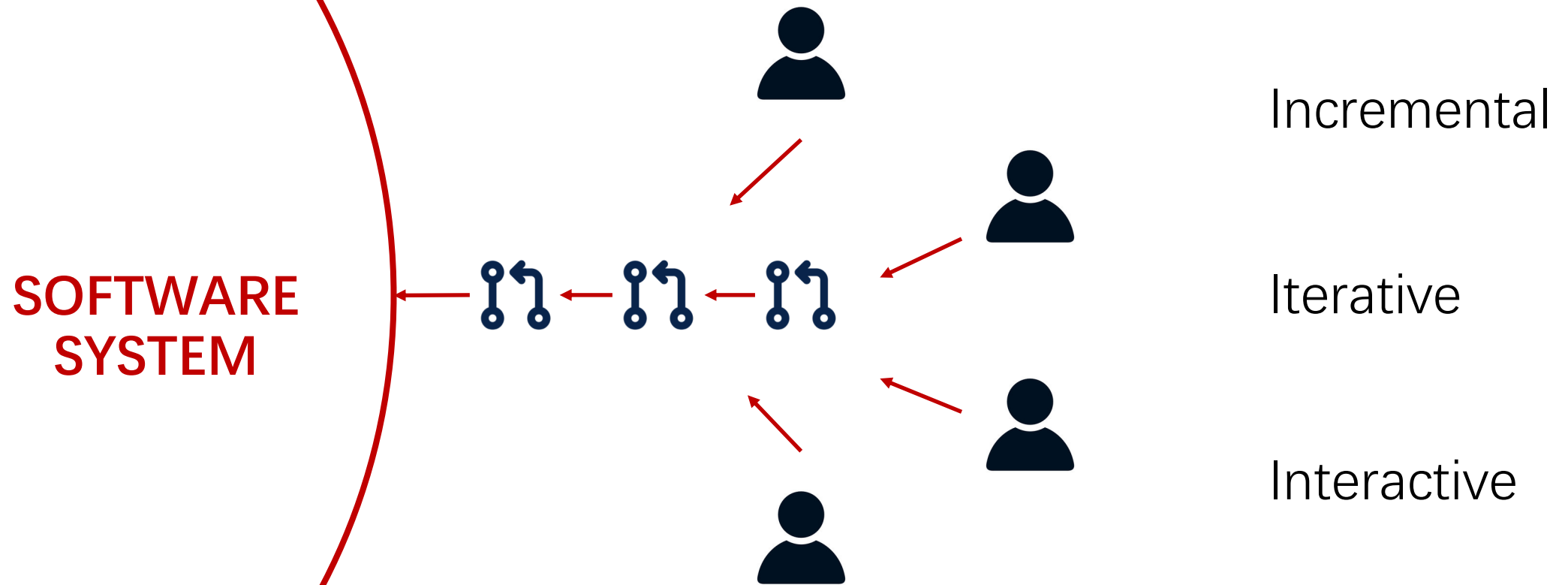
ICPC
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Code Review



Code review is understanding

- *Bacchelli, Bird (2013)*



Code comprehension driven by
opportunistic strategies



Opportunistic reviewing strategies?

Think-aloud Observation Interview

10
great reviewers

25
reviews



Theory-driven thematic analysis

I: So personality also plays a part

71: Of course. If someone is stubborn

I: And in terms of the programmer, Å is crucial to the conflicts? So that th

71: Perhaps some openness to new op
your own truth, and rather find out what
rather than advocate for your things and
do it. So, like that. Verifying new vie
People can always talk about why it is
happened to me, and not only to me, tha
overwrite the code and close th issue "b
bye."

I: That they do not talk about it a

71: Yes. Then they say, "I did not
it." Which I find strange. That, Ås too
work. It, Ås really not nice.

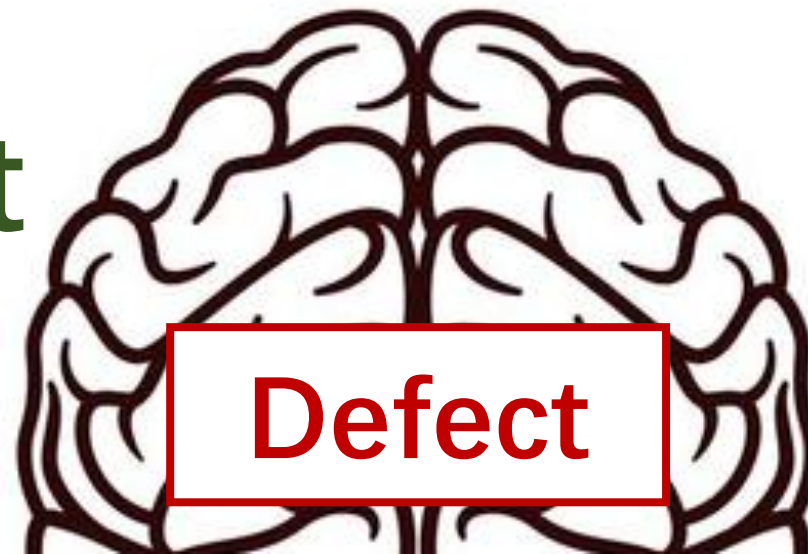
I: Like , Åhe can do it, but he has
permission".

71: Yeah. Exactly. I think this is
That, Ås what makes people especially n
like each other, but "Ehhh, why are you

**Understanding central
to finalizing the review, giving a verdict
and identifying issues**

Accept

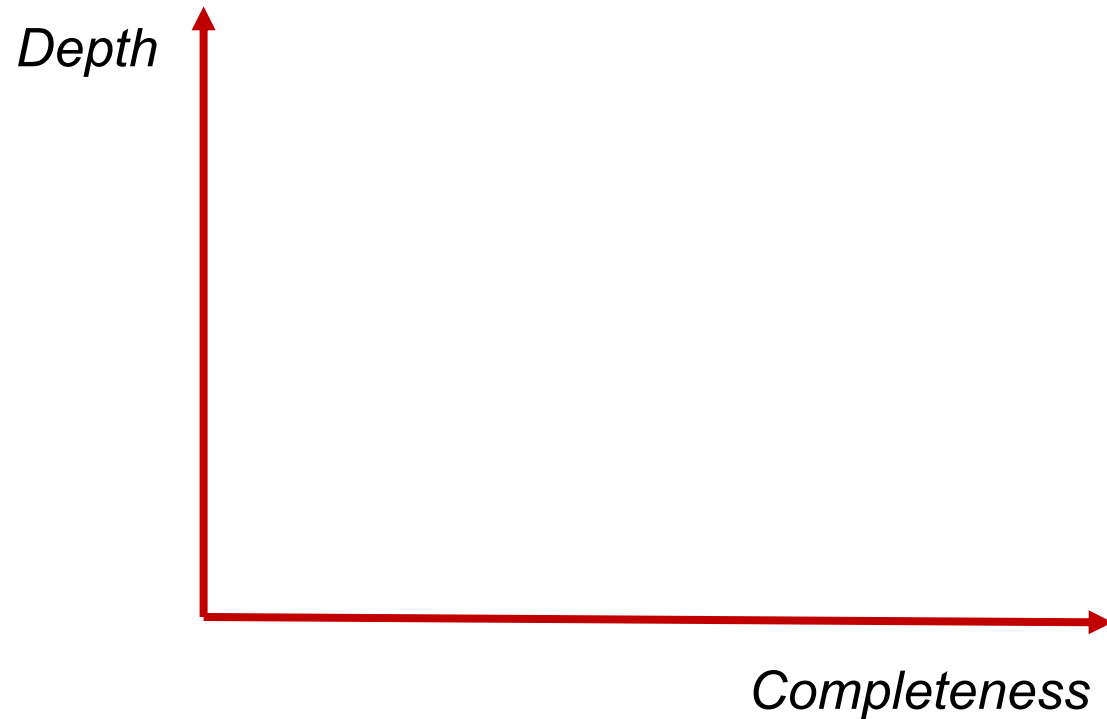
Reject



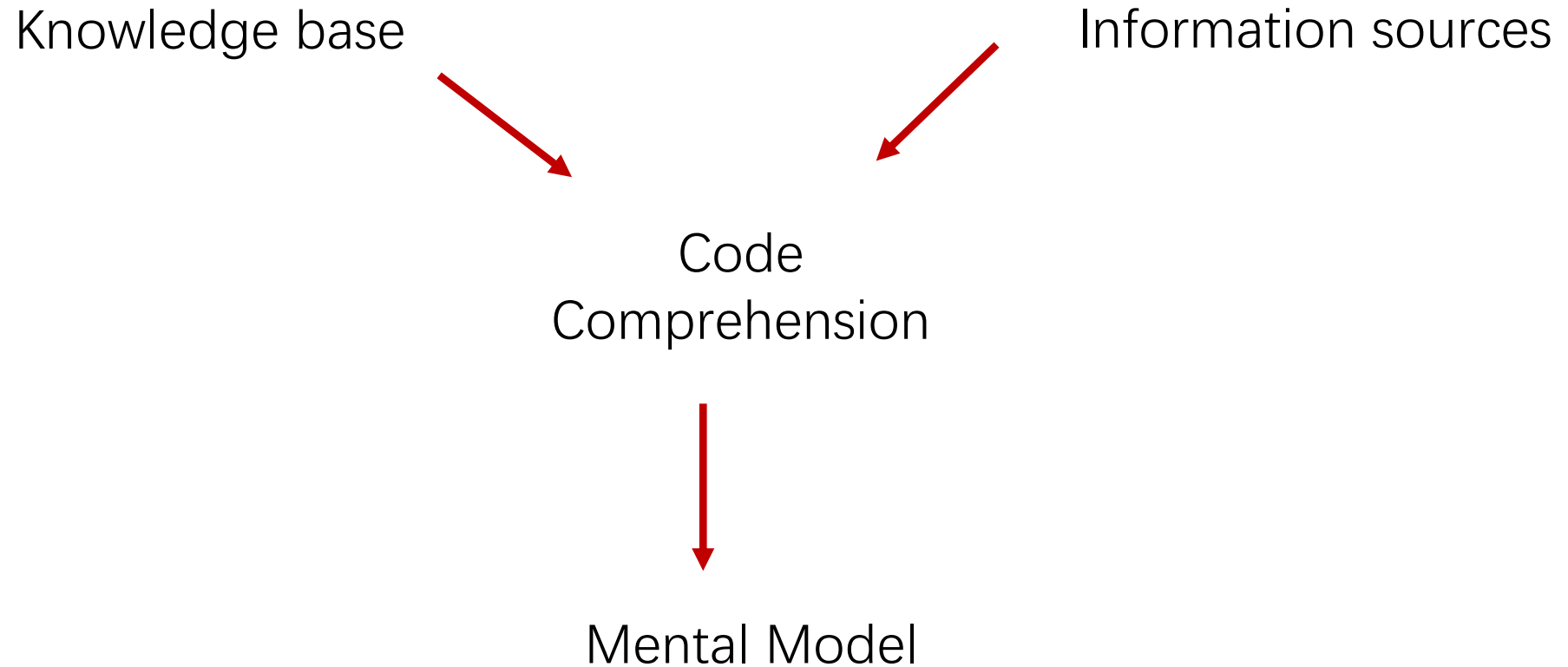
Defect

Review comprehension scope (Piaget, 1964)

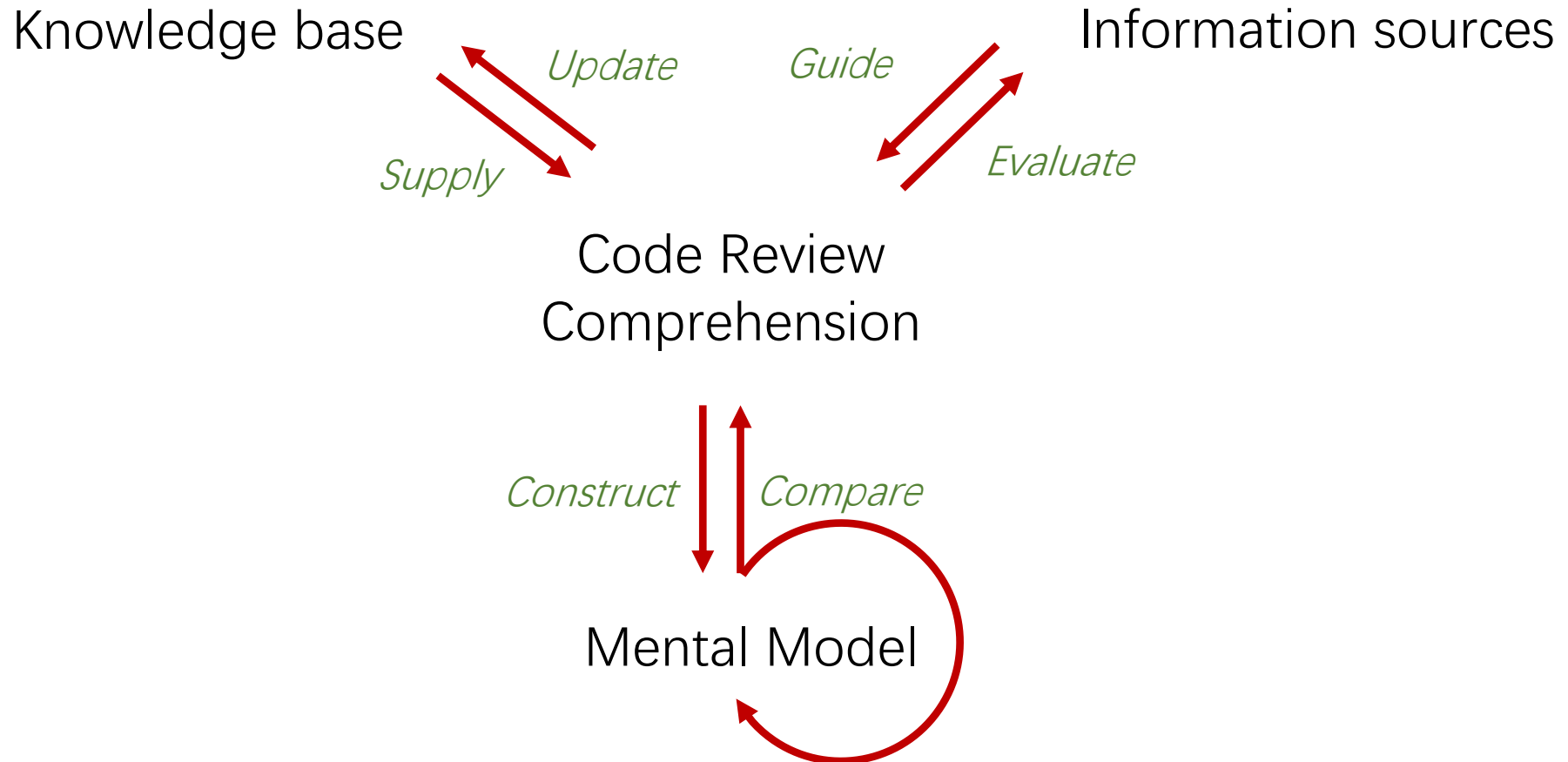
- Full
- Partial
- Focused
- Shallow



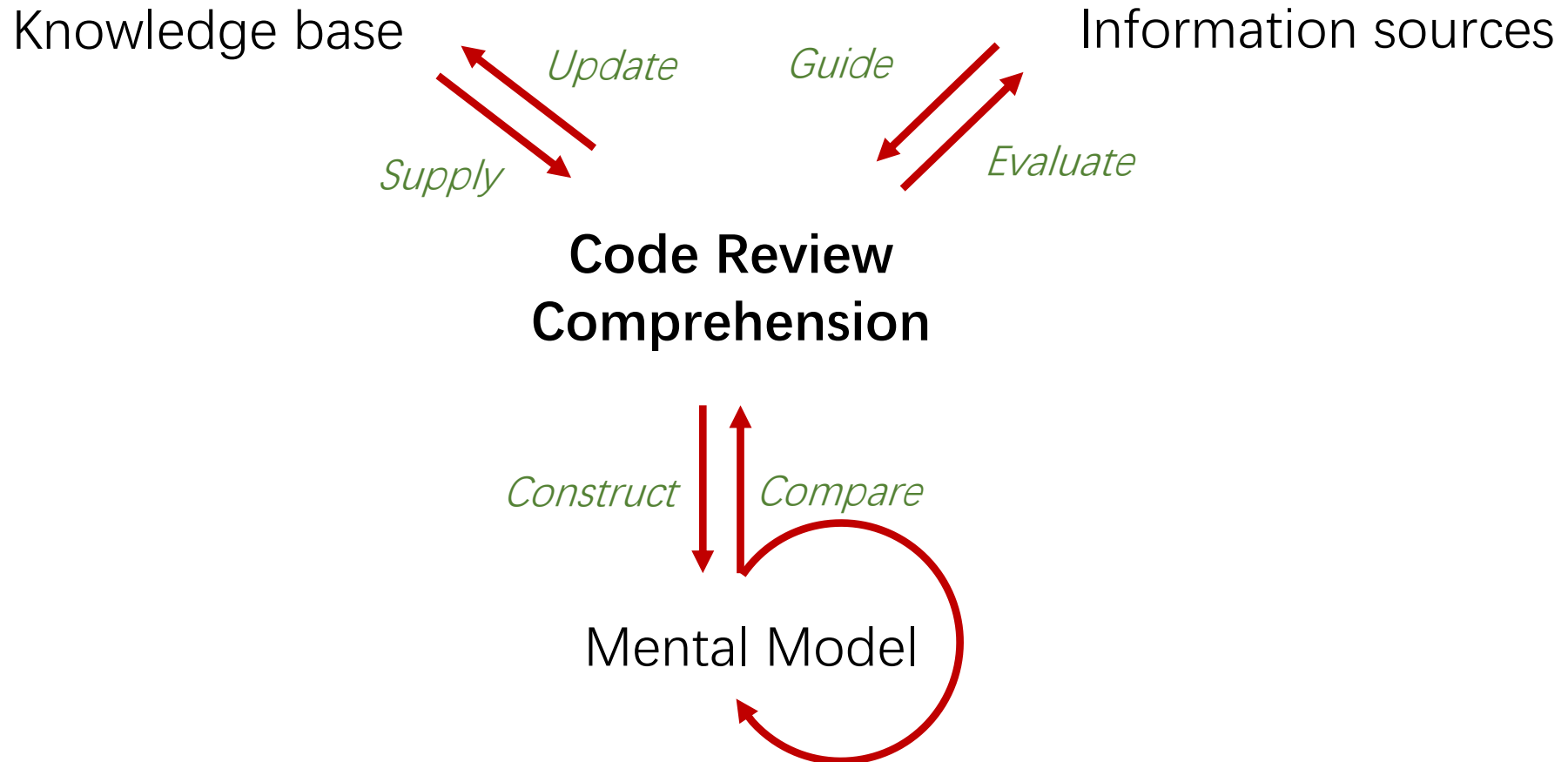
Code comprehension (Letovsky, 1987)



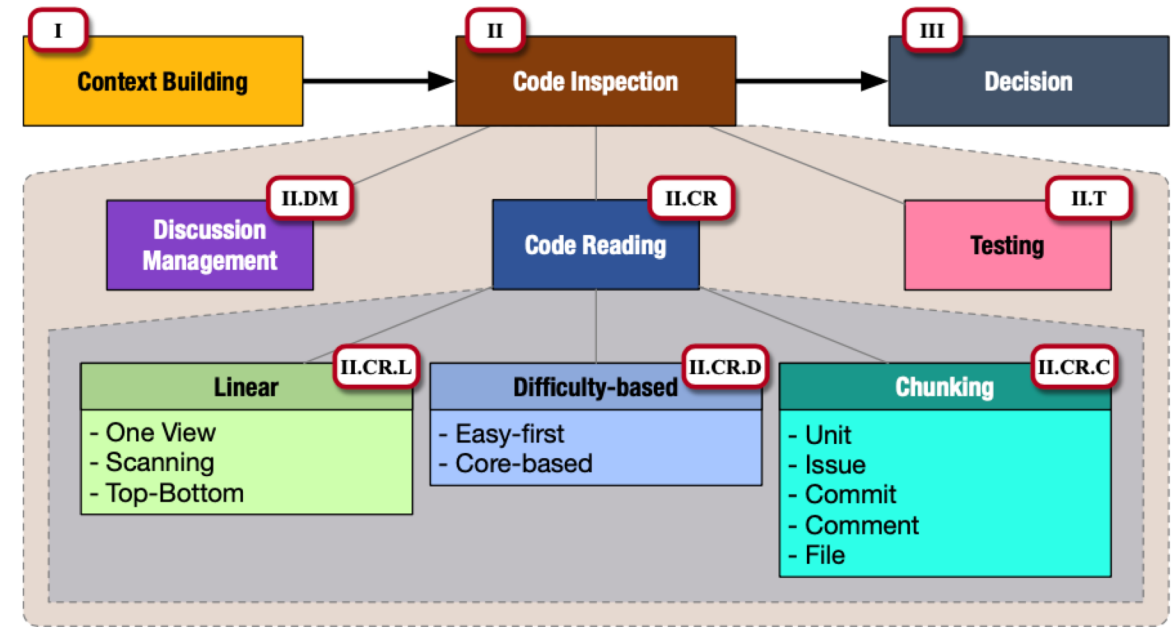
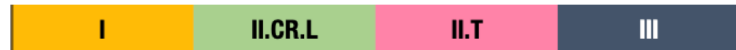
Code Review Comprehension Model



Code Review Comprehension Model

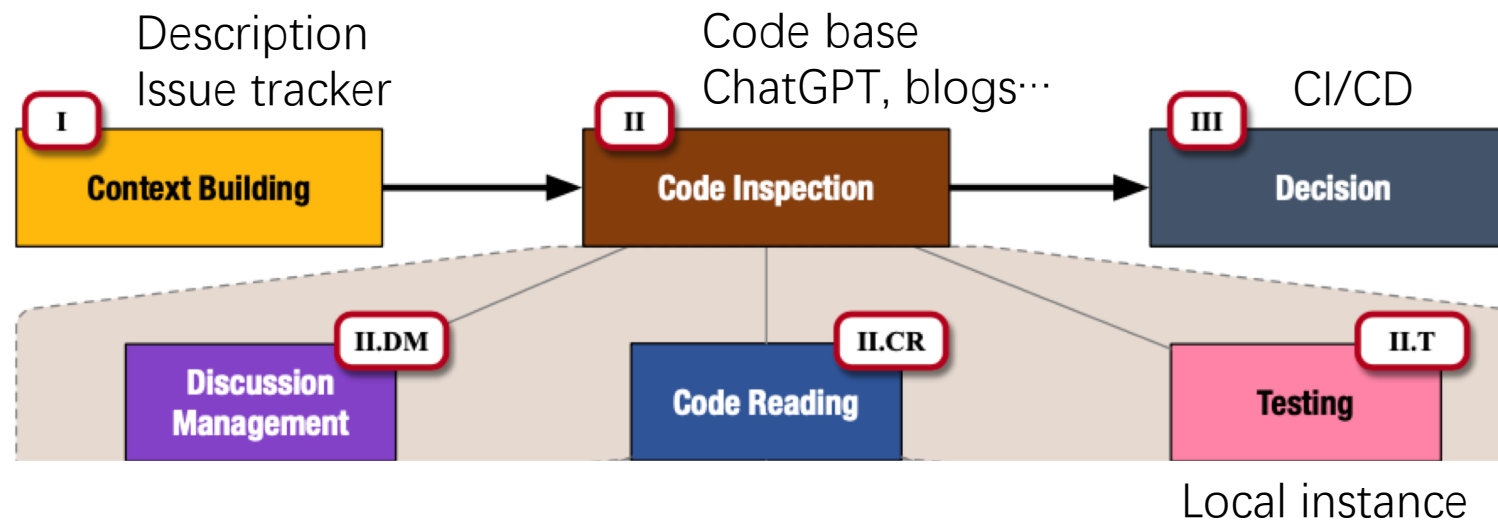






← SMALL REVIEWS
6 files, ~ 200 LOC

Information sources



Internal code review tools

Knowledge base

SE and programming knowledge

Own experience

- Previously used solutions
- Team mates expertise

Existing mental models

- Software system
- PR

RECOGNITION OF CORRECT
IMPLEMENTATION

COMPARISON TO THE
ACTUAL PR



Mental Model Ecosystem

Existing mental models

- Software system
- PR



**Mental Model
of the Actual PR**

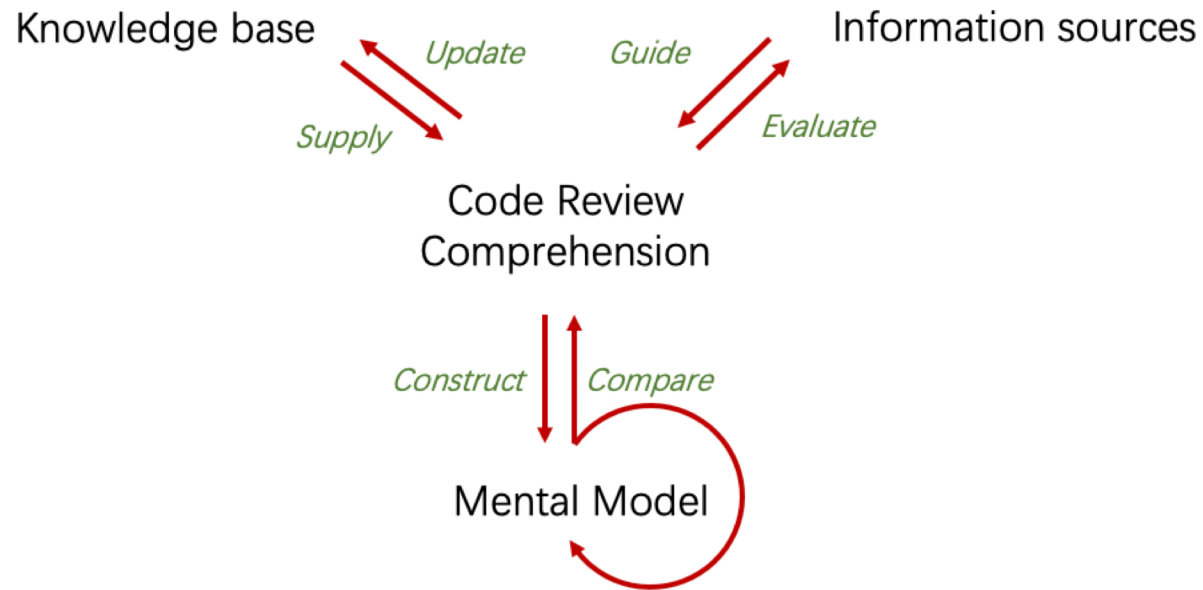


Alternatives

- Ideals
- Expectations



Code Review Comprehension Model



Interpreting and contextualizing reviewer behavior

Creating tools aligning with natural reviewing strategies

Teaching and reflecting on reviewing strategies