‘Talking the talk’: Is intermediate level conversation the key to the pair programming success story?

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• Two suggestions on the ‘how’?
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Pair programming

“…code is written with two people working at one machine, with one keyboard and one mouse”

Beck (2000)

✓ Quality improvement


How?
Two suggestions from the literature

- Navigator as foreman
  
  “the navigator…observes the work of the driver, looking for tactical…defects. Tactical defects are syntax errors, typos.”
  
  Williams & Kessler (2003)

- Navigator as reviewer
  
  “While (the driver) is busy typing, the other partner is thinking at a more strategic level”
  
  Beck (2000)
The studies

4 * 1 week commercial studies
Agile projects
Pairs of > 6 months experience

Transcribed audio recordings of:

36 * 1 hour sessions
14,866 sentences
Levels of abstraction

Here....

- Problem domain considered higher level than programming domain (Real World - RW)
- Programming domain split into series of levels (Syntax and spelling, Detailed, Program blocks)
- Bridging statement (BR) between real and programming world
- Vague statements
This condition, that return value, `getCustomer`. The error handling, Oracle. So we need to add a test condition here, to see if this kind of transaction is valid for a bank account. Savings account. Oh, yeah, I see.
Results

• Navigator as reviewer (SY)

Only 2% of coded utterances

53% of which were driver utterances
47% navigator utterances
Results

- Navigator as foreman (RW)
Overall abstraction

Lots of Vague utterences (57%). A test of 3 sessions showed:

- Mainly (78%) not related to any level of abstraction (e.g. meta-cognitive statements)
- A small percentage (22%) un-codable levels of abstraction (e.g. ‘This’).
Overall abstraction

Significantly more utterences at ‘PR’ level than the other levels of abstraction

WHY?
Cognitive ‘tag team’

- Driver primes navigator to take over?
- Provides missing link between story and code?
- ‘Cognitive glue’ for the driver?
- Heightened peripheral awareness?
XP may help by...

...Enforcing maximum task size

...Discouraging the use of diagrammatic representations

...Encouraging verbal communication
Study limitations

- Only analysed verbalisations
- May be other levels of abstraction
- May be a different scale of abstraction
- ‘Vague’ category may be interesting
- ‘Review’ could take place at a higher level
Thank you!

QUESTIONS?