

Tom : Hi everyone, I've got this problem: "Find the number of vertical asymptotes of $y = \frac{1}{\sqrt{x+9}-3}\{x^2+x\}$ ".

Bob : Alright team, our first task is to recall the definition of a vertical asymptote... [Leader initiating Stage 1]

Charlie : Guys! Let me define it first and give an example. A vertical asymptote is a vertical line... ..

Charlie : For example, in $y = \frac{1}{x-2}$, $x=2$ is the "uh-oh point" because the denominator is zero... [Holding the floor]

Bob : ..., if definitions are clear, let's move into planning. [Stage transition]

...

Bob : ...what should be our first step in the plan?

Alice : I'd say find the domain first, that'll tell us the candidate points for vertical asymptotes.

Tom : The denominator not zero, right, Charlie?

Charlie : Yep, and also make sure the square root's inside is not negative. $x+9 \geq 0$ and $x^2+x \neq 0$. [Directed turn-taking]

Tom : So $x \geq -9$ and $x \neq 0$

Alice : Tom, that's not complete! You also missed $x \neq -1$. [Interruption, check mistake] <.....

...

Tom : Hmm..., I'm bored now :<

Charlie : Haha, I get it, math sometimes feels like watching paint dry. But hey, just one tiny step left, and then you're free! [Emotional support]

Charlie_thought : I should continue to give an example...][**speak**]

Alice_thought: I should wait Charlie ...][**listen**][4.1]

Evaluator: Charlie proactively wanted to continue speaking, the other two agents remained silent..."high coherence"... → **Charlie**[4.8]

Baseline (SimClass) - Bob : Uh I agree with Charlie...

Alice_thought : I think Tom's result is missing the...][**speak**]

Charlie_thought: Ok, now that Tom has solved it, I'll continue...][**speak**]

Evaluator: Charlie didn't notice Tom's mistake, but Alice did... Alice is expressing "urgent" thoughts to... → **Alice**[4.3], **Charlie**[2.1]

Baseline (SimClass) - Charlie : Ok, great Tom, we should...