

## Introduction

We will give 4 examples which show in detail the results and interpretations of the LLM diagnosis of ASD. The 4 examples contain 4 cases: True Negative, True Positive, False Negative, False Positive. Each example is divided into three parts, a) Script is the input of LLM, which describes the child's behavior in the diagnostic video and the domain knowledge prompt, b) Answer is the output of LLM, which contains the rationale for the diagnosis and the results, and c) Explanation is the author's analysis of the example.

## Examples1 Ground True: TD Prediction: TD

### Script:

#CONTEXT#

The gender of the child is male, The age of the child is 28 months old.

00:00-01:00.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

01:00.000-01:11.500: The doctor conduct the Response to Name paradigm during this process

01:00-01:01: The doctor called out the child's name.

01:07.500-01:08.500: The child turns toward the doctor and look at the doctor .

01:11.500-02:11.500: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

02:11.500-02:21.750: The doctor conduct the Response to Name paradigm during this process

02:11.500-02:12.500: The doctor called out the child's name.

02:19.625-02:20.625: The child turns normally toward the doctor and look at the doctor .

02:21.750-03:21.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

03:21.750-03:40.375: The doctor conduct the Social Smile paradigm during this process.

03:21.750-03:40.375: The doctor greets the child with a passionial smile and say hello

03:21.750-03:40.375: The child bent his head and went on playing with the toy.

03:40.375-04:40.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of

the child, looking at the child.

04:40.375-04:52.250: The doctor conduct the Social Smile paradigm during this process.

04:40.375-04:52.250: The doctor praises the child with a warm smile that you are excellent!

04:42.375-04:42.625: The child smile agilely but did not look at the doctor.

04:52.250-05:52.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

05:52.250-06:18.875: The doctor conduct the Social Smile paradigm during this process.

05:52.250-06:18.875: The doctor plays a tickle game with the child.

The doctor moves his hand slowly towards the child with a smile and gently touches the child.

06:05.875-06:12.250: The child smile normally but did not look at the doctor.

06:18.875-07:18.875: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

07:18.875-07:45.125: The parent conduct the Social Smile paradigm during this process.

07:18.875-07:45.125: With a warm smile, parents entertain their children in whatever way they normally do in their daily lives.

07:24.750-07:41.750: The child looked up and made eye contact with the doctor agilely without smile.

07:45.125-08:45.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected flower picture is displayed on the wall 1.5 meters in front of the child's left.

08:45.125-09:14.000: The doctor conduct the Indicating Gesture paradigm during this process.

08:46.125-08:47.125: The doctor call the child's name and say "Look at that flower."

09:09.500-09:10.000: The child looked up in the direction of the picture.

09:01.500-09:02.000: The child precisely points out the location of the picture.

08:50.875-08:55.625: The child turns around and makes eye contact with the doctor to share his findings proactively.

09:14.000-10:14.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected tree picture is displayed on the wall 1.5 meters in front of the child's left.

10:14.000-10:27.000: The doctor conduct the Indicating Gesture paradigm during this process.

10:15.250-10:16.250: The doctor call the child's name and say "Look at that tree."

10:18.500-10:19.500: The child looked up normally in the direction of the picture.

10:21.000-10:22.000: The child precisely points out the location of the picture.

10:22.000-10:27.000: The child keeps looking at the picture.

10:27.000-11:27.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected balloon picture is displayed on the wall 1.5 meters in front of the child's left.

11:27.000-11:41.250: The doctor conduct the Indicating Gesture paradigm during this process.

11:28.250-11:29.250: The doctor call the child's name and say "Look at that the balloon."

11:31.375-11:31.750: The child looked up alertly in the direction of the picture.

11:34.750-11:35.125: The child precisely agilely points out the location of the picture.

11:36.750-11:41.125: The child turns around and makes eye contact with the doctor to share his findings proactively.

11:41.250-12:41.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected sofa picture is displayed on the wall 1.5 meters in front of the child's left.

12:41.250-12:48.125: The doctor conduct the Indicating Gesture paradigm during this process.

12:42.500-12:43.500: The parent call the child's name and say "Look at that sofa."

12:45.375-12:46.375: The child looked up agilely in the direction of the picture.

12:46.000-12:47.000: The child precisely agilely points out the location of the picture.

12:47.000-12:48.125: The child keeps looking at the picture.

12:48.125-13:48.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected picture of a clock is displayed on the wall one meter behind the child.

13:48.125-14:06.625: The doctor conduct the Joint Attention paradigm during this process.

13:51.500-13:53.500: The doctor raises his hand and points to the picture of a clock and says, "Look, there is a clock. what time it is."

13:53.250-13:54.000: The child turns his head back alertly and then looks to the position of the clock .

14:06.625-15:06.625: Preparatory phase: a child sits at a table playing with a toy car, looking at

the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

15:06.625-15:47.750: The doctor conduct the Initiating Joint Attention paradigm during this process.

15:06.625-15:09.625: The wall to the left of the child suddenly displays a yellow bird flapping its wings while a stereo plays the sound of birdsong.

15:12.625-15:13.125: The child is attracted to the animation playing and looks at the bird on the left wall.

15:16.125-15:17.375: The child turns around agilely and makes eye contact enthusiastically with the doctor to share his findings.

15:13.125-15:32.625: The child keeps staring at the animation playing on the wall.

15:47.750-16:47.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

16:47.750-17:26.875: The doctor conduct the Initiating Joint Attention paradigm during this process.

16:47.750-16:50.750: The wall to the right of the child suddenly displays a moving yellow car while the stereo plays the sound of the car moving.

16:58.375-16:58.625: The child is attracted to the animation playing and looks at the bird on the left wall.

17:02.000-17:03.750: The child turns around agilely and makes eye contact proactively with the doctor to share his findings.

16:58.625-17:26.875: The child keeps staring at the animation playing on the wall.

17:26.875-18:26.875: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention.

18:26.875-18:45.375: The doctor conduct the Initiating Joint Attention paradigm during this process.

18:26.875-18:29.875: A cow wiggling its ears is suddenly displayed on the wall behind the child's right side while the sound of the cow is played on the stereo.

18:29.875-18:45.375: The child keeps his head down and continues to play with his toy.

18:45.375-19:45.375: Preparatory phase: a child sits at a table playing with a toy car, looking at

the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, play with the child.

19:45.375-20:07.000: The doctor conduct the Sparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according to a predefined exit path.

19:45.375-19:53.625: The parent gets up from their seat, walks past the child, then towards the door behind the child, and finally leaves the room.

19:53.625-20:07.000: The child keeps his head down and continues to play with his toy.

20:07.000-21:07.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The door is behind the child on the left. Parents stand outside the door, looking at the child. The doctor sits in front of the child, play with the child.

21:07.000-21:29.000: The doctor conduct the Sparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according after saying with the child.

21:07.000-21:07.000: The parent call the child's name outside the door and say, "Hi, mom is leaving. You have to play alone."

21:14.375-21:17.375: The child realizes that the parent has left and gets up and chases him toward the door persistently.

21:17.375-21:29.000: The parents, the doctor and the child have left the room.

#OBJECTIVE#

I would like you to analyze the content of the video according to the following [ASD symptoms].

The Preparatory phase is the pre-paradigm environment setting, and [ASD symptoms] in the preparation stage are not observed.

In the end, Please judge whether the child is ASD or TD based on the content of the video, 1 means ASD, 0 means TD, and you can only answer 0 or 1 and please give the reason for the judgement.

Please summarize the reasons for your judgment in less than 200 words and do not elaborate point by point.

As TD children also occasionally fail to respond to instructions, please pay more attention to children's best one response in multiple paradigms.

you can only judge ASD when the most of following [ASD symptoms] occur simultaneously and repeatedly.

Do not assume that the child focusing on the toy car suggests a highly restricted interest, and focus on the child's response after the doctor or parents give instructions.

[1.The child of Deficits in social-emotional reciprocity. 2. The child of Deficits in nonverbal communicative behaviors used for social interaction. 3. The child of Deficits in developing, maintaining, and understanding relationships. 4. The child of Stereotyped or repetitive motor

movements. 5. The child of Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior. 6. The child of Highly restricted, fixated interests that are abnormal in intensity or focus. 7. The child of Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment.]

#TONE#

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RESPONSE FROMAT

1. Reasons for autism spectrum disorder judgment: []

2. Autism spectrum disorder Judgment results: []

### **Answer:**

1. Reasons for autism spectrum disorder judgment: [The child showed appropriate responses to their name being called and exhibited joint attention by looking at and pointing to objects indicated by the doctor and parent. The child also made eye contact with the doctor and parent during some paradigms, suggesting an understanding of social cues. Although the child did not consistently smile or respond to some social interactions, these behaviors alone are not sufficient to diagnose ASD. Additionally, the child's reaction to the parent's departure and subsequent chasing suggests an understanding of their relationship and separation anxiety, which is typically seen in TD children.]

2. Autism spectrum disorder Judgment results: [0]

### **Explanation:**

The responses summarize the child's abilities in terms of name calling responses, joint attention when the child looks and points to objects, and eye contact. Corresponding clues can all be found in the script. Such as:

01:07.500-01:08.500 and 02:19.625-02:20.625, the child turned to the doctor after hearing the name.

09:09.500-09:10.000, 09:01.500-09:02.000 and 08:50.875-08:55.625:, the child points to the target picture and initiates sharing his findings with the doctor.

04:42.375-04:42.625 and 07:24.750-07:41.750, the child made eye contact with the doctor.

These demonstrate the ability of LLM to understand the script and to summarize the symptoms associated with autism from a large number of behaviors. Our experiments demonstrate that LLM has the ability to diagnose autism and give explanations that correspond to clinical expectations.

## **Examples2 Ground True: ASD Prediction: ASD**

### **Script:**

#CONTEXT#

The gender of the child is male, The age of the child is 17 months old.

00:00-01:00.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

01:00.000-01:15.375: The doctor conduct the Response to Name paradigm during this process

01:05.875-01:06.875: The doctor called out the child's name.

01:01.000-01:15.375: The child continued to play with the toy

01:15.375-02:15.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

02:15.375-02:32.125: The doctor conduct the Response to Name paradigm during this process

02:18.875-02:19.875: The doctor called out the child's name.

02:22.750-02:23.750: The doctor called out the child's name.

02:28.250-02:29.250: The doctor called out the child's name.

02:16.375-02:32.125: The child continued to play with the toy

02:32.125-03:32.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

03:32.125-03:54.000: The doctor conduct the Social Smile paradigm during this process.

03:32.125-03:54.000: The doctor greets the child with a passional smile and say hello

03:32.375-03:33.250: The child looked up and made eye contact with the doctor alertly without smile.03:54.000-04:54.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

04:54.000-05:13.500: The doctor conduct the Social Smile paradigm during this process.

04:54.000-05:13.500: The doctor praises the child with a warm smile that you are excellent!

04:54.000-05:13.500: The child bent his head and went on playing with the toy.

05:13.500-06:13.500: Preparatory phase: a child sits at a table playing with a toy car, looking at

the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

06:13.500-07:23.125: The doctor conduct the Social Smile paradigm during this process.

06:13.500-07:23.125: The doctor plays a tickle game with the child.

The doctor moves his hand slowly towards the child with a smile and gently touches the child.

06:13.500-07:23.125: The child bent his head and went on playing with the toy.

07:23.125-08:23.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

08:23.125-08:57.250: The parent conduct the Social Smile paradigm during this process.

08:23.125-08:57.250: With a warm smile, parents entertain their children in whatever way they normally do in their daily lives.

08:31.000-08:37.750: The child looked up and made eye contact with the doctor normally without smile.

08:57.250-09:57.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected flower picture is displayed on the wall 1.5 meters in front of the child's left.

09:57.250-10:03.625: The doctor conduct the Indicating Gesture paradigm during this process.

09:59.000-10:00.000: The doctor call the child's name and say "Look at that flower."

10:00.000-10:03.625: The child keeps his head down and continues to play with his toys.

10:03.625-11:03.625: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected tree picture is displayed on the wall 1.5 meters in front of the child's left.

11:03.625-11:17.875: The doctor conduct the Indicating Gesture paradigm during this process.

11:05.750-11:06.750: The doctor call the child's name and say "Look at that tree."

11:06.750-11:17.875: The child keeps his head down and continues to play with his toys.

11:17.875-12:17.875: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected balloon picture is displayed on the wall 1.5 meters in front of the child's left.

12:17.875-12:28.875: The doctor conduct the Indicating Gesture paradigm during this process.

12:23.500-12:24.500: The doctor call the child's name and say "Look at that the balloon."



12:24.500-12:28.875: The child keeps his head down and continues to play with his toys.

12:28.875-13:28.875: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected sofa picture is displayed on the wall 1.5 meters in front of the child's left.

13:28.875-13:45.500: The doctor conduct the Indicating Gesture paradigm during this process.

13:28.875-13:29.875: The parent call the child's name and say "Look at that sofa."

13:37.375-13:38.375: The child looked up in the direction of the picture. Then the kid continue to play with his toys.

13:45.500-14:45.500: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected picture of a clock is displayed on the wall one meter behind the child.

14:45.500-15:07.750: The doctor conduct the Joint Attention paradigm during this process.

14:54.875-14:56.875: The doctor raises his hand and points to the picture of a clock and says, "Look, there is a clock. what time it is."

14:54.875-14:55.875: The child look around to seek the clock and while not finding the correct direction.

15:07.750-16:07.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

16:07.750-16:23.625: The doctor conduct the Initiating Joint Attention paradigm during this process.

16:07.750-16:10.750: The wall to the left of the child suddenly displays a yellow bird flapping its wings while a stereo plays the sound of birdsong.

16:08.375-16:09.250: The child is attracted to the animation playing and looks alertly at the bird on the left wall.

16:09.250-16:23.625: The child lower his head again and then continued to play with the toy

16:23.625-17:23.625: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

17:23.625-17:33.750: The doctor conduct the Initiating Joint Attention paradigm during this process.

17:23.625-17:26.625: The wall to the right of the child suddenly displays a moving yellow car while the stereo plays the sound of the car moving.

17:26.625-17:33.750: The child keeps his head down and continues to play with his toy.

17:33.750-18:33.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

18:33.750-18:51.375: The doctor conduct the Initiating Joint Attention paradigm during this process.

18:33.750-18:36.750: A cow wiggling its ears is suddenly displayed on the wall behind the child's right side while the sound of the cow is played on the stereo.

18:36.750-18:51.375: The child keeps his head down and continues to play with his toy.

18:51.375-19:51.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, play with the child.

19:51.375-20:17.125: The doctor conduct the Eparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according to a predefined exit path.

19:51.375-19:58.000: The parent gets up from their seat, walks past the child, then towards the door behind the child, and finally leaves the room.

19:58.000-19:59.875: The Child turns alertly in the direction the parent left but remains seated at the table.

19:59.875-20:17.125: The child lower his head again and then continued to play with the toy.

20:17.125-21:17.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The door is behind the child on the left. Parents stand outside the door, looking at the child. The doctor sits in front of the child, play with the child.

21:17.125-21:32.875: The doctor conduct the Eparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according after saying with the child.

21:17.125-21:17.250: The parent call the child's name outside the door and say, "Hi, mom is leaving. You have to play alone."

21:24.250-21:27.250: The child realizes that the parent has left agilely and gets up and chases him toward the door persistently.

21:27.250-21:32.875: The parents, the doctor and the child have left the room.

#OBJECTIVE#

I would like you to analyze the content of the video according to the following [ASD symptoms].

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In the end, Please judge whether the child is ASD or TD based on the content of the video, 1 means ASD, 0 means TD, and you can only answer 0 or 1 and please give the reason for the judgement.

Please summarize the reasons for your judgment in less than 200 words and do not elaborate point by point.

As TD children also occasionally fail to respond to instructions, please pay more attention to children's best one response in multiple paradigms.

you can only judge ASD when the most of following [ASD symptoms] occur simultaneously and repeatedly.

Do not assume that the child focusing on the toy car suggests a highly restricted interest, and focus on the child's response after the doctor or parents give instructions.

[1.The child of Deficits in social-emotional reciprocity. 2. The child of Deficits in nonverbal communicative behaviors used for social interaction. 3. The child of Deficits in developing, maintaining, and understanding relationships. 4. The child of Stereotyped or repetitive motor movements. 5. The child of Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior. 6. The child of Highly restricted, fixated interests that are abnormal in intensity or focus. 7.The child of Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment.]

#TONE#

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RESPONSE FROMAT

1. Reasons for autism spectrum disorder judgment: []

2. Autism spectrum disorder Judgment results: []

### **Answer:**

1. Reasons for autism spectrum disorder judgment:

The child displayed multiple symptoms consistent with autism spectrum disorder. Throughout the video, the child consistently failed to respond to their name being called by both the doctor and the parent during the Response to Name paradigm, which suggests deficits in social-emotional reciprocity. In the Social Smile paradigm, the child did not reciprocate smiles or engage with the doctor or parent, indicating deficits in nonverbal communicative

behaviors used for social interaction. The child also showed a lack of joint attention in the Indicating Gesture and Joint Attention paradigms, further demonstrating challenges in developing, maintaining, and understanding relationships. Additionally, the child displayed minimal reaction to sensory stimuli during the Initiating Joint Attention paradigm, indicating potential hyper- or hyporeactivity to sensory input.

2. Autism spectrum disorder Judgment results: [1]

### **Explanation:**

In this example, LLM found deficits in the child's social-emotional reciprocity, nonverbal communicative behaviors in social interactions, and joint attention. LLM's conclusions regarding the diagnosis of ASD are consistent with the DSM-5 definition of autism. This suggests that domain knowledge prompt is important for LLM to accomplish domain tasks.

## **Examples3 Ground True: TD Prediction: ASD**

#CONTEXT#

The gender of the child is male, The age of the child is 19 months old.

00:00-01:00.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

01:00.000-01:12.625: The doctor conduct the Response to Name paradigm during this process

01:02.625-01:03.625: The doctor called out the child's name.

01:05.625-01:06.375: The child turns toward the doctor and look at the doctor .

01:12.625-02:12.625: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

02:12.625-02:25.750: The doctor conduct the Response to Name paradigm during this process

02:13.125-02:14.125: The doctor called out the child's name.

02:16.250-02:17.250: The doctor called out the child's name.

02:24.625-02:25.625: The doctor called out the child's name.

02:13.625-02:25.750: The child continued to play with the toy

02:25.750-03:25.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

03:25.750-03:44.375: The doctor conduct the Social Smile paradigm during this process.

03:25.750-03:44.375: The doctor greets the child with a passion smile and say hello

03:25.750-03:44.375: The child bent his head and went on playing with the toy.

03:44.375-04:44.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

04:44.375-05:00.250: The doctor conduct the Social Smile paradigm during this process.

04:44.375-05:00.250: The doctor praises the child with a warm smile that you are excellent!

04:44.375-05:00.250: The child bent his head and went on playing with the toy.

05:00.250-06:00.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

06:00.250-06:19.750: The doctor conduct the Social Smile paradigm during this process.

06:00.250-06:19.750: The doctor plays a tickle game with the child.

The doctor moves his hand slowly towards the child with a smile and gently touches the child.

06:00.250-06:19.750: The child bent his head and went on playing with the toy.

06:19.750-07:19.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

07:19.750-08:08.000: The parent conduct the Social Smile paradigm during this process.

07:19.750-08:08.000: With a warm smile, parents entertain their children in whatever way they normally do in their daily lives.

07:19.750-08:08.000: The child bent his head and went on playing with the toy.

08:08.000-09:08.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected flower picture is displayed on the wall 1.5 meters in front of the child's left.

09:08.000-09:19.000: The doctor conduct the Indicating Gesture paradigm during this process.

09:09.500-09:10.500: The doctor call the child's name and say "Look at that flower."

09:10.500-09:19.000: The child keeps his head down and continues to play with his toys.

09:19.000-10:19.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected tree picture is displayed on the wall 1.5 meters in front of the child's left.

10:19.000-10:47.625: The doctor conduct the Indicating Gesture paradigm during this process.

10:19.000-10:20.000: The doctor call the child's name and say "Look at that tree."

10:22.125-10:23.125: The child looked up normally in the direction of the picture. Then the kid continue to play with his toys.

10:47.625-11:47.625: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected balloon picture is displayed on the wall 1.5 meters in front of the child's left.

11:47.625-12:08.750: The doctor conduct the Indicating Gesture paradigm during this process.

11:55.750-11:56.750: The doctor call the child's name and say "Look at that the balloon."

11:55.750-11:56.750: The child looked up alertly in the direction of the picture.

11:57.875-11:58.875: The child roughly {} points out the location of the picture.

12:08.750-13:08.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected sofa picture is displayed on the wall 1.5 meters in front of the child's left.

13:08.750-13:33.625: The doctor conduct the Indicating Gesture paradigm during this process.

13:09.625-13:10.625: The parent call the child's name and say "Look at that sofa."

13:10.625-13:33.625: The child keeps his head down and continues to play with his toys.

13:33.625-14:33.625: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected picture of a clock is displayed on the wall one meter behind the child.

14:33.625-14:57.000: The doctor conduct the Joint Attention paradigm during this process.

14:35.125-14:37.125: The doctor raises his hand and points to the picture of a clock and says, "Look, there is a clock. what time it is."

14:36.000-14:37.000: The child look around to seek the clock and while not finding the correct direction.

14:57.000-15:57.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a

three-second animation to attract the child's attention

15:57.000-16:39.375: The doctor conduct the Initiating Joint Attention paradigm during this process.

15:57.000-16:00.000: The wall to the left of the child suddenly displays a yellow bird flapping its wings while a stereo plays the sound of birdsong.

16:02.500-16:17.125: The child is attracted to the animation playing and looks at the bird on the left wall.

16:17.125-16:22.500: The child lower his head again and then continued to play with the toy

16:39.375-17:39.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

17:39.375-17:53.250: The doctor conduct the Initiating Joint Attention paradigm during this process.

17:39.375-17:42.375: The wall to the right of the child suddenly displays a moving yellow car while the stereo plays the sound of the car moving.

17:42.375-17:53.250: The child keeps his head down and continues to play with his toy.

17:53.250-18:53.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

18:53.250-19:46.125: The doctor conduct the Initiating Joint Attention paradigm during this process.

18:53.250-18:56.250: A cow wiggling its ears is suddenly displayed on the wall behind the child's right side while the sound of the cow is played on the stereo.

18:58.875-19:08.625: The child is attracted to the animation playing and looks at the bird on the left wall.

19:18.375-19:22.375: The child turns around and makes eye contact proactively with the doctor to share his findings.

19:26.750-19:27.125: The child raises his hand and points normally to the bird on the wall.

19:46.125-20:46.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, play with the child.

20:46.125-21:09.125: The doctor conduct the Eparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according to a predefined exit path.

20:46.125-20:58.375: The parent gets up from their seat, walks past the child, then towards the door behind the child, and finally leaves the room.

20:58.375-21:09.125: The child keeps his head down and continues to play with his toy.

21:09.125-22:09.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The door is behind the child on the left. Parents stand outside the door, looking at the child. The doctor sits in front of the child, play with the child.

22:09.125-22:25.875: The doctor conduct the Eparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according after saying with the child.

22:09.125-22:15.000: The parent call the child's name outside the door and say, "Hi, mom is leaving. You have to play alone."

22:12.375-22:15.375: The child realizes that the parent has left and gets up and chases him toward the door .

22:15.375-22:25.875: The parents, the doctor and the child have left the room.

#OBJECTIVE#

I would like you to analyze the content of the video according to the following [ASD symptoms].

The Preparatory phase is the pre-paradigm environment setting, and [ASD symptoms] in the preparation stage are not observed.

In the end, Please judge whether the child is ASD or TD based on the content of the video, 1 means ASD, 0 means TD, and you can only answer 0 or 1 and please give the reason for the judgement.

Please summarize the reasons for your judgment in less than 200 words and do not elaborate point by point.

As TD children also occasionally fail to respond to instructions, please pay more attention to children's best one response in multiple paradigms.

you can only judge ASD when the most of following [ASD symptoms] occur simultaneously and repeatedly.

Do not assume that the child focusing on the toy car suggests a highly restricted interest, and focus on the child's response after the doctor or parents give instructions.

[1.The child of Deficits in social-emotional reciprocity. 2. The child of Deficits in nonverbal communicative behaviors used for social interaction. 3. The child of Deficits in developing, maintaining, and understanding relationships. 4. The child of Stereotyped or repetitive motor movements. 5. The child of Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior. 6. The child of Highly restricted, fixated interests that are abnormal in intensity or focus. 7.The child of Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment.]



#TONE#

Professional, Accurate

RESPONSE FROMAT

1. Reasons for autism spectrum disorder judgment: []
2. Autism spectrum disorder Judgment results: []

### Answer:

1. Reasons for autism spectrum disorder judgment: The child demonstrated some social and communicative responses, such as turning towards the doctor when called by name once and following the doctor's pointing gesture to look at a picture. However, the child frequently did not respond to social interactions, such as smiling or verbal praise from the doctor and the parent, and often continued to focus on the toy car instead. Additionally, the child showed limited interest in shared attention activities. The child's response to the separation anxiety paradigm was variable, with no clear pattern of distress or attachment when the parent left the room and delayed response after the parent mentioned leaving. These behaviors indicate potential deficits in social-emotional reciprocity, nonverbal communicative behaviors used for social interaction, and understanding relationships.
2. Autism spectrum disorder Judgment results: 1

### Explanation

Although this diagnosis is not consistent with the doctor's judgment, the child does demonstrate many normal child responses behaviorally, such as:

01:05.625-01:06.375 The child will turn to the doctor when the student calls his name once.

22:12.375-22:15.375: The child realizes that the parent has left and gets up and chases him toward the door .

This highlights that the diagnosis of ASD by large language models (LLMs) primarily depends on behavioral identification and description. Employing more precise behavioral identification models and behavior description could significantly enhance the accuracy of LLM-base diagnoses.

## **Examples4    Ground True: ASD    Prediction: TD**

#CONTEXT#

The gender of the child is male, The age of the child is 26 months old.

00:00-01:00.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

01:00.000-01:17.000: The doctor conduct the Response to Name paradigm during this process

01:02.750-01:03.750: The doctor called out the child's name.

01:05.625-01:06.625: The doctor called out the child's name.

01:09.250-01:10.250: The doctor called out the child's name.

01:10.250-01:13.000: The child turns alertly toward the doctor and look at the doctor proactively.

01:17.000-02:17.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The Doctor sits 2 meter behind the child's left, looking at the child.

02:17.000-02:33.500: The doctor conduct the Response to Name paradigm during this process

02:18.875-02:19.875: The doctor called out the child's name.

02:23.375-02:24.375: The doctor called out the child's name.

02:30.125-02:31.125: The doctor called out the child's name.

02:23.250-02:27.125: The child turns alertly toward the doctor and look at the doctor proactively with saying hello.

02:33.500-03:33.500: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

03:33.500-03:51.250: The doctor conduct the Social Smile paradigm during this process.

03:33.500-03:51.250: The doctor greets the child with a passional smile and say hello

03:33.500-03:51.250: The child bent his head and went on playing with the toy.

03:51.250-04:51.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

04:51.250-05:03.375: The doctor conduct the Social Smile paradigm during this process.

04:51.250-05:03.375: The doctor praises the child with a warm smile that you are excellent!

04:51.250-05:03.375: The child bent his head and went on playing with the toy.

05:03.375-06:03.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

06:03.375-06:43.875: The doctor conduct the Social Smile paradigm during this process.

06:03.375-06:43.875: The doctor plays a tickle game with the child.

The doctor moves his hand slowly towards the child with a smile and gently touches the child.

06:03.375-06:43.875: The child bent his head and went on playing with the toy.

06:43.875-07:43.875: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child.

07:43.875-08:33.000: The parent conduct the Social Smile paradigm during this process.

07:43.875-08:33.000: With a warm smile, parents entertain their children in whatever way they normally do in their daily lives.

07:46.625-07:53.375: The child looked up and made eye contact with the doctor alertly.

07:56.250-07:56.250: The child look at the doctor alertly and smile .

08:33.000-09:33.000: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected flower picture is displayed on the wall 1.5 meters in front of the child's left.

09:33.000-09:59.250: The doctor conduct the Indicating Gesture paradigm during this process.

09:33.000-09:34.000: The doctor call the child's name and say "Look at that flower."

09:49.375-09:52.000: The child looked up in the direction of the picture.

09:50.750-09:53.375: The child precisely points out the location of the picture.

09:36.625-09:41.250: The child turns around and makes eye contact with the doctor to share his findings proactively.

09:59.250-10:59.250: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected tree picture is displayed on the wall 1.5 meters in front of the child's left.

10:59.250-11:12.625: The doctor conduct the Indicating Gesture paradigm during this process.

11:01.250-11:02.250: The doctor call the child's name and say "Look at that tree."

11:01.750-11:02.750: The child looked up agilely in the direction of the picture.

11:05.125-11:06.125: The child precisely points out the location of the picture.

11:06.125-11:12.625: The child keeps looking at the picture.

11:12.625-12:12.625: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected balloon picture is displayed on the wall 1.5 meters in front of the child's left.

12:12.625-12:30.125: The doctor conduct the Indicating Gesture paradigm during this process.

12:17.375-12:18.375: The doctor call the child's name and say "Look at that the balloon."

12:20.750-12:21.750: The child looked up alertly in the direction of the picture.

12:20.250-12:21.250: The child roughly{} points out the location of the picture.

12:30.125-13:30.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected sofa picture is displayed on the wall 1.5 meters in front of the child's left.

13:30.125-13:45.125: The doctor conduct the Indicating Gesture paradigm during this process.

13:37.875-13:38.875: The parent call the child's name and say "Look at that sofa."

13:39.625-13:40.625: The child looked up alertly in the direction of the picture. Then the kid continue to play with his toys.

13:45.125-14:45.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. A pre-projected picture of a clock is displayed on the wall one meter behind the child.

14:45.125-15:18.500: The doctor conduct the Joint Attention paradigm during this process.

15:03.000-15:05.000: The doctor raises his hand and points to the picture of a clock and says, "Look, there is a clock. what time it is."

15:08.000-15:08.375: The child turns his head back and then looks to the position of the clock proactively.

16:21.500-17:01.750: The child keeps his head down and continues to play with his toy.

17:01.750-18:01.750: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

18:01.750-18:37.375: The doctor conduct the Initiating Joint Attention paradigm during this process.

18:01.750-18:04.750: The wall to the right of the child suddenly displays a moving yellow car while the stereo plays the sound of the car moving.

18:03.000-18:12.250: The child is attracted to the animation playing and looks agilely at the bird on the left wall.

18:27.000-18:29.625: The child turns around and makes eye contact proactively with the doctor to share his findings.

18:10.750-18:12.625: The child raises his hand and points proactively to the bird on the wall.

18:37.375-19:37.375: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, looking at the child. The wall screen and the stereo audio device will suddenly display a three-second animation to attract the child's attention

19:37.375-20:10.125: The doctor conduct the Initiating Joint Attention paradigm during this process.

19:37.375-19:40.375: A cow wiggling its ears is suddenly displayed on the wall behind the child's right side while the sound of the cow is played on the stereo.

19:40.375-20:10.125: The child keeps his head down and continues to play with his toy.

20:10.125-21:10.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The parent sit on the left side of the child, looking at the child. The doctor sits in front of the child, play with the child.

21:10.125-21:33.125: The doctor conduct the Eparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according to a predefined exit path.

21:10.125-21:16.375: The parent gets up from their seat, walks past the child, then towards the door behind the child, and finally leaves the room.

21:16.375-21:33.125: The child keeps his head down and continues to play with his toy.

21:33.125-22:33.125: Preparatory phase: a child sits at a table playing with a toy car, looking at the car. The door is behind the child on the left. Parents stand outside the door, looking at the child. The doctor sits in front of the child, play with the child.

22:33.125-22:48.375: The doctor conduct the Eparation Anxiety (SA) paradigm during this process. During the process the parent will leave the room according after saying with the child.

22:33.125-22:33.250: The parent call the child's name outside the door and say, "Hi, mom is leaving. You have to play alone."

22:33.125-22:36.125: The child realizes that the parent has left alertly and gets up and chases him toward the door normally.

22:36.125-22:48.375: The parents, the doctor and the child have left the room.

#OBJECTIVE#

I would like you to analyze the content of the video according to the following [ASD symptoms].

The Preparatory phase is the pre-paradigm environment setting, and [ASD symptoms] in the preparation stage are not observed.

In the end, Please judge whether the child is ASD or TD based on the content of the video, 1 means ASD, 0 means TD, and you can only answer 0 or 1 and please give the reason for the judgement.

Please summarize the reasons for your judgment in less than 200 words and do not elaborate point by point.

As TD children also occasionally fail to respond to instructions, please pay more attention to children's best one response in multiple paradigms.

you can only judge ASD when the most of following [ASD symptoms] occur simultaneously and repeatedly.

Do not assume that the child focusing on the toy car suggests a highly restricted interest, and focus on the child's response after the doctor or parents give instructions.

[1.The child of Deficits in social-emotional reciprocity. 2. The child of Deficits in nonverbal communicative behaviors used for social interaction. 3. The child of Deficits in developing, maintaining, and understanding relationships. 4. The child of Stereotyped or repetitive motor movements. 5. The child of Insistence on sameness, inflexible adherence to routines, or ritualized patterns of verbal or nonverbal behavior. 6. The child of Highly restricted, fixated interests that are abnormal in intensity or focus. 7.The child of Hyper- or hyporeactivity to sensory input or unusual interest in sensory aspects of the environment.]

#TONE#

Professional, Accurate

RESPONSE FROM AT

1. Reasons for autism spectrum disorder judgment: []

2. Autism spectrum disorder Judgment results: []

### **Answer:**

1. Reasons for autism spectrum disorder judgment: [The child demonstrated appropriate social-emotional reciprocity and nonverbal communicative behaviors. He responded to his name and made eye contact during the Response to Name paradigm. In the Social Smile paradigm, although initially unresponsive to the doctor's smile, the child eventually showed normal social engagement by smiling and making eye contact with the doctor. During the Indicating Gesture and Joint Attention paradigms, the child accurately followed and pointed out the objects as directed by the doctor, and even shared his findings proactively. The child also exhibited normal separation

anxiety behavior by chasing after the parent when they left the room. There were no signs of stereotyped or repetitive motor movements, insistence on sameness, or highly restricted interests.]

2. Autism spectrum disorder Judgment results: [0]

### **Explanation**

Responses indicate that the child responded to his/her name and made eye contact. e.g., 01:10.250-01:13.000 and 02:23.250-02:27.125. Children display normal social participation, e.g., 07:46.625-07:53.375: and 07:56.250-07:56.250. Children perform well in joint attention, e.g., 11:05.125-11. 06.125 and 15:08.000-15:08.375.

In summary, the large model has the ability to capture ASD behaviors, but the LLM makes errors of judgment when the child exhibits behavioral characteristics of both ASD and TD children.