

# **FUTURE PROJECTION CAPACITY IN 22Q11.2 DELETION SYNDROME**

**Clémence Feller**

*PhD student, University of  
Geneva*

**3rd European 22q11.2  
Deletion Syndrome  
Conference**

**Barcelona - 16.11.19**





# INTRODUCTION

❖ **Future projection capacity, or episodic future thinking,** refers to the ability to project oneself in the future to pre-experiment an event (Atance & O'Neil, 2001).

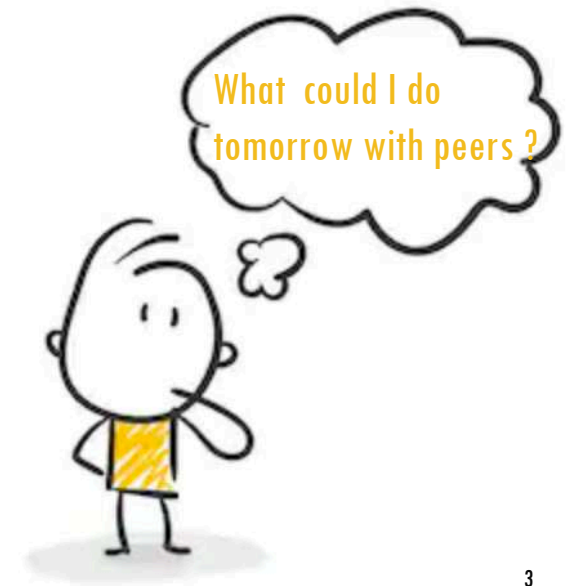
❖ This capacity has been studied in various population such as schizophrenia (D'Argembeau et al., 2008; Lyons et al., 2016), depression (Addis et al., 2016), autism (Lind et al., 2012; Crane et al., 2013) and PTSD (Brown et al., 2013), but never in 22q11.2 syndrome (22q11DS).

➤ **Is this capacity also impaired in 22q11DS ?**



# INTRODUCTION

- ❖ **Social impairments** are common features to several neurodevelopmental conditions, including 22q11DS.
- **Is episodic future thinking harder in a social context ?**



# INTRODUCTION

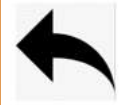
❖ Moreover, it has recently been shown that 22q11DS people **differ in their experience of pleasure** → they show **impairments in anticipatory** (i.e. pleasure related to future activities). (Dubourg, 2017)

➤ **Does anticipatory pleasure play a role in episodic future thinking ?**



Describe a **specific** and **very detailed event** that occurred in the **past** (recall) or **that could likely happen in the future** (produce) during which you are either **alone** (non-social) or **with at least one person** (social).

Describe a **specific** and **very detailed event** that occurred in the **past** (recall) or **that could likely happen in the future** (produce) during which your are either **alone** (non-social) or **with at least one person** (social).



past



future

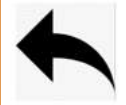


non social



social

Describe a **specific** and **very detailed event** that occurred in the **past** (recall) or **that could likely happen in the future** (produce) during which you are either **alone** (non-social) or **with at least one person** (social).



past



future



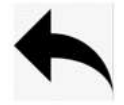
non social



social

**4 words:** holidays, home, school/work, weekend

Describe a **specific** and **very detailed event** that occurred in the **past** (recall) or **that could likely happen in the future** (produce) during which you are either **alone** (non-social) or **with at least one person** (social).



past



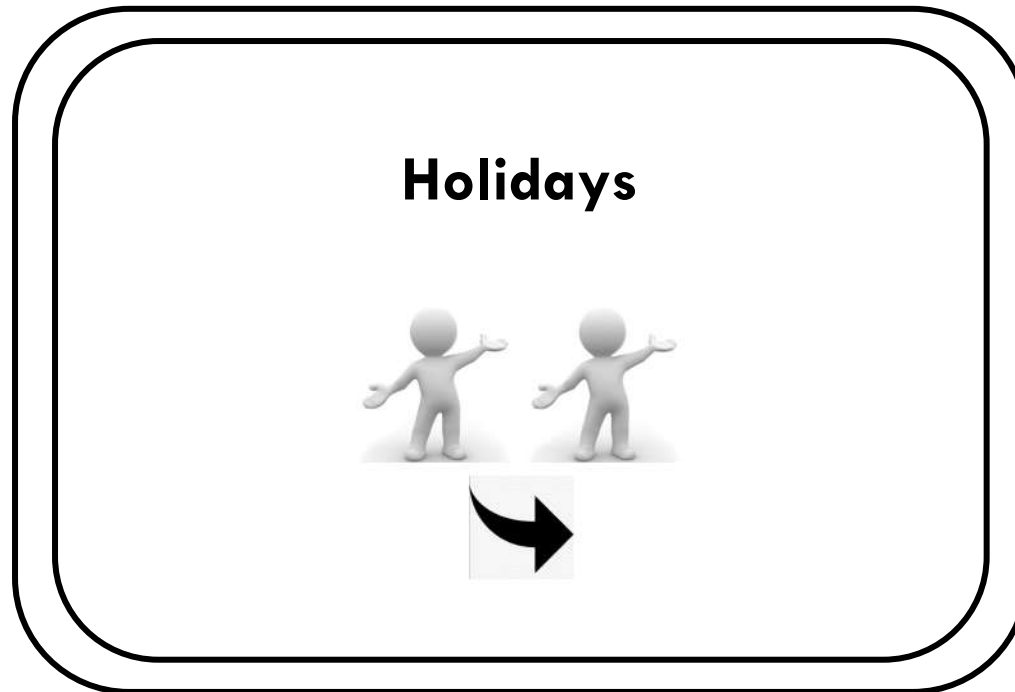
future



non social



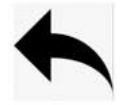
social



**4 words:** holidays, home, school/work, weekend



Describe a **specific** and **very detailed event** that occurred in the **past** (recall) or **that could likely happen in the future** (produce) during which you are either **alone** (non-social) or **with at least one person** (social).



past



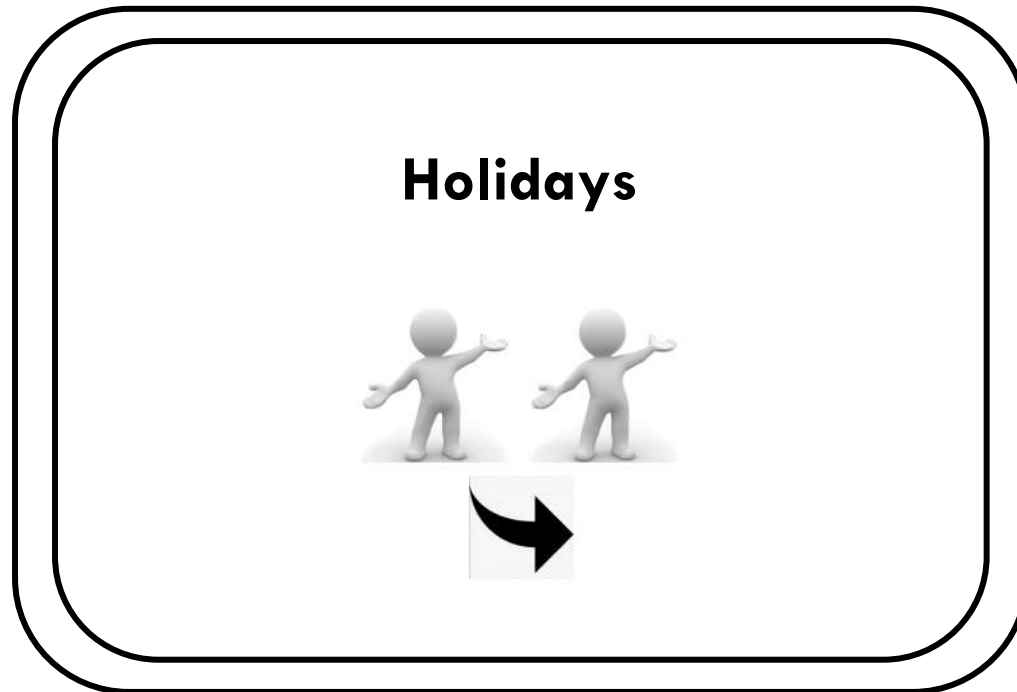
future



non social



social

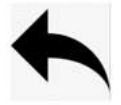


**4 words:** holidays, home, school/work, weekend

**Specific** (from minutes to a day max.)

**Detailed** (thoughts, feelings, actions, sensorial)

Describe a **specific** and **very detailed event** that occurred in the **past** (recall) or **that could likely happen in the future** (produce) during which you are either **alone** (non-social) or **with at least one person** (social).



past



future



non social



social

## Holidays



*I imagine myself during the next winter holidays. I would wake up in the morning with the smell of hot chocolate and would go to have breakfast with my family. We would then dress up to go skiing. It would be quite crowded I think.*

*We would enjoy a great day of skiing altogether, despite the cold. We would stop for lunch and eat a tasteful fondue and then ski a bit more and go back to the chalet to have a warm bath and then play cards next to the fireplace.*

**4 words:** holidays, home, school/work, weekend

**Specific** (from minutes to a day max.)

**Detailed** (thoughts, feelings, actions, sensorial)

# FUTURE THINKING TASK

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social

## ❖ Scoring & hypotheses:

- **Categories:** specific, extended or categoric based on the specificity of the narrative

**Holidays**



# FUTURE THINKING TASK

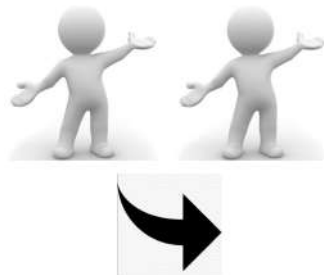
## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social

## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives  
22q11DS > TD more categoric and extended narratives

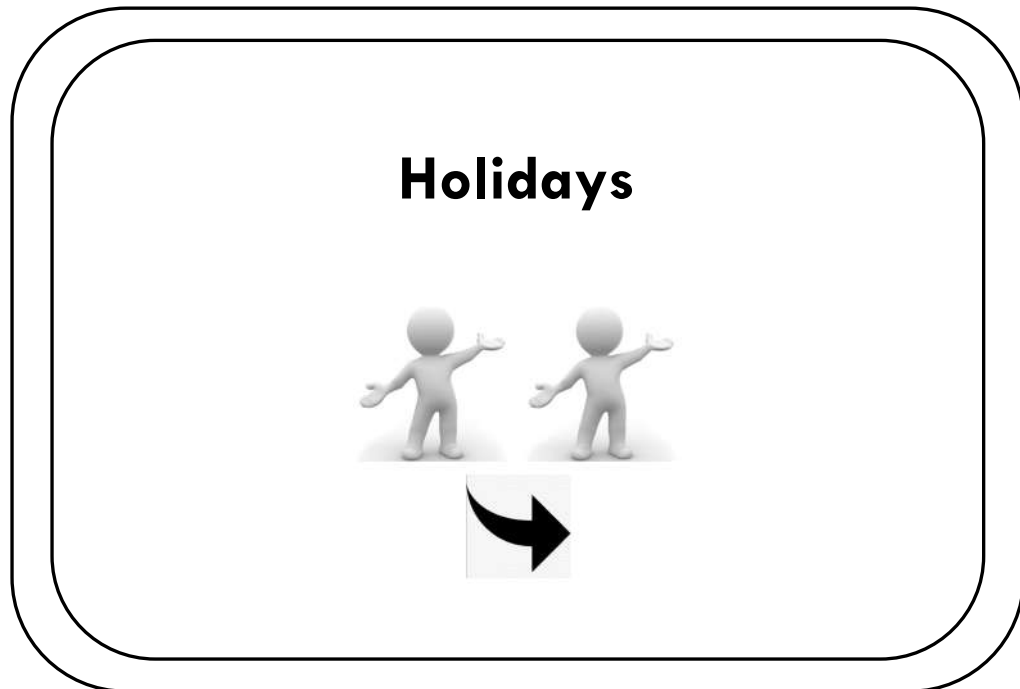
**Holidays**



# FUTURE THINKING TASK

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social



## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives  
22q11DS > TD more categoric and extended narratives

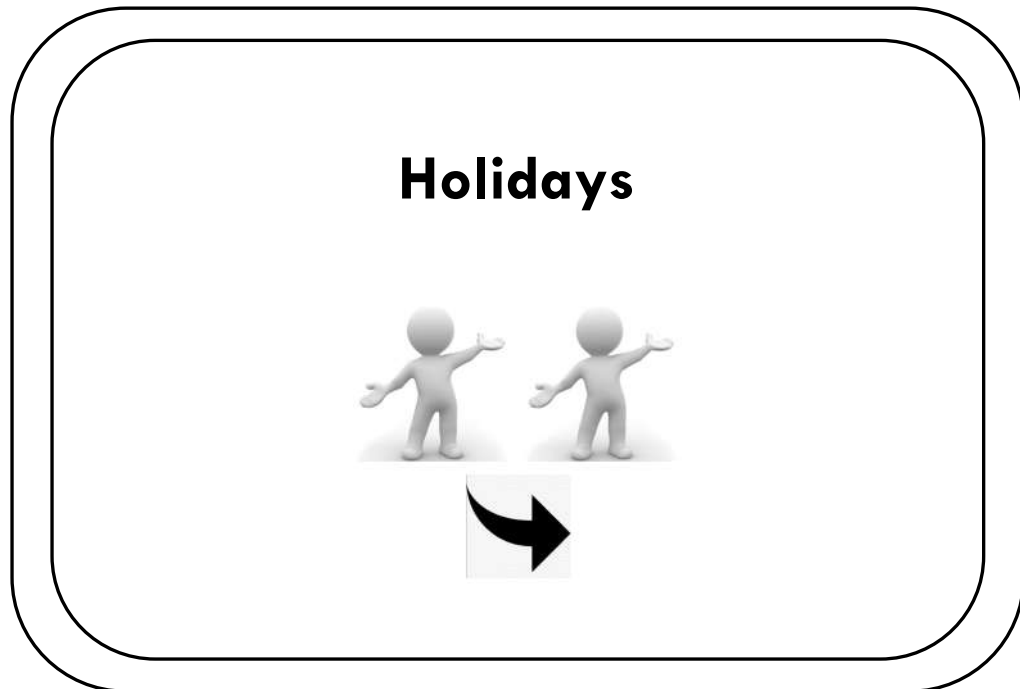
- **Experiential index:** sum of visual, auditive and olfactive details and of thoughts, emotions and actions provided in the narrative (2 points max. for each, total max. 12 points)



# FUTURE THINKING TASK

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social



## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives  
22q11DS > TD more categoric and extended narratives

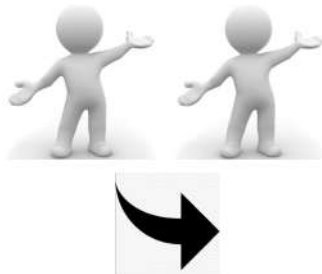
TD > 22q11DS higher experiential index

# FUTURE THINKING TASK

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social

**Holidays**



## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives

22q11DS > TD more categoric and extended narratives

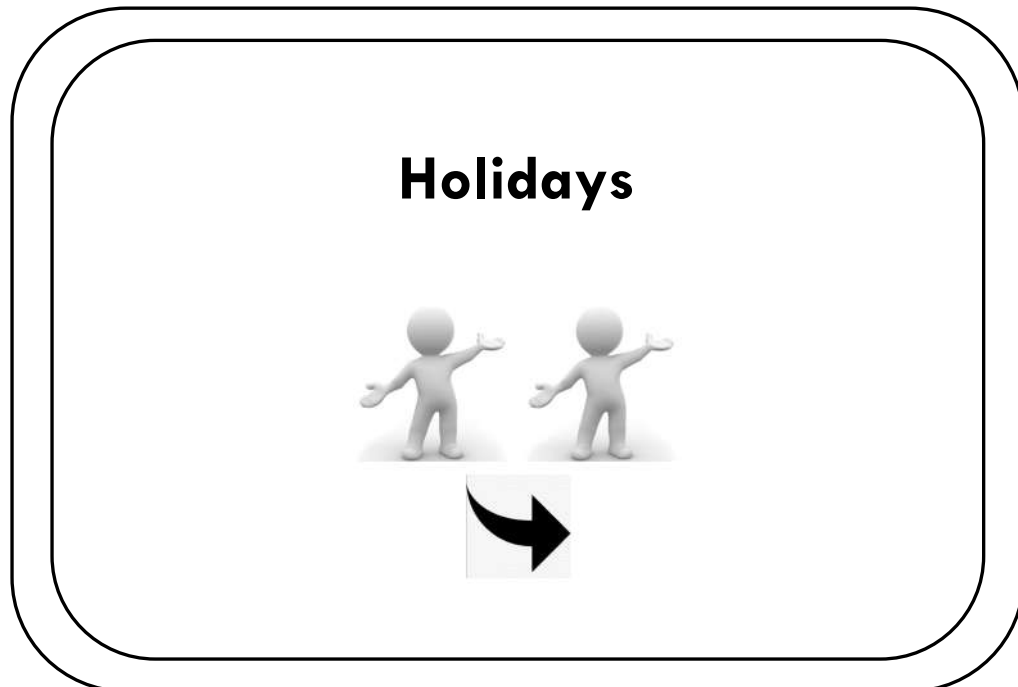
TD > 22q11DS higher experiential index

- **Global appreciation:** mark (from 1 to 5) given by the examiner and reflecting how well the narrative was imaginable

# FUTURE THINKING TASK

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social



## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives  
22q11DS > TD more categoric and extended narratives

TD > 22q11DS higher experiential index

TD > 22q11DS higher global appreciation

# FUTURE THINKING TASK

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social

**Holidays**



## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives  
22q11DS > TD more categoric and extended narratives

TD > 22q11DS higher experiential index

TD > 22q11DS higher global appreciation

TD > 22q11DS in social condition  
TD = 22q11DS in non social condition

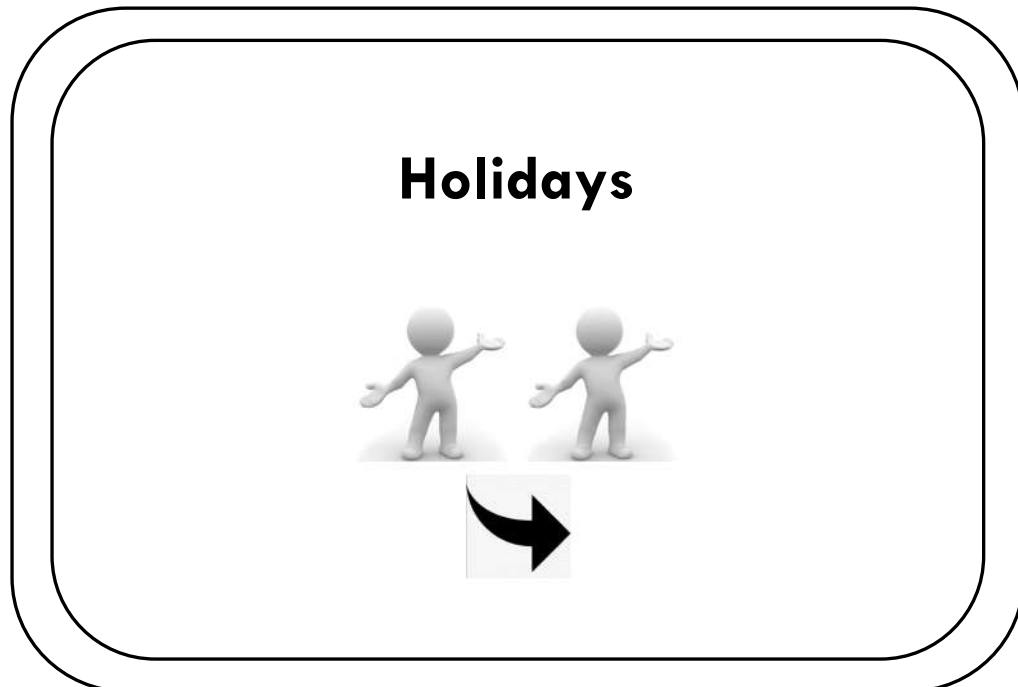
# FUTURE THINKING TASK

**TD**  
n = 25  
age = 18.46  
♀ 11 ♂ 14

**22q11DS**  
n = 21  
age = 18.67  
♀ 8 ♂ 13

## ❖ Future Thinking Task:

- **Words:** holidays, school/work, home, week-end
- **Conditions:** past/future, social/non social



## ❖ Scoring & hypotheses:

TD > 22q11DS more specific narratives  
22q11DS > TD more categoric and extended narratives

TD > 22q11DS higher experiential index

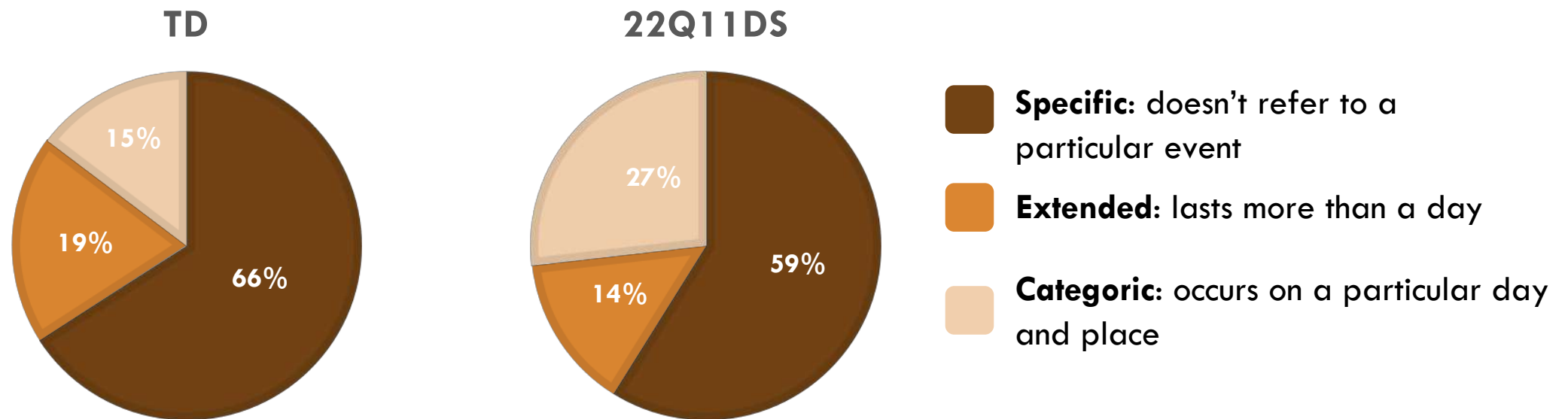
TD > 22q11DS higher global appreciation

TD > 22q11DS in social condition  
TD = 22q11DS in non social condition



# RESULTS: DISTRIBUTION OF NARRATIVES

❖ No statistical differences between the groups → 22q11DS participants tell as many specific narratives as TD peers → they can follow the instructions

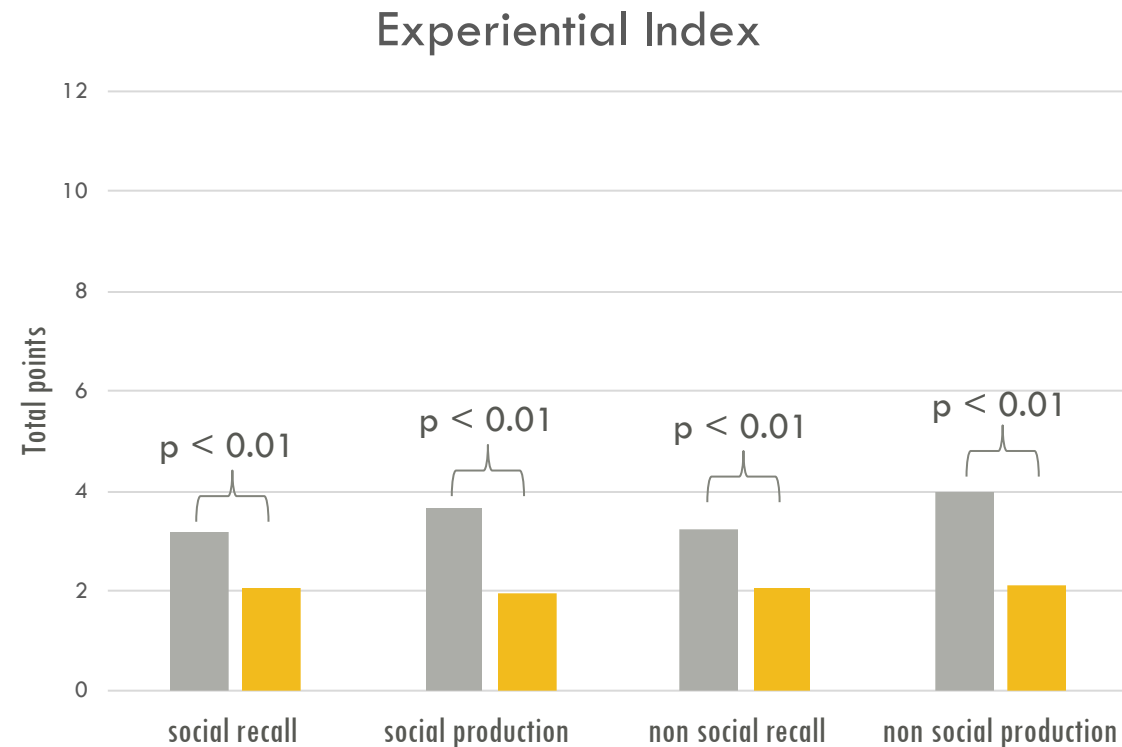


# RESULTS: EXPERIENTIAL INDEX



❖ **Significant differences between 22q11DS and TD in all conditions**  
→ 22q11DS participants provide less detailed narratives

❖ **Role of verbal initiation impairments but not of verbal general capacities** → correlation with the verbal fluency task but not with verbal IQ in 22q11DS

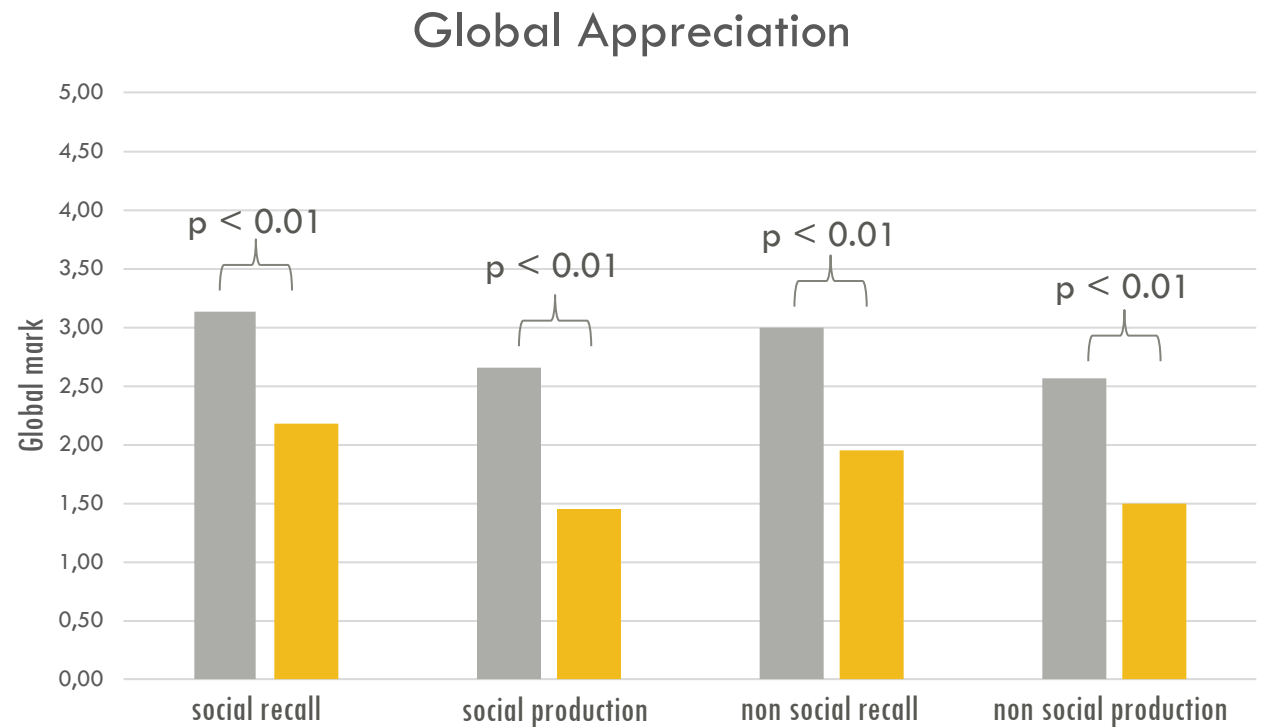


# RESULTS: GLOBAL APPRECIATION



❖ **Significant differences between 22q11DS and TD in all conditions**  
→ 22q11DS have difficulties to provide imaginable narratives, they often just repeat instructions

❖ **Role of verbal initiation impairments but not of verbal general capacities** → correlation with the verbal fluency task but not with verbal IQ in 22q11DS



# TAKE HOME MESSAGES



- ❖ 22q11DS seem to be **impaired in the ability to project themselves in the future**
  - 22q11DS provide less detailed and less imaginable narratives than TD
- ❖ This was true in **social and non social contexts**
  - 22q11DS have greater difficulties than TD to project themselves in both social and non social contexts
- ❖ 22q11DS experience **less anticipatory pleasure\* than TD**
  - No association found with future thinking capacities
  - It seems to depend more of the **verbal initiation impairments**

\* no correlation with ACIPS questionnaire



connect **22.ch**



GÉNÉRATION22  
VIVRE AVEC LA MICRODÉLÉTION 22Q11.2



**22q11**  
IRELAND

Relais   
Syndrome de microdéletion 22q11.2



Thank you for your attention !



 UNIVERSITÉ  
DE GENÈVE

**FNSNF**

FONDS NATIONAL SUISSE  
SCHWEIZERISCHER NATIONALFONDS  
FONDO NAZIONALE SVIZZERO  
SWISS NATIONAL SCIENCE FOUNDATION



For more information:  
[Clemence.Feller@unige.ch](mailto:Clemence.Feller@unige.ch)