

SUBSTANTIVENESS IN EXPLANATIONS

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Introduction

Explanations constitute an interesting case to investigate how conversational partners contribute to their content [1]. Little is known about the joint co-construction [2] of an explanation. Nevertheless, the active involvement of both participants contributes considerably to deep learning effects [3]. Research from human-human interactions, following an interactive approach, has emphasized that not only explainers (EX), but also explainees (EE) contribute to successful interactions [4].

Research Question

Tutoring research found that the active and substantive involvement of both participants contributed considerably to deep learning effects [5]. Therefore, to tackle the research gap of how an EE can be involved in an explanation, we examine and explore the concept of substantiveness, taken from tutoring literature, in the context of explanations.

Our question is what type of speaker moves can an EE use to jointly co-construct the explanation.

Method

Participants 64 game explanation dyads, total of 128 participants, from the ADEX corpus, were considered. This included 122 L1 and 5 L2 German speakers (mean age: 25 years).

Procedure

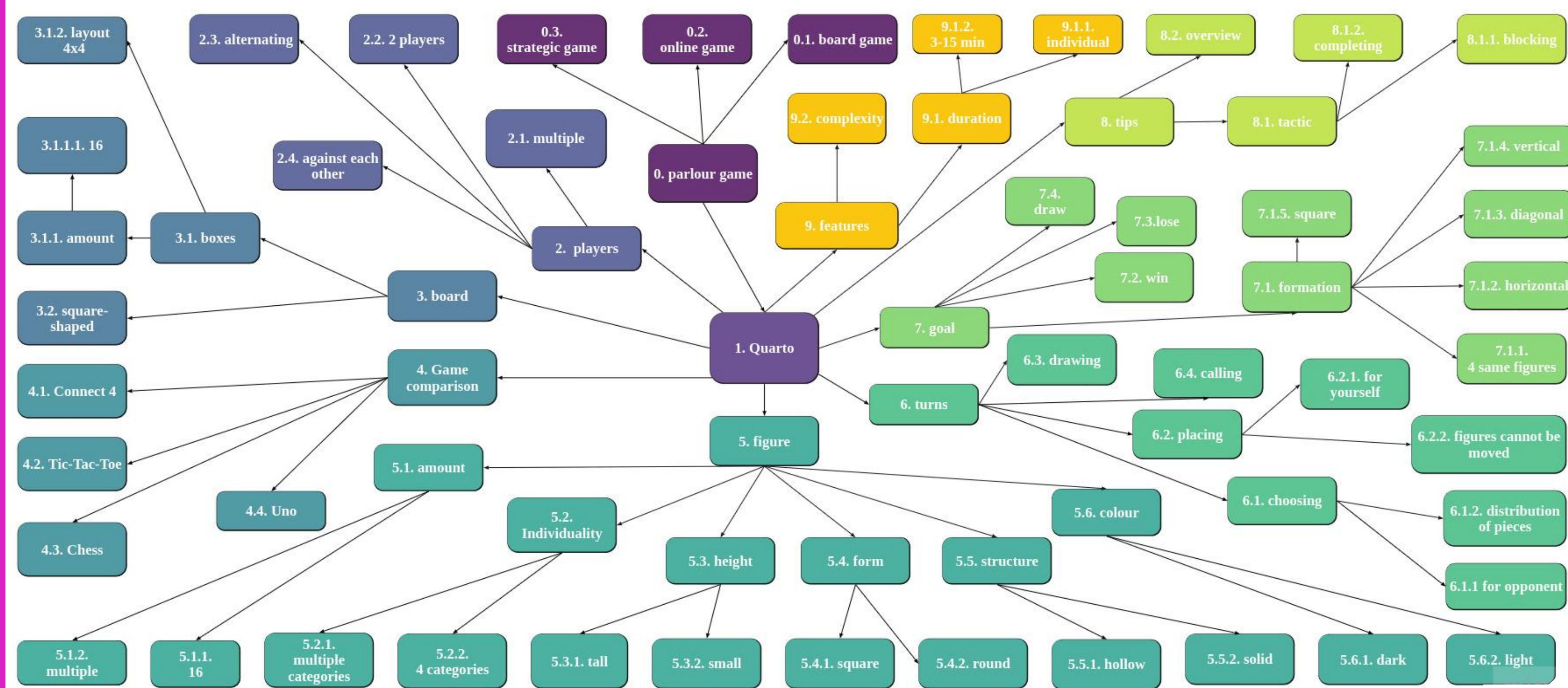


Figure 1: Study design of ADEX corpus

EX provided the EE with information about the game Quarto. The occurrence and type of EEs' speaker moves in Phase 2 were coded and explored (see "Coding Schema of Explanation Nodes").

Coding Schema of Explanation Nodes

The explanation nodes [6] were coded and transcribed using ELAN [7]. The schema was adapted by a data driven and iterative process from scientific explanations [5,8]. They are assigned to each utterance to support the speaker move (content level) analysis. Speaker moves include a single idea by a speaker [5].



Substantiveness

How to capture substantiveness?

Differentiation between substantive and non-substantive contributions.

Substantive: a meaningful utterance to an ongoing activity [9].

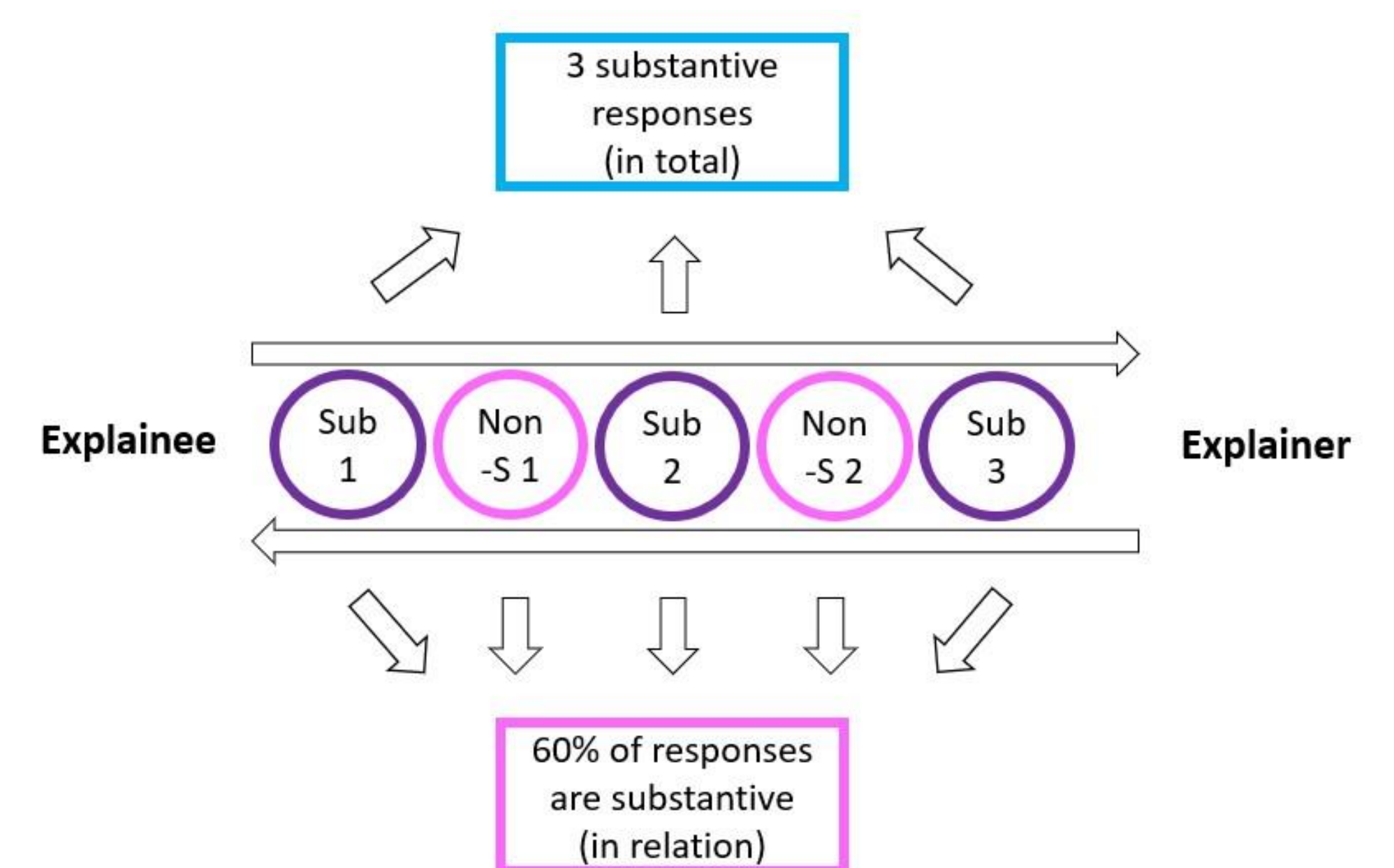
Non-substantive: continuer, repetitions, agreement, off-task remarks by tutee [9].

How to extend the concept to explanations?

Via speaker move analysis which is supported by the explanation nodes. Each utterance is assigned a node and a speaker move which is then classified as being substantive or non-substantive.

How to measure substantiveness?

Either total number or relative number of substantive moves by EE.



Substantive speaker moves:

The categories are mainly based on [10] with some adjustments*.

- Label, factual and personal* questions
- Providing info and additional info
- Example
- Mentalising*
- Paraphrasing and summarising

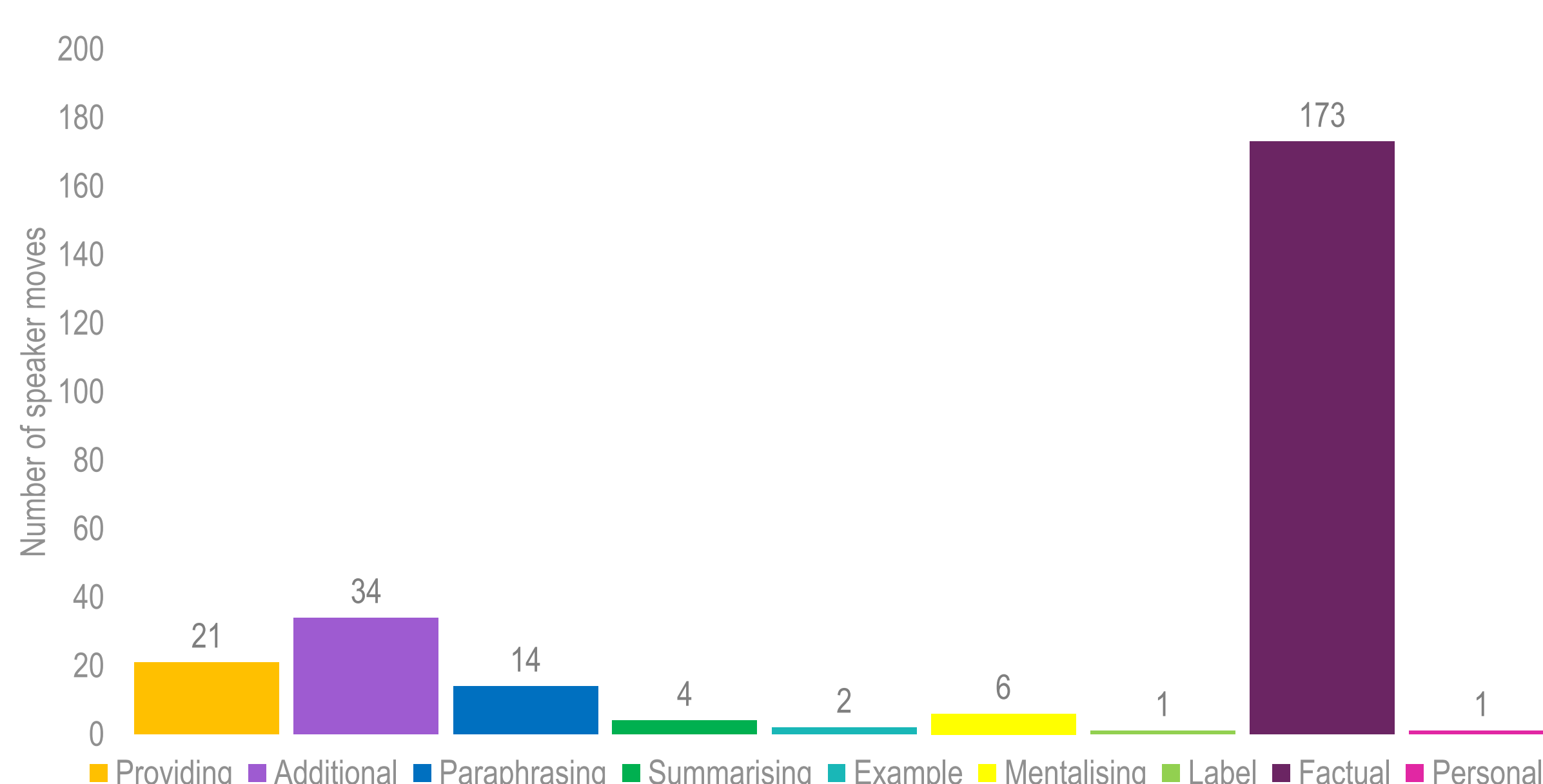
Results

Node initiation and explanation node uptake by EX from EE

EEs initiated 4.1 new nodes (min. 0, max. 10, $SD = 2.5$). A total of 256 explanation nodes were introduced by EE. 83% of these were taken up by EX, directly 189 times (74%), indirectly 24 times (9%) and no uptake 43 times (17%).

Substantive node initiation moves

Only substantive speaker moves were used for a new node initiation by the EE.



Frequently used speaker moves for node initiation by EE

- Factual questions 173 (68%)
- Additional info 34 (13%)
- Providing info 21 (8%)

Discussion

We found that the EE actively takes part in an explanation [11]. Thereby, the explanation depends to a degree on both conversational partners [6]. The explanation node uptake by EX of introduced EE explanation nodes indicates that an explanation is a joint activity [2] in which the content is co-constructed [1]. The EE not only elicits further information by question asking, but also provides information themselves. This highlights that the EE also possesses game knowledge and contributes this to the explanation. All new node initiation moves are substantive. Therefore, the link between substantiveness and explanation nodes becomes visible.

Critically to see is that backchannels were not considered in the coding, which might also contribute to the explanation process [6].

Future work needs to clarify how to measure substantiveness of the EEs speaker moves. Additionally, not only the node initiation speaker moves of the EE need to be taken into account, but also their other speaker moves. It can be assumed that the EEs show a diverse set of speaker moves in their verbal behaviour [11].

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