Good answers, better questions. Building an annotation scheme for financial dialogues.

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Abstract

Manual annotation of texts represents an initial and fundamental step towards argumentation mining goals. In this paper, we present an annotation scheme (and its related annotation manual, see Appendix 1) for the annotation of dialogue moves in the financial genre of earnings conference calls (ECCs). This scheme, developed on the basis of previous studies – both specific to financial communication and more general about dialogical structures in other genres (namely, journalistic interviews and political debates) – is meant to drive the recognition and analysis of argumentative patterns (APs). The scheme has been implemented in the INCEpTION annotation platform and subsequently employed by annotators trained with the annotation manual, testing its validity.

1 Introduction

The annotation scheme we present here has been developed within the context of a project [1] devoted to a large corpus study of argumentative patterns in the Q&A sessions of earnings conference calls (ECCs) of listed companies. Final aim of the project is to investigate the effects argumentation in ECCs has on the financial market through an argumentation mining approach, the application of which is devoted to discovering and analyzing relevant argumentative patterns.

ECCs are a highly conventionalized activity type, akin to press conferences, in which companies' managers present quarterly result and answer financial analysts' questions. Analysts' local goal is to gain valuable information for the delivery of a recommendation report for investors, and they pursue this goal through the questions they pose; instead, mangers' aim is to portray positively the company's results. It has been shown that the Q&A session is the most informative part of the ECC (Matsumoto et al., 2011) and that the information is not represented by additional data but by the arguments given by managers (Palmieri et al., 2015). Argumentation in ECCs is therefore clearly crucial and can be understood as a fundamental factor having an effect on the market.

Argumentative patterns (APs) are argumentative sets of moves that respond to the constraints, rules, and goals of the activity type. Thus, APs are at once significant target of the mining and argumentative units that can correlate with financial data. Therefore, their investigation in ECCs can give meaningful insights on both the argumentative internal structure of questions and answers, and on the impact on the market. In order to identify significant APs, that can be either *inter-* or *intra*-moves, it is foremost necessary to annotate moves in the text and thus to elaborate an annotation scheme capable of capturing properly their relevant characteristics. Since we are currently focusing on intra-moves patterns and, in particular, those observable among questions, the annotation scheme we will be discussing in the following is predominantly about questions and their features.

2 Theoretical background and Framework

Our annotation scheme constitutes a development of the one elaborated by Palmieri et al. (2015). In the original contribution, they distinguished between four "basic types of moves": *Question*; question's *Preface*; *Reply* and *Drawing a conclusion from an answer*. Trying to assess the

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[1] Mining argumentative patterns in context. A large scale corpus study of Earnings Conference Calls of listed companies

antagonistic role of the analysts, they classified questions according to their "intended effect", that is to say, the type of speech act the analyst requests. For replies, their scheme envisages the distinction between *answers* and *non-answers*, as well as the presence of an *opinion* and of a *justification*.

We revised the scheme, refining the taxonomy of moves and enriching the features for questions. To that end, we took a cue from the literature on questions in different contexts, starting from Clayman and Heritage's studies on questioning in political interviews (Clayman and Heritage, 2002; Heritage, 2003; Clayman and Fox, 2017). Particularly, the reshaping of categories started from their contribution in analyzing questions and observing certain characteristics that, in their view, serve as indicators for the assessment of the *adversarialness* degree of a question.

Previous studies on questions such as Pomerantz (1988) and Heritage (2002) also addressed the topic of "answer-shaping"; however, their approach and conclusions are different. The former focuses on polar questions that incorporate a *candidate answer*, proposing that a speaker can orient the addressee toward the "right" answer in the way they formulate their question. The latter rather proposes an account of negative questions, highlighting their assertive force and the fact that "'negative' question formulation is a very strong way for an interviewer to project an expected answer".

The answer-shaping dynamic appears then to be linked with the presence of an assertion or, at least, a pseudo-assertive content such as a candidate answer in a polar question. Inference Anchoring Theory (IAT) scholars (Budzynska et al., 2014; Hautli-Janisz et al., 2022) investigate this dimension, differentiating between *pure questioning*, i.e., information-seeking questions, *rhetorical questioning*, i.e., questions used to make assertions not intended to receive an answer, and *assertive questioning*. The latter, not treated in the previous literature, "fall between the categories of purely information-seeking and purely rhetorical" (Hautli-Janisz et al., 2022). Along this line, we introduced the feature *presumption*, in order to signal whether an analyst tries to shape the answer by presenting a possible

answer. Furthermore, we distinguished between the candidate answer(s) being *asserted* or *proposed*, to highlight the difference between assertive questions that, presumably, just ask for a confirmation, and questions that propose a possible answer though not asserting it. [2] An example of the former is an assertion followed by a tag-question, whereas the clearest case of the latter is the *closed-list* type of question.

3 Annotation scheme

3.1 Procedural steps

In the current section we propose a three-layer annotation scheme for ECCs.

The scheme proposed in Palmieri et al. (2015) served as a starting point for the first two layers – namely dialogue moves and types of requests – since it was specifically designed to capture the discourse moves of ECCs. We revised it, refining the features on grounds of both the literature discussed in Section 2 and empirical observations of data. In fact, we first applied the scheme to a small sample of calls to evaluate the level of detail, the difficulty encountered in the selection of values, and the relevance of the features. In particular, in this step we refined the taxonomy of request types.

Next, two annotators used a preliminary draft of a revised scheme, resulting from the previous step, to annotate a small corpus and thus assessing the usability and comprehensibility of the scheme so far. We then made some further adaptations; these included the separation of the request type layer from the dialogue moves layer – given that the former was the most difficult for annotators – and the redefinition of the annotation span; we will talk more at length about this process in Section 4.2.

3.2 Scheme description

The first layer (Figure 1) is devoted to the description of the moves. We distinguish between five types of moves: *Preface*, *Discourse regulator*, *Varia*, and *Question*.

Prefaces are assertive statements that can either precede, follow, or be contained in a question, which report some kind of information related to the question. *Discourse regulators* are

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[2] This feature is annotated only in specific cases, by *ad hoc* trained annotators; for this reason, it's not presented in the Manual.

expressions related to the dialogue, sort of meta-discursive statements, and can contain indications about whom a question is addressed to or about who is going to answer, indications of turn change, indications of the question theme. *Varia* are incomplete and not understandable sentences, fillers, and interjections if stand-alone. *Questions* are requests performed by analysts addressed to corporate representatives to which managers react.
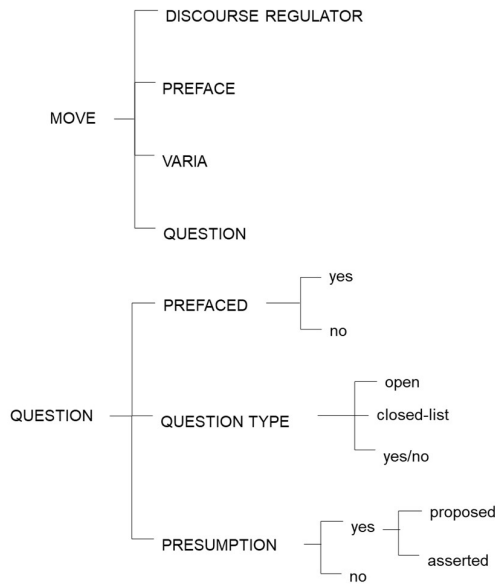

Figure 1

In this layer we annotate three independent features of *Questions*. The first indicates the presence of a *preface* that refers to the current
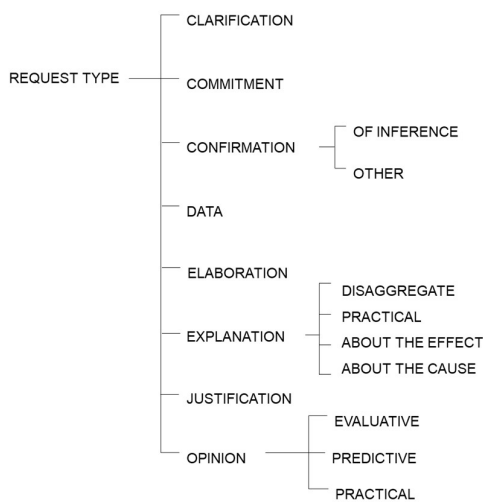

Figure 2

question. The second is the *question type*; we distinguish between *open*, *closed-list* and *yes/no* questions. Indirect questions formulated as yes/no but seeking for an elaborative open answer (e.g., *Can you please talk about…?*) are considered open questions. Finally, the third feature is the *presumption*, presented earlier. It refers to the presence of a hint to a particular expected answer.

Figure 2 shows the structure of the second layer, unfolding a taxonomy of *request types.* We identified eight main types and nine subtypes; request for *clarification*, *confirmation*, *elaboration*, *justification* and *opinion* were already present in Palmieri et al. (2015), while we added requests for *commitment*, *data* and *explanation*. Each type is presented in detail in the Request type Layer section of the Annotation Manual.
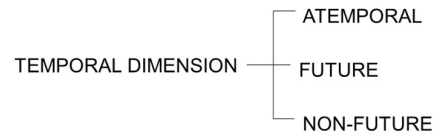

Figure 3

For *explanations* only, we also added the feature *Temporal dimension* (Fig. 3). Values are *atemporal*, in the case the explanation refers to a cause-effect relationship that does not have temporal constraints or, at least, is not presented as such; *future*, when the explanation refers to some actions/events that have not started yet; and *non-future,* when the explanation refers to some actions/events that have at least started in the past or in the present.

The third layer represents an entirely novel concept and has a clearer pragmatic function. Due to the peculiar nature of the dialogical exchanges in these Q&A sessions, questioners tend to both formulate requests in a very rich manner (typically, reformulating and rephrasing the same concept more than once), giving rise to *superquestions*; they subsequently line up more than one superquestion within one question turn. These agglomerate questions are called Maximal Interrogative Units (MIUs). Each reply (which can either be an entire answer turn, or a portion of it) that refer to a MIU is called a Maximal Answering Unit (MAU) (D'Agostino et al., 2023). The third layer of annotation is, therefore, called MIU-MAU layer, and both identifies such units and links them in a reply-to-question way.

4 Annotation

For manual annotation, the scheme presented in Section 3 was implemented in INCEpTION (Klie et al., 2018). The INCEpTION platform is a general-purpose instrument for linear linguistic annotation developed at the Technical University of Darmstadt. Its main merits, in comparison to other platforms freely available for similar purposes and because of which it was our tool of choice, lie both at the level of constant update – since it is a project still currently in progress – and with respect to its potential, offering the users a considerable number of promising functionalities, especially oriented towards the automatization of processes.

4.1 Implementation in INCEpTION

All three layers described above were implemented in INCEpTION, each with the proper features and the corresponding tag sets.

The first layer, *Dialogue Moves*, present four string features, each corresponding to the features of the scheme: 0. *Move*; only for Questions, also 1Q. *Prefaced*, 2Q. *Question Type*, and 3Q. *Presumption* (the latter is an optional feature, enabled for certain documents only). The permitted values for each feature are stored in the pertinent tag set.

The second layer, *Request Type Typology*, provides two string features. 1RT. *Request Types* and 1RTa. *Request Subtypes* precisely correspond to the scheme typology. The feature 1RTa1. *Temporal Dimension* is permitted for explanation only.

In Figure 4 a small illustration of how an annotated call looks like, with respect to the first two layers.
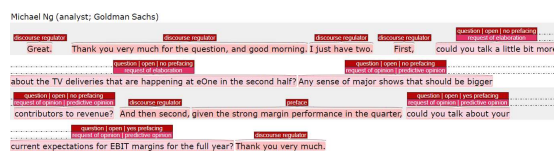

Figure 1

The third layer appears simpler than the previous two; it displays one dummy feature only, which can take two mutually exclusive values (namely, MIU or MAU). The strength of it lies on the connection between each MIU and all its related MAUs.

4.2 Annotation and revision process

Two annotators were minimally trained and provided with the Annotation manual. They have been assigned individually each call of a small corpus consisting of eight calls, annotating them separately. We measured the inter-annotator agreement (IAA) to evaluate both the scheme robustness and the accuracy of implementation in the platform. For the first two layers, we computed IAA using the measure of Cohen's kappa (Cohen, 1960), which was moderate to substantial for any annotated call.

We observed that IAA was higher for the features of Layer 1, uncovering the classification of requests as being the most difficult side of the annotation process and therefore leading to the above discussed splitting of the two layers, that were originally merged into one.

Moreover, a critical difference between the annotators consisted in the selection of the annotation span. Particularly, they differed in those in cases where a move was comprised into one another. Thus, we defined *Prefaces*, *Discourse Regulators* and *Varia* as *"second order"* moves, and instead *Questions* and *Replies* as *"first order"* moves, allowing overlapping when a second order move is comprised within the first sentence of a first order move (e.g., a preface is comprised into a question's formulation).

Inter-annotator agreement for the third layer was calculated in terms of Krippendorff's alpha (Krippendorff, 1995; Krippendorff et al., 2016) to the unitizing of the textual continuum and resulted in a median value of $_U\alpha = .933$ across documents.

5 Conclusions and future developments

We presented an annotation scheme for manually annotating dialogue moves in ECCs. This process represents the first stage of a larger study aimed at retrieving and analyzing APs to investigate the role of argumentation in such calls and its impact on the financial market.

The scheme was elaborated starting from a previous one, then further developed and refined in a multi-steps process based on both the existing literature and on the empirical testing of it.

The annotation process showed that the scheme, as well as its implementation in INCEpTION, work satisfyingly enough. From a

practical point of view, with the last revisions described in Section 4.2 we saw an improvement of the annotation performance, arguably reflecting an enhanced efficacy of the scheme and the related annotation manual, which the annotators are always invited to have at hand both to solve their doubts and to trace possible shortcomings of it.

Annotators, however, although displaying good levels of IAA, still reported encountering difficulties, especially in the act of recognizing request types – due to a persisting certain ambiguity among the categories. Therefore, we must revise and refine the definition of certain features; in particular, we need to deepen and elaborate more on request types, clarifying some that remain problematical if not questionable.

In addition, the *presumption* feature seems not to be relevant enough for the observation of APs to justify the effort at its large-scale annotation.

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Appendix A. ANNOTATION MANUAL

Contents

Disclaimer:

Presented features will be followed by relevant examples in italic. Each example is preceded by an arrow. Different annotation values within the same example are bracketed (square brackets for layers Dialogue Moves and Request Type, curly brackets for the MIU-MAU layer) and the corresponding value signaled in subscript. If there is no such delimitation, it means that the whole example represents a type, which is clearly indicated in the relative heading.

Along the present manual, the following heading conventions will be adopted to signal the beginning of a different section:

1. **LAYER**
2. **Feature**

   Feature value

   Relevant subtopics & how to tackle tricky scenarios

"N.B." sections will identify good practices, frequently indicating what should **not** be done.

Words or sections of text formatted like `this` will identify cross-referring hyperlinks (within the same document).

INCEpTION sections will display rules or good practices of annotation, specifically related to its implementation on INCEpTION platform.

DIALOGUE MOVES LAYER

In this layer **all text** should be annotated. This also relates to punctuation.

The focus of the layer is on Questions.

The span length is not predetermined, ranging from a fragment of a sentence section (sub-clausal unit) to an entire turn.

INCEpTION   Some features are mandatory (they will appear in any annotation); some are constrained from previous choices. Each relevant feature (syntagmatic choice) will appear once the previous one is annotated.

- **0. Move**

This feature allows the choice of the type of discourse move among those proposed (`Discourse Regulator`, `Preface`, `Question`, `Varia`).

Adjacent annotations

Whenever possible, overlays should be avoided: if different moves are sequential, also the annotations should be such (and not overlap)!

→ *[And I was also wondering as an add-on,]$_{discourse\ regulator}$ [in which legal entity did you actually incur this loss, please?]$_{question}$*

COMMENT: This is true also in the case one of the two moves, or both, are not syntactically independent.

→ *[The first one's on listings count.]$_{discourse\ regulator}$ [So you said you have similar levels to last quarter around 5.6 million. But with this hosting campaign that you guys are running,]$_{preface}$ [is there like a timeline that we should expect to drive that number up?]$_{question}$*

COMMENT: Here we have a sequence of a Discourse Regulator, followed by a preface, followed by a Question.

→ *(...) [just curious if there's any changes or anything different to call out now]$_{question}$ [just given obviously, a lot more discipline in the business and a very different degree of profitability versus a couple of years ago.]$_{preface}$*

COMMENT: In this case the Question and the Preface are independent from each other and should therefore be annotated separately.

Overlapping annotations

Discourse Regulators, Prefaces and Varia ("second order" moves) might however be comprised within the conceptual development of a Question ("first order" move); in this case the annotation process must unfold in the following order:

(a) First annotating the whole Question as such i.e., highlighting the text span and annotating it with respect to the features that will be described below

(b) Then, **on the same layer**, highlighting the Discourse Regulator(s) (Preface(s), Varia) previously included in the Question, stacking the annotations.

N.B. to be "comprised within the conceptual development" means an encapsulation at the syntactic or prosodic (indicated, for instance, by punctuation) level. Following some examples of encapsulation of Prefaces within the related Question.

→ *[So can you just explain to me [with the fact that you're only doing B shares, and I think this is the second largest B share purchase in any one quarter,]$_{preface}$ how you are going to get the share buyback program done?]$_{question}$*

COMMENT: The case above represents an encapsulation at the syntactic level (see below in detail the relationship between Preface and Question).

- → *(...) [could you give us an update on cancellation rate trends this year compared to 2019 [with I think the average listing being a little bit more flexible than it was in the past]$_{preface}$?]$_{question}$*

COMMENT: This is an encapsulation of the preface at the prosodic level: the question's Preface is apparently *after* the Question, but the question mark is postponed at the end of the Preface itself; this means that it was prosodically part of the Question and should therefore be annotated on top of the latter. Please note that the question mark should be annotated once only – being structurally part of the Question, and not of the Preface (see below in detail the relationship between Preface and Question).

The pipeline just described holds true until it doesn't contrast with some other following grouping rules (see further for grouping rules for Discourse Regulators (below) and Prefaces (below))

Discourse Regulator

Chunks of text which may contain (following a list of categories Discourse Regulators may be ascribed to; between brackets the sequences that do not pertain to the category under observation yet are still Discourse Regulators – of another type):

- Indications about to whom a question is addressed

  - → *A question for both of you, please.*

  - → *The first one, Jessica (...).*

- Indications about who is going to answer a question

  - → *Dave, do you want to take supply and demand?*

  - → *I'll start with the first and then hand over to Wael.*

- Indications about how the answer is going to be structured

  - → *I think I definitely have to take the Iran question.*

  - → *But let me also say a few things about Nigeria, which I'm very, very close to.*

- Indications of turn change (even when in the form of a question)

  - → *Ben?*

  - → *Jessica, what did I miss?*

-     → *Cecilia, who's next?*
- Indications of theme (setting)
  -     → *(I have a couple of questions) on investments and spending.*
  -     → *(The first is just) on integrated gas.*
- Enumeration
  -     → *Just had two questions.*
  - → *I have two questions.*
- Counting of questions
  -     → *First, on your sales and marketing, (…)?*
  -     → *And then, the second question (on the nonfood categories.)*

N.B. it should **not** be labeled as Discourse Regulator the counting of something else such as, for instance, examples, points or arguments in a Preface
→ *[One, quite a significant shift of capital over medium term to wealth. And two, of course, '21 being also that kind of transition year where you've seen quite a lot of deleveraging.]*_{preface}

- Greetings
  -     → *Hi.*
  -     → *Good morning, guys.*
- Acknowledgements
  -     → *Great. Thanks so much for taking my question.*
- Agreement markers
  → *Got it.*
  → *Understood.*
  → *Yes.*
  → *Right.*
  → *Makes sense.*
- Comments about the quality of a move
  -     → ***Hopefully, that's helpful.***
  -     → ***I think I answered both.***
  -     → *That's super helpful.*
  -     → *Correct me if need be.*
- Comments about some external events (e.g., congratulations on some personal achievement, appreciation of some event, condolences, statement of state of affairs…)
  → *(…) nice to see the progress on listings growth.*
  → *I'm really helped by all the new data this morning.*
  → *And congratulations on the change to distribution. I think that's a very important signal around the performance we've seen over the last few quarters.*
  → *You know, over here, we ask one, and we wait for you to answer and ask another.*

N.B.1 **do not** mark as Discourse Regulators the various "you know" or "so" at the beginning or in the middle of annotations of other kind, as they would add no real value; the same applies to the occasional "please" at the beginning or end of a sentence that, apart from this, would be annotated as another type. Similarly, the annotation of comments such as "usual question" or "this won't sound new to you" within another turn can be overlooked.

N.B.2 Discourse Regulators either are (a) the length of a sentence (i.e., the criterion for split is strong punctuation), or (b) a portion of a sentence (clause). The latter case means that the syntactic development of the sentence is shared between the discourse regulator and a preface and/or a question. In any case, a discourse regulator **cannot** be longer than a sentence.

N.B.3 sequences of different types of discourse regulators within the same sentence must **not** be split. i.e., such discourse regulators must be grouped together into one annotation.

- → *[Hi, thanks for taking my questions.]*_{discourse regulator} *[Two, please.]* _{discourse regulator} *[The first one, well on the upstream restructuring,]*_{discourse regulator} *[is there a timetable for completing the restructuring and starting to implement the lean operating model?]*_{question}

COMMENT: The first annotation formally contains two Discourse Regulators (greeting + acknowledgment) but, since they pertain to the same sentence, they are annotated together regardless. The third Discourse Regulator contains both counting and theme, and again the two are not separated because they pertain to the same sentence; however, the Discourse Regulator annotation doesn't cover the entire sentence because it is followed by a Question annotation (therefore, there's a split after the comma).

- → *[That's the first question.]*_{discourse regulator} *[Second question on the prime services review and the CHF35 billion leverage exposure reduction.]*_{discourse regulator}

COMMENT: There are two Discourse Regulator annotations because the sentences are two, independently from how many types are represented (in the present case, three: counting in the first annotation, counting + theme in the second annotation).

N.B.4 conversely, although sentences in sequence might consist of Discourse Regulators of the same type, do **not** group them together: each sentence is a different annotation.

→ *[Thanks.]*_{discourse regulator} *[Two questions.]* _{discourse regulator} *[First,]* _{discourse regulator} *[you're recognizing better growth in the second quarter guide on that kind of normalized basis excluding the better together discounts?]* _{question}

COMMENT: Discourse Regulators two and three are both of type counting but, pertaining to different sentences, they are annotated separately.

N.B.5 the only **exception to N.B.4** is represented by a sequence of the exact same word or a concept phrased in an extremely similar way.

→ *[Great. Great.]*_{discourse regulator}

→ *[Thanks very much. Thank you.]*_{discourse regulator}

→ *[Right. Right.]*_{discourse regulator}

Preface

Chunks of text associated with Questions only, which help contextualizing and better understanding the Question they refer to. They can be located either before, after or inside the Question itself. Be aware that Prefaces must be considered as such only when the Question is structurally independent from it – it has meaning in itself (once possible anaphoras are resolved). They may contain:

- Introduction or reprise of data, including reported speech

  - → *[I wanted to ask about DashPass,]*_{discourse regulator} *[you talked about the 9 million plus members.]*_{preface}

  - → *[First of all,]*_{discourse regulator} *[I know these days, we talk about many other things, but oil is still such an important part of the business. And it's notable that the production,*

specifically of oil, so not on a BOE basis, but specifically oil, is still down even relative to 2Q last year. And this is actually something that is also quite visible in many of your peers.]preface

- Introduction of a third-party opinion, including reported speech

  - → *About a month ago or so, there were some headlines suggesting that that might be in the cards, and I think there's been some Reuters, Bloomberg coverage saying that a number of banks have been sort of tapped, so to say.*

- Unfolding of a prediction / evaluation / interpretation or a comment of the analyst

  - → *[What I'm trying to get is a measure, a metric, or an acknowledgment that some of the achievement of that 65 is within your own control and how incentivized you are to hit that number?]question [Because fairly clearly, I think it would add value to the business if you were in the market buying back stock.]preface*

  - → *I think Shell is operating three rigs or so as far as I can see.*

N.B. All parts of a preface, if adjacent, must be <u>grouped together</u> into one annotation (even if they pertain to different sentences) but **only in the case they can be ascribed to the same question(s)**.

→ *[Film and entertainment, since you have two movies coming globally, and then you also have My Little Pony going to Netflix, and then I assume production deliveries are ramping, I imagine the film and TV segment should be up nicely on a year-over-year basis. But when I look at the family brands line, first and second quarters were down year over year and still well below 2019 levels.]preface [Is that -- is that reflecting animated program deliverables?]question*

→ *[Is it already been implemented?]question [I wasn't quite clear on whether it's yet to come or if it's happening already.]preface [And I think you mentioned the $7 unit cost target.]preface [Why $7?]question*
COMMENT: The Prefaces are split into two annotations because the first refers to the preceding Question only, whereas the second refers to the following one – so there would have been no use for grouping them together.

How to correctly annotate Discourse Regulator + Preface

→ *[I guess, first off, Brian,]discourse regulator [you recently posted on Twitter the most popular requests for new functionality or services on the platform for this year. I think crypto payments might have been a tough request.]preface*

→ *[Firstly,]discourse regulator [just to clarify on capital and FINMA enforcement actions. They talk about capital surcharges in their press release today.]preface*

→ *[And then the second question I had is]discourse regulator [just around some news articles we saw that showed that you continue to work on technology to basically help onboard hotels.]preface*

→ *[The first is that]discourse regulator [the RWA reduction being bigger than expected, it's also actually bigger than what I thought the whole of the prime brokerage was in terms of RWAs.]preface*

Varia

Chunks of text which may contain:

- Incomplete sentences not elsewhere completed and the meaning of which is not understandable (in the case of sentences not fully grammatically correct but the propositional content - meaning - of which can be reconstructed rather precisely, they are not annotated as Varia)

  - → *[Let me –]varia [I think this is probably gonna be a double]discourse regulator*

  - → *[How do you –]varia [is Shell actually selling shares in this?]question*

- Fillers and interjections, if stand alone

Delivered in the form of a request; only performed by analysts.

A Question might contain its Preface (or some other Moves); in this case, follow the instructions provided above on "`Overlapping annotations`": annotate the whole Question first, and later overlay the Preface (or other Move) annotation on it.

Be aware that Questions are not necessarily defined by the presence / absence of a question mark; on the other hand, rhetorical questions, as well as indications of turn changes in question form, are not considered Questions.

How to correctly annotate Discourse Regulator + Question

→ *[And then if you are unsuccessful in claiming against insurance,]_{preface} [what would be your strategy then?]_{question} [Perhaps you might not be able to give an answer, but I guess my concern here is that you're having investors sitting on losses for several years now, and this is not good for your franchise, of course, it doesn't really give a great message here]_{preface}. [So just keen to see what your thinking is here.]_{discourse regulator}*

→ *[And is there any color you can provide on how important that is in terms of the economics of these transactions]_{question} [because ultimately something we just don't see. We just see the headline values.]_{preface} [So any color there would be appreciated.]_{discourse regulator}*

COMMENT: There are some cases in which it is not trivial to distinguish between an indirect question and a discourse regulator, especially at the end of a turn and in the form of a "restating" of a Question already uttered not long before. In the two examples just displayed, "potential questions" at the end of the turn are annotated as Discourse Regulators and have been interpreted as such because they aren't adding anything different from the full-fledged question right above: there's no additional information, no different interpretation, the type of Request would be the same (see `below`); in cases where the annotation of a potential Discourse Regulator as a Question would result in significant difference – in terms of at least one parameter of description of Questions – from the previous direct Question, then it's worth annotating it as a Question as well, as shown in the example below.

→ *[Is it work presuming on projects following the end of COVID restrictions?]_{question} [Any color there would be helpful.]_{question}*

COMMENT: Differently from the previous two examples, the final remark has been annotated as a Question because it represents a different Request type (see `below`), namely of elaboration, from the clearly stated preceding Question, namely a request for explanation.

→ *[And then secondly, on the cost walk into next year,]_{discourse regulator} [the 700 million investment, is that pure investment?]_{question}*

COMMENT: Don't overthink it. Analysts don't talk correctly or with an elegant prose most of the times. So, when a question sounds strangely formulated, try to reconstruct it before proceeding with the annotation. You might be tempted to annotate the segment "the 700 million investment" as part of the Discourse Regulator annotation, whereas if you reconstruct the correct syntactical form of the Question you'd discover that it is the (focalized) subject of the Question – therefore, should be part of the Question itself.

How to correctly annotate Preface + Question

→ *[So, do you want to lean more into marketing [when you talked about expenses [levering or not –]_{varia} leveraging or not leveraging in '22,]_{preface}]_{question} [should we expect sales and marketing to show some deleverage [as you kind of lean more into those marketing plans]_{preface} ?]_{question}*

COMMENT: This is a complex case: two Questions are expressed in the same sentence. The second Preface we already know should be incapsulated because it is prosodically dependent from the

Question. In this case, we incapsulate (i.e., overlap the annotation of) the first Preface too because it refers to the first Question only.

→ *[So I'm just curious, [as we look over the next couple of years, some of that curtailment comes back,]*preface *but what else is going on, you know, behind the scenes?]*question

→ *[And I guess if you were having to buy cargoes, does that mean in the fourth quarter, [given that it looks like spot price is going to average even higher than third quarter,]*preface *[are there --]*varia *that's even going to be more of a headwind?]*question

COMMENT: These two are cases where the Preface is enclosed within its Question.

→ *[Listening what we're hearing today and having a strategic update in December potentially, [I'm not exactly clear what the update is about]*question *because on the one hand, it sounds like you have derisked, you're happy with the derisking, and now it's more seasonal adjustment to revenues and business.]*preface

COMMENT: There might be some rare cases where the Question is incapsulated within its Preface – this typically happens when the Question is indirect.

Question annotations then have a more refined description in the same Layer; namely, two additional features:

- **1Q. Prefaced** *(only for Questions)*

Whether a Question has a Preface ("yes prefacing") or not ("no prefacing").

- **2Q. Question Type** *(only for Questions)*

Structure of the Question, hinting at the preferred structure of an Answer.

Open

No preferred answer; discursive answer expected.

→ *Could you just articulate the pathway of what you need to do now to achieve the full vision of that goal?*

→ *I wanted to ask a little bit more on the early on Zillow 2.0 and the launching of Zillow 360.*

→ *Can you just give us any details, I guess, on how some of those investments are being allocated here in the second half of the year?*

Closed-list

The speaker offers a range of possible answers to the Question.

→ *Is that a fair characterization? Or was there just something in the quarter that meant that this is probably the level that we should be looking at going forward?*

→ *I was wondering, would you use a similar framework this time around with the $65 billion of net debt in mind? Or would you want to actually reach it before you would start the buyback?*

→ *Is that something that Shell is driving? Or is it just your JV partner, Cosan, who's sort of driving this?*

→ *So as you put the targets out today, does that have any implications for your ability to grow that business? Or does that imply a shift from equity volumes to be an off-taker? Or are there any other constraints around that?*

The "options" of the list could formally pertain to different syntactic units (i.e., different sentences); however, they need to be grouped together. See here above for examples.

In the case the options have different illocutionary force (i.e., are a different type of Request, see below), they need to be split because the request type has precedence over the question

type. Therefore, instead of one closed-list question, the occurrence will be annotated as a sequence of two questions, each with its form (either open or yes/no) and its request type.

Yes/No

The speaker expects the interlocutor to confirm or disconfirm the content of the utterance.
→ *I just wanted to understand, is that just unfortunate?*
→ *Is there increased competition?*
→ *Are your competitors getting smarter?*
→ *Is there a structural issue starting to emerge in that business because it has been a differentiating business for you for quite some time?*

N.B. sometimes a question formally uttered in yes/no form is, in reality, open. This is the case of **indirect questions**, such as the ones following.

→ *Could you give us an update on cancellation rate trends this year compared to 2019 with I think the average listing being a little bit more flexible than it was in the past?*
 → *I was curious if you could just talk a little bit about Europe in more detail.*
→ *Just wondering if you can now provide some insights on that.*
→ *Any way to characterize the new hosts who are coming online, maybe the level of professionalism -- professionalization, maybe is a better word -- versus the rest of your base?*
→ *Is there any color you can provide?*
→ *Any update and views on how large a channel these longer stays could attract over time?*
→ *Can you give us a sense of the booking trends in the fourth quarter, quarter to date?*
→ *Are you willing to disclose what kind of the year-over-year decline was exiting April?*
→ *Just curious if you can kind of parse this out a little further.*

- **REQUEST TYPE LAYER**

In the case of Questions only, a further layer must be overlaid on the Dialogue Move one, indicating the type of request performed, along with some characteristics of the latter.
INCEpTION   This second layer **is not automatically drawn** by the platform as a consequence of the choice on the first one: the annotator must re-highlight the **exact same text span** as the Question previously indicated; the two annotation labels must completely align in the platform.

- **1RT. Request**

What type of request the Question represents.

Request of clarification

The speaker asks for a clarification, i.e., a doubt resolution, concerning some facts or statements already introduced/active in the interaction and clearly stated as such by the analyst. Deepening on a narrow topic, usually in the sense of repeating something (rephrase/rewording) or making it clearer what is the meaning of what was already said – i.e., how it should be interpreted.

- → *I was wondering if that is sort of a new indication or an existing one. It wasn't sort of quite so clear to me.*

- → *And I was wondering if you could say a few words sort of precisely what is in that business and what was driving that and also how material the lower earnings contribution is there.*

- → *Just to clarify, you're saying because of supply issues, you having to buy cargoes in the market to fulfill contracts? Or were you able to declare force majeure?*

→ Can you be more specific about you're seeing that's causing you to be just a little more cautious about Q3 and the back half of the year?

Be aware that sometimes analysts say they will ask for a clarification, but the request performed right after such a declaration is of another type.

Some indicators for this type of request are the following: asking to "be more specific", "frame a concept", "help understand better", "say something precisely", or admitting that something stated before wasn't "clear".

Request of commitment

The speaker asks for a declaration of commitment by the interlocutor (and, implicitly, by the Company the interlocutor represents). In brief, what is asked is IF something will be done/developed/implemented by the Company. It always refers to the future.

- *→ On the 7 billion of the additional cash return from the Permian sales, is there a timeline that say when that will be executed? Is it for 12 months after the deal completes?*

Request of confirmation

The speaker asks for **overt** confirmation of some propositional content uttered by the speaker. See `below` for subcases and examples.

Request of elaboration

The speaker asks for further widening of knowledge about the matter surrounding some facts, events, situations or statements that may or may not have been previously introduced. Not on the topic itself in the narrow sense but broadening the view. It can refer to a number of little neighboring aspects of the same overview at once, as if they were proposed as possible subtopics on which corporate representatives could focus in their answer; in this case, the question should be regarded as one.

- *→ I was wondering whether you can make any comments on that.*

- *→ And is there any color you can provide on how important that is in terms of the economics of these transactions?*

- *→ The question is, can you just expand on some of those tools that you might engage with for those sellers with this new shift in strategy?*

→ [And the second question was]$_{discourse\ regulator}$ [just on the loan growth you've reported in the wealth business,]$_{r\text{-}elaboration}$ [which has obviously been extremely strong]$_{preface}$ (...)

→ [And also secondly]$_{discourse\ regulator}$ [what are the key frictions that you're seeing right now for, you know, your hosts signing up and that you're looking to address with these new tools you're about to introduce?]$_{r\text{-}elaboration}$

→ (...) are there any kind of early learnings or any kind of additional color that you can share with us kind of to make the understanding of the situation kind of more helpful not only for yourself, but of course, as you said, on an industry level as well.

→ And so maybe talk just about what needs to happen for all these integrations, maybe the bigger picture from a value can - we know the consumer value prop, but just the bigger picture, the roadmap of how PA integrates with Offers and integrates with Mortgages, et cetera.

A strong predictor of a request of explanation is the word "color": give/provide (more) color, any color would be useful...or the verbs to expand/to elaborate (further)/to add.

Some other words or phrases that usually recur within requests of elaboration are: "give a context", "give an update", "remind".

Request of explanation

The speaker asks for a causal explanation (A → B). See `below` for subcases and examples.

Request of data

The speaker asks for some data or material information.

-     → *Is that also relevant for the parent?*
-     → *The question is, is more like as you look at the data, are you seeing new customers that came in, in 2020?*
-     → *Do you go with multiple brands across the markets that are kind of in or just DoorDash, maybe eventually takeover in certain countries?*
-     → *(...) who is the type of individual that you're looking for to really guide the next few years of growth for the company?*
-     → *[But is there a point at which you decide that what the market is really telling you is the structure of Shell today just doesn't work for it?] r-data (...) [In short, at what point do you decide that you've got to do more to have the value that sits in your business] r-data (...)*

N.B. in many cases, what might seem like a request of elaboration, but in a yes/no formulation, is actually a request of data.

Request of justification

The speaker asks for a justification, i.e., an "explanation" of the reasoning behind a choice, an opinion, or some non-indisputable statements already known, in the sense of asking WHY it is the case. It requires some degree of argumentation to defend a standpoint.

-     → *[And I think you mentioned the $7 unit cost target.]preface [Why $7?]r-justification*
-     → *[So maybe asking as the Devil's advocate,]discourse regulator [would you argue some of your commitments actually expose you if COP26 fails to reach global consensus, whatever that is?]r-justification*

Request of opinion

The speaker asks for the opinion of the interlocutor concerning a given theme. See `below` for subcases and examples.

- **1RTa. Request Subtype** *(only for "explanation", "opinion", and "confirmation")*

In the case of a request of explanation, opinion or confirmation, a lower-level feature will specify the subtype of request. The values are the following:

a. In the case of a **request of explanation**:

- ▪ **Disaggregate** explanation

  the speaker asks for a causal explanation (A → B) of some (usually numerical, although not necessarily) data. Explanation about the individual constituents of an aggregate accounting item.

  -     → *And what will determine the total payout within the 20% to 30% cash flow range?*

- ▪ **Practical** explanation

  the speaker asks for a causal explanation (A → B) of some actions that will take place and, in particular, about HOW those will be performed. Asking about the path or the means from A to B.

-    → *[So can you just explain to me, [with the fact that you're only doing B shares, and I think this is the second largest B share purchase in any one quarter,]*_{preface} *how you are going to get the share buyback program done?]*_{r-practical explanation}

-    → *[What's next in that regard?]* _{r-practical explanation} *[What's the strategy to really drive this so it's not just viewed to be a buy-side monetization vehicle and really capture what should be a significant opportunity on the sell side?]* _{r-practical explanation}

- ▪ Explanation **about the effect**

the speaker asks for a causal explanation (A → B) and, in particular, about WHAT the outcome(s) will or would be - however, already knowing that there will be some, otherwise it would be a request of some other type (e.g., data, commitment, opinion…). Asking about B.

-    → *How does this play out on the sell side going forward?*

- ▪ Explanation **about the cause**

the speaker asks for a causal explanation (A → B) about the starting point of some actions/events which are already known to have taken place or will happen. Asking about A, already having B.

-    → *I think people really want to understand just the mechanics maybe a bit better of what went wrong here, particularly in the bidding.*

b. In the case of a **request of opinion**:

- ▪ **Evaluative** opinion

the speaker asks for the opinion of the interlocutor concerning a given theme; in particular, including a qualitative assessment or evaluation of a state of affairs. "Opinion about the past or present".

-    → *And I was wondering what thinking is about the Permian and activity levels.*

-    → *[What do you think is a successful or an unsuccessful COP26?]*_{r-evaluative opinion} *[And does that matter at all whether it's a successful or not successful outcome as you define it for your energy transition strategy?]*_{r-evaluative opinion}

- ▪ **Predictive** opinion

the speaker asks for the opinion of the interlocutor concerning a given theme; in particular, including the formulation of an outlook or prediction about a future event. "Opinion about the future".

-    → *How do you think about the split between dividends and buybacks in terms of how it trends over the coming years with a potential stronger macro backdrop?*

- ▪ **Practical** opinion

the speaker asks for the opinion of the interlocutor concerning the path to be followed (i.e., that would be advisable to undertake) to reach a particular goal. "Opinion about future actions that should/could be undertaken".
→ *And any thought on how you balance out that?*

c. In the case of a **request of confirmation**:

- **of inference**

    the speaker asks for overt confirmation of some propositional content uttered by the speaker, which is the result of an inference (s)he made. Type also known by its acronym, ROCOI.

    → *[I just wanted to ask, is my understanding that as you're divesting these assets, you typically sign supply and trading agreements with the buyer, so you maintain flexibility? [That's, obviously, something that we don't get many details on.]$_{preface}$ So firstly, is that generally the case?]$_{ROCOI}$*

    → *Your slide does kind of imply an LNG into GTL chain, and it's kind of beggar's belief that that's actually the plan. So did I read that wrong?*

- **other**

    the speaker asks for overt confirmation of some propositional content uttered by the speaker, which is constituted by material data. Also known as ROCOO.

    → *Could you confirm whether you would have generated free cash flow if you assumed the amount of rigs required to hold volumes flat? Or do your current production reflect that?*

    → *Can you confirm whether that is the case and that where we are in terms of the course?*

    → *[Are you taking any capital out?]$_{ROCOO}$ [My presumption is not, but just to confirm.]$_{preface}$*

- **1RTa1. Temporal Dimension** *(only for "explanation")*

In the case of requests of explanation only, it will be possible to also add the temporal dimension the explanation refers to. The values are the following.

atemporal

the explanation refers to a cause-effect relationship that does not have temporal constraints or, at least, is not presented as such. Typically, these are cases in which the explanation is deontic (how something "should be") of hypothetical (what could happen in an "if" situation).

future

the explanation refers to some actions/events that have not started yet.

non-future

the explanation refers to some actions/events that have at least started in the past or in the present.

- **MIU-MAU LAYER**

A MIU (MAU) is a higher-level annotation (to be performed *after* the completion of the first two layers) that comprises various and different discourse units. MIUs only appear in turns containing Questions; MAUs only appear in turns that answer questions.

1MM. MIU-MAU

This layer comprises one feature only, with the same name. The feature has two values.

MIU

A Maximal Interrogative Unit (MIU) is a series of one or more discursive moves that may maximally cover a question turn and minimally cover a single interrogative sentence. A MIU is characterized by the following attributes:

- It is a macro-unit which groups discursive moves within the same question turn and comprising no less than one question, each discursive move being the length of (at least) one sentence;

- All the discursive moves in a MIU prepare, rephrase or modulate the same objective;
- All discursive moves within a MIU can be satisfied by a single corresponding Maximal Answering Unit (MAU).

The boundaries of a MIU usually correspond to the indications given by the speaker: when an analyst counts the Questions they going to perform, they are actually keeping track of the MIU (and not of the single Question the way we mean it). Be aware that – although relying on the analysts' sensitivity to MIU number and length – it is not always reliable; especially in the cases where there is one additional MIU – usually at the end of the turn – not numbered nor explicitly indicated as such (but with a different topic from the previous unit!).

→ *{[First, I think, is for Huibert.]_discourse regulator [Do you have a sensitivity that you can help us in every dollar per Mcf change in the natural gas price, how does that impact on your refining margin capture on a per barrel basis, as well as in your refining of gas on a per-barrel basis?]_question [That's the first question.]_discourse regulator}_MIU*

→ *{[Ben, could I ask one -- just one question to you.]_discourse regulator (…) [That's the question, please.]_discourse regulator}_MIU {[And then Jessica, please, if I could just ask about Capex guidance this year, and specifically chemicals and products and the marketing divisions.]_discourse regulator (…)}_MIU*

→ *{[And then the second one, just to come back to the site of Energy as a Service and the 5,000 companies.]_discourse regulator (…)}_MIU*

→ *{[If I can sneak in a final one. On the 7 billion of the additional cash return from the Permian sales,]_discourse regulator [is there a timeline that says when that will be executed?]_question [Is it for 12 months after the deal completes?]_question [Or that don't really have a timeline?]_question [Thank you.]_discourse regulator}_MIU*

Discourse Regulators of the type *greetings* or *acknowledgements* do not have to be included in the MIU, if they are either at the beginning or at the end of the turn.

On the contrary, *acknowledgements* or *comments about the quality* <u>at the end</u> of the turn or the MIU itself – when and if they are present – must be included.

Discourse Regulators of type *counting* are included (if they are either at the beginning or at the end of the turn); those of type *enumeration* are not.

→ *{(…) [Or how should --]_varia [do you have a view on that one?]_question [That would be helpful.]_discourse regulator}_MIU*

→ *{(…) [Could you give us a sense of the sensitivity that you're likely to see, particularly within the wealth business to the moves in rates in '22 and maybe further out?]_question}_MIU [Thank you very much.]_discourse regulator*

→ *[Good morning and thank you.]_discourse regulator [I have two, please.]_discourse regulator {[First is on the strategic review.]_discourse regulator (…)}_MIU*

→ *[Thank you very much.]_discourse regulator [It's Michele.]_discourse regulator [I have two questions.]_discourse regulator {[The first one probably for you, Jessica.]_discourse regulator [It's very welcome to see a major recovery in the LNG volume from your guidance for Q4.]_preface (…)}_MIU*

→ *{(…) [Can I just confirm that you're continuing to see inflows in July?]_question [Apologies if I missed it.]_discourse regulator}_MIU {[And then just secondly, on the dividend.]_discourse regulator (…)}_MIU*

However, as usual, take it easy. If, for instance, a "forbidden type" of Discourse Regulator is placed after one that should be included in the MIU, include them both!

→ *{[And Jessica and Wael, thanks for the opportunity,]_discourse regulator [and it's great to see another strong quarter where, you know, the cash flow is excellent.]_preface (…)}_MIU*

COMMENT: "thanks for the opportunity" is an *acknowledgement* and in principle should not be included in a MIU. However, since it's preceded by an indication of who the preferred answerer is (part of the MIU), hence the acknowledgement is included too.

If a Varia annotation precedes the MIU, it should not be included in it.

→ *[If I may just ask, but do you feel that -- I mean,]*_{varia} *{[listening to you again, and maybe I'm interpreting it wrongly, and that's why I'm asking the question.]*_{preface} *(…)}*_{MIU}

→ *{(…) [What does the momentum look like on the underlying customer flows across the three segments?]*_{question} *[That would be my first question.]*_{discourse regulator}*}*_{MIU} *{[Second question is more broadly on your outlook statement.]*_{discourse regulator} *[You talk about a more conservative approach to risk in the near term, while you're finalizing your long-term vision and your midterm plan.]*_{preface} *(…)}*_{MIU}

→ *{[So, any thoughts on operational risk inflation going forward?]*_{question} *[That's the first question.]*_{discourse regulator}*}*_{MIU} *{[Second question on the prime services review and the CHF35 billion leverage exposure reduction.]*_{discourse regulator} *[Could you provide us an idea of both the direct revenue attrition attached to that, but also the indirect revenue attrition]*_{question} *[as one would assume that shrinking in prime will also weigh in directly on cash and derivatives as well in your equities franchise.]*_{preface}*}*_{MIU}

→ *[Yes. Good morning, gentlemen.]*_{discourse regulator} *[I have some questions, please.]* _{discourse regulator} *{[The first one, going back to Archegos,]*_{discourse regulator} *[do you think it's possible, and maybe this is a bit too early to ask, but do you think it's possible that this could produce a very fundamental reset in how your IRB credit risk models work?]*_{question}*}*_{MIU}

→ *[Yeah.]*_{discourse regulator} *[Thank you very much for taking my two more like follow-up questions.]* _{discourse regulator} *{[Firstly is just on the strategy again.]*_{discourse regulator} *(…).}*_{MIU} *[Thanks.]* _{discourse regulator}

MAU

A Maximal Answering Unit (MAU) is a collection of sentences that globally react to a MIU; each MAU appears within a turn performed by a corporate representative (see <u>below</u>) and **not** containing any Question. A MAU can maximally correspond to the entire turn, or minimally correspond to a single sentence.

Discourse Regulators should theoretically not be included in a MAU; refer to the rules provided for MIUs.

→ *[So why don't I start?]*_{discourse regulator} *[And Dave, feel free to add in after I go.]*_{discourse regulator} *[So let's start with hosts, and then we'll go to guests.]* _{discourse regulator} *{So Justin, let's just start with we have 4 million hosts on Airbnb. (…) And I expect us to get millions of more hosts in the coming years on Airbnb.}*_{MAU}

N.B. although being displayed here for didactic purposes as if they were annotated, Discourse Regulators in managers' turns must not be annotated in a real-life scenario.

- There might be more than one MIU (MAU) in a turn.
- More than one MAU can be triggered by (i.e., refer to) the same MIU; however, distinct MAUs related to the same MIU must pertain to different turns.
- In principle, it should not be possible that one MAU replies to more than one MIU. If it happens, it represents a violation of the dialogue protocol; however, it must be annotated without further flagging.

- **REPLY-TO-QUESTION (*RELATION*) LAYER**

The reply-to-question layer is a relation layer; this means that it is structurally attached to the MIU-MAU layer and allows for the connection between annotated instances of that layer. Particularly, the reply-to-question connection links a MAU to its triggering MIU. This must be done for each MAU.

INCEpTION   The direction of annotation is **always** from the MAU to the MIU.

- **SPEAKER TURN LAYER**

This Layer is automatically annotated by the preprocessing algorithm. It comprises three features.

- **1ST-Name**

Name and surname of the speaker (or whichever of the two is present in the transcription)

- **2ST-Speaker**

The role of the speaker within the call. Values are:

analyst

CEO

CFO

COO

Investor Relations

director

A corporate representative who is appointed "director" of something/some area/some process.

other manager

Default managerial position we don't have further information about – therefore, of secondary importance.

unknown

This is the default case, which theoretically should never appear in the final, preprocessed text since it means that we could not determine whether the speaker is from the analyst or the company side.

- **3ST-Affiliation** *(only in the case "Speaker" is equal to "analyst")*

The company/bank/fund to which the analyst is affiliated and on behalf of which they participate to the call.