ARGUMENTATIVE PATTERNS INITIATED BY CLOSED-LIST QUESTIONS IN ACCOUNTABILITY DIALOGUES. A CORPUS STUDY OF FINANCIAL CONFERENCE CALLS.

ANDREA ROCCI
Università della Svizzera italiana (USI)
andrea.rocci@usi.ch

OLENA YASKORSKA-SHAH
Università della Svizzera italiana (USI)

GIULIA D'AGOSTINO
Università della Svizzera italiana (USI)

COSTANZA LUCCHINI
Università della Svizzera italiana (USI)

Abstract

To illustrate a research strategy aiming at the discovery of recurrent contextually significant patterns in dialogic argumentative activity types, we investigate *closed-list questions* as a minimal *argumentative pattern* and as component of broader dialogical argumentative patterns, in the Q&A phase of Earnings Conference Calls, a key financial communication activity type. The argumentative affordances of *closed-list questions* are discussed as well as their formalisation in the metalanguage of Inference Anchoring Theory. A small corpus study provides verification of the hypothesized occurrence of activity-relevant uses of closed list questions for *issue framing* and for *information elicitation* as well as of the question's potential in eliciting argumentative responses.

1 Introduction

In this paper, we investigate closed-list questions as a template for initial moves of dialogical *argumentative patterns*, which are functional to participant goals in a routinized financial communication activity type. In doing so, we demonstrate an approach to discovering and

describing argumentative patterns characterizing argumentative activity types, which we are developing within the project *Mining argumentative patterns in context. A large scale corpus study of Earnings Conference Calls of listed companies*[1].

Earnings Conference Calls (henceforth ECCs) are public dialogical exchanges in the financial communications of listed companies. ECCs consist of teleconferences held by the top corporate executives (CEO, CFO, COO) for financial analysts, in connection with the announcement of quarterly results. During ECCs, managers present and interpret financial results, discuss major ongoing and planned business developments and discuss their own forecasts about the future earnings of the company. Much like the related activity type of the press conference, the genre template of the ECC includes a managerial presentation, followed by a Q&A where managers answer analysts' questions, as exemplified by the exchange in Example 1.

Example 1.

David Beckel (analyst): First one, just on Arena or MAGIC in general, I guess. Really impressive growth, obviously, from Arena in the quarter. I'm curious, do you have the data sets of… capable of giving you a holistic picture of your player base? I'm curious more specifically if that growth is coming at the expense of tabletop or if you're actually expanding the market base, and whether or not you expect mobile to further expand the market base.

Brian Goldner (Hasbro, CEO): Yes. Sure. So in fact, you're right. The Magic Arena had historically been expanding. It's accelerating in that effort. In fact, analog tabletop has performed incredibly well, and let me remind you that the analog and the tabletop business is performing incredibly well while people can't get together locally in their local favorite hobby shops or local gaming shops to play the game. […] But we do expect an additional tailwind on the analog business when we're starting to see that as markets begin to reopen and people can begin to get back together again. […] People get invited to come along and learn how to play MAGIC all the time. So yes, it's expansive. No, there is no cannibalization. And then

[1] *Mining argumentative patterns in context. A large scale corpus study of Earnings Conference Calls* is a research project supported by the Swiss National Science Foundation (SNSF), Grant Number: 200857, main applicant Andrea Rocci (IALS, Institute of Argumentation, Linguistics and Semiotics, USI Lugano), co-applicant Chris Reed (ARG-tech, Centre for Argument Technology, University of Dundee).

in fact, Magic Arena is just allowing people to play at a distance who had never been able to be able reconnect with friends or family before and not necessarily be in their neighborhood. So all a net positive. (HAS Q1, 2021)

While these conferences add little "material information" to what the company has disclosed in the written earnings announcements published immediately before, research in finance (Matsumoto et al. 2011) has shown that they have a demonstrable impact on the market reaction to the quarterly results. The informative value of ECCs has been variously said to reside in the *sentiment* they express (Matsumoto et al. 2011), in the soft information or "color" they provide (García et al. 2023), and in the interaction itself (Jordan et al. 2018). In fact, Palmieri et al. (2015) have shown that this activity type is essentially argumentative and have hypothesized that in ECCs argumentation plays an important role in reducing analysts' uncertainty about managerial explanations, evaluations and forecasts, in particular "by pointing out that an already disclosed piece of information is relevant or not as a premise to support a standpoint on a price-related issue" (Palmieri et al. 2015: 123).

2 Argumentative patterns

While the argumentative dynamics of the ECC have been already described in small corpus studies (Palmieri et al. 2015, Rocci & Raimondo 2018b), testing the hypothesis that argumentation plays an important role in making ECC Q&As informative for the financial markets requires a large scale investigation of the correlation of features of argumentation in ECC with market data, or other measurable follow-ups such as analysts recommendation.

This involves a three-fold interdisciplinary challenge: the challenge of applying the proper *econometric methods* to investigate markets' reaction to argumentation in the ECC, the challenge of developing suitable computational *argumentation mining* techniques and applying them on a large scale and the challenge of choosing the *relevant features* pertaining to argumentation to be examined when investigating the effects of argumentation in ECC on the financial markets. This paper addresses the third challenge by turning to a context-specific notion of *argumentative pattern* (AP), and by making APs the main target of mining and key input of analytics.

2.1 Argumentative patterns as a pivotal notion for a large-scale investigation of argumentation in context

We use the term *argumentative pattern*, which we borrow from Pragma-Dialectical Theory (cf. van Eemeren 2017 and 2018), to mean a *significant constellation of argumentative moves whose occurrence can be explained in view of the goals and constraints of the activity type*.

The key assumption behind a pattern-based approach is that not all argumentation is equally worth "mining" and that we have a better chance of understanding the effects of argumentation on its context on a large scale if we choose to observe the distribution, not just of *any* feature of argumentation, but of features that we have principled theoretical reasons to relate to fundamental dynamics of the activity type.

In this paper we provide an illustration of the early stages of this approach by showing how we investigate a feature of question design (i.e., the closed list question) in a corpus of manually annotated ECC, in order to ascertain its contribution to the definition of significant patterns in the ECC activity type.

An approach based on APs involves a research cycle that starts from qualitative analyses of samples of argumentative discourse, where the logical, dialectical and rhetorical features of argumentative moves are put in relation with the institutionalised common *goals*, the normative *constraints* and the individual *incentives* that characterise a given activity type. This step will be immediately illustrated in relation to the ECC and the closed-list question design in Sections 2.2 and 3.

The following step involves working-out sufficiently precise definitions of candidate APs that need to be "translated" into a representation format usable for the structural annotation of a span of text or dialogue. In order to capture local patterns in the ECC Q&A, we adopted a representation format that is capable of "anchoring" the argumentative properties of the pattern to the dialogue acts performed by the participants. Inference Anchoring Theory (IAT, Budzynska and Reed 2011) provides the basis for such a representation. This step is illustrated in Section 4.2, in relation to closed-list question design and, generally, the modelling of analyst questions in ECCs.

Manual annotation of candidate patterns in a growing corpus of ECCs provides a first verification of the representation format and opens to the possibility of

investigating the distribution of different candidate patterns first within meaningful case studies, then in larger corpora supporting cross-sectional and longitudinal studies. Section 5.2 presents a two steps process of annotation for a corpus of ECCs, which involves first the "coarse" annotation of discourse moves and question designs in the ECC Q&A, and then the full IAST reconstruction of extracted candidate patterns.

The results of two-steps process of annotation are exemplified for the case of the *closed-list question* in Sections 6 and 7. In particular, Section 7 reports a small scale study which involves the full argumentative analysis of 14 Q&A turn pairs initiated by closed list questions, to verify in the corpus the argumentative relevance of this question design and its hypothesized significance for the ECC activity types.

2.2 Argumentative patterns in the Earnings Conference Call activity type

Let us now go back to the question-answer pair in Example 1 and use it to illustrate how initial hypotheses about APs are developed by relating observed dialogical argumentative moves in the Q&A of the ECC with hypotheses on the overarching goals.

The exchange concerns the explanation of a *prima facie* positive business result: the growth of the number of players of the online card game MAGIC Arena. Analyst David Beckel proposes two alternative explanations for this result: either it comes at the expense of the tabletop version of the game, with MAGIC players migrating online during the global pandemic, or it is the result of an expanded market base. In doing so, the analyst evokes an argumentative confrontation on an issue of *explanation*, with two mutually exclusive standpoints on the issue, giving rise to what Pragma-Dialectical theory calls a mixed difference of opinion. In the same question turn, the analyst does three other things. First of all, he introduces the *explanandum*, the impressive growth of MAGIC Arena, with an assertive move we call *preface,* which serves to establish the background for the intelligibility of the question, but also to argue for the relevance of the issue. Furthermore, the analyst introduces two other questions in his question turn, asking for *data* that could allow to decide on the issue, and asking for a further predictive standpoint on additional growth, which is presented conditional to the expanded market base explanation being the case.

The argumentative significance of what the analyst does in the excerpt is clear if we understand the whole ECC as an argumentative discussion. In the ECC the ultimate issue addressed is a practical decision whether to buy, hold or sell the stock, which is based on an evaluation of the stock. In turn, the evaluation of the stock is based, by definition, on a forecast of future business performance of the company (cf. Palmieri 2018: 50). Future performance is predicted as resulting causally from the demand in the market and the company's ability to meet this demand profitably. Figure 1 displays this overarching inferential structure, which we call *prototypical argumentative pattern of firm valuation*.

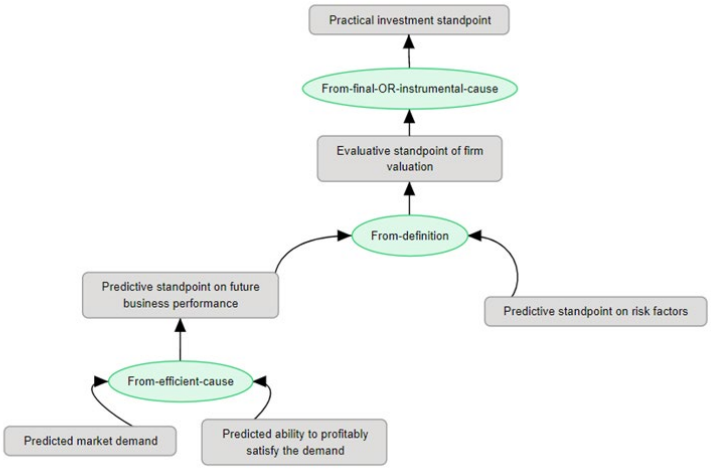

Figure 1. Prototypical argumentative pattern of firm valuation. The inferential structure representation follows the conventions of Inference Anchoring Theory (IAT, Budzynska & Reed 2011). The labels of the argument schemes in the inference nodes are those of the Argumentum Model of Topics (AMT, Rigotti & Greco 2019).

If we take the hierarchy of issues of the prototypical valuation pattern as a backdrop for the argumentative discussions in the ECC, it is clear that the explanatory issues of Q&A pair in Example 1 is relevant to establish the premises for predictions about future market demand which, in turn, contributes to establish predictions about future market performance. Only if the growth of online players turns out to be a genuine growth of the player base, it becomes relevant as a possible argument to predict further growth. This direction is clearly

indicated by the sequencing of questions in the turn, where one of the possible answers to the *request of explanation* makes the following *request of predictive opinion* relevant.

Starting with Palmieri et al. (2015), it was observed that certain kinds of question design, such as the aforementioned *request of explanation* and *request of predictive opinion*, appear to be highly expectable in view of the hierarchy of issues implied by the argumentative pattern in Figure 1, and, to some extent conventionalised in the genre, with the use of specialised indirect question frames such as *could you… explain/clarify/confirm/provide more color on…* (cf. also Crawford Camiciottoli 2009).

Not only the recurring question designs in the ECC can often be explained as functional to the discussion of the *overarching issue* and to the testing of the prototypical argumentation pattern of the ECC , they can also be transparently related to other *constraints* of the activity type and on *incentives* on participants.

At the level of dialectical commitments, financial analysts, bound to a questioner role during in the call, are committed to the antagonist's role of critically testing managerial standpoint, without committing to a standpoint of their own. At the level of their incentives for participation (cf. Yaskorska et al. 2022), analysts have a fundamental professional incentive to be right in their valuations, that's why they seek at the same time to enrich the information base for their valuation of the company (*information elicitation incentive*) and put managerial standpoints to the test by engaging in a sort of accountability dialogue with them on behalf of the investors (*critical incentive*). At the same time, they need to maintain an amicable relationship with managers (*relational incentive*).

Question design is the fundamental tool that analysts have at their disposal to pursue these incentives. This leads to the hypothesis that question designs are themselves to be seen as local APs, in that they are argumentatively *significant*, *conventionalised*, and *explainable* in terms of the goals and constraints of the activity type. Furthermore, they are the most immediate building blocks of broader APs in the ECC Q&A, spanning question-answer pairs. A detailed discussion of a typical question design of the ECC as a local argumentative pattern, namely the *request of confirmation of inference* is provided in Rocci & Raimondo (2018b).

3 The relevance of closed-list questions for an account of argumentative patterns in the ECC

If we examine closely the *request of explanation* from the Q&A pair (1) reproduced in Example 2 we can observe another interesting feature of its question design.

Example 2.
David Beckel (analyst): [...] I'm curious more specifically <if that growth is coming at the expense of tabletop> or <if you're actually expanding the market base>, [...].

The question corresponds to what is generally called an *alternative question*, setting up a series of possible answers framed as mutually exclusive. *Alternative questions* represent one of the main question types, alongside with *open* (or *wh-* or *constituent*) and *polar* (or *yes/no*) *questions* (Biber et al. 1999, Quirk et al. 1985, Enfield et al. 2010, Stivers and Enfield 2010, Drake 2020). Here we will use the less common label *closed-list question* (Palmieri et al. 2015: 128) to refer specifically to alternative questions used by financial analysts in the ECC.

Alternative questions have been studied extensively within conversation analysis, interactional linguistics and semantics, in particular in their differences and similarities with polar (yes/no) questions. In contrast, in argumentation theory there are few studies (e.g., Hautli-Janisz et al. 2022) on question types, and none that investigates alternative questions in detail.

The question in example 2 raises an *issue* of explanation. As observed in Section 2.2, the issue is relevant as a sub-issue of the main issue of the ECC via the prototypical argumentative pattern of firm valuation (Figure 1).

As pointed out by Biezma and Rawlins (2012, 2015), alternative questions present a *disjunction*, that is to say, they propose a restricted set of alternative answers (Stivers and Enfield 2010), this set being presented as exhaustive (Biezma and Rawlins 2012). As demonstration of the *presupposition of exhaustivity*, Drake (2020) shows that answers that don't pick one of the proposed options are dispreferred turns. Answers can provide a different non-proposed alternative, but those are considered

nonconforming answers resisting to the question's constraints.

In Example 2, analyst David Beckel frames the transfer of players at the expense of tabletop and the expansion of the market base as *mutually exclusive* and *exhaustive* alternatives. The question conveys as a presupposition the expectation that *they are not both true* and that *there are no other relevant alternatives*. It is not necessarily a presupposition of *strong* logical or ontological incompatibility and exhaustivity, it could simply mean that the listed options are exclusive and exhaustive *in practice*, for all relevant intents and purposes. It is interesting to observe that, in some cases, falsely presupposing an alternative framing can amount to a fallacy of *false dilemma* (cf. Lewiński and Aakhus 2023: 179 ff.).

These semantic features create affordances for argumentative moves that analysts exploit when they use closed-list questions in the ECC. They frame the issue in (2) in terms of what Pragma-Dialectics calls a mixed confrontation (see van Eemeren 2018: 36) where two supposedly alternative standpoints are advanced. More precisely, as a subtype of mixed confrontation where the alternative standpoints are treated as exhaustive, so that establishing one entails the refutation of the other (but see also Lewiński and Aakhus 2023: 184 ff.). The respondent reacting to such a framing is faced with a double choice: they can either reject the framing, assuming the burden of refuting the alternativity and/or the exhaustivity of the questioned propositions or accept the framing assuming the burden to defend one or the other proposition; see Figure 2. We will return on the pivotal aspect of *reaction to the pattern initiator* in Sections 4.2 as and 7.

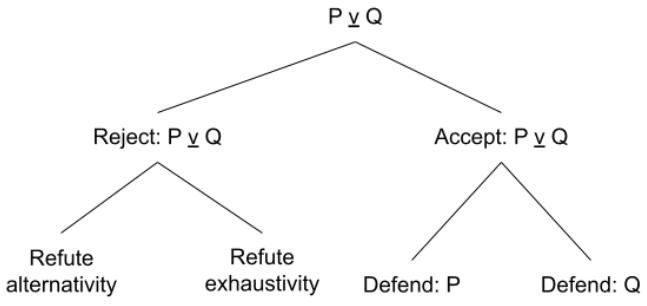

Figure 2. The dialectical choices in responding to alternative issue framing

In fact, closed-list questions allow analysts to provoke a confrontation by evoking it and to goad managers into a protagonist role, while maintaining neutrality and a purely antagonistic role. In view of the above examined features, it is natural to hypothesise that closed-list questions play a major role as part of an arsenal of pragmatic and rhetorical means that give ECC arguments a characteristic shape, and to assign them the status of APs.

Even if this is consistent with their antagonist role, analysts are generally loath to *directly* ask for a justification, using a challenging *why*-questions (Hautli-Janisz et al. 2021), as repeatedly confirmed by ECC corpus data (see Palmieri et al. 2015: 128,). This can be interpreted as avoidance of face threatening acts, consistent with their relational incentive. Closed-list questions can be an instrument indirectly trigger managers' argumentation. Consider the *request of predictive opinion* in Example 3, below:

Example 3.

Tami Zakaria (analyst): Do you expect that trend to continue for the rest of the year or should it be lower given you have announced price increases to your clients – consumers? (HAS Q1 2021)

By presenting two different developments as possible and, moreover, as *equally* possible, this type of question implicitly demands that the choice for one rather than the other is supported by argument. Likewise, if the *framing of the issue* is rejected and a "third" alternative is provided the answerer is prompted to argue for it. In Example 3 the framing of the issue is further reinforced by an argument ("given you have announced price increases to your clients – consumers?"), which operates at a meta-level, supporting the attribution of the second standpoint to the answerer. The analyst does not assume commitments about what will happen, yet she draws inferences about what managers might be thinking.

It has been observed that sometimes the second alternative is nothing more than the negation of the first (e.g., questions with the form *…or not?*) so that the alternative question becomes logically equivalent to a yes/ no question. Interestingly, even in this case the alternative question is not pragmatically and rhetorically equivalent to the polar yes/no question, because alternatives are used "for seeking information when the

addressee appears to be withholding it and the speaker wishes to close the issue". (Biezma 2009: 39). Consider Example 4 below:

Example 4.
Jaime Katz (analyst): And then I think, originally, the 2023 outlook was for above 15.7% for operating margin, and that's been lifted a little bit. Is that primarily due to just the mix of the portfolio and where the returns are coming from? Or is there something else we should be thinking about? (HAS Q4 2021)

The alternative questioning pattern *Just P… or P and something else* provides a powerful tool of information elicitation for analysts. While a manager can provide an incomplete explanation P and remain truthful in their disclosure, they cannot maintain that P is the *only* explanans without *being on record* asserting something false, which is likely to have serious consequences in the social and legal context of the ECC.
We hypothesize that *issue framing* and *information elicitation*, being two distinct activity relevant functions of the *closed-list* question can be seen as two recurrent and conventionalised sub-patterns of the AP.

4 Modelling local argumentative patterns of ECC question-answer turns

We have introduced above the notion of APs, as significant constellations of argumentative moves whose occurrence can be explained in view of the goals and rules of the activity type. While we take inspiration from Pragma-Dialectical Theory for this notion, we implement it in a different theoretical and methodological framework, where the formalism of Inference Anchoring Theory plays an important role. Our notion of AP is also separate from the one introduced by Musi and Aakhus (2018), even though we share with the authors the interest in a unit of analysis that can feed what they call a *macroscope* for argument mining.

4.1 General framework

The minimal requirements for recognizing an AP are (a) the presence of a constellation of discourse moves (i.e., speech acts, whose purpose in the activity type is recognizable by participants), (b) that are argumentatively relevant (i.e., relevant for the

resolution of an argumentative discussion), (c) and can be shown to fit (i.e., respond to) certain constraints of the activity type. Being specific to the activity type, APs offer interesting affordances both as the main target of the mining and as the basic units whose distribution is correlated with extra-discursive market data.

In the ECC analysis we focus on two main types of APs: (a) the *global APs of the ECCs* and (b) the *local dialogical APs of the Q&A*. The former takes the whole ECC as their relevant span, and result from the sum total of argumentation put forth by managers in anticipation of or as a reaction to analysts' questioning. For instance, Figure 1 presented a rough representation of one important global AP, which we called *prototypical argumentative pattern of firm valuation*, in terms of a IAT inferential structure, underspecified at the level of its pragmatic anchoring to discourse moves. Here we will not discuss them in detail, focusing instead on the *local dialogical APs of the Q&A*.

4.2 Using IAT to represent Q&A pairs in the ECC

Here we present elements of IAT analysis of our data using which we can further analyse our running Example 1. Being the most representative, such example is understandably also the most complex for analysis; therefore, for a comprehensive account, we will start the analysis drawing examples from the simpler cases of open and yes/no questions, which will provide a basic language for understanding complex cases of closed-list questions. In Example 5 an analyst (Jaime Katz) is asking for the explanation of the action, that was conducted by the company and a manager (Brian Goldner) provides the explanation. The joint exchange in which they engage can be visualised as an argument map, which we can see on the left-hand side of the diagram in Figure 3, where *explanandum* and *explanans* are connected through the relation of inference. On the right-hand side of the map, we also see the unfolding of a dialogue, which they are conducting in terms of a sequence of locutions connected via transition rules. The two phenomena (argumentation and conversation) have their common point in the communicative intentions with which participants conduct them. In the first locution, an analyst introduces the *explanandum* with the intention of requesting a justification from the manager. The manager introduces his explanation via asserting data and an opinion.

Example 5.

Do Jaime Katz (analyst): […] how have the retailers worked with you to accept that product?[…]
Brian Goldner (Hasbro, CEO): […] We have been incredibly resourceful in finding several new ports and ways of bringing in product, working with our retailers. And the great news about our business and the categories where we're competing is they're in very high demand. (HAS Q2 2021)

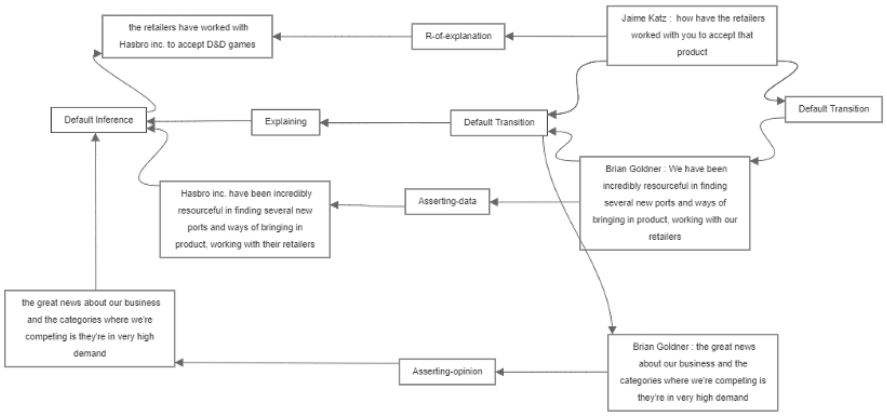

Figure 3. IAT representation of Example 5: open type of request of explanation

Looking closer to the request we can describe the way in which we model requests in our annotation. We take two dimensions of question parametrisation from the annotation scheme we will be discussing about in more detail in Section 5.2 in order to shape the question in IAT: *illocutionary force*, which in our case takes the value "r-of-explanation", and *logical structure*, which is in our case is "open". While the illocutionary force is modelled via tags on the illocutionary connections in the argument map (in the middle of the diagram), logical structure is captured via shaping the propositional content of the question in the left-hand side of the map. To show the structural difference between the types of questions, we could reshape the analyst's open r-of-explanation as a yes/no r-of-opinion, as in Example 6. Such a question would be represented as shown in Figure 4.

Example 6.
Do you think the retailers have been cooperative with you to accept that product?

Figure 4. IAT representation of Example 6: yes/no request of opinion

In contrast to open and yes/no questions, the logical structure of a closed-list question is highly complex for IAT representation. The discourse move is usually composed of at least two locutions that from an analytical point of view cannot be merged, since they are argumentative units presenting alternatives to which a manager is expected to refer to in his answer. Let's start from a request of opinion, during which an analyst asks for an opinion or a standpoint, as Michael McGovern does during his question in Example 7.

Example 7.
Michael McGovern (analyst): And I guess one quick follow-up on order frequency. I was just wondering and on the 14% of customers that are now trying non-restaurant ordering for the first time or, excuse me, just using it. Do you expect that restaurants and non-restaurant can exhibit similar order frequency trends long-term or do you think that eating and ordering from restaurants is fundamentally a higher order frequency you kind of market? (DASH Q4 2021)

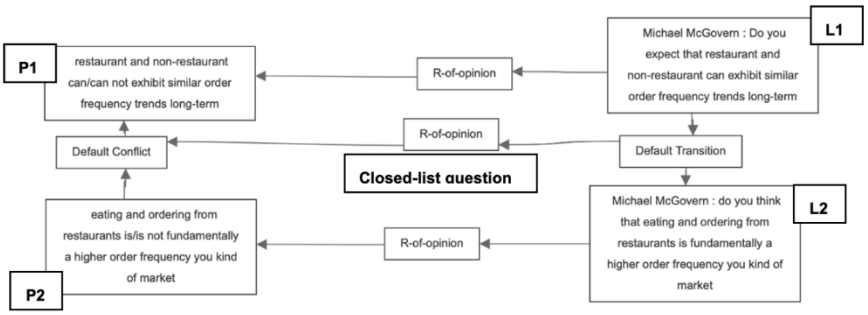

Figure 5. IAT representation of Example 7: closed-list question

The linguistic markers of both questions, i.e., "*Do you expect…*" and "*do you think that*" show that the analyst is asking about the manager's opinion, so in the corresponding IAT map we anchor such intention in the locutions L1 and L2, as shown in Figure 5. Also, we model those requests (similarly to the case of yes/no questions)

shaping the propositional content of the locutions P1 and P2 accordingly. At the same time those propositional contents constitute a mutually exclusive, alternative view of the issue, so we can say that there is a relation of conflict between them. Yet, the relation of conflict is not introduced with the implicit intention of disagreement, but with the intention of pushing the manager towards providing which alternative is correct. The closed-list question is therefore annotated anchoring in the transition between the locutions L1; L2 in which the alternatives are suggested.

The illocutionary intentions characteristic for ECCs can be captured in two groups from the point of view of dialogical interaction (cf. Yaskorska-Shah et al. 2022). The first group comprises cases in which analysts ask for opinion, data, commitment or elaboration: they want managers to provide a standpoint or a premise, which are just a part of the argumentative structure. On the other hand, requests for justification, explanation or clarification are requests for the entire argumentative structure; this means that posing those types of questions an analyst wants a manager to state the standpoint, premises and the fact that there is a relation between them. Depending on those differences we model the propositional contents of questions differently; thus, the conceptual distinction between the two groups becomes visible in the analysis of examples such the one provided in Example 7, representing a request of opinion, and our running Example 1, representing a request of explanation, accordingly.

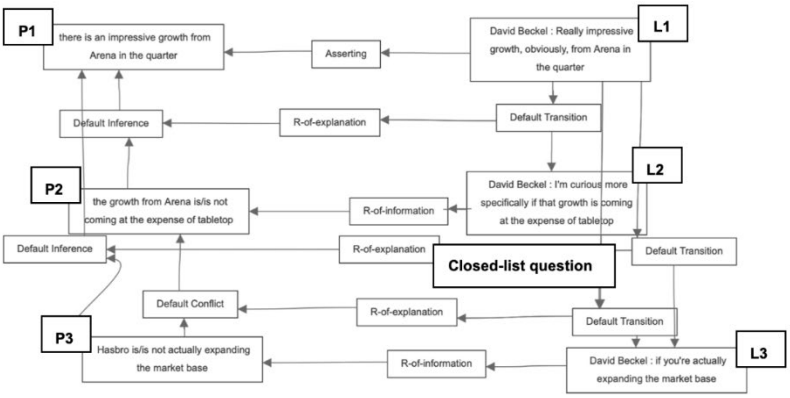

Figure 6. IAT representation of Example 1: closed-list type of request of explanation

In Figure 6 we see a sequence of locutions in which the analyst is first introducing a fact in L1, this move signalled via an "Asserting" illocutionary connection, and then provides in L2 and L3 two possible explanations for such data, which anchor an illocutionary connection of r-of-information with a logical structure of the yes/no type represented by P2 and P3. Explanation of a fact consists not only of *explanans*, but also of the relation of inference between *explanans* and *explanandum*. The relations are anchored in the transitions between the locutions corresponding to the fact and its possible explanation, i.e., in the transitions L1;L2 and L1;L3 via illocutionary connection of r-of-explanation. This corresponds to the yes/no type of r-of-explanation questions. The principle of the closed-list question connection is exactly the same as in the request of opinion, i.e., two alternative explanations are proposed, with a relation of conflict between them.

Closed list questions are employed to frame an issue on the basis of conflicting alternatives, represented in an IAT map as two or more alternatives and at least one relation of conflict. Speaking in terms of dialogue dynamics, we can say that performing closed list questions, analysts are shaping an issue, as shown in the left-hand sides of Figure 5 and Figure 6, and want managers to refer to such a framework in their answer. Therefore, as already stated in Section 3 aided by the scheme of Figure 2, we can expect a manager to react in either of the following ways: (1) [accept: P $\underline{\vee}$ Q] accepting the framework, and by accepting one of the option he rejects all other alternatives, (2) [reject: P $\underline{\vee}$ Q; refute exhaustivity] rejecting the whole framing, providing some new alternative answer, which was not suggested by an analyst or (3) [reject: P $\underline{\vee}$ Q; refute alternativity] rejecting that there is a relation of conflict between the alternatives provided by an analyst and confirm some to all possible answers as not mutually exclusive. The dynamics of reaction to closed list questions are shown in practice in Section 7.

5 Corpus design and annotation

The present work is based on a small, annotated corpus of ECC transcripts, comprising the Q&A sections of 12 ECCs of three US listed companies during the four quarters of fiscal year 2021.

5.1 Corpus Collection

At an early stage of research on argumentative patterns in ECC Q&A, the purpose of corpus analysis not to test hypotheses on the significance of already established argumentative patterns under specific contextual conditions of the activity type. That's why initial corpus selection simply aimed at obtaining enough variety of moves, question designs and arguments and enough contextual information to be able to reconstruct arguments in-depth. To this aim, we chose three medium-large companies from different industrial sectors that were prominently featured in the business news at the time of corpus collection and which caught our attention for specific issues they were facing.

Table I. Issue based corpus selection

Company	Industry	End of year Market Cap. (2021)	Newsworthy issues between Q2 and Q3.
Door Dash (DASH)	Online food ordering	$51.08 B	End of Covid-19 restrictions. New regulation on delivery workers.
Hasbro (HAS)	Play and entertainment	$14.04 B	Death of CEO. Targeted by activist hedge fund.
Zillow (Z)	Internet technology / Real estate	$16.15 B	Losses due to failure of house trading AI system, subsequent layoff of 25% of workforce.

5.2 Corpus Annotation

For the purposes of the present paper, the annotation of the corpus can be described as a two-step pipeline.

Step 1 of the annotation, carried out using the INCEpTION platform (Klie et al. 2018), refines the analysis of dialogue moves in Q&A pairs and analyst question design in Palmieri et al. (2015). It features three annotation layers, which capture the following aspects of the dialogical exchange.

Layer 1 categorizes text segments in Q&A pairs as *question*, *reply*, *preface*, or *discourse regulator*. Questions are further categorized according to a threefold question type, distinguishing *open*, *yes/no* questions, and *closed-list*, which make the main focus of this paper.

Layer 2 captures fine grained question design by categorizing questions according to their *request type*,

i.e. the type of speech act of the respondent they project. The remainder of this paper focuses on (closed-list) *requests of explanation* and *requests of opinion*.

Layer 3 groups together topically related questions (follow-ups, rephrases, specifications) forming *question spans* and is of no particular relevance here.

The inter-annotator agreement rate for *Step 1*, measured on 2 annotators by means of Cohen's Kappa (Cohen 1960), ranged from substantial to almost perfect for all features. Regarding the features of interest for this contribution, "Question type" (Layer 1) has κ=0.97 and "Request type" (Layer 2) has κ=0.80.

Step 2 involves the full reconstruction of the dialogical and inferential structure of Q&A pairs using the IAT theoretical framework, which has been discussed in detail in Section 4. Once a relevant corpus has undergone *Step 1* annotation, it is queried to extract Q&A pairs according to the features under investigation – in our case *closed-list* questions which realized either a *request of opinion* or a *request of confirmation* – which are selected for the full IAT reconstruction. This annotation is carried out using a dedicated tool, the OVA+[2] software (cf. Janier et al. 2014) and the resulting argument maps are stored and made publicly available through the AIFdb database (Lawrence and Reed 2014)[3]. For the purposes of this study OVA annotation was performed by one highly trained researcher only (one of the authors) and later discussed with another author. So, no agreement scores have been calculated.

6 Distribution of closed-list questions in the corpus

Before discussing the results of the full IAT analysis of closed-list questions in our corpus (*Step2*), it is worth briefly presenting some basic data on the distribution of closed-list questions in the corpus resulting from *Step1* annotation. Table II, below, shows that, consistently with the literature discussed in Section 4.1, closed-list questions represent least numerous question type. Zillow (Z), which has the smallest number of questions, also has the lowest number of closed-list questions (2) none of which is either a request of opinion or explanation, as shown in Table III. Interestingly, the request type most frequently associated with the closed-list question is the

[2] http://ova.arg-tech.org/

[3] http://corpora.aifdb.org/closedlist

request of confirmation, briefly discussed in Section 2.2. Requests of confirmations, and especially the requests of confirmation of inference described by Rocci and Raimondo (2018b) are a complex question design, deserving a dedicated study of its own, which is forthcoming. Here to discuss the argumentative affordances of closed-list questions we will focus on the second and third most represented request types, namely requests of opinion and requests of explanation (see Table III).

Table II. Question types across each firm

	closed-list	*open*	*yes/no*	*Total*
DASH	20	118	34	172
HAS	19	98	29	146
Z	2	81	7	90
Total	*41*	*297*	*70*	*408*

Table III. Closed-list questions across requests types and companies

	request of clarification	*request of commitment*	*request of confirmation*	*request of data*	*request of explanation*	*request of opinion*	Total
DASH	3	1	6	4	3	3	20
HAS	3	0	7	1	3	5	19
Z	1	0	1	0	0	0	2
Total	**7**	**1**	**14**	**5**	**6**	**8**	**41**

7 A study of closed list requests of opinion and requests of explanations based on IAT

Request of opinion and requests of explanation are representative of each of the two groups of requests described in Section 4.2: the former inquiring the propositional content only, and the latter questioning an entire inferential structure. We used OVA+ to construct 14 argument maps, each representing one closed list question (posed by an analyst) and the related answer (from a manager) reconstructed in terms of the IAT analytical framework, as discussed and exemplified in Section 4.2. The analysis allowed to examine, for each Q&A pair, both the issue framing proposed by the analyst and manager's reaction to it.

In Table IV and Table V, we provide references to each IAT map in AIFdb[4] in terms of mapIDs making them retrievable for the reader.

Table IV. Summary of the analyses of closed-list requests of opinion.

#	mapID	Sub-pattern	Reaction	Argumentative response
1	25783	-none-	non-answer; accepting frame	yes
2	25784	*Information elicitation*	accepting frame	yes
3	25785	-none-	rejecting frame (alternativity)	yes
4	25800	*Confrontation framing*	accepting frame	yes
5	25787	-none-	accepting frame	yes
6	25788	-none-	accepting frame	no
7	25789	*Confrontation framing*	rejecting frame (alternativity)	yes
8	25790	*Confrontation framing*	rejecting frame (alternativity)	yes

Table V. Summary of the analyses of closed-list requests of explanation.

#	mapID	Sub-pattern	Reaction	Argumentative response
1	25801	-none-	accepting frame	yes
2	25802	Information elicitation	accepting frame	yes
3	25799	-none-	accepting frame	yes
4	25798	Confrontation framing	accepting frame	yes
5	25795	Information elicitation	rejecting frame, (exhaustivity)	yes
6	25796	Information elicitation	accepting frame	yes

The summary of the analysis presented in Tables IV and V describes each of the 14 examples according to three parameters. The first parameter relates to the sub-patterns, as introduced in Section 3. The first, sub-pattern, which we will be calling *confrontation framing*, collects instances where analysts provide two options, one preferable to the other. The second, called *information eliciting*, describes cases when an analyst provides as one alternative a "basic" or standard" answer based on already

[4] http://corpora.aifdb.org/closedlist

disclosed information, which is opposed to the informatively empty alternative that something still unknown must be at work. In our corpus we found 4 clear instances of each sub-pattern.

The second parameter investigated was managers' reaction to the framing of the question. As described in Section 4.2, analysts leverage on the way the issue is presented to direct or shape managers' replies. In the case of locutions such as a requests of opinion, the framing would consist of two suggested propositional contents, holding a relation of conflict between them; in the case of a request of explanation, the framing consists of two inferential structures, each of which consisting of *explanans*, *explanandum* and an "explanatory" relation between them, plus a relation of conflict between the two structures. We have already discussed in Section 4.2 the types of reaction a manager can deploy in answering closed-list questions (cf. Figure 2). In the 14 examples we examined, most of the managers' reactions (11) accepted the proposed frame. In the case the frame is not accepted, however, two paths are available. The first path involves the rejection of *exhaustivity*; i.e. the manager rejects all the alternatives in the question by presenting a new hitherto unexamined option.

We have one case of exhaustivity-based rejection in the answers to requests of explanation (mapID: 25795, Table V). Here, however, the rejection is made expectable by the weakening of the alternative framing by the questioner himself: having provided a number of possible explanations of the weak performance during the previous quarter, the analyst turns to an open request of explanmation ("…*can you help me understand that?*") (Example 8). This allows the manager to provide his own explanation ignoring all three alternatives.

Example 8.

Eric Handler (analyst): Is that [...] reflecting animated program deliverables? Is that a timing issue? Is that consumer products, or can you help me understand that? (HAS Q2, 2021)

On the other hand, we say that a manager rejects the frame by refuting alternativity, when they state that more than one of the presumed alternatives is the case. This happens in three cases, with answers to requests of opinion.

All those strategies, however, are related to actually answering the question, which is not the only possible

response. As noted in Palmieri et al. (2015) managers have also the option to explicitly refuse to answer, often providing arguments in support of their refusal. We found one justified refusal to answer in our data (mapID: 25783), reproduced as Example 9.

Example 9.
Prabir Adarkar (Door Dash, CEO): Secretary Walsh's comments actually suggest an openness to engage with the private sector to figure this stuff out. So it's a little early to signal <whether rideshare drivers will be grouped together with the broader gig economy or kept separate>. (DASH Q4 2021)

Clearly, here the manager accepts the frame by reproducing the proposed alternative in his answer (within angle brackets <…> in Example 9), but, at the same time, provides a reason for not actually answering yet.

Finally, the third parameter ("argumentative response") checked whether managers tend to support their answers with arguments. As we can see from both tables, answers were argumentatively justified in almost all cases, apart from one response to a request of opinion, in which a mere opinion was provided.

8 Conclusion and future work

In this paper we provided an outline of a strategy for the discovery of argumentative patterns in the Q&A phase of Earning Conference Calls activity type, exemplifying this strategy with closed-list questions, which are seen as a minimal AP in themselves and as the building block of significant APs spanning the Q&A turn initiated by the question.

In Section 2, having introduced a minimal notion of argumentative pattern as a significant constellation of argumentative moves whose occurrence can be explained in view of the goals and constraints of the activity type, we discussed its potential as a unit of analysis for large scale studies of argumentation in context, and, by introducing the prototypical argumentative pattern of firm valuation, we provided a concrete means for evaluating the potential relevance of patterns of moves in the Q&A as argumentative patterns of the activity.

Section 3 discusses the intrinsic argumentative affordances of closed-list (alternative) questions and makes a case on how they can potentially become relevant in an ECC Q&A context, through their use as means of issue

framing and as information elicitation probes. The theoretically possible argumentative follow-ups are also mapped.

Section 4 introduces Inference Anchoring (IAT) Theory as the metalanguage for the description of potential argumentative patterns in ECCs and showcases how IAT can represent the argumentatively relevant features of closed-list questions with examples taken from the ECC corpus. Section 5 illustrates a two-step corpus-annotation process needed to empirically explore hypotheses about argumentative patterns such as those expounded in the previous sections, where Step 1 consist in a more coarse grained annotation of dialogue moves and question designs and Step 2 transforms Q&A pairs in fully analysed IAT argumentative map.

The results of this strategy as regards the distribution and argumentative functioning of closed-list questions in a small corpus of 12 ECCs are illustrated in Sections 6 and 7. Section 7, in particular, present the full IAT reconstruction, made available via AIFdb, of 14 closed-list questions in the corpus which adopt either a *request of opinion* or a *request of explanation* together with their follow-ups in the manager's response. This investigation shows that both frame rejecting and frame accepting responses happen, with all the theoretical possibilities represented. Both the *issue framing* and the *information elicitation* "sub-patterns" occurs in the corpus, with the second appearing only in the context of requests of explanation. As it was expected, the IAT analysis reveals that managerial follow-ups to closed-list questions are most often argumentative in nature and they invariably involve argumentation when the closed-list framing of the question is rejected. The analysis also showed that responses to closed-list questions can consist also in justified refusals to answer.

These results are suggestive and show a nice fit between theoretical hypotheses and in-depth qualitative analyses on the corpus, which encourage us to pursue the idea of closed-list questions as a key component of possibly several argumentative patterns in ECC Q&A, including in particular the *issue framing* and *information elicitation* sub-patterns. Together with the range of their possible answers they form a set of potentially significant patterns, worthy of further investigation.

Larger scale corpus analysis will be the main engine of future work. In fact, a new research cycle begins when the initial manually annotated corpus starts to be used as training data for algorithms for automatic *Step1* and *Step2*

annotation. The training of machine learning algorithms for the recognition of basic dialogue moves in ECC is currently ongoing at IALS and we hope to be soon able to deploy *Step 1* annotation in a semi-automatic fashion, which will allow us to explore statistically significant correlations between dialogue moves, features of question design, and contextual variables, such as the financial circumstances of the company. This will allow us to select better targeted in-depth case studies in *Step 2*, refining hypotheses on candidate patterns. At both levels, exploring more in-depth the features of the answer turns will be critical.

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