Final Report

The grammar and pragmatics of interrogatives and their (special) uses

(K 115922)

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In this report we refer to the publications listed in the separate document with the name of the authors and year of publication. We distinguish multiple publications from the same year by the same authors with additional letters. We use numbers to refer to talks given by the participants of the research group on the topic of the project. The details of the corresponding talks can be found on the homepage of the project:

http://www.nytud.hu/depts/tlp/interrogatives/talks.html.

Among the talks listed, the ones marked with '*' were financed from the project funds. The homepage above also contains further information about our activities and results.

In what follows, we present the main results of the project in four parts, corresponding to the four modules listed in the application.

Module 1

The first objective of the project was to carry out a systematic empirical investigation of the parameters of the contexts where different interrogative form types, declaratives pronounced with a multiple rise-fall tune (/\-declaratives), alternative questions and various pragmatic markers (*vajon, ugye, hát, hogyhogy*) are used in Hungarian, by studying scripted and spontaneous dialogues. Although we were planning to use films, radio and television talk shows for this purpose, at the beginning of the research it turned out that we do not have the financial resources for legally obtaining the video files of such programmes (as described in one of the yearly reports). However, we have been able to find two alternative means of obtaining data on spontaneous speech, which we relied on in the later phases of our work. [Module 3]

The first resource we used was the corpus BUSZI-2 (Budapest Sociolinguistic Interview, http://buszi.nytud.hu/), built at the Hungarian Research Centre for Linguistics. Although the questions are primarily uttered by the field worker here, we find tokens of most formal types in the speech of the interviewees as well, who represent various social groups.

We built a database ("BUSZI-*ugye*" database) containing all occurrences of the particle *ugye* in the BUSZI-2 corpus, which is available from the webpage of the project: http://www.nytud.hu/depts/tlp/interrogatives/resources.html

The BUSZI-*ugye* database contains 558 question-answer pairs, with 617 *ugye*-tokens, all examined regarding the following parameters: satisfaction of Sadock's (1974) tests for assertions/questions/neutral questions, compatibility with negative polarity items; embeddability; position of *ugye*; properties of the prejacent (given vs. new information, contains a predicate of personal taste or not); presence of other particles or conjunctions. It contains the results of utterance-function analyses of two analysts following the categories of Tottie&Hoffmann (2006), as well as some properties of the partner's reactions (positive / negative / no reaction). For further details about the database cf. Molnár (2019-DISS), which contains descriptive generalizations about the data [Module 3], and provides prosodic descriptions of some dialogues following the idealized tone-system of Varga (1993). The database is appropriate for further research, e.g. on the co-occurrence of *ugye* with other particles in different contexts.

The second resource we created and used is the Akaka Maptask Corpus (AMC), which contains dialogues that are recorded while pairs of speakers are performing a collaborative game. The game is a type of map task: one of the participants receives a map of a cave system, the other one a map of the surface of the earth above the caves. The task of the former participant is to find her way out of the cave, with the help of the other participant. The corpus currently consists of 30 dialogues of about 10 hours, recorded with separate head-mounted microphones and separate channels for each speaker, in 2019. Half of the dialogues were produced by speakers of the Transylvanian dialect of Hungarian, and the other half by speakers from Budapest. The concept and design is by C. S. Molnár, who also made the recordings.

The sound files have been transcribed with the help of an automatic speech recognizer software in TextGrid format (Praat), developed in the framework of NKFI project K 135038. These first transcriptions have been reviewed and corrected in two rounds by trained annotators, in collaboration with project K 135038.

Important advantage of the AMC is that since the "discourse universe" is restricted, it can easily be determined what constitutes the shared vs. private knowledge of the participants, what their preferences are, and what visual and auditory types of evidence are available for them. This makes it possible to identify relevant parameters for the analysis of bias. [Module 2.] In addition, the turns are short, and they represent a large variety of initiative and reactive moves, with canonical and noncanonical prosodic realizations. In [87], C. S. Molnár compares ∕\-declaratives to questions with final *ugye* in the AMC, and suggests that although both of them are felicitous in the presence of evidence for the positive answer [Module 2], the choice between them depends on whether the speaker wishes to close the discussion of the topic after receiving the answer ("cornering") or not: *ugye*-questions are preferred in the formal case, and ∕\-declaratives in the latter.

Module 2

The objective of this module was to design, implement and evaluate experiments on the division of labour among different root polar interrogative form types in Hungarian. We also promised to collect data from different dialects on the distribution of interrogatives encoded by the rise-fall intonation (/\-interrogatives) and the *-e* particle (*-e*-interrogatives). This was realised in the course of the experiments described below, and by making recordings of conversations based on a map task [Module 1].

After carefully analysing the experiments described in the literature that studied the conditions influencing the choice between different form types encoding polar questions for various languages as to their appropriateness for Hungarian data (cf. Gyuris, Molnár and Mády 2017, Molnár 2019-DISS), we designed and carried out four sets of experiments that tested, for the first time, how the division of labour between interrogative form types in Hungarian depends on previous expectations of the speaker (epistemic bias) and the availability of contextual evidence (evidential bias). The relevant parameters, discussed in detail in Gärtner&Gyuris (2017) [Module 4], are represented in Table 1. The *propositions* denoted by the two possible answers are referred to as *p* and ¬*p*.

		Epistemic Bias		
		for *p*	none	for ¬*p*
Evi-	for *p*	1	2	3
dential	none	4	5	6
Bias	for ¬*p*	7	8	9

Table 1: Bias configurations

We focused on positive and negative /\-interrogatives, to be referred to as *p/\?/¬p/\?* below (e.g. *Neked van ételallergiád /\?* 'Do you have food allergy?' vs. *Neked nincs ételallergiád /\?* 'Don't you have food allergy?'), positive polar *-e*-interrogatives, to be referred to as *p-e?* below (e.g. *Neked van-e ételallergiád?* 'Do you have food allergy?'), as well as tag question forms containing sentence-final *ugye*, referred to as *p-ugye?* (*Van ételallergiád, ugye?* 'You have food allergy, don't you?'), sentence-final *nem*, referred to as *p-nem?* (*Van ételallergiád, nem?* 'You have food allergy, don't you?'), and sentence-initial *ugye, hogy...*, referred to as *ugye-hogy-p?* (*Ugye, hogy van ételallergiád?* 'You have food allergy, right?'). In addition to obtaining data on a domain that has not been investigated experimentally, the results have great significance for linguistic typology: the use conditions of polar interrogatives have not been investigated before on a language with two root basic form types. The results were presented at various conferences, and some of them were also published in paper form or in Molnár (2019-DISS). Another paper is currently under construction.

Experiment Set 1

It contained four online forced-choice experiments (using Google Forms) that investigated the impact of contextual evidence and the speaker's previous expectations on the choice between two forms each time. Each experiment contained 16 experimental items and 32 fillers. The items consisted of a context description followed by the two interrogative forms, all presented in written form. Generalized linear mixed-effect models with random slopes were applied to the data, with evidence as fixed effect and participant and item as random effects.

In Experiments 1-3, the participants had to choose between the *p∧?* and *¬p∧?* forms in different contexts. In Exp. 1 (47 participants), they were presented in neutral contexts (with no evidence) vs. contexts with evidence for *p* (cells 5 and 2, resp., in Table 1). In both contexts, *p∧?* was strongly preferred. In Exp. 2 (73 participants), the two forms were presented in neutral contexts and in contexts with evidence for *¬p* (cells 5 vs. 8). As opposed to previous results on German and English, we found that *¬p∧?* was chosen only in 46,92% of the cases in the presence of evidence for *¬p*. In Exp. 3 (47 participants), choice had to be made in contexts with evidence for *¬p* with or without epistemic bias for *p* (cells 7 vs. 8). Surprisingly again, the two forms were chosen in an almost equal number of cases, and the effect of epistemic bias was not significant either. We attributed these results to politeness considerations or to a general preference for the unmarked *p∧?* form. The results of these experiments were described in Gyuris, Molnár and Mády (2017), as well as in Molnár, Gyuris and Mády (2017-XPRAG, 2017-ICSH, [35]-[36]).

In Exp. 4 (92 participants), participants were asked to choose between *p∧?* and *p-e?* in neutral contexts vs. in the presence of evidence for *p* (cells 5 vs.2). We hypothesized that *p-e?* would be preferred in neutral contexts, and *p∧?* in the biased one. However, no effect of the context on the choice between the two forms could be observed: *p-e?* was selected only in 12,5% of the neutral contexts, and in 10,9% of the contexts with evidence for *p*. Since these results indicate a general preference for *p∧?,* but may mask differences regarding the acceptability of *p-e?*, the forced choice experiment was concluded not to be optimal for testing for differences between *p∧?* and *p-e?*.

Experiment Set 2

In the next stage, we performed two paper-and-pencil follow-up experiments (consisting of 16 items each, with 66+66 participants), which intended to systematically check the situations used in Experiment Set 1 regarding the presence or absence of contextual evidence for *p/¬p,* and the presence or absence of speaker preference for *p/¬p*, respectively. These experiments were described in [50]. On the basis of the results, we reformulated our experimental items.

Experiment Set 3

Using the optimized items we created new online experiments using the experimental software OnExp (developed at the University of Göttingen), and a new design: speakers were asked to grade the naturalness (between 5 – completely natural and 1 – unnatural) of one interrogative form each time, presented aurally, in contexts presented in writing. The experiments investigated how the presence of evidence for *p* or *¬p* influences the acceptability of *∧p?*, *¬p∧?* and *p-e?* forms, in contexts where no epistemic bias for *p* is indicated explicitly (cells 2, 5, and 8). The questions were always meant to be interpreted as information seeking questions (and not as indirect requests or rhetorical questions). In each experiment, four lists were created according to a latin square design, with 24 experimental items and 32 fillers. We designed, carried out, and evaluated four experiments. Linear mixed-effect models with random slopes were fitted to the data with bias as fixed effect and participant and item as random effects. The results were presented in Gyuris, Molnár and

Mády (2020, 2021) and in [67], [78] and [81]. A paper discussing the findings is in preparation.

In Exp. 1 (81 participants), the $p\land?$ and the $\neg p\land?$ forms were presented in the neutral context and in the presence of evidence for p (cells 5 vs. 2). We hypothesized that in both contexts, $p\land?$ is preferred to $\neg p\land?$. The hypotheses were confirmed: $p\land?$ was preferred to $\neg p\land?$ in both types of contexts (difference in medians: 3 scores), but $p\land?$ received higher scores in the absence of evidence than in its presence. (Difference in medians: 1 score, $t = -7.37$, $p < 0.001$.) We assume this result having to do with the utility of asking questions in contexts with evidence for p.

In Exp. 2 (83 participants), the same forms were presented in the neutral context and in the presence of evidence for $\neg p$ (cells 8 vs. 5). We hypothesized that in the neutral context $p\land?$ is preferred to $\neg p\land?$, but in the presence of evidence for $\neg p$, $\neg p\land?$ is preferred to $p\land?$. Both hypotheses were confirmed: $p\land?$ was preferred to $\neg p\land?$ in the neutral context (difference in medians: 3 scores), and $\neg p\land?$ to $p\land?$ in the presence of evidence for $\neg p$ (but to a lesser extent, difference in medians: 1 score).

On the basis of informal observations, interviews with and written remarks made by the participants in Exp. Set 1 we noted that speakers living at various geographical areas judge the naturalness of $p\text{-}e?$ in informal situations differently (in spite of finding its use perfectly natural in formal situations). Whereas speakers from Western Hungary and Budapest reportedly do not use it, speakers from various regions east of the Danube consider it completely natural. Speakers from Transylvania have also been known for using the form more frequently than speakers from Hungary. In order to verify these differences, we performed Exp. 3 with three experimental groups, consisting of speakers from Budapest (BP, 40 persons), speakers from Heves County (HC, 32 persons) and from Transylvania (TS, 40 persons).

In Exp. 3, $p\land?$ and $p\text{-}e?$ were presented in the neutral context and in the presence of evidence for p (cells 5 vs. 2). We hypothesized that i) BP speakers find $p\text{-}e?$ natural in both contexts, ii) BP speakers find $p\land?$ natural in both contexts, iii) HC and TR speakers find $p\text{-}e?$ natural in the neutral context, but not in the presence of evidence for p, and iv) HC and TR speakers find $p\land?$ less natural in the neutral context than in the presence of evidence for p.

We first discuss the results for the BP and HC groups. They show that $p\land?$ was clearly preferred to $p\text{-}e?$. (Difference in medians: 3 scores, $t = 26.02$, $p < 0.001$ for the BP group, and $t = 5.09$, $p < 0.001$ for the HC group.) $p\text{-}e?$ received low ratings both in the neutral context and in the context biased for p. (Medians $= 2$ and 2 for the BP group, 3 and 2 for the HC group, respectively.) The overall rating of $p\text{-}e?$ was significantly higher in the neutral context than in the biased one for both groups (difference in medians: 1 score, $t = -7.49$, $p < 0.001$ for the BP group, and 1 score, $t = -4.52$, $p < 0.001$ for the HC group). In both groups, both forms received higher scores in the neutral context. For $p\land?$, the effect of context is significant in both groups ($t = -6.017$, $p < 0.001$ for the BP group, and $t = -4.642$, $p < 0.001$ for the HC group). The ratings by the two groups are represented in Figures 1-2 below:

Speakers from Budapest
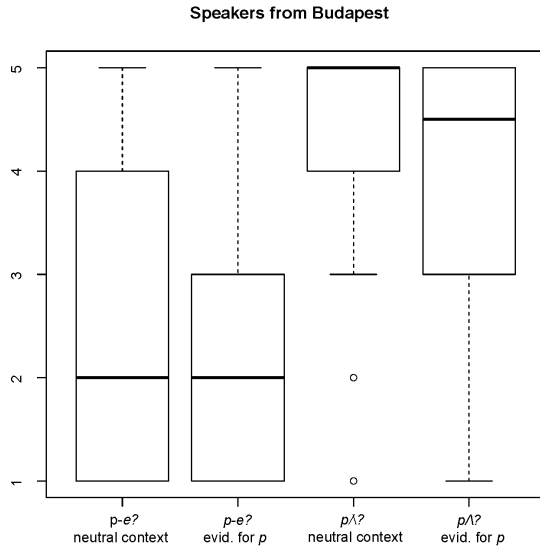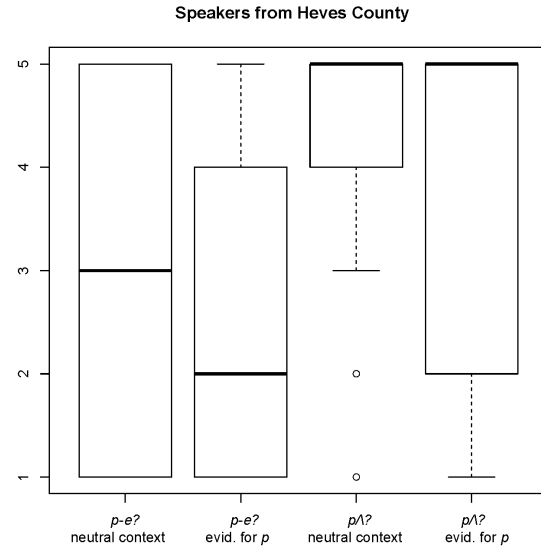

Speakers from Heves County

Figure 1

Figure 2

Thus, hypotheses i)-ii) were confirmed, but iii)-iv) were not.

Regarding the experiment with the TR group, the quantity of the data available at the moment is not sufficient to apply the statistical model presented above, since the number of valid questionnaires are unevenly distributed among the lists, thus further participants are being recruited at the moment. (We were only able to run a Mann-Whitney test on the data.) The ratings by the group are represented in Figure 3 below:
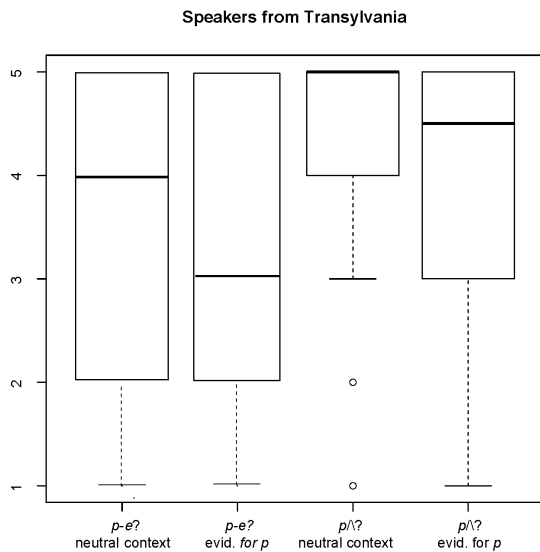

Speakers from Transylvania

Figure 3

Preliminary results show that $p\wedge?$ is is judged significantly more natural than *p-e?* by the TR group in both contexts, but the latter form is still rated more natural in both contexts than by the other two groups of speakers (medians: 4 and 3). Both forms received higher rates in the neutral context than in the biased one, the difference is significant for *p-e?*

The study resulted in some very interesting general conclusions that shed new light on the division of labour between the two positive polar interrogative forms. First, it was found that *p-e?* constitutes the marked case. Second, the informal observations about the naturalness of *p-e?* according to speakers living in different geographical areas were confirmed: HC speakers rated these forms higher than those from BP, and TR speakers gave them the highest ratings. Third, all groups rate *p-e?* significantly higher in neutral contexts than in contexts with evidence for *p*. Finally, both forms are rated higher in the neutral context by all groups, which we attribute to blocking by $\wedge$-declaratives [Module 3]. These results may form the basis of more extensive investigations in dialect semantics.

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Experiment Set 4

This set of experiments investigated the "bias profiles" of three Hungarian tag question forms *p-ugye?*, *p-nem?* and *ugye-hogy-p?*. Experiment design and methods were the same as in Exp. Set 3. The experiments are presented in detail in chapter 5 of Molnár (2019-DISS), and in [53], [59].

Exp. 1 (75 participants) investigated the naturalness of Hungarian tag question forms *p-ugye?*, and *p-nem?* in the presence of epistemic bias for *p* plus current evidence for $\neg p$ vs. no current evidence (cells 7 vs. 4). It was hypothesized that i) in the presence of evidence for $\neg p$, *p-nem?* is preferred to *p-ugye?*, and ii) *p-ugye?* is preferred in the neutral context. Only the first hypothesis was confirmed. Exp. 2 (74 participants) investigated the naturalness of the same forms in the presence of epistemic bias for *p* plus current evidence for *p* vs. no current evidence (cells 1 vs. 4). It was hypothesized that i) *p-ugye?* is preferred in the presence of evidence for *p*, and that ii) *p-ugye?* is also preferred in the neutral context. Only the first hypothesis was confirmed. Exp. 3 (69 participants) investigated the naturalness of *p-ugye?* and *ugye-hogy-p?* in the same contexts as in Exp. 2 (cells 1 vs. 4). It was hypothesized that i) *ugye-hogy-p?* is preferred to *p-ugye?* in the presence of evidence for *p*, and ii) *p-ugye?* is preferred in the neutral context. Only the second hypothesis was confirmed.

The results showed that in contexts with epistemic bias for *p* and evidence for $\neg p$ (cell 7) neither tag question forms are natural, but *p-nem?* is slightly preferred. In contexts with epistemic bias for *p* and neutral context (cell 4) *p-nem?* is only slightly preferred to *p-ugye?*, and *ugye-hogy-p?* is considered unnatural. In contexts with epistemic bias for *p* and evidence for *p* (cell 1), *p-ugye?* is rated significantly more natural than *p-nem?*. *Ugye-hogy-p?* and *ugye-p?* are interchangeable in this context.

The study of the phonetic properties of utterances of questions included a comparison between the prosody of self-directed (e.g. *How should I explain it?*) and other-directed question types in the Hungarian version of the Columbia Games Corpus. Although the prosody of self-directed questions turned out to be less expressive, the differences are of gradual nature, self-directed questions make use of the same set of pitch accents and intonation contours. Cf. Mády&Reichel (2016) and [20][22]. Mády et al (2017) provided evidence for finer distinctions among speech/dialogue acts, and in Mády et al. (2022) the proxy-performance of speech acts through impersonation of narrative characters was uncovered as an interesting new issue for further research.

Module 3

Our aims within this module were to investigate contemporary models of question semantics and pragmatics from the perspective of Hungarian data, focusing on how particular special question uses can be accounted for within them, and how the formal tools used can be sharpened.

Probing the success of models in accounting for special question uses has proven fruitful. In Gärtner&Gyuris (2022-SUB, 2022-TA, to appear) we pointed out inconsistencies between a semantic ("table model" based) account for the clause type constraint on *vajon* and bipolar analyses of rising declaratives as well as monopolar analyses of interrogatives. The analysis (ibid.) of two types of rhetorical questions has brought out the necessity to link the licensing of *vajon* to the impact of presuppositions on common ground updates. Direct ("trivial") satisfaction blocks *vajon* while presupposition accommodation is compatible with this particle in such questions. The observation (ibid.) that *vajon* prevents question acts from being turned into indirect requests led us to suggest supplementing use conditional models with "shielded use conditions", which preserve such pragmatic freezing effects under Gricean reasoning.

New empirical observations in the form of morphosyntactic and semantic diagnostics of propositional/inside and pragmatic/outside negation (IN/ON) readings of the two root interrogative form types in Hungarian are offered in Gyuris (2016, 2018-JB). It is shown that theories relying on VERUM/negation ambiguity, the FALSUM or the denegation operators cannot automatically be applied to account for the fact that $\wedge$-interrogatives are ambiguous between IN and ON readings but negative *-e*-interrogatives only give rise to the latter. An explanation for the obligatory ON readings of *-e*-interrogatives is offered by Gärtner&Gyuris (2020, 2022-SL, [79], [88] and [92]) in a minimalism-inspired feature-based model, which captures the incompatibility between *-e*-interrogatives and propositional "inside" negation as a syntactic intervention effect, relying on a diachronically motivated negative "phantom" feature on *-e*. This model is capable of treating the $\wedge$- vs. *-e*-interrogative distinction in terms of type+force vs. pure type orientation relayed by peripheral functional projections. Likewise, interfacing with a discourse/commitment model is envisaged via such functional categories, which enables the treatment of pragmatic "outside" negation (via force modification). In an analysis of polar *-e*-interrogatives used as echo questions in reaction to polar questions, Gärtner&Gyuris (2022-SL) discovered a prosody related ambiguity in the behavior of *-e* that depends on whether the role of *-e* is confined to clausal typing or in addition extends to contributing erotetic force. We sketch an exploratory "typology" of formal and interpretive mechanisms able to account for incompatibilities between (varieties of) negation and polar interrogatives.

In Gyuris (2021, to appear), and in [61], [62], [73] and [74] a non-canonical negative interrogative form type containing *nem-e* is shown to give rise to a particular non-canonical interpretation for certain speakers who in other respects speak the standard dialect: it is compatible with epistemic but not with deontic or bouletic bias for the positive answer. The account relies on novel assumptions about the information structure of the clause, and is formulated in terms of a QUD-based approach, hard-wiring reference to a "superordinate" QUD.

Gyuris (2022) improves on earlier accounts of the discourse particle *talán* by attributing it the use condition of signalling the presence of a superordinate QUD. The novel observation that in polar interrogatives with polarity focus it gives rise to obligatory rhetorical question readings (which is not the case with $\wedge$-declaratives and polar interrogatives that contain

constituent focus) is accounted for by referring to a ban on question-subquestion identity. (Cf. [54], [68].)

Gyuris (submitted) provides the first formal analysis of the interpretation of the particle *ejsze,* frequently used in Transylvanian dialects of Hungarian, and considered by speakers to be analogous to *talán,* by suggesting that it is an inferential evidential to be analyzed analogously to German *wohl.* It is also argued that the fact that *ejsze* appears in utterances expecting a reaction from the hearer does not mean that it is compatible with interrogatives.

We have proposed a classification of uses of English "rising declaratives" and their mappings to Hungarian form types, cf. Gyuris (2019-K+K, 2020-CLS), demonstrating the insufficiency of a number of models proposed for the analysis of rising declaratives in Germanic languages to capturing the use conditions of ∧-declaratives in Hungarian, the closest equivalents of the former. We argued for the need for a finer structure than the one provided by the standard Farkas-Bruce discourse model, such that information/evidence becoming situationally available to speakers immediately prior to their speech acts can also be represented. More generally, capturing the availability of and interaction between perceptual, reportive, and inferential evidence is shown to be a prerequisite for treating the distinction between alternative questions ("cornering effect") and Hungarian *-e*-interrogatives in Gyuris (2019-JNY). A critical discussion of the entry for *-e* and the examples illustrating it in the Historical Dictionary of Hungarian was given by Gyuris (2020-PRT).

The investigation of formal and interpretational features of the particle *ugye*, which appears in utterances that encode assertions and those that encode questions has been one of the central concerns of the project. Molnár (2019-DISS), relying on the results of a prosodic study, a syntax questionnaire, and the database created by her representing relevant features of the exchanges with *ugye* in the BUSZI-2 corpus [Module 1] makes several new empirical observations. According to them, a prototypical *ugye*-question contains a sentence-initial or a sentence-final *ugye*. In this case, *ugye* is stressed, and it bears a rise-fall contour character. Sentence-finally it is frequently preceded by a short pause. In contrast, an *ugye* occurring in a prototypical assertion is situated in a non-peripheral position, in most cases preverbally, it is hardly ever stressed, and its intonation contour is integrated into the melody of the adjacent constituents. In questions, *ugye* cooccurs most frequently with the particles *hát* 'well', *tehát* 'so', and *akkor* 'then'. In assertions, *ugye* cooccurs most frequently with *hát* 'well', *mert* 'because', and *és* 'and'. In discourse, both *ugye*-questions and *ugye*-assertions are normally followed by a reaction from the partner. This reaction is mostly positive (confirmation). Negative (or inverse polarity) reactions have only been found following *ugye*-questions. *Ugye* is argued not to pattern with sentence adverbials or parentheticals, claimed to share several formal and functional properties with English tag questions (cf. also Molnár 2019-K+K.), and shown to also appear in *wh*-interrogatives, where it has the function of a context-marker operator (cf. also Molnár 2016). The interpretation of *ugye* was modelled by Molnár in terms of Farkas&Roelofsen's (2017) proposal, according to which the function of *ugye* is to provide information about the credence level of the speaker regarding the propositional content of the rest of the sentence. Parts of the work were also presented in various talks (cf. [7], [23], [27]).

[44] compared the grammaticalization/pragmaticalization paths of Hungarian *ugye* and Czech *že*.

Gyuris (2018-SPR) proposed a unified formal modelling of the contribution of *ugye* to assertions and questions. This contribution is claimed to be a condition on input contexts: the discourse agent who is the interlocutor of the default perspectival center of the speech act at hand is committed to the propositional content of the sentence. The paper also sketches a possible historical development from a tag-type use to a sentence internal use in which the contribution of intonation separated from the contribution of the lexical meaning of *ugye*.

A particularly relevant object of interest were innovative type-theoretical and "ontological" assumptions about clausal denotations. A critical investigation of recent more or less radical proposals for rethinking clausal complementation as (some kind of) relativization/modification, with attention to both syntactic and semantic properties, and special reference to Hungarian. This was presented in [13].

Gyuris&Molnár (2016) puts forward a case study of polar interrogatives containing embedded declaratives with opposing polarity, arguing that a reply reacting to the embedded clause is felicitous if the latter contributes the at-issue meaning.

The list of deliverables in the project proposal included an academy doctoral dissertation by B. Gyuris. Although this work has not been submitted to the Hungarian Academy of Sciences, the chapters exists in near-finished form, and submission is going to take place within a very short time. The monograph synthesizes the author's work within the project on the formal modelling of the interpretation of canonical and noncanonical polar interrogatives in Hungarian, with particular attention to their bias profiles. The structure of the work is the following:

Chapter 1.   Bias in polar questions: facts and modelling. (Introduction)

Chapter 2.   Form types encoding polar questions in Hungarian: An overview

Chapter 3.   The bias profiles of canonical polar interrogatives in Hungarian (Positive and negative -*e*- and /\ interrogatives: data and modelling)

Chapter 4.   A noncanonical negative polar interrogative: *nem-e* in the Standard Dialect

Chapter 5.   /\-declaratives

Chapter 6.   Particles in polar questions

Chapter 7.   Conclusions

Module 4

One of the objectives in Module 4 was to study Germanic languages and their ways of "encoding core properties of the type-mood-force nexus in their clausal peripheries." This agenda was pursued in two directions, namely, the study of (i) declarative Verb Second (V2) clauses and (ii) root infinitivals.

Regarding (i), special attention was paid to two open challenges: (a) the broader scope of V2 embeddability in Icelandic, and (b) V2 under symmetric disjunction in German. As for (a), Gärtner&Eyþórsson (2020) distinguished two varieties of Icelandic, one possessing narrow V2 like Mainland Scandinavian languages and another showing the broader distribution of embedded V2. The latter was accounted for via correlation to a "dominant" system of verbal mood, which is capable of overwriting illocutionary specifications and steering V2-clauses into "assertion-hostile" environments. This connection was modeled in terms of a distinction between "commitment-taking" and "commitment-flagging." The interaction between verb placement and verbal mood was linked to a diachronic scenario of default clausal (in)dependence marking, which in particular accommodates the shift toward the newer narrow systems. En passant, we took a closer comparative look at the distribution of subjunctives in Icelandic, German and Romance, which led to the discovery that the "anti-origo condition" familiar from German reportive uses is suspended in Icelandic. We also pointed out that an ongoing indicative-to-subjunctive shift in Icelandic conditional protases fits the predicted diachronic drift toward "autonomous," semantically transparent, mood choice. The latter issue was further investigated in Gärtner&Eyþórsson (2021) ([77]) and linked to the influence of modal and temporal parameters. Gärtner (2019) applied some of the above insights to the analysis of the historical development of "V-to-I" movement in Danish and how to distinguish it from embedded V2. The often mentioned close relation between Icelandic and Yiddish was explored in [72], further consolidating the hypothesis that information-structural factors create additional distributional options for V2 in Yiddish.

Concerning (b), Gärtner&Michaelis (2020) and [84] defended an earlier proposal of how to modify an assertion approach to V2-declaratives to account for their occurrence in symmetric disjunction. Importantly, they showed that alternatives based on the notions of "at-issueness" or "main point of utterance" run into serious difficulties when generalized. At the same time, the core mechanism of "progressive update" turned out to fail in conditionals where antecedent and consequent contradict each other. This has led to a - so far inconclusive - search for an amendment in terms of connexive logic and the observation that a prima facie more successful constructionist model is unable to rule out V2-declaratives under negation. Similar objections were raised against recent versions of "preference semantics" (see also [82]).

The phenomenon of root infinitivals, (ii), poses another substantial challenge to models of the type-mood-force nexus in that reduced peripheral clausal structure and specific illocutionary potential have to be co-determined. [47] provided a comprehensive overview over formal subtypes and their interpretive spectrum. Among other things it was shown that the ban on certain modal particles and concessive construals from German "directive" root infinitives can be derived by structurally blocking the encoding of "call-on-addressee." [9],[21],[24], and [34] were devoted to arguing that the same type of German root infinitives is incompatible with polar interrogative mood. Instead, prosodically rising types could be analyzed as implementing "preemptive" proxy-requests on behalf of the addressee whose contextual adequacy requires participant ratification.

Another objective was to study means for expressing "reflective" questions. Here, the contrastive analysis of Hungarian and German types by Gärtner&Gyuris (2022, to appear) has led to the discovery that the former but not the latter underlie an "equal expertise" condition, i.e., speaker and addressee competence are assumed to be on the same level. For further discussion, see Module 3.

In the project proposal we expressed our hope that some form type effects of special questions can be found in Hungarian. This was indeed fulfilled as substantiated by the section on *nem-e*-interrogatives [Module 3].

Finally, the broader goal of establishing empirical evidence and theoretical foundations for a "typology of (special and minor) sentence types" was tackled from several different angles.

First, matters of syntax and its interfacing with interpretive components were addressed in [51] (laying out the constraints on the occurrence of logophoric reflexives in Icelandic infinitivals), [31] (looking at treatments of the type-mood-force nexus in Functional and Construction Grammar), [85] (discussing a very recent proposal for the "syntactification of discourse" wrt root phenomena), and Gärtner (2022) ([91]) (exploring, and in large parts confirming, an earlier conjecture regarding the complementarity of embedded non-finite interrogatives and pronominal indefinite-interrogative ambiguity for the Uralic languages.)

Second, we undertook further individual case studies. One, in Gärtner&Pankau (2021) ([83]), on interrogative marking in (Berlin) Marzahn German, which provide grammatical evidence for Levinson's conjecture that askings of information questions come with a social cost and which challenge the analysis of exam questions as pretense information questions. Another, [75], exploring the grammar and pragmatics of Yiddish interrogatives with particular attention to embedded root occurrences and insubordination as well as the special uses triggered by particles. A third one (Gärtner 2016, [10], [41]) took adhortative clauses in contemporary and Old Germanic as starting point and developed the question of how to determine referents of plural jussive subjects into an investigation of joint intentionality and its bearing on the nature of mythological or literary group individuals.

Third, Gärtner&Gyuris (2017)(cf. [1], [2], [6]) studied "bias profiles" of polar interrogatives, i.e., combinations of epistemic and evidential bias determining the contexts these clause types are compatible with, and provided illustrative examples from a small sample of languages (English, Hungarian, Japanese). It was noted that while the number of potential bias profiles is suprisingly high, only very few of them were attested, given limited availability of data. Several semantico-pragmatic principles for classifying bias profiles were discussed and constraints able to reduce their number, based on notions like markedness, complementarity, and convexity, explored. This research was further pursued in Gyuris (2022-CIFU) on Estonian and in [43] on Slowak, Czech and Polish.

Fourth, continuing their previous work on cognitive approaches to the type-mood-force nexus, Gärtner&Steinbach (2017) ([42]) analyzed and critiqued attempts to account for the pattern of major sentence and illocution types in terms of belief-desire-intention psychology and proposed a modification that aligns such approaches with Searle's views on psychological states involved in sincerity conditions. Along similar lines, Gärtner (2021) put forward an

important macro-level hypothesis to characterize major sentence types in terms of elementary default action sequences triggered by corresponding illocution type s. This singled out declaratives, interrogatives, and imperatives as major. The lack of a "promissive" sentence level counterpart of the commissive illocution type was explained on the basis of tools from (evolutionary) decision/game theory with particular appeal to the "learning bottleneck", i.e., instability in caretaker-child interaction. Facts from infant pointing were taken as supporting evidence. As a consequence, anything beyond the three major types were considered minor or special, which generates interesting testable predictions for the (late) acquisition of the full gamut of special (e.g., particle-marked) interrogatives and their specialized (e.g., rhetorical, reflective, mirative etc.) uses.

Further Activities

During the runtime of the project we tried to find ways of making our work and results known to fellow researchers, students, and members of the general public.

Hans-Martin Gärtner and Beáta Gyuris organized a Workshop "The Grammar and Pragmatics of Interrogatives and Their (Special) Uses" at the GLOW 41 conference in Budapest on 14 April 2018.

Beáta Gyuris and Hans-Martin Gärtner taught three courses at ELTE (Institute of Philosophy, Centre for Theoretical Linguistics) on topics related to the project: one on *Special Questions* in the spring semester of 2016, one on *Questions and Particles* in the spring semester of 2020, and one on *Particles and Questions*, in the autum semester of 2020.

Hans-Martin Gärtner also taught a course on *Issues in Special and Minor Sentence Types* at the Göttingen Spirit Summer School on Complex Clauses at Göttingen University, between 8 and 12 August 2016.

Beáta Gyuris gave an invited talk for university students in Szeged (cf. [66]).

Cecília Sarolta Molnár published two mini-series of popularizing articles introducing topics closely connected to our research at nyest.hu.

Beáta Gyuris appeared as a guest at the radio program Szószátyár, hosted by László Kálmán and Ádám Nádasdy in Klubrádió on 18 November 2020, where they discussed the (special) uses of various forms encoding questions in Hungarian.