Polarity Particles in Hungarian

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Abstract[1]

This paper proposes an account of the distribution and role of a set of particles in Hungarian dubbed `polarity particles', which include *igen* `yes', *nem* `no', and *de* `but'. These particles occur at the leftmost edge of a class of assertions uttered as reactions to an immediately preceding assertion or polar question. It is argued that they express two sets of features typical of the class of reactive assertions they occur in, one set encoding the polarity of the asserted sentence, and the other encoding the relation of the asserted sentence to the immediately preceding utterance. The discussion is set against an explicit approach to context structure and to assertive and polar questioning speech acts that draws on a number of pre-existing proposals in the literature.

1 Introduction

This paper aims to make a first step towards an account of the behavior of the particles *igen, nem, de igen/nem* in Hungarian, illustrated in (1) - (3) :

(1) A: *Samu elment.*
Sam PART.left
'Sam left.'
B: *Igen, elment.* / *Elment.* / *Nem, nem ment el.*
yes, PART.left / PAR.left / no, not left PART
`Yes, (he) left./No, (he) didn't leave.

(2) A: *Samu elment*?

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Sam PART.left
`Did Sam leave?'
B: *Igen, elment. /Elment. / Nem, nem ment el.*
yes, PART.left / PART.left / no, not left PART
`Yes, (he) left./No, (he) didn't leave.

(3) A: *Samu nem ment el*?
Sam not left PART
`Did Samu not leave?'
B: *De igen, (elment).*
de yes, PART.left
`But yes, he left.

These particles, and their siblings in other languages, will be referred to as *polarity particles*, and the type of answers B gives here will be called `echo assertions'. Such assertions echo a previous sentence either keeping its polarity or reversing it. As the examples above illustrate, echo assertions are used in reactions to assertions or polar questions. In order to make sense of their function and distribution I first provide a brief characterization of these two speech acts against the background of an expanded context structure in Sections 2 and 3. In Section 4 I characterize the type of responses exemplified in B's utterances above and introduce two sets of features that these particles express. The material in these sections is discussed in more detail in Bruce & Farkas (2008). For data on Romanian polarity particles, see Farkas (to appear). Section 5 turns to the Hungarian data and to an account that relies heavily on the background given in the previous three sections, while Section 6 concludes.

2 Context structure components

Note that the polarity particles that interest us here occur in assertions that react to assertions and polar questions. They are inappropriate in `out of the blue' assertions as well as in answers to constituent questions. Thus, the examples in (4) are bad as

conversation starters, while in (5) all B's utterances are bad as answers to A's question.

(4) *Igen, Samu elment*.
yes, Sam PART.left
'Yes, Samu left.'
Nem, Samu nem ment el.
no, Sam not left PART
`No, Samu did not leave.'
De igen, Samu elment.
de yes Sam PART.left
`But no, Samu left.'
De nem, Samu nem ment el.
de no, Sam not left PART
`But no, Samu did not leave.

(5) A: *Ki ment el*?
who left PART
`Who left?'
B: **Igen, Samu elment*.
yes Sam PART.left
'Yes, Samu left.'
B: **Nem, Samu nem ment el.*
no, Sam not left PART
`No, Samu did not leave.'
B: **De igen, Samu elment*.
de yes, Sam PART.left
`But yes, Samu left.'
B: **De nem, Samu nem ment el*.
de not, Sam not left PART
`But no, Samu did not leave:

In order to understand the function and distribution of these particles we therefore have to understand the details of the type of speech acts they occur in reaction to, namely assertions and polar questions. We will do that against the background of a context structure whose components are given briefly in this section.

The context structure I will be working with is exemplified in Figure 1, under the assumption that we have two participants, A and B:

A	**Table**	**B**
DC_A	S	DC_B
Conunon Ground *cg*	**Projected Set** *ps*	

Figure 1

At least since Stalnaker (1978), work on discourse has recognized the importance of *discourse commitments,* propositions that participants in the discourse publicly commit to. A proposition *p* that is a discourse commitment in a discourse *d* is taken to be true of the world in which the discourse occurs by at least some participant in *d.* Discourse structures register the discourse commitments of their participants, I assume, in two ways. First, for each participant *X,* there is a list of propositions, DC_X, made up of the propositions *X* has publicly committed to in the course of the current conversation and which have not (yet) become joint commitments. These are represented by DC_A and DC_B in Figure 1.

Those propositions that all participants in a discourse are publicly committed to are represented as a separate component, the *common ground* (*cg*). The propositions in the *cg* are the joint public commitments of the participants in the discourse. These propositions get in the *cg* either by virtue of being publicly accepted during the course of the conversation by all participants, or because they are part of knowledge taken for granted by the conversational community.[2] (Ginzburg calls the items in our *cg*, FACTS.)

Since the propositions in the *cg* are supposed to be true of the world of the conversation, for the purposes of the conversation, they have to be consistent in a coherent discourse. The total discourse commitments of a participant *X* are those

[2] Work in dynamic semantics at least since Karttunen (1976), Kamp (1981) and Heim (1982) has taught us to go beyond the level of propositions to finer grained entities such as discourse referents but the matters discussed here do not force us to go beyond the

propositions that are in the union of the propositions in *cg* and in DCx. For X to be a coherent discourse participant, her total discourse commitments have to be consistent. For a discourse to be coherent, the propositions in its *cg* have to be consistent. Note now that the participants in a discourse may be coherent, and a discourse may be coherent without the union of the discourse commitments of the participants to be itself consistent. Separating the *cg* from participants' discourse commitment lists allows us to capture why discourses and participants can be coherent even in the aftermath of an agreement to disagree, for instance.

Following much current work on the pragmatics of discourse, and in particular Büring (2003) and Ginzburg (forthcoming), we assume that there is a special conversational component, the Table, where matters under discussion are entered. These matters are called Q(uestions) U(nder) D(iscussion) in Büring (2003) and Ginzburg (forthcoming). The items on the Table are the syntactic objects representing an utterance as well as its interpretation. We assume that they form a stack whose top item is the immediately previous utterance. The presence of the syntactic object on the Table is useful in accounting for the grammar of cross-turn ellipsis.

The context structure in Figure 1 has a component not found in Büring (2003) or Ginzburg (forthcoming), called the *p(rojected) s(et)*. It is assumed here that any move that enters an item on the Table steers the conversation towards a state reached after the item in question is removed in a canonical way, namely in a way that increases the *cg*. The *ps* is the conversational space that records where the conversation is headed, and in this sense it is similar to the `managed common ground' in Krifka (2007). To anticipate, assertion acts steer the conversation towards accepting the assertion while questioning

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propositional level and therefore we will not do so.

acts steer the conversation towards resolving the question.

The *ps* is made up of a set of possible privileged future common grounds that are reached by changing the current *cg* when the items from the Table are removed in a canonical way. This set is singleton in case all the Table contains is an asserted sentence since in that case there is only one projected future *cg*, namely the current one augmented by the propositional content of the assertion. When a question is on the Table the *ps* contains a set of privileged future common grounds constructed by adding to the current *cg* each contextually possible answer to the question in turn. When the Table is empty the *ps* contains a copy of the current *cg*, a situation that will not be represented separately. The *ps* allows us to capture the proposal nature of speech acts thus leaving room for moves that accept/reject assertions and settle questions, a crucial aspect for understanding the distribution and the function of polarity particles.

3 Assertions and Polar Questions

3.1 Assertion

We focus here on garden variety assertions, speech acts performed by uttering a declarative sentence with falling intonation. Utterances involving `rising declaratives', i.e., declarative sentences uttered with rising intonation, will not concern us here so we will take all declarative sentences to be pronounced with their default intonation, namely falling. Leaving intonational contour aside, I assume that a declarative sentence, *S*[D], is made up of a proposition denoting sentence radical *S* and the feature [D] that marks its declarative form.

The effects of a participant, *a* asserting a declarative sentence *S*[D] with propositional content *p* on the input context are given below:

• p is added to DC_a

• the pair < S[D]; p> is entered on the top of the stack on the Table

• acceptance of p is proposed by adding p to each element of the input ps

Assuming that the input context state is as in Figure 2, the effect of A asserting *Sam is home,* with propositional content p is given in Figure 3.

A	**Table**	**B**
Common Ground s_1	**Projected Set** $ps_1 = \{s_1\}$	

Figure 2: K_1

A	**Table**	**B**
p	< *Sam is home*[*D*]; p >	
Common Ground $s_2 = s_1$	**Projected Set** $ps_2 = \{s_1 \cup \{p\}\}$	

Figure 3 K_2: A asserted *Sam is home* relative to K_1

Note that assertion projects acceptance but does not affect the input *cg* directly. The asserted proposition is added to the *cg* only after the participants in the conversation have accepted A's assertion.

3.2 Assertion confirmation and assertion reversal

Once A has made her assertion, the immediate task of the conversation is to attend to S[D] and eventually remove it from the Table. The canonical way of doing that is to accept p whereby p becomes a joint commitment and the projected change (addition of p to the *cg)* is carried out on the input *cg*. The effect of B accepting A's assertion is to add p to DC_B. Assertion confirmation then is a conversational move that requires the presence on the input context Table top of S[D] with propositional content p. The effect of the move is to add p to the discourse commitment list of its author.

Assertion acceptance can be signaled by silence, the particles *yes, yeah,* or *ok,*

sure, right! correct and their equivalents in other languages. Once a proposition is present on the discourse commitment lists of all participants in a conversation, it becomes a joint commitment. In this case an auxiliary operation *M* applies whose effects are listed below:

- *p* is added to the *cg* of the conversation
- *p* is removed from the commitment lists of all participants
- all items containing the sentence radical *S* are popped off the Table stack

In our little abstract conversation, *B's* acceptance triggers *M,* which leads to a context state whose Table is empty and whose *cg* now contains *p*. Assertion confirmation is an essential move towards reaching the conversational state projected by the initial assertion, namely the addition of the asserted proposition to the *cg.*

A radically different possible reaction to an assertion is *reversal* or contradiction, whereby the author of the move commits to the complement of what his conversational partner has just asserted.[3]

A discourse move is a total contradiction if the move is made relative to an input context that has *S*[D] on the top of its Table, where the sentence radical, *S*, denotes *p,* and the move commits its author to ¬*p.* One way of executing a total denial is by asserting the opposite of the sentence that one reacts to. Assuming that *B*'s reaction to *A*'s assertion is such a total denial, the resulting context state is as in Figure 4. (See Asher & Lascarides (2003) for insightful discussion of contradictions.)

[3] This is a case of flat contradiction or denial. One can, of course, contradict or deny only part of what has been asserted and accept everything else. See van der Sandt & Maier (2003) for insightful discussion.

A	Table	B
p	< *S*[*D*]; *p* > < ¬*S*[*D*]; ¬ *p* >	¬*p*
Common Ground $s_4 = s_2$	**Projected Set** $ps_4 = Ø$	

Figure 4 K_4: Contradiction on the Table

The conversation is now in crisis because the *ps* is the empty set. There is no way of canonically removing both items from the Table while preserving a coherent *cg*. Contradictions therefore are marked discourse moves. One can resolve the crisis a contradiction creates by either having one of the participants retracting their assertion or by the participants agreeing to disagree. In the latter case, each participant remains committed to the propositional content of their original assertion but neither proposition is added to the *cg* of the conversation while both asserted sentences (and their propositional content) are removed from the Table. This removal is not canonical since at the level of the conversation the issue each assertion raised is not settled. Note that in such a case each participant's discourse commitment set may be consistent and each may be consistent with the current *cg*, which in itself may be consistent, while the union of the discourse commitments of the participants is *not* consistent.

3.3 Polar questions

The default way of asking a polar question is to utter a polar interrogative, exemplified in (6):

(6) *Is it raining*?

I assume that a polar interrogative sentence is made up of a proposition denoting sentence radical *S* and an interrogative feature [I]. Assuming that the denotation of *S* is *p,* the denotation of *S*[I] is {*p,* ¬*p*}.

The polarity of the sentence radical may be positive, as in the example above, or it may be negative, as in (7):

(7) *Is it not raining*?

In English, besides `inner' negation polar interrogatives there are `outer' negation polar interrogatives as well, exemplified in (8):

(8) *Isn't it raining*?

There is much discussion in the literature concerning the difference between these two types of negative polar interrogatives in English (see van Rooij & Safarova (2003), Romero & Han (2004) among many others). Here we will be dealing only with `inner' negatives in English and their Hungarian counterpart, exemplified in (9).

(9) *Nem esik*?
not rains
`Not rains?'

The context changes registered when a participant utters a polar interrogative sentence are the following:

- The pair $< S[I]; \{p, \neg p\} >$ are entered on the top of the Table.
- A new *ps* is formed by adding to each of its elements p and $\neg p$ in turn.

The first change registers the fact that an issue has been raised, namely the issue of the status of the proposition denoted by the sentence radical *S*. The second change registers the privileged futures that the speech act steers the conversation towards. These are futures in which the issue is resolved positively (those elements of the input *ps* to which p is added) or negatively (those elements of the input *ps* to which $\neg p$ is added). The act of asking a polar question then raises an issue and projects positive or negative resolution, while the act of asserting the corresponding declarative sentence raises the same issue but projects acceptance, while at the same time committing the author of the assertion to p.

Let us look at the simplest case, namely the case when a polar question such as *Is Sam home?* is asked against the input context K_1. The output context state after the question was uttered is as in Figure 5.

A	**Table**	**B**
	< *Sam is home*[I]*;* {*p*, ¬*p*} >	
Common Ground s_1	**Projected Set** $ps_1 = \{s_1 \cup \{p\}, s_1 \cup \{\neg p\}\}$	

Figure 5: *Is Sam home?* was asked against the input context K_1

Note that given what was said above, positive and negative polar questions can be differentiated based on the nature of the item they place on the Table, even though their denotations are identical. This is a welcome result.

3.4 Polar question confirmation and reversal

The canonical removal of a question is to propose a resolution to the issue raised and have that resolution accepted by the other participants. The issue raised in the case of a polar question expressed by an interrogative sentence *S*[I] whose sentence radical denotes a proposition *p* is whether *p* is true or not. Parallel to assertion confirmation, we have confirmation reactions to polar questions. Such a move involves its author committing to *p.* If the other participants accept *p,* the issue is resolved, *p* is added to the *cg* and the question and its answer are removed from the Table. The means by which polar question confirmation is signaled in English overlap with assertion confirmation.

(10) A: *Is Sam home*?
B: *Yes, (he is). /Ah huh.*

One essential difference between assertion confirmation and polar question confirmation is that while the former can be signaled by silence the latter cannot.

Just like in the case of assertions, one can propose a resolution to a polar question by committing to the complement of the denotation of the sentence radical placed on the

Table. In the case of assertions, this amounted to contradiction. In the case of polar questions, this is simply proposing a negative resolution. The author of the question can accept the negative resolution without having to retract a previous commitment, and once the negative resolution is accepted by all participants, the conversation reaches a *cg* that was projected as one privileged future by the original question

Again, as expected, the means of signaling polar question reversal overlap with those signaling contradiction:

(11) A: *Is Sam home*?
B: *No, (he isn't)./ Oh huh.*

3.5 Assertions vs. polar questions

It is now time to look back to default assertions and polar questions to see what they share and in what they contrast. We will then generalize over the reactive moves discussed above and characterize confirming and reversing moves. To conclude the stage-setting part of the paper we define echo assertions in the next section.

Common to both default assertions and polar questions is that they raise an issue, the issue of the truth of the proposition denoted by their sentence radical. In our terms, this means that they place a proposition denoting sentence radical on the Table and project future common grounds in which that proposition is decided. A proposition is decided in a common ground *cg* if either p or $\neg p$ is entailed by *cg.* The immediate task of the conversation now is to settle the issue. Given this essential core similarity between assertions and polar questions, we expect reactions to them to be similar as well.

Next, note that the two speech acts under discussion differ in that assertions commit their author to the proposition in question and project confirmation only. Polar questions on the other hand do not commit the author to the proposition in question and project both confirmation and reversal. We expect reactions to these two speech acts to

be sensitive to this contrast and therefore we expect the overlap between reactions to assertions and to polar questions to be only partial.

Turning now to the reactions to assertions and polar questions discussed above, note first that they are reactive in the sense that they presuppose a particular immediately preceding move, one that places a proposition denoting sentence radical on the Table. In a *confirming* move, the author commits to this proposition while in a *reversing* move the author commits to the complement of that proposition. If the confirming move reacts to an assertion, the author of the confirming move and the author of the initial assertion have reached agreement on the proposition at issue. If the confirming move reacts to a polar question, its author proposes a resolution of the issue that awaits acceptance from the interlocutor(s). If a reversing move reacts to an assertion, it places the conversation in a crisis since now the two participants have proposed and committed to opposite resolutions of the issue. A reversing move reacting to a polar question on the other hand does not lead to any crisis since there is no commitment to the relevant proposition and both a positive and a negative resolution are projected by the polar question.[4]

4 Echo assertions and their features

We can now define echo assertions as reactive assertions involving a sentence radical that is the same as or the opposite of the sentence radical on the Table, up to anaphoric relations and, of course, polarity. Echo assertions are exemplified by *B*'s contributions in (12) and (13):

(12) A: *Mary left*. / *Did Mary leave*?
B: *(Yes), she did*. / *(no), she didn't.*

[4]Polar questions may express a bias for one or the other resolution in which case the reaction may go with or against this bias.

(13) A: *Mary didn't leave*. / *Did Mary not leave*?
B: *No, she didn't. Yes, she did.*

The Hungarian equivalents are given in (14) and (15):

(14) A: *Mari elment. / Mari elment*?
Mari PART.left / Mari PART.left?
`Mari left./ Did Mari leave?'
B: *Igen. / El. / Elment. / Nem, (nem ment el)*.
yes / PART / PART.left / no, not left PART
`Yes. she did./No she didn't'

(15) A: *Mari nem ment el. / Mari nem ment el*?
Mari not left PART / Mari not left PART
`Mari didn't go away./Did Mari go away?'
B: *Nem, nem ment el. / De(igen), elment*.
no not left PART / **de** (yes) PART.left
No she didn't./Yes, she did.'

Note now that echo assertions can be characterized by two sets of polarity features. The first, called *absolute polarity,* encodes the polarity of the sentence radical asserted by the echo. Echo assertions whose sentence radical is positive have the absolute polarity feature [+], while echo assertions whose sentence radical is negative have the absolute polarity feature [-].

The second set of polarity features, called *relative polarity,* concerns the confirming or reversing nature of the echo assertion. If the echo is confirming it will have the polarity feature [*same*], while if it is reversing, it will have the polarity feature [*reverse*]. In (12), *B*'s first reaction has the features [+] and [*same*], while the second has the features [-] and [*reverse*]. In (13), *B*'s first reaction has the features [-] and [*same*], while the second reaction has the features [+] and [*reverse*]. The possible combinations of these two polarity features are given in (16), together with the shorthand to be used, where the absolute polarity of the input assertion is given to the left of the slash and that of the echo assertion to the right.

(16) *Feature content of responding assertions*
(a) +/+: [*same,* +]
(b) -/-: [*same,* -]
(c) +/-: [*reverse,* -]
(d) -/+: [*reverse,* +]

The polarity particles that concern us here, exemplified above by *yes* and *no,* in English and by *igen, nem* and *de* in Hungarian, mark an utterance as being an echo assertion. As we will see, their distribution is connected to the relative and absolute polarity features of echoing assertions.

Before turning to the details of the Hungarian data, we comment on the relative markedness of particular polarity features and their combinations.

With respect to absolute polarity, it is standard to assume the scale in (17):

(17) *Absolute polarity markedness scale* (Horn 2001)
[+] < [-]

Note that just as this scale would lead us to expect, negative sentences are formally marked while positive sentences are not. This expectation is justified by the general tendency of languages to align formal and semantic markedness.

With respect to relative polarity, I suggest the scale in (18):

(18) *Relative polarity markedness scale*
[*same*] < [*reverse*]

As a justification, note that [*same*] moves involve a sentence radical that is identical to that on the input Table, while [*reverse*] moves involve a sentence radical that is the opposite of that found on the input Table. The relation of identity expressed by the former feature is simpler than the relation of opposite, expressed by the latter. Given this scale, we expect [*reverse*] moves to be formally more marked than [*same*] moves assuming the formal and semantic alignment tendency mentioned above. Thus, we would not be

surprised to find a language that has a [*reverse*] particle but not a [*same*] particle while the presence of a [*same*] particle in the absence of a [*reverse*] one would be surprising.

Before we turn to combinations of features, note that the two scales above allow us to connect [+] and [*same*] on the one hand and [-] and [*reverse*] on the other. The features in the former group are the unmarked features, the ones in the latter, the marked ones. Given this connection, we expect the connections in (19) (see Pope (1976) for further discussion):

(19) *Connections between absolute and relative features*
(a) Particles encoding [+] may be used to encode [*same*].
(b) Particles encoding [-] may be used to encode [*reverse*].
(c) Particles encoding [+] may not be used to encode [*reverse*].
(d) Particles encoding [-] may not be used to encode [*same*].

When it comes to combinations of polarity features, note that the combination -/+ is special relative to the combination +/-. (See, again Pope (1976), p. 119.) This is so because in the case of the latter, the absolute polarity of the move, namely [-], is aligned with its relative polarity, namely [*reverse*]. Given these connections, a particle expressing the absolute polarity of a +/- move can at the same time express its relative polarity. In the case of - /+ moves on the other hand, there is tension between the two polarities. A particle expressing one polarity feature of such moves cannot be used to express the other polarity as well. For [*reverse*] moves then we have the scale in (20):

(20) *Direction of reversal scale*
+/- < -/+

Given this scale then, we expect -/+ moves to be more marked than +/- moves. In particular, it is not surprising to find a language with a special reversal particle marking -/+ moves but no special particle for +/- moves. On the other hand, it would be surprising for a language to have a reversal particle used exclusively for +/- moves.

We find the same tension between absolute and relative polarity in the realm of

confirming moves. Here a +/+ move is less marked than a -/- one because in +/+ moves the absolute polarity of the move is aligned with its relative polarity, both being the unmarked members of their respective scales. Here then an absolute positive particle could in principle express both the relative and the absolute polarity features of the move. In -/- moves on the other hand, there is tension between the absolute polarity (the marked [-]) and the relative polarity (the unmarked [*same*]). In such moves, a negative absolute polarity particle can express the absolute polarity feature of the move but not its relative polarity. We therefore have the confirmation scale in (21):

(21) *Direction of confirmation scale*
+/+ < -/-

We expect the possibility of a language using a special way of marking -/- moves but not +/+ ones and at the same time we expect no language to have a special particle for +/+ but not for -/- moves.

Finally, turning back to reversals, we can distinguish two types depending on whether they reverse an assertion or a polar question. The former type of move is more marked than the latter since it leads to crisis. We thus have the scale in (22), where `q-reversal' stands for polar question reversal and `a-reversal' stands for assertion reversal:

(22) *Strength of reversal scale*
q-reversal < a-reversal

Given this scale we expect [*reverse*] to be more likely to be overtly expressed in a-reversals than in q-reversals. Thus, no language will mandate the use of a reversal particle in q-reversals but not in a-reversals, while the opposite is possible. We now turn to polarity particles in Hungarian and check the data against the expectations we arrive at given the scales set up above.

5 Hungarian polarity particles

In this section we take a closer look at three polarity particles in Hungarian, namely *igen, nem,* and *de.* The particle *igen* is the affirmative particle in the language, whose main function is that of a polarity particle. The particle *nem* is a negation marker also used to negate the verb in ordinary negative sentences, and *de* is also used as an adversative particle. We exemplify the non-polarity particle uses of *nem* and *de* in (23):

(23) a. *Anna nem felelt.*
Anna not answered
'Anna didn't answer.'
b. *Anna elment de Mari nem tudta.*
Anna PARTleft but Mari not knew
'Anna left but Mari didn't know it.'

The connection between the uses exemplified in (23) and those that concern us in this section is non-accidental, as we see below. In the case of *nem,* we can differentiate between what we call here its polarity particle use and its verbal negation use by its position in the sentence. The polarity particle occurs at the leftmost edge of the sentence and may be followed by a negative sentence that has the verbal negation particle *nem* inside it. The polarity particle use of *de* differs from its adversative conjunction use by its occurrence at the leftmost edge of an echo assertion followed by the absolute polarity encoding particle or the main verb of the asserted sentence.

5.1 The Data

We now turn to investigating the use of the three Hungarian particles we are interested in in echo assertions, organizing the data by move types according to the features we defined in the previous section.

Starting with the simplest echo assertions, those with the features [*same*] and [+] (+/+ reactions in the notation introduced above), we see in (24) and (25) that *igen* is

possible but not obligatory both in reactions to assertions and questions. The particles *nem* and *de* are not possible in these assertions.

(24) A: *Mari elment*.
Mari PART.left
`Mari left.'
B: *Igen./ El. /Elment. / *De (elment). / *Nem, elment.*
yes / PART / PART.left / **de** (PART.left / *no, PART.left
`Yes, she did.'

(25) A: *Mari elment*?
Mari PART.left
`Mari left?'
B: Igen./El./Elment./*De (elment)./*Nem, (element).
`Yes, she did.'

As can be seen in these examples, a +/+ echo assertion may be made up by merely repeating the pre-verbal particle of the sentence radical one reacts to. Whether the sentence fragments used in echo assertions are syntactically analyzed as the result of deletion applied to full sentential structures or not is an issue that is too complex to be dealt with in this paper. I will assume here that these sentence fragments are the result of deletion processes, as argued for in Kramer & Rawlins (2008), but nothing crucial in what follows depends on this assumption.

Turning now to echo assertions whose features are [*same*] and [-], i.e., -/- assertions in our notation, we see in (26) and (27) that *nem* is the only possible particle both in reactions to assertions and reactions to questions.

(26) A: *Mari nem ment el*.
Mari not left PART
`Mari didn't leave.'
B. *Nem, (nem ment el) /*De (nem) /*Igen, nem ment el.*
no not left PART /***de** not /*yes, not left PART
`No, she didn't leave.'

(27) A: *Mari nem ment el*?
Mari not left PART
`Didn't Man leave?/Did Mari not leave?'

B: *Nem, (nem ment el) /?Nem ment el /*De (nem)/*Igen, nem ment el /*
not not left PART/?not left PART/***de** (not) /* yes, not left PART/
**Igen. nem ment el.*
yes, not left PART
`No. (She didn't leave.)'

There is an interesting contrast between +/+ moves and -/-: the polarity particle *igen is* truly optional in +/+ assertions while omitting the polarity particle *nem* in -/- assertions is somewhat degraded. This is unsurprising given the more marked nature of [-] relative to [+]. As an anonymous referee notes, the particle *nem* is, however, optional in the presence of an `n-word' such as *soha* `never' or *senki* `none':

(28) A: *Anna nem ment el soha*?
Anna not left PART never
'Did Anna never leave?'
B: *(Nem), soha*.
(no) never
`(No), never.'

(29) A: *Anna nem latott senkit*?
Anna not saw nobody.ACC
`Did Anna see nobody?'
B: *(Nem), senkit.*
(no), nobody.ACC
'(No), nobody.'

Why the use of the polarity particle *nem* becomes optional in the presence of an `n-word' in echo assertions is a question I have to leave open for now. It is possible that the optionality here is due to the negative concord nature of `n-words' in Hungarian, and therefore to the possibility of such items to express negation.

Note also that *nem* plays a double role: that of a polarity particle in our sense, expressing the absolute feature [-] in a response, in which case it occurs leftmost in the sentence, and that of expressing sentential negation, in which case it occurs immediately before the verb, causing the verbal particle, if present, to occur post-verbally. In cases of constituent negation, *nem* marks the negated constituent, which is in focus position.

(30) a. *Anna nem ment el.*
Anna not left PART
`Anna didn't leave.'
b. *Nem, Anna nem ment el.*
no, Anna not left PART
`No, Anna did not leave.'
c. *Nem Anna ment el.*
not Anna left PART
'It wasn't Anna who left.'

By contrast, in ordinary affirmative sentences *igen* is used only as a response polarity particle. The only case in which *igen* shows up within the sentence to mark it as positive is in cases of VP ellipsis when everything but the polarity of the VP is elided:

(31) *Anna nem ment el de Pali igen.*
Anna not left PART but Pali yes
`Anna did not leave but Paul did.'

The facts are similar in other languages, as exemplified by French in (32):

(32) *Anna n' est pas partie mais Paul oui.*
Anna not is neg leave but Paul yes
'Anna did not leave but Paul did.'[5]

Under ellipsis we may find sentential *nem* and *igen* as the lone survivors of a whole sentence embedded under a special group of predicates exemplified in (33):

(33) a. *Anna azt hiszi, hogy nem fog esni de én azt hiszem,*
Anna that believes that not will rain but I that believe
*hogy igen/*de igen.*
that yes /***de** yes
`Anna believes that it will not rain but I believe that it will.'
b. *Anna azt hiszi, hogy esni fog, de én azt hiszem,*
Anna that believes that rain will but I that believe
*hogy nem/*de nem.*
that not /***de** not
`Anna believes that it will rain but I believe that it will not.'

(Again, whether we have sentential ellipsis here or not is an issue that I leave open.)

Interestingly, the above examples illustrate that the polarity particle *de* cannot occur in

[5] I am grateful to an anonymous reviewer for bringing these examples to my attention.

these environments.

We conclude that *igen* and *nem* may realize the absolute polarity of an echo assertion, in which case they occur at the leftmost edge of the sentence in a node to be introduced shortly. They may also realize the polarity of the sentence itself, in which case they occur sentence internally, in what I will assume is the polarity node ΣP (see Laka (1990)). The fact that *igen* occurs within the sentence only when the VP is elided may be explained by assuming that positive polarity can be expressed by the verb itself and the extra assumption that one cannot elide all occurrences of the polarity feature of a sentence. In ordinary, non-echo assertions, one must overtly realize the positive or negative polarity feature of the sentence. If the VP is elided, the only way to realize a positive polarity feature is by the presence of the positive polarity particle *igen.* In negative sentences on the other hand, in Hungarian the feature [-] is always realized, either by the verbal negation *nem* or by a preverbal *se* marked constituent or by both *nem* and a post-verbal *se* marked constituent.[6]

Let us now turn to reverse reactions, starting with moves whose features are [*reverse*] and [-], i.e., +/- moves in our notation. Let us start with a-reversals, exemplified in (34):

(34) A: *Mari elment*.
Mari PART.left
'Mari left.'
B: *(?De) nem, (nem ment el)*.
de not not left PART
'No, she didn't.'

Here we see that the particle *de* is possible. Its use is more natural when the reversal is emphatic, as in (35), where our participants are having a protracted dispute:

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[6] Since the details of how negation is expressed sentence internally are not crucial to our purposes, we will not go into them here.

(35) A: *Mari elment*.
Mari PART.left
'Mari left.'
B: *Nem, nem igaz. Nem ment el.*
no, not true not left PART
'No, that's not true. She didn't leave.'[7]
A: *De igen, elment*.
de yes PART.left
' But yes, she left.'
B: *De nem, nem ment el.*
de no no left PART
'But no, she didn't.'

When we turn to +/- reactions to questions, we see that the use of *de* is not possible:

(36) A: *Mari elment*?
Mari PART.left
'Did Mari leave?'

B: *Nem. (Nem ment el.) /*De nem (nem ment el).*
no no left PART/***de** no no left PART
`No. (She didn't.)

This then is the first case where reactions to assertions differ from reactions to the corresponding polar questions, and we see an instance where formally, a-reversal is more marked than q-reversal, a fact that does not come as a surprise given that contradictions are more marked than polar question reversals.

Turning now to special reversals, those whose features are [*reverse*] and [+] (-/+ reversals in our notation), we see in (37) and (38) that *de* is obligatory and that the contrast between a-reversals and q-reversals has disappeared.

(37) A: *Mari nem ment el*.
Mari no left PART

[7] As Marcel den Dikken notes, *igen* and *nem* may occur in reactions such as (i) and (ii) independently of the form of the sentence they react to:
(i) *Igen, igazad van*. 'Yes, you are right.'
(ii) *Nem, nincs igazad.* 'No, you are not right.'
(iii) *Nem, tévedsz*. 'No, you are wrong.'
In the (i) and (ii) responses *igen* and *nem* may be analyzed as marking the absolute polarity of the response. In the case of (iii), however, when uttered in reaction to a negative sentence, *nem* must be seen as expressing [*reverse*].

`Mari didn't leave.'
B: *De (igen). (Element.) /*Nem. Element*.
de yes PART.left /*no PART.left
`Yes, she did!'

(38) A: *Mari nem ment el*?
Mari no left PART
`Didn't Mari leave?/Did Mari not leave?'
B: *De (igen). (Element.) /*Nem, (element)*
de yes PART.left /*no PART.left
'Yes, she did leave.'

This, again, is as expected given the strength of reversal scale above.

We summarize the data concerning particle occurrence in echo assertions in (39), where parentheses mark a particle as optional:

(39) a. *+/+ (igen)*
b. *-/- nem*
c. +/- *nem* in q-reversals, (*de*) *nem* in a-reversals
c. *-/+ de (igen)*

5.2 Account

The data above suggest that one has to separate polarity particles that encode the polarity features of an echo assertion (or, more generally, a confirming or reversing response) from the expression of polarity within a sentence. I assume that the former polarity particles occur at the leftmost edge of their sentence in the head node P of a root node, PoIP, that hosts the relative and absolute polarity features of an echo assertion, and whose sister is a CP. Sentence internal polarity is expressed in a CP internal node, ΣP that occurs in the area above VP but below the focus position, as schematically given in (40):

(40) $[_{\text{PolP}}$ P $[_{\text{CP}} \ldots [_{\Sigma\text{p}} \ldots [_{\text{VP}} \ldots]]]]$

The absolute polarity feature of an echo assertion must, by definition, match the polarity of its sister CP, present in ΣP. Polarity particles that realize the features in PolP will be called *response* (polarity) particles. The distribution of response polarity particles is

regulated by two sets of rules, a set I call *realization rules,* which connect particular particles to particular polarity features in P. and *expression rules,* which specify which polarity features need to be overtly realized.

For Hungarian, the realization rules we need are given in (41):

(41) *Realization rules for Hungarian*
a. *igen*: [+]
b. *nem*: [-]
c. *de*: [*reverse*]

The polarity particle *igen* realizes the absolute feature [+] in Po1P, as well as the absolute positive polarity feature in ΣP in case the verb has been elided. The particle *nem,* when in PolP, realizes the absolute feature [-] of an echo assertion and negative polarity when in ΣP. Finally, the particle *de* realizes the feature [*reverse*], a feature specific to PolP that does not occur in ΣP, which is why the response polarity particle *de* cannot occur in that node. The two uses of *igen* and *nem* as marking absolute polarity, whether in PolP or ΣP are obviously connected. The fact that [*reverse*] is realized by the adversative particle in the language is not surprising given that reversal is more marked than confirmation. Recall that a-reversal leads to conversational crisis and thus it is the most unexpected move type.

Note that Hungarian does not appear to have a particle encoding [*same*]. The fact that a particle realizing [*reverse*] exists in this language while a special particle realizing [*same*] does not is in keeping with what our markedness scales lead us to expect.

The expression rules needed to account for the Hungarian data are given in (42), where parentheses are used for optional rules.

(42) *Expression rules for Hungarian:*
a. Express -: The absolute polarity feature [-] must be overtly realized.
b. (Express +): The absolute polarity feature [+] may be overtly realized

c. Express Marked Reversal: The feature [*reverse*] must be overtly realized in marked, -/+, reversals.
d. (Express Strong Reversal): The feature [*reverse*] may be realized in a-reversals.

The first rule requires the feature [-] in Po1P to be overtly expressed and therefore requires the use of *nem* in echo assertions that have this feature, i.e., in -/- and +/- moves.[8] The realization of the [+] feature, according to the second rule, is optional, which accounts for the optional presence of *igen* in +/+ and -/+ echo assertions. The last two rules regulate the expression of the relative feature [*reverse*], and therefore the distribution of the polarity particle *de.* The feature [*reverse*] has to be expressed when in combination with the feature [+]. Recall that this type of reversal is most marked. The last rule requires the optional expression of [*reverse*] when in a contradiction.[9]

The two sets of rules just given account for the data we discussed above. In +/+ assertions they predict the optional use of the positive particle *igen,* in - /- assertions they predict the obligatory use of the negative particle *nem,* in +/- reversals they predict the obligatory presence of *nem* and the optional presence of *de* in case of a-reversal. In -/+ assertions, they predict the obligatory presence of *de* optionally accompanied by *igen.*

Before turning to some further data, let us note that the details of response polarity particle usage in Hungarian conform to what the markedness scales discussed in the previous section lead us to expect. The [-] feature of echo assertions is overtly realized more than the [+] feature; the feature [*reverse*] has an overt marker while the feature [*same*] does not. The feature [*reverse*] when in combination with [+] is more

[8] As mentioned already, this is too strong as it stands, given that in the presence of an 'n-word' renders the presence of *nem* optional.
[9] The rules we give here deal only with polarity features in PolP. We need separate realization and expression rules to account for what happens with the polarity features [+] and [-] in ΣP.

marked than when in combination with [-], and finally, a-reversal is more marked than q-reversal, where `more marked' here means 'overtly marked by a particle'.

In the rest of this section we briefly discuss the complex reversal particle *dehogy,* made up of the reverse particle *de* followed by *hogy* (the wh-word 'how').[10]

Dehogy assertions are used in echoes that have the features [*reverse*] and [-], as exemplified in (43):

(43) +/- responses: *dehogy*
a. A: *Mari elment már.*
Mari PART.left already
'Mari has left already.'
B: *Dehogy (ment el)! Itthon van.*
dehogy left PART home is
'She didn't leave. She is home.'
b. A: *Mari elment már*?
Mari PART.left already
'Has Mari left already?'
B: *Dehogy (ment el)! Itthon van.*
dehogy left PART home is
'She didn't leave. She is home.'

An important difference between *de* and *dehogy* is that the sister of *dehogy* is not the asserted sentence but rather the sentence at the top of the input Table. *B*'s conversational contributions above commit her to Mari not being at home. Note also that unlike in our previous data, the l+1 feature of the response cannot be expressed: *dehogy igen* is ungrammatical.

In (44) I exemplify *dehogy* echoes reacting to a negative sentence.

(44) -/+ responses: *dehogy nem*
a. A: *Mari nem ment még el.*
Mari not left yet PART
'Mari hasn't yet left.'
B: *Dehogy nem (ment **el**)! Már rég az iskolában van.*

[10] The morpheme *hogy* could in principle also be the complementizer 'that' but here, I suspect we are dealing with the 'wh' word.

dehogy not left PART already long the school is
'She left. She's been at school for a long time.'

b. A: *Mari nem ment még **el**?* 'Hasn't Mari left already?'
B: *Dehogy nem (ment **el**)! Már rég az iskolában van.*
dehogy not left PART already long the school is
'She left. She's been at school for a long time.'

In these cases *B* is committed to the positive counterpart of the negative sentence on the top of the input Table.[11]

Dehogy then, just like *de* is a reversal particle, i.e., it is associated with the relative polarity [*reverse*]. The complement of *dehogy,* however, is not the sentence the author commits to but rather, the anaphoric equivalent of the sentence on the top of the input Table. Thus, *dehogy* responses assert the reverse of the sentence following *dehogy* whereas *de* responses assert the sister of the PolP. The polarity of the complement of *dehogy* must be marked by *nem* when negative and cannot be marked at all when positive, just like in ordinary sentences in Hungarian, which is why *igen* cannot occur with *dehogy.*

A further difference between *de* and *dehogy* reversals involves word order. In *dehogy* responses verbal particles follow rather than precede the verb, as can be seen in (44), where the verbal particle *el* 'away' is in bold face. This verb - particle order indicates the presence of negation or the presence of an element in focus. The complex *dehogy* particle seems to obey two constraints at once: it occurs at the leftmost edge of the response, just like particles in PoIP, but at the same time it is in immediate preverbal or pre-negation particle position, just like elements that are in focus. Settling the details of the syntax of *dehogy* responses is left as an open issue for now.

We conclude by noting that the form of an echo assertion is determined by the

[11] There is a further variant of *dehogy,* namely *dehogy is,* whose distribution is somewhat different and whose discussion we leave for another occasion.

form of the previous utterance rather than by its intended interpretation. As we see in (45), echo reversing assertions reacting to rhetorical negative questions that presuppose a positive answer have the form we expect if what matters is the *form* of the question rather than the bias indicated by the speaker, which in this case is positive:

(45) A: *Hát nem a legszebb gyerek a világon*?
so not the most.beautiful child the world.on
'Isn't she the most beautiful child in the world?'
B: *De igen./Dehogy nem*.
de yes **dehogy** not
'Yes, she is. / Of course she is'

Thus, if the form of the echo were determined by the bias *A* signals we would not expect the presence of *de* in (45): *B*'s assertion reverses the form of *A*'s question and it confirms *A*'s bias.

6 Conclusion

The Hungarian data we looked at in the last section of the paper supports the view of assertions and polar questions discussed in the previous section, which, in turn, crucially uses the context components discussed in the first section. The Hungarian particles we studied here provide evidence for the existence of absolute and relative polarity features of echo assertions as well as for the markedness scales proposed in Section 4. The question that arises now is whether further cross-linguistic study of polarity particles confirms the predictions our approach makes. With respect to Hungarian specific issues, the syntactic details of the *dehogy* and *dehogy is* type reversals have to be looked into in greater detail. These details will shed light on the interaction of [*reverse*] polarity markers and focus, an interesting issue that awaits further discussion.

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