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Response markers as a window into linguistic modularity

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1.   Introduction

One of Martin's interests in linguistics lies in the way different domains of language interact with each other and with other domains. In this squib I explore such issues of modularity on the basis of response markers.

Specifically, the goal of this squib is twofold. First, I wish to introduce the complexity of response markers into the empirical domain for formal linguistics. Response markers are part of core syntax but they interact with our system of emotions as well as with what Martin used to refer to as domain D(iscourse) (cf. Vergnaud & Zubizaretta 1992, Wiltschko 1995)

The second goal is to sketch a way to model this modular interaction of different language-internal and external domains. In particular, I propose that the interaction between syntax and domain D can be captured with an updated version of Ross' 1970 performative hypothesis. According to the performative hypothesis, the propositional structure of a sentence is embedded in some form of speech act structure. Specifically, I follow Wiltschko 2016 in assuming that response markers are associated with GroundP, a layer of representation dedicated to encoding whether or not a contextually salient discourse component is in the speaker's Ground. On this view the interaction between syntax and domain D is mediated via the functional architecture which in turn mediates between form and meaning.

The second aspect of modularity has to do with the system of emotions. I will show that some components of emotions are directly and systematically encoded via the prosodic properties of the response markers. Thus, unlike other universal functions of natural language, which are mediated via syntax (in the form of the functional architecture), the emotive function allows for a direct mapping between form and meaning. This predicts that the emotive function is not restricted to a particular position in the functional architecture of the universal spine. Rather, emotive content arises through the manipulation of prosody of the units of language (UoLs) that associate with the spine. Hence it can affect all layers in the functional architecture.

I develop the argument as follows. In section 2 I introduce some background for the assumption that response markers have to be considered part of core grammar and hence

warrant a syntactic analysis. However, their pragmatic properties indicate that they inter-act with a domain of language which goes beyond the traditional unit of syntactic and semantic analysis, namely domain D. In this squib, I assume that Domain D is a level of representation that can be modelled as a hierarchically organized layer of structure above the propositional structure. This is what some scholars refer to as speech act structure (Speas & Tenny 2003) and which I identify in section 3 as the *grounding* structure (Wiltschko & Heim 2016; Heim et al. 2016). In addition to interacting with Domain D, response markers also interact with the expressive domain, i.e., the system of emotions (section 4). Specifically, response markers mark a positive or negative attitude towards a proposition or some other component of Domain D; they may also mark the intensity of this attitude as well as how (un)expected these components are for the speaker. These variables correlate strikingly with the primitives of the emotion system identified in Or-tony et al. 1988 (cf. also Corver 2013). In section 5, I conclude.

2.   The syntax of response markers

In recent years, response markers such as *yes* and *no* have come to be part of the empiri-cal domain for formal semanticists and syntacticians (Farkas & Bruce 2010, Kramer & Rawlins 2009, Krifka 2013, Holmberg 2016 a.o.). While the points of reference as well as the details of the analyses differ, they all have in common that they take response markers to be part of the domain of inquiry of syntax and semantics. Since the unit of analysis of formal syntax and semantics is the sentence and its propositional content the inclusion of response markers in the empirical domain of investigation implies that they are viewed as being part of the propositional sentence structure (p-structure). That this is indeed so can be gleaned from Holmberg's (2016) analysis illustrated in (1). *Yes* and *no* associate with the specifier of focus phrase (FocP) in the left periphery of p-structure. They value an unvalued polarity feature associated with the complement of the focus head, namely a polarity phrase (PolP).
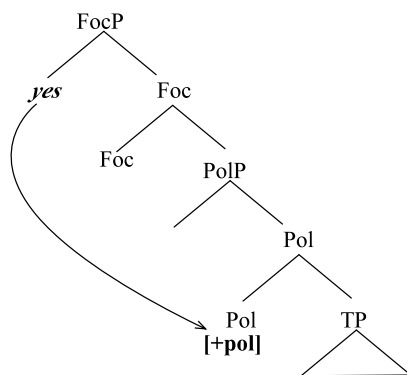
(1)   a.   *Syntax of* yes   b.   *Syntax of* no
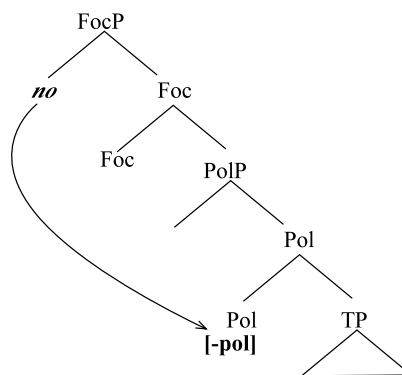
Since response markers can be used on their own or preceding the proposition under dis-cussion, Holmberg 2016 assumes that the complement of PolP may undergo ellipsis and hence can but need not be spelled out, as in (2).

(2)   Q: Did you feed the dog?
       Ai: Yes. (I fed the dog.)   Aii: No. (I didn't feed the dog.)

The assumption that response markers value an unvalued feature places it squarely within the analytic domain of those linguistic subfields that take p-structure to be the central unit of analysis, namely syntax and semantics.[1]

3.   Response markers beyond answering

Response markers can be used to respond to a variety of utterances and situations, including but not limited to polar questions. As shown in Wiltschko 2016, other triggers for response markers include commands, wh-questions, exclamations, as well as salient non-verbal situations. I will assume, without further discussion, that all of these triggers are *components of Domain D*. To accommodate this use of response markers, Wiltschko (2016) hypothesizes that response markers associate with a functional category located above p-structure, namely GroundP (Heim et al. 2016). Following Wiltschko 2014, I assume that all functional heads are associated with an unvalued coincidence feature [*u*coin] (see Ritter & Wiltschko 2014). Assuming that GroundP is a functional projection, it follows that its head (Ground), too comes with an unvalued coincidence feature. I propose that the function of response markers is to value [*u*coin]: *yes* values [*u*coin] as [+coin]. As a result the utterance encodes that the previous utterance (encoded as the elided p-structure embedded under Ground) coincides with the set of discourse components that are part of the *speaker's ground* (Ground-S) at the time of the conversation. In contrast, *no* values [*u*coin] as [-coin] thereby encoding that the embedded p-structure does not coincide with Ground-S (see Wiltschko 2016 for details).

(3)   a. *yes*   b. *no*
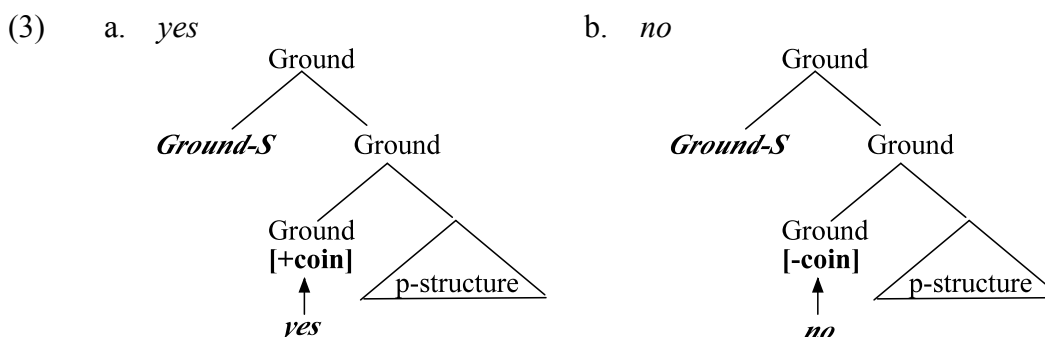
According to this analysis, response markers are used to affirm or deny the presence of a salient component of domain D in the speaker's ground. If the previous utterance is a polar question, then the response markers assert that the propositional content of the polar question is or is not in the speaker's ground. If the previous utterance is an assertion, then the response marker asserts that the propositional content of the assertion is or is not in the speaker's ground (hence indicating agreement or disagreement with the interlocutor).

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[1]For the purpose of this paper, I take for granted that a syntactic analysis of response markers is desirable (see Holmberg 2016 for extensive discussion). For reasons of space I cannot provide more detailed argumentation for this assumption.

For example, if the previous utterance is a wh-question as in (4) *yes* indicates that this question is in the speaker's ground; and if the previous utterance is a command, as in (5) *no* indicates that the action requested by the interlocutor is not in the speaker's to do list.

(4)   A: What's he talking about?
        B: **Yes**, I know. That is the question.

(5)   A: Get me a beer, please.
        B: **No,** you have to drive!

The analysis schematized in (3) raises a question not addressed in Wiltschko 2016: how does the response marker value the coincidence feature in the head of GroundP? In other words, what precisely is the contribution of the response marker?

   I propose that it is the substantive content of the lexical form itself that serves to value [*u*coin] without the presence of a dedicated formal feature. Following Ritter & Wiltschko (2014, 1335), I assume that substantive content is content that can only be interpreted with reference to the extra-linguistic context. So what is the substantive content of *yes* and *no*? *Yes* conveys a positive attitude towards a particular discourse component (hence it will value [ucoin] as [+coin]) whereas *no* conveys a negative attitude (hence it will value [*u*coin] as [-coin]).

   Evidence that the core meaning of *yes* and *no* is to convey positive or negative attitude (rather than encoding positive vs. negative polarity at the propositional level) comes from two facts. First both can be used as verbs. In English, this is a matter of creative language use (6)[2] while in German these verbs are part of the conventionalized vocabulary (7).

(6)   a.   Getting to **yes**![3]
        b.   Don't "**NO**" me before you "KNOW" me

(7)   a.   das Leben be-ja- hen   b.   die Existenz Gott-es   ver-**nein**-en
             the life   be-yes-inf   the existence god-poss ver-no- inf
             'to affirm life'   'to deny the existence of God'

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   [3]An anonymous reviewer objects that *yes* in (6) is not a verb but a noun as the phrase "Reaching the event of [the other person] saying 'yes'". However, assuming that lexical categories are diagnosed (and some would say derived) by syntactic context, we have to conclude that *yes* is a verb as the syntactic context (following the infinitival marker *to*) is restricted to verbs. If the intended interpretation was indeed as suggested by the reviewer we would expect that this syntactic construction can generally be used to encode "getting [the other person] to [say] X", with an elided subject [the other person] and and elided verb [say]. This is not the case as indicated by the fact that "*getting to a nice word*" is ungrammatical. If the proposed analysis of *getting to yes* were on the right track we should be able to use this phrase to say "getting the other person to say a word"

In this use, *yes* and *no* clearly do not encode propositional polarity, but instead a positive or negative attitude towards something extra-linguistic. This suggests that this attitudinal meaning is the substantive content of response markers.

A second piece of evidence comes from the fact that response markers can be used to respond to content that is not (obviously) propositional. To see this, consider the example in (8).

(8) Dorothy: [We've got] to do this shopping Peter.
     Peter: Yeah, no it's alright nanna, we've got 5 minutes.

<div align="right">Burridge & Florey 2002, 164, (12)</div>

What is striking here is that two response markers of opposite polarity co-occur. This means that at least one of them has to respond to something else besides propositional content. According to Burridge & Florey (2002, 164), in this instance, Peter uses *yeah-no* to "acknowledge his grandmother's concern while also softening his disagreement". This establishes that response markers are not always used to express polarity at the propositional level.

Assuming that it is indeed the substantive content of the response marker that serves to value the coincidence feature associated with Ground, we predict that response markers are inserted early. This further predicts that changing the form of the particle may also change its interpretation without the mediation of syntax. This prediction is indeed borne out as I will now show.

4.   The emotive response paradigm

There are many ways to say *yes* and *no*. Both response markers may vary along a number of dimensions as shown in (9): i) vowel quality (9b), ii) final epenthetic /p/ (9c), iii) final lengthening (9d), iv) (recursive) reduplication (9e), and v) *oh*-prefixation (9f).

(9) a. *yes*   *no*
     b. *yeah*   *nah*
     c. *yup/yep*   *nope*
     d. *yesssss*   *noooooooo*
     e. *yeah yeah (yeah…)* *no no (no…)*
     f. *oh yes*   *oh no*

The fact that both *yes* and *no* can be modified in the same way suggests that we are dealing with a systematic pattern, a paradigm of sorts.

The difference in form corresponds to a difference in context of use of the response markers in ways that suggest interaction between the linguistic system and the system of emotions. For reasons of space, I cannot provide a detailed description of all of the contexts of use. Hence I limit the discussion to a few contexts and the generalizations that emerge.

Consider first the difference between vowel weakening (*yeah*/*nah*) and final lengthening (*yesssss*/*noooooo*). The two forms are in complementary distribution in contexts that contrast the speaker's evaluation of what is being affirmed. Final lengthening is used to

express a high degree of affirmation or denial of a salient discourse component. A high degree of affirmation (*yesssss*) is appropriate, when it is highly desirable for S that p be true. A high degree of denial (*nooooo*) is appropriate when it is highly undesirable for S that p be true. In contrast, a low degree of affirmation or denial (*yeah, nah*) is appropriate when S is emotionally neutral towards the relevant discourse component. The contrast based on intensity of emotion is illustrated below for affirmation: *yessss* is felicitous in contexts of high emotional engagement (10) while *yeah* is felicitous in contexts of no emotional engagement (11).

(10)   B has recently lost his job and is worried about paying the rent. He is hoping to win the lottery.
   a. Context I: The winning numbers are announced while B is at work. His housemate A realizes that B won. So A calls B to let him know:
       A: You won the lottery!
       B: i.   Yessss.
           ii. #Yeah.[4]

   b. Context II: The winning numbers are announced while A is at work. A wants to know whether B won so A calls B to find out.
       A: Did you win the lottery?
       B: i.   Yessss.
           ii. #Yeah.

(11)   In the morning, A usually waits to get up till the newspaper gets delivered.
   a. Context I: A hears the newspaper drop through the front hall. (B really doesn't care).
       A: The newspaper got delivered.
       B: i.   Yeah.
           ii. #Yessssss.

   b. Context II: B is up before A and so A asks B.
       A: Did the newspaper get delivered yet?
       B: i.   Yeah.
           ii. #Yessssss.

The modification of response markers allows the speaker to convey her emotional stance towards the discourse component under discussion. One of the dimensions along which response markers differ concerns the *intensity* of the appraisal. Intensity of appraisal is among the three primitives that define the system of emotions: i) appraisal (= assignment of positive or negative value), ii) intensity, and iii) (un)expectedness (Ortony et al. 1988, Corver 2013). In what follows, I show that unexpectedness also plays a role.

In (11a) *yeah* conveys that things are as expected. Expectations are trivially satisfied if the interlocutor's assertion corresponds to what the responder already knows. Hence,

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[4]The judgement here reflects the use of *yeah* with neutral falling intonation. Once the intonation becomes expressive (indicated by means of pitch, length, and loudness) *yeah* can be well-formed in this context.

the use of *yeah* is compatible with a context of use where the asserted proposition (*that the newspaper got delivered*) is already in B's ground. Conversely, if B doesn't already know that p, the use of *yeah* is not felicitous as shown in (12Ai). Instead, in this context, B would be able to use *oh*-prefixed *yes* accompanied with rising intonation (12Aii); *oh* is used to convey a change in the speaker's knowledge in response to some prior action (Bolden 2006 a.o.). Moreover, final lengthening is predictably well-formed because it conveys high degree of affirmation (B is happy that the newspaper got delivered).

(12)   Newspaper deliveries have been on hold for 2 months because of a strike. B has given up to think that the strike will be over soon. One morning A gets up and finds the newspaper so he informs B:
       A: The newspaper got delivered.
       B: i. #Yeah.
           ii. Oh yes?
           iii. Yessssss.

Finally, the response marker with final epenthetic /p/ (*yep/yup)* is used to convey a high degree of intensity (the speaker cares about the appraised discourse component) and at the same time it conveys a high degree of expectedness (e.g., the speaker already knows p). This is illustrated in (13) where A can conclude from B's response that B already knew that he won the lottery.

(13)   B has recently lost his job and is worried about paying the rent. He ends up winning the lottery. The winning numbers are announced while B is at work. His housemate A realizes that B won. So A calls B to let him know. But unbeknownst to A, B was able to listen to the winning numbers at work.
       A: You won the lottery!
       B: Yep.
       A: Oh, you already heard?

In sum, the paradigm of response markers introduced in 0 differs along the very dimensions that define the system of emotions. At their core is the coding of positive or negative appraisal: trivially positive response markers encode a positive appraisal, while negative response markers encode a negative appraisal. Furthermore, intensity and expectedness are encoded by means of modulating vowel quality and length as well as *oh*-prefixation. The system underlying the emotive response marker paradigm is summarized in (14).

(14)   *The emotive response paradigm*

	yeah	*nah*	*yep*	*nope*	*yesssss*	*nooooo*	*oh yes*	*oh no*
appraisal	+	-	+	-	+	-	+	-
intensity	low		high		high		low	
expectedness	high		high		low		low	

5.   Response markers as a window into linguistic modularity

The behavior of response markers points towards the conclusion that syntax is highly modular, interacting not only with the articulatory-perceptual and the conceptual-intentional system, but also with the dialogical system of interaction (domain D) (Ginzburg 2012) and the system of emotions (Corver 2013). The exploration of response markers provides us with a unique window into the the way these systems interact with each other.

I have argued that the interaction with domain D is mediated by the syntactic spine, while the interaction with the system of emotions is via the units of language directly. This is summarized in figure (15).

(15)   *Sources of modularity*
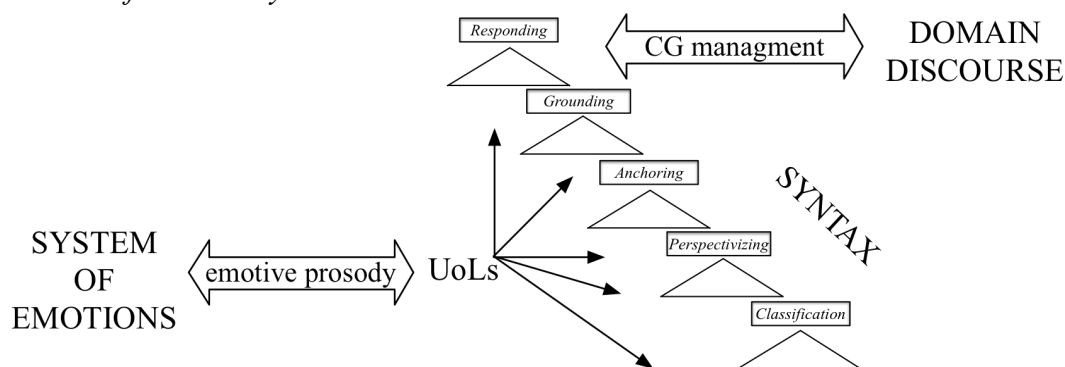
It remains to be seen whether there are also cases where the interaction with the system of emotions is mediated via the syntactic spine and conversely whether UoLs may directly interact with Domain D without the mediation of the syntactic spine. I will leave these questions for future research.

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