

# Pre-emptive interaction in language change and ontogeny: The case of [*there is no NP*]

## Abstract

This study is centred on the pre-emptive dimension of interactional exchanges. Dialogues are not merely characterised by information transmission, they are also constantly informed by pre-emptive attempts to address potential reactions to what is being said. We argue that pre-emptive interaction intersects with intersubjectivity (i.a. Traugott 2003; Schwenter & Waltereit 2010; Tantucci 2017a, 2020) and constitutes an important trigger of semantic-pragmatic reanalysis and constructional change. We provide a corpus-based study centred on the change of the [*there is no NP*] construction in Early Modern English dialogic interaction. During 16th century the chunk is originally used in assertions, yet it then progressively acquires a new function of pre-emptive refusal. Something similar is at stake throughout the child's ontogeny. We provide corpus-based data from the CHILDES database of first language acquisition to show that children's ability to use [*there is no NP*] to address potential reactions to what is being said occurs only after the fourth year of age, that is after the critical stage where a Theory of Mind (ToM) starts to become fully developed (i.a. Apperly 2010; Wellman 2014). Pre-emptive interaction correlates diachronically and ontogenically with ToM and underpins a projected turn taking of a specific or generic interlocutor as a result of what is being currently said.

## 1 Introduction

This paper aims at establishing a new pragmatic and semantic category of pre-emptive interaction. Pre-emptive interaction intersects with intersubjectivity, as it marks the speaker's attention to "[the addressee]'s image needs" (i.a. Traugott & Dasher 2002: 177; Traugott 2003; Schwenter & Waltereit 2010; Tantucci 2017a, 2020; Tantucci & Wang 2018, 2020a, 2020b) and underpins overt attempts to tackle how an interlocutor is expected to react as a result of an on-going speech event. Pre-emptive interaction occurs as a linguistically overt strategy to address a projected turn taking of a specific or generic interlocutor as a result of what is being currently said.

We ground our discussion in enactment cognition (cf. Engel et al. 2013), and we suggest that human ability to pre-emptively address an interlocutor's potential reaction to what is being said is a form of prediction error minimisation (cf. Friston 2010; Friston et al. 2012; Clark 2013). We propose that similar to the way we constantly rely on senso-motorial ability to predict possible problems arising from physical actions, we also monitor and predict possible issues that might arise through

dialogues and conversations. In this sense, pre-emptive interaction constitutes an important human ability to predict and foresee the interlocutor's reaction to what we are currently saying. We argue that semantic and pragmatics shifts from ongoing to pre-emptive interaction are important triggers of intersubjectification. We substantiate this claim by providing a case-study about the constructional change of [*there is no NP*], shifting from an original existential meaning and assertive illocutionary force (i.a. Kissine 2013; Tantucci 2016a) towards a new intersubjectified usage. This new reanalysis leads to new pre-emptive refusal usages, whereby the speaker/writer rejects what the interlocutor or a generic social persona may potentially say about a current utterance. The new illocutionary force of the construct significantly intersects with new formal features such as presence of a complementing clause, discourse-new status of the NP and the generic reference to the 'locus of existence' of the NP. In the final part of the paper, we look at ontogenetic data from the CHILDES database, and verify whether similar pre-emptive polysemies of [*there is no NP*] arise before or after the 4th year of age of the child, viz. what is considered to be the critical period in which a Theory of Mind mechanism starts to fully develop ontogenetically (cf. Onishi & Baillargeon 2005; Surian et al. 2007; Kovacs et al. 2010; Tantucci 2020).

This paper is structured as follows: Section 2 provides an introductory discussion about enacted theory in cognitive psychology. A special focus is placed on the notion of prediction-error-minimisation (PEM) in connection with a conceptualiser's epistemic reasoning. Section 3 tackles PEM in connection with intersubjectivity in cognitive linguistics and pragmatics. We argue that a fundamental element of intersubjectified constructions is the one of pre-emptively addressing how the speaker presumes the hearer may react as a result of his/her on-going speech. Section 4 is centred on the [*there is no NP*] construction and provides a corpus-based study of the constructional change of the chunk in the Corpus of English Dialogues (CED). From a multiple correspondence analysis (i.a. Nenadic and Greenacre 2007), a mixed effects logistic regression of pragmatic and grammatical change of the chunk, will emerge that [*there is no NP*] started to acquire a new pre-emptive refusal usage out of an original assertive one throughout the 17th and the 18th century. Section 5 is finally focused on the spontaneous employment of [*there is no NP*] in first language acquisition. A large-scale corpus-based analysis from the CHILDES shows that pre-emptive refusal usages of [*there is no NP*] are acquired and mastered significantly later than assertive usages of the same construct. In particular, the child shows capacity to spontaneously master the construction only after the 4th year of age, viz. when a theory of mind ability tends to be extensively developed.

## **2 Prediction-error-minimisation in interaction**

Over the last two decades a new “pragmatic turn” has emerged in cognitive science. This novel paradigm has been progressively drifting away from the traditional representation-centred model (Schilbach et al. 2013) of cognitive processes and started tackling cognition as being inherently “enactive”, that is as subserving action and sensorimotor skills (Varela et al. 1992; Clark 1998; Noe 2004; Engel et al. 2014). From this angle, neural activity patterns are studied with respect to their functional role in action generation. Cognitive states are then addressed as foregrounding and prescribing possible actions rather than statically representing states of the outside world.

The intentional and goal-oriented dimension of enacted cognition is relevant for research in cognitive linguistics and pragmatics, as skills of sensory motor contingencies allow conceptualisers to develop higher cognitive abilities and social interaction (Di Paolo & De Jaeger 2012). In fact, learning and mastery of action-effect contingencies are at play through interaction between the subject and his/her surroundings. As enacted cognition inherently hinges on the process of reaching and maintaining an expected state, action and interaction both occur as a result of predicting how being in a desired condition would change the received sensory input (Hommel 2013). This clearly underpins the necessity to anticipate possible actions and linguistic acts from others and thus to enable effective coupling of agents in social contexts. This pre-emptive dimension of enacted interaction is based on perceptual and active inference geared to **prediction-error-minimisation (PEM)** (Friston 2010; Friston et al. 2012; Clark 2013). Subjective goals are pursued through sensory-motor skills and problematisation of contingent obstacles and possible errors that may occur through actions and interactions. An example of this is when one conceptualiser actively explores a pipe in his/her hand by turning it around and looking at it from different angles, then increasing the confidence that s/he is looking at a pipe and not merely at an image of a pipe (Hohwy 2016) or another object that simply resembles a pipe. From an interactional perspective, prediction-error-minimisation combines with Clark’s (1996) idea of **joint projects** and **event-reaction pairs**, whereby an interlocutor’s instigating event (generally at the illocutionary level) is inherently expected to lead to an addressee’s reaction (Clark 1996: 194). When interactional mismatches arise between instigating event and ‘expected reaction’, interlocutors encounter what Clark defines as ‘joint project problems’, which may lead to various forms of communication breakdown, hinging on (im-)politeness, face-threats or misunderstanding.

Most crucially, interlocutors often pre-emptively make attempts to tackle potential joint project problems, and try to **pre-emptively** minimise ‘errors’ that may arise through interaction. This is connected with the mechanism of vigilance (i.a. Sperber et al. 2010; Reboul 2017; Mercier & Sperber 2017; Mercier 2020) suggesting that evolution of human reasoning has happened in a context in which social and interactional pressures were of fundamental importance, in particular involving

the need to win an argument and, at the same time, to carefully evaluate others' arguments and objections. The anticipatory dimension of pre-emptive interaction is thus a crucial mechanism allowing speakers to monitor and foresee co-actional and interactional issues that may arise as a result of their turn takings. In this study, we argue that prediction-error-minimisation (PEM) overtly comes into play in language, as a pragmatic attempt to pre-emptively address forthcoming turn-takings that are likely to occur in conversation. Consider the following example of a so-called joint project as “a joint action projected by one of his participants and taken out by the others” (Clarks 1996: 191):

- (1) Arthur: U:h what modern poets have you been reading.  
Beth: Well, I'm. I like Robert Greaves very much.

(Clark 1996: 191)

The joint project above begins with Arthur projecting a joint task for Beth and himself to carry out. She is expected to tell him what modern poets she has been reading. It continues with Beth agreeing to the project as she answers Arthur's question. Even more importantly, what is of interest here is the fact that Beth not only replies to Arthur's question at the propositional level, but additionally addresses what she thinks is likely to be a further turn-taking on Arthur's behalf, namely *do you like them? / Which ones you like?* Pragmatically, Beth infers the way the conversation is likely to continue and pre-emptively engages with a foreseeable topic.

### 3 Intersubjectivity and pre-emptive interaction

Pre-emptive interaction often intersects with intersubjectivity. Intersubjectivity in the literature is addressed from a number of different perspectives, e.g. as a grounding mechanism hinging on spatial/epistemic perspective-taking (i.a. Langacker 1991; Verhagen 2005; Dancygier & Sweetser 2012), as a shared dimension underpinning evidential reasoning as opposed to subjective opinions (i.a. Nuyts 2001, 2012; Tantucci 2013, 2016b), or as function to establish joint attention among interlocutors (e.g. Diessel 2006; Breban 2010; Ghesquière et al. 2012). Intersubjectivity has been treated and re-interpreted in a multitude of different ways (i.a. Langacker 1991; Nuyts 2001, 2012; Traugott 2003; Guesquière and Van de Velde 2011, Tantucci 2020). Spatial deictics have been discussed as markers of joint attention and intersubjectivity (Langacker 1987, 1990, 1991; Diessel 2006; Breban 2010; Guesquière et al. 2012). Demonstratives and determining elements like *such* and *zulk* have been similarly considered intersubjective, as they serve to create a 'joint focus of attention' (Diessel 2006: 465) by which the speaker negotiates discourse referent tracking for the hearer (Guesquière 2009; Guesquière and Van de Velde 2011).

A rather different approach to the notion of intersubjectivity is discussed by Traugott (cf. 2003, 2012). In her diachronic model of intersubjectification, speakers markedly code attention to the social self of the hearer (e.g. Traugott & Dasher 2002). She observes that less-intersubjective (e.g. literal) constructions show a clear tendency to progressively develop new polysemies with novel intersubjectified functions. For instance, pragmatic marking (PM) of adverbials such as *actually* or *in fact* are intersubjective as they function to hedge or mitigate what has been said and acknowledge the addressee's actual or possible objections.

Verhagen (2005, 2007) also developed an influential account of intersubjectivity, that is centred on cognitive coordination between speaker and hearer. In his view, intersubjective constructions foreground the hearer as active interpreter and conceptualiser of utterances of the speaker. He remarks that the hearers' reaction to what is said are often part of the semantics of intersubjectified expressions. A case in point are connectives such as *but* or *moreover*, which are often used to accommodate the addressee/reader's projected expectations through an interaction.

There is also a well-known epistemic strand in the literature about intersubjectivity. Nuyts (2001a, 2001b, 2012) argues that intersubjective constructions hinge on modal meanings "presented as being shared between the assessor and a wider group of people, possibly (but not necessarily) including the hearer" (Nuyts 2012: 58) as for constructions such as *it is likely*, *unfortunately* and so on. In a similar manner, Tantucci (2013, 2017a, 2017b, 2020) distinguishes meanings that are specifically centred on the hearer's potential reactions to what is said, from meanings that include a specific or generic social persona, who is assumed as the social bearer of the utterance. Intersubjectivity is also an important topic in interactional linguistics. In this case, it is often brought to the fore as 'shared understanding' (Linell & Lindstrom 2016) which is realised in the form of turn-takings of repair, reaction or expansion to achieve a socially shared cognition (Schlegoff 1991, 1992). Equally influential are qualitative discussions about the intersection of counterfactual reasoning and intersubjectivity as in the case of Mental Space Grammars (i.a. Dancygier & Sweetser 2012).

In this paper we take the stance that intersubjectively marked expressions are inherently geared towards projected reactions of an interlocutor to a current utterance. Our argument is that prediction-error-minimisation (PEM) is a crucial element of intersubjectively marked interaction. Strategies hinging on (im-)politeness and meta-discursive functions such as turn-giving, agreement-seeking or elicitation of response (Traugott 2012: 10) are all cases in point whereby an interlocutor foresees and pre-emptively tackles possible issues arising from an ongoing exchange. Sentence-peripheral usages of constructions such as *clearly*, *actually*, *believe it or not*, *no doubt* and so on, all encode speaker's attitude towards the addressee, rather than directly modifying the verb (Traugott &

Dasher 2002; Tantucci 2017a). An instance of this can be the imperative construction *Look!* when it is used as an attention-giving device (e.g. Romero Trillo 1997; De Clerk 2006: 168):

(2) **Look!**

(3) **Look** Dani. You don't know what you're speaking about.

BNC / KB1 / 5112

(Van Olmen 2010: 228; Tantucci 2020)

In (3), *look* is redundant at the propositional level. However, it expresses the intention to overtly account for the potentially negative impact of the utterance towards addressee's 'positive face' (cf. Brown & Levinson 1987). It is reasonable to expect a child younger than 4 being able to utter the former expression (2), viz. in the form of a directive. On the other hand, it is not farfetched to suggest that the latter usage in (3) will be 'cognitively mastered at a comparatively later stage of ontogenetic development. In fact, with the overt employment of *Look* as pragmatic marker (PM) in (3), the speaker predicts that the addressee/reader may somehow react negatively to his/her utterance and tries to minimise potential joint project problems that may arise from the current utterance. In this sense, intersubjective forms often occur as PEM operators and are overtly codified as a 'surplus of meaning' over mere propositional or **co-actional** meaning (Tantucci 2020).

From a usage-based perspective, intersubjectivity can be operationally identified as **surplus** of meaning that interlocutors codify in addition to ego-centric goals and intentions that could be expressed merely in the form of a co-action (Tantucci in press). The surplus-approach (cf. Tantucci, Culpeper & Di Cristofaro 2018) is centred on the premise that new intersubjectified polysemies of a construction arise and become conventional as a response to interactional needs. Speakers re-cycle an existing form to express a new meaning centred on the addressee (or a third party) and thus improve the chances to achieve some sort of perlocutionary effects. This may unveil a gradient continuum from ego-centric co-actional engagement to more complex awareness of social cognition. The latter is reflected by the progressive ability of the child to spontaneously employ increasingly intersubjectified polysemies or functions of the same construct (cf. Tantucci 2020). In some cases, the intersubjective 'surplus' of peripheral PMs may be characterised by a 'division of labour' between right and left periphery. Downing (2001) observes that left peripheral employment of *surely* in evaluations intersects with seeking agreement or corroboration:

(4) **Surely** he must be worried?

(Downing 2001:268)

The clause-peripheral employment of *surely* acts as an overt ‘surplus’ of meaning pre-emptively codifying the speaker/writer’s awareness of addressee/reader’s potential reactions to his/her evaluation. In fact, when *surely* is used as a PM, it should not be logically compatible with rhetorical interrogative speech acts geared towards agreement seeking. Even in this case, we argue that this is due to the pre-emptive dimension of the intersubjective function of *surely*, through which the speaker/writer overtly foresees and engages with his/her interlocutor’s agreement with what is said.

The pre-emptive dimension is similarly present in [*and don’t you VP*] imperatives. This is a chunked construction, whereby the connective *and* does not express some kind of logic coordination among two sentences, but is rather used to introduce a directive speech act of ‘pre-emptive prohibition’. In fact, with this construction the speaker is not referring back to some discourse-given topic that was introduced previously. Rather, s/he pro-actively hypothesises a possible reaction of the speaker as a result of what is being currently said and pre-emptively prohibits him/her to perform it. Consider examples (5-6) from the spoken section of the BNC:

- (5) I’m not putting it on you anyway mostly it’s c— mainly fucking Catherine, I’m beginning to s— not like her any more the way she’s going <pause> **and don’t you** dare mention a word of this that I’m saying to you.

BNC / KP4 / 2098

- (6) You never found that music, we’ve got a lovely song <pause> out of Willy Wonka. **And don’t you** laugh!

BNC / KD8 / 2900

Examples (5) and (6) are both demographically sampled. In the first case, the speaker (Cassie) informs her interlocutor (Bonnie) that she does not trust a common friend (Catherine) anymore. During her own turn taking, Cassie makes use of the [*and don’t you VP*] construction to pre-emptively forbid her to let Catherine know about what is she currently saying. The [*and don’t you VP*] is uttered by Cassie to pre-emptively address the way she imagines or foresees Bonnie may react as a result of what she is currently saying. Something similar is at stake in (6), whereby the speaker (Martine) foresees that her interlocutor (Marielle) may burst out laughing as a result of her utterance. She similarly employs the [*and don’t you VP*] construction to pre-emptively admonish her not to do so. In both cases, the speaker opts for a marked surplus of meaning that would not be necessary in a simple imperative construction [*don’t VP*]. The latter, in fact, simply expresses an order, yet it is not marked as a

construction that is inherently geared towards the anticipation of what the speaker expects the hearer might do as a result of his/her turn taking.

#### 4 *There* existentials and the [*there is no* NP] construction

In this section we introduce the so-called *there* existential construction [*there is* NP] and then specifically discuss pre-emptive usages of its negative form [*there is no* NP].

There is extensive literature on *there* existentials in English (i.a. Jenkins 1975; Lakoff 1987; Abbott 1993; Biber et al. 1999; Huddleston & Pullum 2002). Most accounts deal with the semantics of definiteness and specificity, particularly in connection with the declarative form of the construction (i.a. Prince 1981, 1992; Clark & Marshall 1981; Abbot 1997). The bulk of the literature centred on existential constructions has touched upon the common feature of “attributing a location” to the central entities (e.g., Kahn 1966; Anderson 1971; Fillmore 1968; Lyons 1975; Bolinger 1977; Fawcett 1987). Existential *there* is therefore often claimed to designate the abstract location of some central entity, which may be further specified by the locative phrase found in many existential clauses. Enumerative vs cardinal distinctions are also discussed in relation to *there* existentials (cf. Milsark 1977; Davidse 1999). These challenge the locative interpretation of English canonical existentials – according to which the existential *there* is analysed as an adverb designating an abstract location, as in Lyons (1975) – in favour of a quantified instantiation of the relevant type specifications conveyed by the existent NP.

However, our enquiry is based on the negative form of *there* existentials. In this case, the definiteness status of the NP is not a central issue in our discussion, which in negatives is by default generic. The present account is rather centred on the pre-emptive usages of the chunk such as the one in (7):

- (7) The honourable member for Perry Barn I've again referred to what, part of what he said er but Gibraltar I have considerable amount of of sympathy with the remarks that he made. I'm afraid that er there was a decision within the community which was then er made part of the nineteen seventy six E C direct elections act. **There is no way** that we can change those without the agreement of all other members community er but I know that it's something that er my colleagues at the foreign office are extremely concerned with.

BNC / JSH / 399

In the House of Commons' debate reported above, the MP is referring back to a decision that has been made about the 'Gibraltar case'. Throughout his monologue, he foresees possible objections to



this act and even potential attempts to subvert it in Parliament. The inferred turn that other MPs may take at the end of his speech is pre-emptively tackled by the same speaker with the negative existential [*there is no way that VP*]. From an enactive perspective, the MP is here trying to minimise a possible ‘error’ (which interactionally can be intended as a form of conflict, misunderstanding or face threat) that he predicts might arise as a result of his ongoing speech. At the same time, the illocutionary force of *p* is the one of refusal in that s/he markedly signals that s/he is not willing to address that issue further than what the real addressee or a generic third party in society may be expected to do (cf. Tantucci 2013, 2020 on extended intersubjectivity; see also Roberts 2012 on coercion in information structure). Simply put, the speaker pre-emptively forces the resolution (cf. Stommel 2011: 78; Lohnstein 2016 on so-called *verum focus*) of a fictive polar question (cf. Pasqual on fictive interaction, but see also the notion of QUD, e.g. Roberts 2012) that a generic social interlocutor may be expected to ask under the same preparatory conditions: *Can we change those without the agreement of all other members community?* (cf. Searle 1976 on preparatory conditions of speech acts).

Something similar is at stake in (8) below:

(8) A: Just briefly how do you encourage more women into the Labour party, very briefly, when

they constitute fifty two percent of the population?

B: But they're not fifty two percent of the candidates.

B: And what we've got in standing for a general election is about two and a half thousand men and about five hundred women. **There is no way** you're gonna get equality, with that volume.

BNC / KGL / 141

The politician B in (8) is being interviewed about gender equality in Parliament. While he makes his point against a numerically equal partition of seats, he predicts how his interlocutor – or a generic social persona – may refer to the idea of reaching gender equality and pre-emptively rejects it by resorting to the [*there is no NP*] construction. This strategy again, is interactionally triggered by the enactive awareness of what is likely to be the next turn taken by A. This is also exemplified in (9) below, where the speaker pre-emptively engages with what his/her interlocutor might suppose as a result of what s/he is currently saying.

(9) it seems to me that vacant Normal vacancies as Mr [...] has described them, are a function

of people moving from one house to another. And it seems to me **there is no reason** to suppose that because there are more houses, the propensity to move from one house to another declines.

BNC / HVF / 336

An important diagnostic to disentangle existential and pre-emptive refusal usages of [*there is no NP*], is that only the latter are compatible with subsequent reinforcement of what has just been said by the speaker/writer in the form of *this (indeed) cannot be done* or *this is not possible/true* in case of stative predicates. Conversely, mere existential usages of the chunk cannot be referred back in the same way. Crucially, in the spoken section of the BNC nominal collocates in the NP slot of the constructions displaying the highest log-likelihood value are *doubt* (236.3), *reason* (221.9), *way* (214.3), *need* (172.6), *evidence* (83.9), *guarantee* (59.6), *point* (54.7), *difference* (35.6) and *problem* (33.8). None of those refer to concrete objects of entities that construe a prototypical existential meaning. Rather, they all tend to be geared towards the pre-emptive rejection of what a specific or generic interlocutor may wonder (*there is no doubt that p*, *there is no reason that p*), plan (*there is no way that p*) consider to be necessary (*there is no need that p*) and so on. In this sense, the working definition of rejection is not necessarily of a coercive kind, but rather underpins the speaker's procedural dismissal of some real or epistemic project that s/he imagines a specific or generic interlocutor may propose under the same preparatory conditions. This interactional strategy is grounded in collective intentionality (cf. Tomasello 2019) and extended intersubjectivity (Tantucci 2017, 2020; Guardamagna 2017; Williams 2018), as it is based on the understanding of the conventional behaviour and foreseeable reactions of the generic social persona of a socio-cultural community of practise. This is reflected linguistically by the reanalysis of constructions from a literal meaning to pre-emptive usages aimed at fictively capturing what the speaker expects the addressee – as well as anyone else in his/her socio-cultural community of practise – may have to say about his/her ongoing interaction, of which [*don't you VP*] and [*there is no NP*] are cases in point.

In the following section, we provide a corpus-based account of the diachronic formation of pre-emptive polysemies of the negative existential [*there is no NP*] in British English dialogues and we shed light on the contextual, pragmatic and formal variables that significantly intersect with its development. An important fact that will emerge from this survey is the intersection between new intersubjectified polysemies and their characteristic of being pre-emptively geared towards the interlocutor's potential reactions to the speaker's current utterance.

## 4.2 The semasiological change of [*there is no NP*]

An important element of enacted interaction is the speaker's on-going monitoring of the hearer's potential reactions to the utterance and his/her attempt to tackle them pre-emptively. In this respect, we designed a corpus-survey centred on the semasiological change of [*there is no* NP] in the the Corpus of English Dialogues (CED).

The constructional change of [*there is no* NP] primarily underpins alteration of compositionality and procedurality. **Compositionality** decreases when the meaning of a construction becomes progressively less derivable from the meaning of its parts, e.g. the construction [*believe it or not*] shifting from being an imperative construct (*Believe it or not, as you please, I am decided* - COHA Frou Frou, 1879) to a new intersubjectified parenthetical function (*Then I called back Mrs. Frankenthal and, believe it or not, she was free* - COHA Chairman of the Bored, 1961) (cf. Tantucci 2017a: 113-114). Such reanalysis entails that the imperative mood of the verb *believe* is then less analysable (e.g. it cannot occur in isolation as prototypical imperatives do), together with the meaning of the chunk being comparatively less compositional, no more expressing a transparent command. In the case of the [*there is no* NP] construction, decrease of compositionality is at stake when the predicate *there is no* no more expresses physical or abstract presence of a thing in some place or situation, but rather contributes to a less literal function of the whole chunk as a new pair of form and meaning, now primarily expressing the speaker/writer's (un)willingness to engage in some future/hypothetical project. This shift is directly connected with the notion of **procedurality**, as the decrease of compositional and semantic transparency of the inner constituents of a construct may lead to a new semantic-pragmatic analysis of the chunk as a whole<sup>1</sup>. In the case of [*there is no* NP] we argue that a new procedural function emerges as the chunk starts to be employed as a pre-emptive refusal, in the place of its original assertive usage, originally merely stating the existence of something.

### 4.3 Data retrieval

For the retrieval of the [*there is no* NP] construction we had to account for the different spelling that *there* used to have at different stages of change through Early Modern English. Namely, from Early Modern English *there, ther, thare, thar, thore*, with alternative pronunciation spellings from Old English such as *dar, der, dere* and *dey*. We therefore extracted all the occurrences of the pattern *there is no* followed by a noun. As the number of occurrences of the construction varies from one corpus to the other, we adopted two different strategies. We manually annotated all the occurrences of [*there*

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<sup>1</sup> It is important to note that reduction of compositionality and increased procedurally can also be creatively inhibited throughout a process of constructional change (cf. Tantucci & Di Cristofaro 2019 on entrenchment inhibition).

*is no NP*] in the CED, as the total number (n = 161) allows for a manual annotation; the results were later normalised to Per Million Words (pmw) based on the diachronic subcorpora composing the CED.

Period	Tokens	Occ. [there is no NP]	Occ. [ <i>ther is no NP</i> ]
1500_1599	243522	24	5
1600_1699	924765	25	0
1700_1799	272986	32	1
Total:	1441273	164	7

Table 1.

CED sub-corpora size and spelling variations of [*there is no NP*]

As shown in table 1, the CED contains very few occurrences of alternative spellings, e.g. [*ther is no NP*]. The CED contains details regarding the genre/type of the texts, which have been included in our analysis. These correspond to a specific set of labels such as Comedy, Fiction, Handbook, Miscellaneous, Trial, Witness Deposition included in the 'Text type metadata field.

#### 4.4 Data annotation

For each occurrence, our annotation was aimed at capturing new constructional changes of [*there is no NP*]. We took into account the following formal, semantic and pragmatic variables:

- lexeme: the lexeme that appears in the noun slot.
- century: the century in which the text was published.
- illocutionary force: the type of illocutionary force present in the occurrence. This can be assertive, pre-emptive refusal, embedded (e.g. when [*there is no NP*] is part of a temporal clause, in which case no independent illocutionary force is associated with the construction).
- complementing clause: whether the sentence has a complementing clause.
- speaking subject: whether the speaking subject is present in the complementing clause.
- discourse-givenness: whether the propositional content of the subordinate in [*there is no NP*] is discourse-given (or inferable) or not discourse-new. Discourse-given usages tend

to be existential in that *p* needs a 'link' or an 'anchor' to some other relevant proposition in the context.

- reference: whether [*there is no NP*] refers to a specific place/space/situation (specific) or if merely expresses an existential meaning (generic).

The annotation criteria are exemplified with the occurrences below:

- (9) You say that in *loue*<sup>2</sup> **there is no** reason, and therefore there can be no likelihood.

CED / D1CLYLY / 1660-1699

- (10) A: Goe and warme it in the Kitchene.

B: Sir, **there is no** fire there.

COAED / D2HFWODR / 1600-1639

Examples (9-10) are both cases where [*there is no NP*] is used as an assertive speech act. No pre-emptive polysemies are conveyed by neither of the two usages. Neither of (9-10) includes a complementing clause attached to the NP and thus no speaking subject occurring in the rest of the utterance. The 'locus' of existence is specific (*in loue; there*) while the reference of the NPs *reason* and *fire* are discourse-given.

- (11) Dame quoth hee I thanke you, but **there is no reason I should sit** on a cushion till I haue deserued it.

CED / D2FDELON / 1600-1639

Things are different in (11). Here the NP is introduced for the first time in the discourse and the construct now includes a complementing clause [*there is no NP COMP-C*] where the speaking subject *I* is also present. The reference to the locus of existence is now generic as there is no place/situation that 'contains' the NP *reason*. Finally, the illocutionary force here has now shifted to the one of a pre-emptive refusal. This can be tested as, different from (9-10), (11) can be subsequently referred to with the expression *this cannot be done*. From a constructional point of view, the chunk is less compositional, as there is no expression of physical/abstract existence of a thing in some place/situation. It is also more schematic as the NP slot can be now occupied by any noun, whilst earlier merely existential forms were limited to nouns that could be 'present' in some physical or abstract locus of existence. In fact, a mere assertive usage of *there is no reason* without a

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<sup>2</sup> Love.

complementing clause is not idiomatic at this point in time and absent from the CED. The chunk is also more procedural – as opposed to contentful – due to the fact that the construct headed by *there is* is employed to achieve the perlocutionary effects of pre-emptively refusing to perform an action, rather than primarily expressing the presence of something somewhere.

In (12) below is given a similar example of pre-emptive refusal with absence of the speaking subject in the complementing clause:

- (12) But in this we have been so formal in the Distribution, that I do not think it necessary. and therefore now **there is no** more to be done.

CED / D2TCARR / 1616-1730

Even in this case, the NP *more to be done* is not referred to as something that exists as such, but rather as a possible concern that the addressee or a generic third party might have as a result of the ongoing utterance.

#### 4.5 A constructional analysis of [*there is no* NP] in the CED

This section is centred on the constructional change (cf. Traugott & Trousdale 2013) of [*there is no* NP] from the 16th up to the 18th century in the CED corpus. The main focus of the present analysis lies on the assumption that pre-emptive interaction is a process that is most prominently activated in dialogic interaction, whereby the interlocutor explores his/her own turn taking in order to engage with what they expect the addressee's turn may be like. We plotted a multiple correspondence analysis (i.a. Nenadic and Greenacre 2007) looking at the holistic interaction of time in the CED with the significant co-variants among the ones we described in section 4.4 on a two-dimensional plane. In multiple correspondence analysis modelling (MCA), associations among variables are shown by calculating the chi-square distance between different categories of the variables and between observations. These associations are thus represented graphically in the form of a map, which eases the interpretation of the structures in the data, e.g. the closer the distance between variables, the stronger the statistical correspondence. More specifically, we looked at the interaction between illocutionary force and reference with time in the CED as illustrated in Figure 1 (R package: FactoMineR, Lê & Husson 2008). We fitted this model to specifically visualise the relationship between the semasiological shift from assertions to pre-emptive refusals and reference. This allows to capture the diachronic shift of the [*there is no* NP] in the direction to generic expressions and extended intersubjectivity (cf. Tantucci 2013, 2017a, 2017b, 2020; Formato & Tantucci 2020):

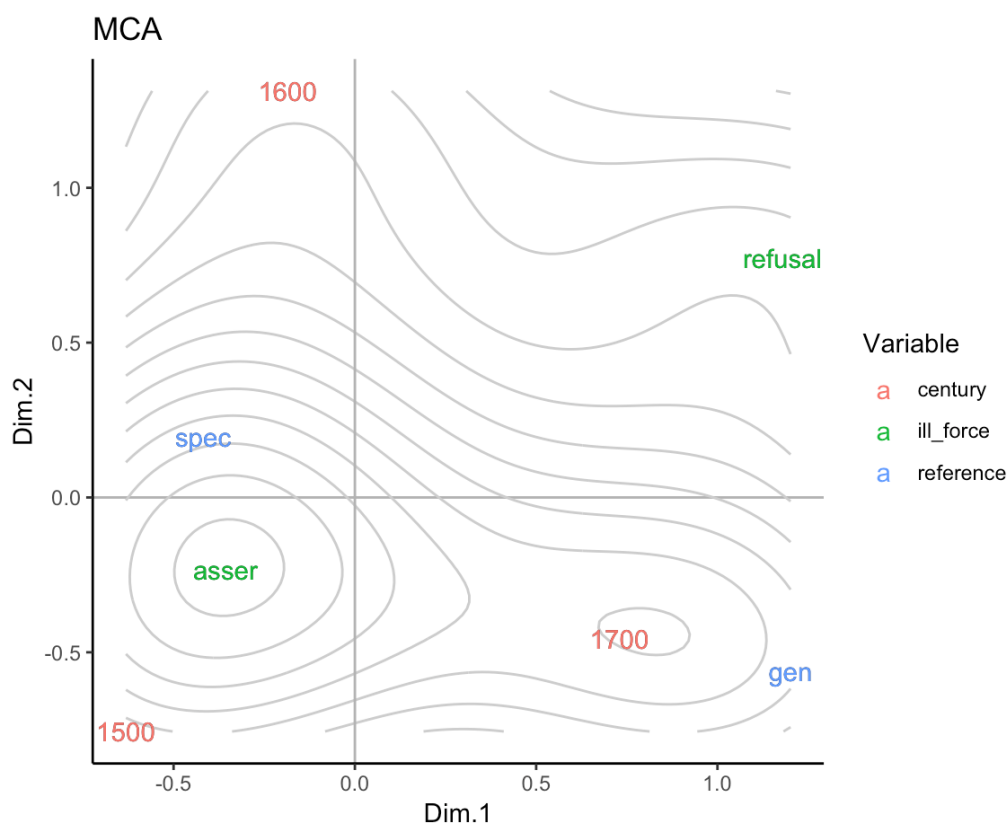


Fig. 1

Multiple correspondence analysis of illocutionary force and reference of *[there is no NP]* in the CED

The two dimensions on the x and the y axis in Figure 1 above do not refer to a specific variable. They exclusively bear statistical significance, viz. they determine spatially the attraction versus repulsion of between the three variables of this model, i.e. the century in which *[there is no NP]* occurred, the reference type (specific vs generic) and the illocutionary force (that is whether the construction was used as a bare assertion, or whether it involved a pre-emptive refusal). From the plot, it is possible to note that in the CED there is a strong correspondence of a pre-emptive refusal force with 1700, in combination with generic reference. In fact, they appear quite close to one another, at the right hand-side of the map (cf. Tantucci & Wang 2018, 2020a, 2020b for specific applications of MCA in cross-cultural, diachronic and developmental pragmatics). As we argued in section 3.1, generic reference intersects with intersubjectivity, as the speaker is not propositionally referring to an object being present in some physical or abstract space, but rather metalinguistically referring to a forthcoming turn taking on the addressee's behalf. On the left-hand side of the plot, original assertive usages (labeled as *asser*) of *[there is no NP]* are closely associated with specific reference (labeled as *spec*) usage during the 1600. The above model is based on two dimensions, which in some cases may not be enough to capture the overall variation among the variables considered. A general rule of thumb to assess the degree of accuracy of MCA plotting is to calculate the percentage of variation that is

captured on a two-dimensional plain and to see whether it is superior to at least 70% (cf. Levshina 2015: 382). This can be verified with the `mjca()` function in the R `ca` package (cf. Greenacre et al. 2016). The two dimensions above can capture more than 82% of the overall variation among century, illocutionary force and reference, which makes the plot in figure 2 a reliable visualisation of the correspondence among the three variables. Some examples from the present dataset are given below:

(13) It is more pitie that **there is no** more disciplin among men.

(13) \*a. *This cannot be done.*

CED / D2HOCHUR / 1600-1639

(14) In an indictment of Rape, **there is no time** of prosecution necessary, for nullum tempus occurrit regi.

(14) a. *This cannot be done.*

CED / D2WMERVI / 1601

(15) the King is concerned for His life: you are to speak the truth and the whole truth; for **there is no reason** in the world that you should adde any one thing that is false.

(15) a. *This cannot be done.*

CED / D3TCOLEM / 1678

The illocutionary force of (13) is assertive, as what is stated is essentially an existential meaning, e.g. the mere absence of something real or abstract with reference to some state of affairs. The locus of existence in (13) is specific, namely *among men* and the proposition cannot be referred to with *this is not to be (cannot) done* (\*13a). From our data, assertive employment of [*there is no NP*] shows a tendency to intersect with absence of a complementing clause, while the opposite is true for pre-emptive refusals. Both (13-14) above are cases of pre-emptive refusal, as in both cases the speaker/writer could anaphorically reinforce his/her statement with *this is not to (cannot) be done* (14a-15a). Both (14-15) are also inherently discourse-new, as the speaker/writer negatively foresees an addressee or a generic third party's stance associated with some future or hypothetical state of affairs.

At this point, it was important to shed light on the variables that are significantly at play in the reanalysis from assertive to pre-emptive refusal usages of [*there is no NP*]. To do so, we modelled a mixed effects logistic regression (cf. Baayen et al. 2008). The latter can help to assess whether refusal usages of [*there is no NP*] would indeed be favoured at comparatively later time-spans of the CED. Mixed effects logistic regression helps to model binary outcome variables (Baayen 2008; Jäger 2008) with two types of factors that are mixed in this kind of analysis: fixed factors and random factors. Random factors are used to systematically exclude variation that can be deemed as 'random



or unpredictable, and thus only indirectly affecting the response variable. For instance, factors that could arguably be considered to be random are the number of speakers in a given corpus or the number of verbs that are found in a given construction. The separation of the effects of random factors allows the analyst to assess more reliably the effects of the remaining fixed factors, and the findings can be generalised beyond the current data set with greater confidence (cf. Hilpert 2013: 52-53)

Our model thus included Illocutionary force as a binomial response variable (i.e. Assertive vs Refusal), Century as independent variable, and Genre as a random effect, other fixed effects were discarded due to multicollinearity. The results of this analysis are reported below (cf. Baayen et al. 2008; Hilpert 2013 for mixed effect models with diachronic linguistic data):

Random Effects				
Groups	Name	Variance	Std. Dev.	
Genre	(Intercept)	0.628	0.792	
Fixed Effects				
	Estimate	Std.Error	Z value	Pr(> z )
(Intercept)	-2.341	0.522	-4.487	7.23e-06 ***
Century 1600	1.334	0.394	3.387	0.000708 ***
Century 1700	0.9739	0.375	2.597	0.009398 **

Table 2.

Mixed effects logistic regression of the illocutionary force of [*there is no NP*] in the CED

In the random effects section, the column at the right hand-side of the table is called Std. Dev. (Standard Deviation) and indicates the variability from the predicted values due to the random effects added to the model (viz. the textual Genre in which the construction occurs). It thus reflects the fact that every utterance has some unexpected factors that affect usage in addition to the fixed effects. In the fixed effects section, under the Estimate column, the coefficients Intercept, Century 1600 (1.33) and Century 1700 (.97) indicate the slope of the categorical effects of polysemic usages of [*there is no NP*]. These are the dimensions are assumed to correlate with a prevalence of pre-emptive refusals vs assertive usages of [*there is no NP*]. From the Estimate column we can see that refusal usages have positive values both for 1600 and 1700. What this means is that in the comparison between 1500 and 1600, there is a significantly positive value ( $Z = 3.39, p < .0005$ ) indicating that the latter shows an

increase of pre-emptive refusal usages at the expenses of assertive ones. The same comparison also leads to significant results in relation to 1700 ( $Z = 2.6, p < .05$ ).

Put simply, the model indicates that [*there is no NP*] across 1500 and 1600 underwent a process of intersubjectification. A literal meaning of expressing that *some object was located in some space* shifted towards a new function of pre-emptive refusal, literally expressing *I am pre-emptively declaring that p cannot be done*. With the latter, the speaker would go beyond mere co-actional interaction and encode a surplus of meaning aimed at responding to projected turn-taking of a specific or generic addressee.

## 5 Pre-emptive polysemies of [*there is no NP*] throughout ontogeny

It has been acknowledged that phonological reduction and morphosyntactic change are not useful diagnostics for comparing diachronic and ontogenetic change. Nonetheless, important similarities have been noted in terms of unidirectional patterns of semantic–pragmatic reanalysis (Diessel 2011, Tantucci 2018), (viz. where the form of construct remains constant) as they indeed seem to hinge on similar mechanisms of change (Ziegeler 1997) or similar adaptive behaviours (Givon 2009). Drawing on that, it has been proposed that research on intersubjectification can be informed by experimental findings about the ontogeny of ToM and help formulate a gradient, more elaborate redefinition of the intersubjective paradigm (Tantucci 2020).

A fundamental condition for the gradient cross-validation of intersubjectivity is polysemy resulting from semasiological change (i.a. Traugott & Dasher 2002). Simply put, a construct (e.g. [*there is no NP*]) needs to remain morphologically the same, yet develop multiple meanings through time, some of which tend to be more intersubjectified than others. The same construct can then be searched in a corpus of first language acquisition. Polysemies that are hypothesised to be more intersubjectified should then be spontaneously mastered at stages of ontogenetic development, that is when a ToM should be increasingly matured. In this respect, the 4th year of age is widely acknowledged to be as a critical stage of development towards ToM (Apperly 2010; Tantucci 2020, forthcoming). The aim of this approach is to provide usage-based evidence for empirically validating whether the meaning of a construct is more or less intersubjectified, which is a diagnostic that is crucially missing in current linguistic research in intersubjectivity. From this perspective, children are clearly not to be considered as the ‘drivers of language change’. Rather, spontaneous mastery of intersubjectified polysemies of the same linguistic form throughout ontogeny can help to shed light on different degrees of intersubjective complexity and therefore, overt linguistic mastery of ToM.

In this section we put this gradient approach into play and we compare the semantic and illocutionary change of [*there is no NP*] that we observed diachronically with children’s process of

first language acquisition of the polysemic usages of the same construction. To do so, we looked holistically at all the *there is no/there's no* forms in all the CHILDES<sup>3</sup> corpora of British and American English respectively in the 0-3, 4-6 and 7-9 age spans. The CHILDES dataset is composed of different subcorpora (one for each child), covering more than 30 languages and 230 children and adolescents ranging from 0 to 18+ years of age. For our analysis we looked at a collection of 92 subcorpora amounting to a total of 29,480,736 tokens, uttered by roughly by 1507 children. More specifically, we focused on transcriptions of children aged between 0 and 9 years, divided as follows: 0-3, 4-6, 7-9. It is important to notice that each subcorpus contains utterances by both the child and other people, such as the interviewer(s) and/or carers, the child's parents, grandparents, relatives and so on. Our analysis only took into account those utterances spoken by the child in contexts of spontaneous interaction (e.g. not being elicited for a specific task), therefore limiting the scope of the queries to a specific set of utterances out of the total available. This allowed us to control the settings of usage of the [*there is no NP*] forms and satisfy the independence assumption. Table 3 contains details for each selection, listing the total number of tokens including the non-child ones (tokens); the total number of tokens for only the utterances by the children (child-only tokens) and the number of occurrences of [*there is no NP*] (including the variant [*there's no NP*]).

selection	tokens	child-only tokens	[ <i>there is no N</i> ]
0-3	4,580,207	3,220,642	281
4-6	1,874,520	905,861	196
7-9	326,970	226,053	18

Table 3.

Total number of tokens of [*there is/'s no NP*] in the three subcorpora of the CHILDES

We first normalised our annotated occurrences based on the larger subcorpus, (the one including data of the 0-3 age-span, 4,580,207 tokens, entailing a per-3.2-million-word normalisation of the child-only annotation strings from the two remaining subcorpora)<sup>4</sup>. We we then fitted a binomial logistic regression of the developmental acquisition of the chunk and its assertive vs refusal usages. While in section 4.5 our main effects were based on centuries, in this case we used children's age. The choice

<sup>3</sup> See <https://childes.talkbank.org/> for more details.

<sup>4</sup> While this normalisation method generates a number predicted strings of annotation, it is yet entirely data-driven and preferred to classic per-million-word normalisation when mismatching datasets are associated with relatively low frequencies of the lexeme under enquiry (cf. Tantucci 2020).

of the latter as the only predictor resulted from a forward stepwise selection, followed by ANOVA testing for possible interactions (cf. Levshina 2015:§12).

Main Effects				
	Estimate	Std.Error	Z value	Pr(> z )
(Intercept)	-3.7075	0.506	-7.33	<0.0001***
Age 4-6	1.505	0.533	2.82	0.0047*
Age 7-9	2.099	0.585	3.59	0.0003**

Table 4.

Binomial logistic regression of the illocutionary force of [*there is no NP*] in the CHILDES

The model above is slightly different from the one in section 4.5 as it does not include the genres of texts as a random effect. This is due to the fact that the context in this case is quite stable, viz. based on spontaneous spoken interaction between the child and mother/carers, with the main effects satisfying the independence assumption (cf. Winter 2013). One may argue why a variable “speaker” was not included as a random factor in the model above. This is due to the disparity of the CHILDES datasets that were included in our query, some of which not comprising speakers’ identity. It is also important to remark that no significant interactions among other potential predictors were at play, which was functional to the interpretation of age as a predictor in isolation (cf. Winter 2020: §5). The main effects here take into account children’s ability to spontaneously produce pre-emptive refusal usages of the [*there is no NP*] construction, entailing extended intersubjectivity and generic reference of the locus of existence of the NP. From the table above we can see positive coefficients associated both with children’s capacity to utter pre-emptive refusals in the 4-6 age span ( $Z = 2.82, p = .0047$ ) and the 7-9 age span ( $Z = 3.59, p = .0003$ ) in contrast with a negative value at the intercept, corresponding to the 0-3 age span.

All in all, from our data a clear developmental trajectory emerged among formal and illocutionary features of [*there is no NP*], indicating a progressive ontogenetic ability to engage with pre-emptive refusal usages out of mere assertive employment of the same form. This pattern is very similar to the diachronic development of the same chunk towards intersubjectivity and pre-emptive interaction observed in section 4.5. In fact, children’s spontaneous usage of [*there is no NP*] is increasingly geared towards pre-emptive refusal strategies and intersubjectively marked interaction.

Examples (16-17) illustrate early usages of the chunk, which are merely aimed at assertively stating the (negative) existence of an entity in some location:

(16) CHI: daddy's gonna come in here and put out the fire.

INV: put out the fire?

CHI: put out the fire. I want ta put out the fire .

INV: is there a fire in the car?

CHI: no **there's no fire**. don't have any fire.

CHILDES Bloom70 Peter 2Y7M

(17) INV: Could that be a swimming pool could we put that full of water?

CHI: look **there's no water** in it .

CHILDES Belfast Courtney 3Y4M

In both (16-17) [*there is no NP*] merely refers to discourse-given information, without pre-emptively addressing how the interlocutor or a third party might react as a result of the child's utterance. This can operationally be tested with the possibility of dropping the NP after *there is no*, and simply replying with a pronominal form *there is none*, which distinctively hinges on discourse-given information. This indicates that PEM is here not an overtly coded element of the usages of [*there is no NP*].

Quite differently, children progressively learn to use the same chunk with a pre-emptive refusal illocutionary force, thus overtly problematising some hypothetical state of affairs that the addressee or a generic third party may virtually bring to the fore.

(18) CHI: I wouldn't like to go up in space because **there's no more things up**, there there's nothing up there.

CHILDES Mcwhinney Mark 4Y2M

(19) INV<sup>5</sup>: she's moving that other one up. That's it.

CHI: well **there's no any room** for that girl. She has to go to his mum.

CHILDES Conti Bonnie 5Y0M

Both (18-19) represent a first step towards the pre-emptive reading of [*there is no NP*]. In fact, the child is not merely interested in stating the absence of some entity in some location. Despite an existential meaning is still expressed propositionally, at the procedural level s/he pre-emptively rejects the idea of some possible project that the addressee or a generic social persona may consider as valid or plausible in those specific contexts. Similar to what we argued in section 4, both usages in

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<sup>5</sup> Interviewer.

(18-19) express a procedural meaning that can be referred back with the expression *this cannot be done*, which, in turn, is not felicitous in mere existential usages such as in (16-17). Similarly, they cannot be used pronominally in the form of *there is none*, as they are aimed at expressing new information, rather than stating the absence of some object that is already part of the ‘textual’ common ground among the interlocutors. This is because they are grounded in social cognition and the collective awareness of what a generic persona in his/her socio-cultural community of practise would be plausibly say under the same preparatory conditions. Usages of this kind are significantly absent before the 4th year of the child’s ontogenetic development, viz. when ToM abilities are shown to become increasingly sophisticated (cf. Onishi & Baillargeon 2005; Surian et al. 2007; Kovacs et al. 2010; Tantucci 2020). As suggested at the beginning of this section, despite evident morphosyntactic mismatches existing between language change and first language acquisition, however similar pathways of change are yet present for what concerns the semantic-pragmatic reanalysis of a linguistic form that remains formally the same (i.a. Ziegeler 1997; Diessel 2011; Givon 2009; Tantucci 2020; Tantucci & Wang 2020b). This phenomenon can be defined as onto-semasiology (cf. Tantucci in press) and underpins a matching trajectory in language change and child development, shifting from literal meanings to more idiomatic usages of the same form that are increasingly oriented towards intersubjectivity and collective intentionality (cf. Tomasello 2019). The implications of this method are the ones of exploiting phenomena of language change and intersubjectification for applied purposes, as increased semantic-pragmatic complexity that emerges diachronically matches higher complexity and (comparatively) late acquisition throughout the ontogenetic development of a Theory of Mind. The present study is case in point about this relationship and provides the methodological desiderata for addressing intersubjective complexity as an interactionally pre-emptive mechanism emerging diachronically to shed light on ontogenetic capacities to overtly express a Theory of Mind throughout naturalistic interaction.

## 6 Conclusions

This paper addressed the pragmatic relationship between pre-emptive interaction and intersubjective awareness in language change and ontogeny. Pre-emptive interaction occurs through dialogues as a form of prediction-error-minimisation (PEM), viz. when an interlocutor addresses potential reactions that may result from his/her ongoing speech. We argue that this form of awareness is an indicator of intersubjectification and may constitute a trigger of constructional change. To support this claim we provided a corpus-based analysis of the change of the [*there is no NP*] construction in Early Modern English. The chunk shifts from a mere existential construction, characterised by an assertive illocutionary force, in the direction of a new pre-emptive refusal usage. This reanalysis significantly

correlates with a number of formal and semantic changes, such as decrease of compositionality, increase of procedurality and generic reference to the place or state of affairs connected with [*there is no NP*]. The semantic and pragmatic changes that we observed throughout the constructional change of the chunk also emerged from a large-scale analysis of the CHLDES data. This cross-validation revealed a higher degree of complexity and extended intersubjectification of pre-emptive usages of [*there is no NP*], as children would be able to spontaneously master them at comparatively later stages of ontogenetic and ToM development. Our analysis indicates that it is only around the fourth year of age that the child starts to spontaneously master pre-emptive polysemies of [*there is no NP*], often intersecting with generic reference, presence of a complementing clause and reduced compositionality.

This novel corpus-based method is centred on the cross-validation of intersubjective complexity arising diachronically and the ontogenetic capacity to express a ToM as linguistically overt mechanism throughout spontaneous interaction. The implications of this methodology aim at a new applied turn of studies in language change, serving as a powerful resource for the study of intersubjective complexity in FLA, autistic and neuro-typical interaction. Naturalistic exchanges can therefore be analysed as being characterised by overt intersubjectified expressions displaying a gradient spectrum of complexity, ranging from literal meanings to extended intersubjectified polysemies. Spontaneous mastery of the latter can provide data-driven diagnostics to assess interlocutors' pragmatic and semantic ability to overtly express ToM awareness and social cognition (cf. Tantucci in press) as a by-product of spontaneous interaction.

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