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A Relevance-Focused Production Heuristic

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Abstract

This paper proposes that a relevance-focused production heuristic plays a role in the

production of communicative acts. While the relevance-theoretic account of communication

and other pragmatic theories focus on both communicators and their addressees, there has

been more focus on the pragmatic processes of comprehension than on communication,

with few specific suggestions about the role of pragmatic processes in production. This

paper outlines a research programme which aims to build on work by other researchers by

making a proposal about this. The central claim is that production is constrained by at least

one dedicated heuristic, which shares some properties with the relevance-guided

comprehension heuristic proposed in earlier work. The main aim of the paper is to consider

some questions about the nature of this heuristic and to propose an initial characterisation.

The production of communicative acts is extremely complex. Our claim is that a production

heuristic is one of many factors involved in this and that this proposal can help contribute to

accounts of communicative behaviour.

Keywords: communication, production, interaction, relevance theory, heuristics

1.   Introduction

This paper presents a specific proposal as a contribution to accounts of the pragmatics of production from the perspective of relevance theory.[1] While relevance theory (like other pragmatic theories) makes claims and predictions about what communicators do, the majority of work in a relevance-theoretic framework has focused on comprehension and there has been little focus on how exactly considerations of relevance play a role in the production of communicative acts. Van der Henst et al (2002) and Gibbs and Bryant (2008) provide experimental evidence that considerations of relevance play a role in communication. More specifically, they show that communicators expend effort which would not otherwise be required in order to attempt to produce utterances which will meet their addressees' expectations of relevance. We propose here that one thing which contributes to communicative production is a 'fast and frugal' heuristic of the type discussed by Gigerenzer et al (1999). These heuristics are parts of 'the mind's adaptive toolbox for making decisions with realistic mental resources.' They 'can enable both living organisms and artificial systems to make smart choices quickly and with a minimum of information by exploiting the way that information is structured in particular environments' (Gigerenzer et al 2000: 727).

The relevance-guided comprehension heuristic, which is seen as playing a key role in relevance-theoretic pragmatics (Wilson and Sperber 2004, Sperber and Wilson 2005), can be seen as fitting this model. It exploits the way that communicative behaviour is structured in such a way that addressees come close enough to understanding communicative intentions in many contexts for the cognitive gains of following the heuristic to outweigh the risks (of misunderstanding, of being misled, etc.) Our research programme aims to investigate the possibility that a similar kind of heuristic is involved in the production of communicative acts.

Our starting assumption has been that a production heuristic will share some properties with, but not fully 'mirror', the relevance-guided comprehension heuristic. The outcome of operations of the heuristic will be communicative acts which adjust the cognitive environments of interlocutors rather than assumptions or hypotheses about the communicative intentions of others. While we are not sure how important this terminological decision is, we propose the term 'focused' rather than 'guided' here to indicate differences in the relationships between processes and considerations of relevance. While interpreters are guided by considerations of relevance in looking for interpretations, communicators aim to produce utterances which are likely to meet the expectations of their audiences.[1] One of our

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[1] We are not assuming that this is the only aim of communicative behaviour but something like this is

key aims is to develop an account, within a relevance-theoretic framework, of how

communicators formulate their utterances based on assumptions about their addressees

and about the assumptions which communicators and addressees have access to (in

relevance theory terms, their 'mutual cognitive environment').

The paper begins, in the next section, with a brief discussion of previous research which

has explored utterance production (mainly of speech) from a psychological or

psycholinguistic perspective and research on the pragmatics of production, including work

which takes a relevance-theoretic perspective. Section three considers what previous

approaches have assumed about the role of heuristics in pragmatics, including the

relevance-guided comprehension heuristic proposed by relevance theorists. Section four

considers some questions about the production heuristic and suggests some possible

answers. The conclusion in the final section is that the assumption of a production heuristic

is an important step in developing understanding of what guides the formulation and

reformulation of verbal and nonverbal communicative acts. Future work can help to develop

understanding by investigating the details of how the heuristic and other factors interact in

communication, including the interaction of production and comprehension in interaction.

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generally assumed by Gricean and post-Gricean approaches.

2. Previous work on utterance production

Research on utterance production from a psychological or psycholinguistic perspective (e.g.

Bock and Levelt 1994; Garrett 1988; Levelt 1989; Schriefers et al 1990) has tended to focus

(but not exclusively) on the production of speech at phonological, lexical, syntactic and

semantic levels. In pragmatics, dynamic speech processes have been analysed with

reference to versions of speech act theory (Brown and Levinson 1987; Leech 1983),

communication accommodation theory (Giles and Coupland 1991; Hua 2014; Yoon 1991),

discourse analysis (Goffman 1981; Gumperz 1982; Tannen 1999, 2009), anxiety/uncertainty

management theory (Gudykunst 1995, 2005), adaptation theory (Verschueren 1987) and

what has been termed the socio-cognitive approach (Kecskés 2008, 2010, 2014; Kecskés

and Zhang 2009). Most of this research has focused on the psychology, culture, or social

relationship of speakers, rather than on general or specific pragmatic processes involved in

speech production. We believe that bringing together insights from this wide range of

research literature with ideas about pragmatic principles will help to develop understanding

of communicative production and of pragmatics.

2.1 Previous work from a non-relevance-theoretic perspective

A wide range of insights have been provided by researchers who are not working with

relevance theory. The research programme we envisage will combine insights from these

with ideas from a relevance-theoretic perspective. There is space here only to mention a

small number of ideas and to briefly indicate how we think our proposal might interact with

them.

In the field of pragmatics, dynamic speech processes have been analysed with

reference to: versions of speech act theory (Austin 1962) discussing how speakers use

speech acts to show their intention; communication accommodation theory (Giles and

Coupland 1991) showing how communicators' social and psychological statuses affect

formulation; discourse analysis (Goffman 1981; Gumperz 1982; Tannen 1999, 2009)

exploring how different communicative behaviours depend on different social contexts; and

linguistic adaptation theory (Verschuren 1999) suggesting that speakers may choose their

speaking strategy within the constraints of social contexts.

One influential approach from a psycholinguistic perspective is Levelt's model of speech

production (Levelt 1989, 1999a; Bock and Levelt 1994; Levelt et al 1999). This includes four

major stages: conceptualisation (deciding on the message to express meaning); formulation

(transformation from concepts to linguistic representations); articulation (speaking, writing,

signing); monitoring (through the comprehension system). We believe that ideas about the

principles which constrain pragmatic processing can play a particularly significant role in the

first and last of these: conceptualisation and monitoring.

Some criticism of psycholinguistic models (e.g. Hickock 2014) has suggested that they

focus too much on linguistic levels and not enough on interactional processes. However,

psycholinguists have considered aspects of pragmatics. Levelt, for example, considered

aspects of production which can be understood as referring to aspects of pragmatics.

Conceptualising involves producing a 'preverbal message', selecting relevant information to

make realise communicative intentions. Levelt (1996; 199b: 226) suggested that we should

consider 'shared knowledge and discourse context' (Levelt 1999b: 226) when speakers

formulate a lexical concept to refer to a target object.

While Levelt seems to see pragmatics as involved in early stages of production, some

work in psycholinguistics sees a larger role for pragmatics more. Gibbs (1994) suggested

that pragmatics is involved throughout production. Gibbs and Colston (2020) stated that

'pragmatics does not come into play only at certain temporal points in language use, and is

not turned on and off in people's linguistics and non-linguistic experiences'. Others have

explored the interplay between psycholinguistics and pragmatics. Pollard (2012) considered

Levelt's work and ideas from relevance theory in considering how speakers' production

could be affected by the hearers' responses. The aim of our research is to consider the role

in production of pragmatic principles similar to those which constrain interpretation.

2.2 Previous work from a relevance-theoretic perspective

Some research applying ideas from relevance theory has focused on aspects of production.

Clark and Owtram (2012) reported pedagogical work with student writers focusing on the

likely inferences of readers. Clark (2012) considered the role of pragmatics in editing prose

fiction. Kolaiti (2015) explored the production of literature and art within a relevance-theoretic

approach.

Focusing more closely on the nature of pragmatic processes in production, Van der

Henst et al (2002), Hayashi (2005) and Gibbs and Bryant (2008) presented experimental

evidence which shows that speakers consider what is likely to be relevant to interlocutors

when formulating utterances. More specifically, a significant number of speakers chose to

give rounded answers ('five past . . .', 'ten past. . .' etc.) when asked the time even when this

involved extra effort for them, e.g. when reading the time from a digital watch so that they

would have to move from a display like '11.52' to an utterance like 'ten to twelve'. They were

also more likely to give rounded answers in some contexts (e.g. when simply asked the time

by a stranger) than others (e.g. when the stranger first said that 'My watch has stopped').

Building on this work, Gibbs (2012, 2013) and Gibbs and Van Orden (2012) considered

what is involved in the pragmatics of speech production. They argue for the importance of

researching the pragmatics of production while recognising that it involves the interaction of

many factors. In light of this, they propose a view of pragmatics based on complexity theory,

arguing that 'pragmatic choice in discourse does not reflect the output of any dedicated

pragmatic module but arises from a complex coordination or coupling between speakers and

their varying communicative tasks' (Gibbs and Van Orden 2012: 7). A key idea developed in

this series of papers is that:

> 'Pragmatic action and understanding is not producing or recovering a
>
> "meaning" but a continuously unfolding temporal process of the person
>
> adapting and orienting to the world.'

(Gibbs 2013: 70)

We agree about the complexity of production and that both producing and recovering

meanings are continuously unfolding processes.[1] However, we also assume that something

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[1] For a recent discussion of the complexity of communication from a relevance-theoretic perspective,
see Heintz and Scott-Phillips 2020.

must be guiding and constraining the processes of production. We propose that explaining

production requires the assumption of specifically pragmatic processes and that the many

factors involved in production may include a dedicated sub-module. A natural assumption in

general is that pragmatic principles which share properties of those involved in interpretation

must be involved in guiding the process of formulating utterances. A natural assumption

from a relevance-theoretic perspective is that speech production involves one or more

heuristics which share properties with the relevance-guided comprehension heuristic which

guides comprehension (an idea implicit in earlier relevance-theoretic work and discussed

explicitly in Wilson and Sperber 2004, Sperber and Wilson 2005). The next section

discusses assumptions about heuristics in neo-Gricean pragmatics and then considers the

nature of the comprehension heuristic assumed in relevance theory. After that, we move on

to consider some questions about what a production heuristic might be like.

3.   Heuristics in pragmatics

The idea that pragmatic processes involve heuristics is not new but it was not present in the

influential work of Grice (1975, 1989). In suggesting that interaction is governed by

underlyingly rational principles, one key idea Grice had was that implicatures should be

'calculable', i.e. that we should be able to spell out the stages involved in inferring particular

implicatures. In developing understanding of the nature of pragmatic principles, later work,

particularly the approach developed by Levinson (1987, 2000) has involved the assumption

that certain kinds of 'heuristics' are involved.

3.1 Heuristics in neo-Gricean pragmatics

The neo-Gricean approaches developed by Horn (1984, 1988, 1989, 2004) and Levinson

(1987, 2000) each proposed to replace Grice's maxims with a smaller number of principles.

Levinson (2000: 31) proposed three principles: a Q-Principle, an I-Principle and an M-

Principle. These are maxim-like principles which guide communicators and their addressees.

For each one, he proposed associated heuristics which act as 'constraints that limit the

search space of sets of premises' (Levinson 2000: 30) in working out the communicative

intentions of others. Brief versions of the heuristics are:

    (1)   Levinson's three heuristics

        Q-heuristic: 'what isn't said, isn't'

        I-heuristic: 'what is expressed simply is stereotypically exemplified'

        M-heuristic: 'what's said in an abnormal way, isn't normal'

                                              (Levinson 2000: 35-38)

In proposing the three pragmatic principles, Levinson proposes both maxims

which speakers follow and 'corollaries' for hearers. While the different principles

and heuristics might seem to contradict each other, Levinson sees them as

interacting in communication and makes suggestions about how they are likely to

apply in specific situations. While they are different from the maxims proposed by

Grice, the principles are seen as maxim-like and they seem to suggest that

pragmatic inference is similar to more general reasoning. The heuristics seem to

be general statements which it is helpful to be aware of while carrying out these

inferential processes. They can be seen as playing a role in both production and

comprehension. Important things to notice here are that Levinson proposes

heuristics as well as principles and that he makes suggestions about what both

speakers and hearers do.

3.2 The relevance-guided comprehension heuristic

The comprehension heuristic assumed within relevance theory differs from the heuristics

suggested by Levinson in at least two significant ways. First, the principles on which it is

based are not seen as maxim-like but rather as law-like generalisations about cognition and

communication. Roughly, the generalisation about cognition is that human cognition is

geared towards maximising relevance, i.e. looking to achieve as many positive cognitive

effects as possible while expending as little effort as possible, while the generalisation about

communication is that ostensive communication gives rise to fairly specific expectations of

relevance (again roughly, that there is an interpretation which provides enough effects to

justify the effort involved in deriving them). While these generalisations are grounded in

rationality, they do not necessarily involve explicit, calculable reasoning of the kind assumed

in Grice's account and arguably still present in Levinson's approach. Second, the heuristic is

seen as a 'fast and frugal' one, sharing properties of the heuristics discussed by Gigerenzer

et al (1999). A key idea in relevance theory is that 'the expectations of relevance raised by

an utterance are precise and predictable enough to guide the hearer towards the speaker's

meaning' (Wilson and Sperber 2004: 249). This idea is spelled out more fully in the

'relevance-guided comprehension heuristic':

(2)   *Relevance-guided comprehension heuristic:*

a.   Follow a path of least effort in deriving cognitive effects: test

interpretive hypotheses (e.g. disambiguations, reference

resolutions, implicatures, etc) in order of accessibility.

b.   Stop when your expectations of relevance are satisfied.

This heuristic follows from the communicative principle of relevance and is used to account

for particular interpretations. Consider this example, originally discussed by Sperber and

Wilson (1986: 168):

(3)   George has a big cat.

The expression *cat* is ambiguous. It could refer to any kind of cat or to the kind of cat kept as

a domesticated pet in many cultures. If (4) is uttered in an area of Newcastle in 2020, the

idea of a domesticated cat is likely to be easily accessible. If the hearer assumes this sense,

they can reach an interpretation which justifies the effort involved in arriving at it. While other

ways of understanding the expression, e.g. wondering whether George has a lion or tiger,

could lead to highly relevant interpretations, the hearer will already have found a relevant

interpretation and will not expend more effort considering other possibilities. Once hearers

have satisfied their expectations of relevance, the comprehension process is complete.

Hearers may go on to think other thoughts about what has been uttered, e.g. thinking about

what they think of cats, friends who own cats, etc., but this means going beyond the

comprehension process.

This paper proposes that a heuristic with similar properties to the relevance-guided

comprehension heuristic is involved in production. It suggests that the production heuristic

shares some properties with the relevance-guided comprehension heuristic but that it is also

different in significant ways. A key difference is that communicators start from an intention to

alter the cognitive environments of others and to realise other goals by means of this (e.g. to

make someone feel happy because of what the communicator has said). By contrast,

addressees are aiming to understand the communicator's intentions as evidenced by their

communicative behaviour.

4. The production heuristic

This section presents an initial suggested characterisation of the heuristic, some

assumptions we have made in this initial formulation, and some remaining questions.

4.1 A first formulation

As Clark and Owtram (2012: 128-129) point out, both Grice and Sperber and Wilson refer to

speakers as well as hearers when describing pragmatic principles. Hearers make inferences

about what speakers will have assumed they will infer. Both production and comprehension

then, involve inferences about inferences. Our initial formulation aims to reflect this while

assuming nevertheless that that production and comprehension processes are distinct:

      (4)   *Relevance-focused production heuristic*

            a.   Follow a path of least effort in formulating and producing

                 communicative acts (verbal and nonverbal) which will give rise to

                 positive cognitive effects for members of your audience

            b.   Produce an utterance which permits members of your audience

                 to find an interpretation which meets their expectations of

                 relevance (one which is optimally relevant)

            c.   look for evidence of how addressees are understanding your

                 communicative acts

            d.   reformulate or produce new communicative behaviour when

                 there is evidence that expectations of relevance have not been

                 met or that you have been misunderstood

The reference to meeting audience members' expectations of relevance in (4b) means,

of course, that they can find an interpretation which gives rise to enough cognitive

effects without expending too much effort.

We are unsure about the status of (4c) and (4d). Clearly communicators do

monitor interpretations of what they have produced and sometimes reformulate or add

something to adjust interpretations. However, we are unsure whether these should be

considered part of a production heuristic or simply something ongoing during and

beyond moments of interaction. We have included them here for now, while

recognising that this is one way in which production and comprehension must overlap.

Our belief is that this heuristic (perhaps amended as further research is carried

out) can complement the work of others in developing an account of communicative

production. It can, for example, be seen as accounting for the role of pragmatics in the

stages of Levelt's model mentioned above.

4.2 Production and comprehension

A starting point for our proposal is the recognition that pragmatic processes are involved in

production and comprehension. Both involve inferences about inferences. A natural question

then is whether the same heuristic or sub-module is involved in both. While we believe that this is likely to be correct, we have begun by formulating the heuristic in this way with the aim of adjusting the idea in the light of further discussion and investigation (Park, in progress, considers empirical data about the effects of different kinds of contextual assumptions on production).

A further reason for seeing production and comprehension as closely linked is that, as Gibbs (2012, 2013) points out, these processes typically occur in parallel at the same time. In face-to-face communication, interlocutors are simultaneously producing and comprehending communicative acts. In many kinds of writing, communicators and audiences are separated in space and time and so we believe that further evidence on this will come from comparisons of the practice of writers, speakers and signers in different kinds of contexts.

4.3 The nature of communication

We began our work on this by considering what is involved in communicative acts. We came up with a long list, which supports Gibbs and Van Orden's (and our own) view of the complexity of production. These included: that the communicator must have one or more potential addressees in mind, even if the audience might not be clearly characterised

(putting aside cases of self-talk for now), that utterances are ways of realising

communicative intentions, i.e. of changing the cognitive environments of interlocutors by

means of an ostensive stimulus (even if the intentions are not explicitly represented or easily

characterised); that communicative intentions might be related to other intentions which they

help to realise (including the kinds of effects on addressees termed 'perlocutionary' effects

by Austin 1962); that communicative intentions can be formed more or less in advance of

communicative acts (or emerge during interaction, as suggested by Gibbs 2012, 2013); that

communicative acts are constrained by the abilities and preferences of communicators,

including their interests and personal values; that communicative acts are partly shaped by

assumptions about the abilities and preferences of addressees (which are derived from a

wide range of sources); that communicators aim to produce utterances which meet the

addressees' expectations of relevance, i.e. which lead to interpretations which are optimally

relevant to the addressee (providing enough effects to justify the effort involved in

processing them and not involving gratuitous effort given the communicator's abilities and

preferences); that achieving communicative intentions involves 'mindreading' in that

communicators make assumptions about the minds of their addressees and inferences they

are likely to make in response to particular utterances; that interlocutors constantly make

and adjust assumptions about each other, monitoring these at all stages of interaction.

4.4 What activates the production heuristic?

This question has been raised by audiences when we have presented these ideas. A natural answer would be that the production heuristic is triggered when an individual forms a communicative intention. This would then, of course, lead to the question of what leads to a communicative intention. A natural answer to this would be that these are formed when communication seems an appropriate way to have effects on other people. Individuals form and aim to carry out intentions all the time and a subset of these involve performing communicative acts. On this view (which we see as part of the research programme on causal cognition),[1] we could then move on to consider what kinds of things might lead to the formation of communicative intentions. It is easy to come up with quite a long list. Some intentions are formed spontaneously as we go about our lives and interact with other people, e.g. when we smile and say hello as we encounter a colleague at work with the aim of maintaining friendly relations. Some are caused by the behaviour of others, e.g. when somebody else speaks to us or when we see somebody doing something that might be dangerous or hinder us in some way. We also sometimes carry out communicative

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[1] For a useful overview, see Bender 2020

intentions carefully and deliberately, e.g. when preparing a job application, engaging in

academic writing or other kinds of professional communication (as discussed by Clark and

Owtram 2012) or writing and editing prose fiction (see Clark 2012). There are lots of

questions to answer about this, and some of them are questions about actions in general.

For now, we will simply propose that the production heuristic must be activated when we

begin to form and to carry out a communicative intention. We recognise the point made by

Gibbs and Van Orden that communication involves the complex interaction of many factors

and that interaction is often dynamic with two or more individuals working together to

construct it. We also recognise that intentions might be more or less clearly represented and

may often emerge and be modified during interaction. Nevertheless, we suggest that

intentions are involved, even if not clearly constructed or represented in advance of

interaction.

4.3 What does the heuristic do?

Our central idea is that the heuristic constrains production. Just as the comprehension

heuristic is one of many things involved in comprehension, we propose that the production

heuristic is one of many things involved in production. In verbal communication,

comprehension includes accessing linguistic forms and related representations (often

described as 'decoding'), noticing verbal and nonverbal cues, and so on, while production

involves accessing linguistic forms and producing verbal and nonverbal behaviour. We

suggest that the role of the production heuristic is to contribute to formulations, to monitor

potential interpretations, and to lead to adjustments in plans, to new formulations and to

reformulations.

We have said that the heuristic monitors potential rather than actual interpretations

because, of course, actual interpretations are not accessible to communicators. The primary

focus of the heuristic is on what is often referred to as 'mindreading', although perhaps a

term such as 'mind-modelling' would be more accurate. The heuristic, we suggest, focuses

on what addressees are likely to infer or to be inferring, checking that these fit with

communicative intentions and leading to adjustments where departures are noticed.

Such a heuristic would contribute to an explanation of data gathered by Van der Henst

et al (2002) and Gibbs and Bryant (2008) which shows that speakers make otherwise

unnecessary effort in order to make utterances likely to be more relevant for addressees,

e.g. the fact that some speakers go to the effort of rounding when asked the time by a

stranger and that unrounded responses are more likely in some contexts than others (e.g.

when the person who asks the time indicates that they are setting their watch).

This heuristic would also play a role in reformulations and additional explanations. Here are two examples from interactions we experienced ourselves:

(5)   A: How did you get here?

          B: I cycled. *(pause)* Well, I came on one of those electric bikes.

(6)   A: Do you want an iced coffee?

          B: No. *(pause)* Thanks for offering but I've just had one.

In (5), we assume that speaker B recognises that some of the inferences that A will draw from being told that B cycled to the place where they are talking will lead to less than accurate assumptions about the trip (e.g. about the amount of physical effort involved in making the trip) and so offers *came on one of those electric bikes* as a more accurate utterance. In (6), we assume that B has recognised the risk of impolite inferences and so adds an explanation for turning down the offer of tea. The heuristic is involved when an individual begins to think about how others might interpret their own utterances and possible future utterances.

4.4 How long does the heuristic operate for?

We considered but ultimately rejected a surprising answer to this question, which is that

there is no clear cut-off point for the production heuristic. This would be in sharp contrast

with the comprehension heuristic which determines when an interpretation has been found

that meets expectations of relevance and so determines when comprehension stops and

interpretation processes go beyond what communicators can be taken to intend. Of course,

one key claim of relevance theory is that there is not always a clear boundary between what

communicators intend and what addressees infer on their own. In some cases, it may not be

clear whether a particular behaviour is intended as ostensively communicative or not. Verbal

communication is almost always taken as ostensive but it can be harder to be sure whether

nonverbal behaviours are intentionally communicative or not. Such things as silences or

coughs might be cases where it is not clear what is intended. We could also refer to cases

where an individual in a shop stops moving to allow another shopper to pass at an

appropriate distance or to wait for them to move on. Such an action could be accompanied

by a smile or a hand gesture to make clear that the person who stops moving is indicating to

the other that they are happy to wait. In some cases, it might not be clear whether or not this

involves intentionally communicative behaviour.

Our suggestion is that we are constantly monitoring the minds of others, observing their

behaviour, considering what they might be doing or thinking, and adjusting our behaviour in the light of that. We believe that this process contributes both to the initiation of communicative behaviour (e.g. when somebody says 'after you' as they stop moving in a shop) as well as to the formulation, monitoring and reformulation of communicative acts. The production heuristic begins to operate when this monitoring leads to a planned act of communication. The heuristic will play a role in assessing and choosing particular formulations, noticing when a formulation might be leading to unintended inferences, and thinking about how interactions have gone after the interaction has happened. We could argue that carrying on to think about what another person might be thinking after an interaction falls within the domain of the production heuristic. We suggest instead that these processes count as part of more general mindreading and the heuristic is in operation only when an individual is involved in planning and producing communicative acts.

4.5 What accounts for variation in speaker behaviour?

We assume that a large number of factors affect the operations of the production heuristic and that this helps to account for variation in what individuals say in different situations. Monitoring the minds of others will be affected by ongoing changes in cognitive environments, i.e. in the relative manifestness of a wide range of assumptions, and what we

say will be affected by which assumptions are accessible at the time of formulating our utterance. The choice between the two options in (7) and (8) will partly depend on assumptions about who we are talking to:

(7)   A: What's that you're eating?

        B: a.   Congee.

             b.   It's a kind of porridge made with rice.

(8)   a.   I'm reading a really good book about Grice..

        b.   I'm reading a really good book about a philosopher

             called Paul Grice.

If speaker B in (7) assumes that A knows what congee is, they are likely to give the first response; if not, they are likely to give the longer answer. (8a) would be appropriate if the speaker assumes that the addressee knows who Grice is while (8b) works better if the speaker is not presupposing this. Being aware of what assumptions others are aware of is important in teaching, of course, and often leads to utterances like (8b) being preferred to (8a). Different degrees of awareness of particular kinds of assumptions also play an important role in intercultural communication.

There are, of course, many kinds of assumptions which can be more or less manifest to different individuals and this will play a role in leading to different utterances from speakers in similar situations. Some individuals will think more than others about what will be useful to their audiences, some will be more aware than others of variation in what people are likely to be aware of, and so on. This partly explains why it is often assumed that there is very little we can say about the pragmatics of production. We do not assume that we can develop an account which will explain why individuals say particular things at particular times. We do, however, think that we can say something about what is involved in the variation, including how the accessibility (or manifestness) of different assumptions affects the working of the production heuristic.

One factor which we think plays an important role is the performance and construction of identities, i.e. we believe that more or less salient assumptions about the identities we are constructing, performing or attributing must affect the formulation of communicative acts. All human behaviour makes manifest assumptions which are relevant to the construction of identities and of course this also applies to communicative behaviour. Clark (i2020) argues that ideas from relevance theory are particularly useful in thinking about identity, focusing in particular on non-communicated implications, the idea that the distinction between implicatures and non-communicated implications is not always clear, the notion of

manifestness, and the idea that cognitive environments are constantly being adjusted before, during and after communicative interactions. Differences in the performance and construction of identities (of individuals themselves and of others), and differences in awareness of how particular behaviours and utterances affect identities, will lead to differences in communicative behaviour.

This could, for example, contribute to the difference between these two possible responses to the offer of an iced coffee, adapted from (6) above:

(9)   a.   No.

             b.   I love iced coffee but I've just had one, actually, but thanks for

                 offering.

(9a) simply indicates that the speaker does not want a coffee while (9b) makes clear that the speaker appreciates the offer but has a reason for not accepting it. We could talk about this with reference to ideas from (im)politeness theory, e.g. we could say that (9b) mitigates a potentially face-threatening act. We could also say that (9a) contributes to the construction of a view of the speaker's identity which suggests less concern for the feelings of others than (9b). The reference to liking iced coffee both rules out one reason for not accepting the offer

and contributes to the construction of the speaker's identity. We follow Garcés-Conejos

Blivitch and Sifianou (2017) in assuming a close connection between face and identity. They

argue that the two are hard to distinguish because 'they co-constitute each other and are

thus intrinsically related' (2017: 248).

Ideas about identity are important in all kinds of communication, including academic and

other kinds of professional writing. Pedagogical work on professional communication varies

in how explicitly it discusses this. Clark (2020) argues that a focus on identity can help in

developing communicative skills in a wide range of contexts. To take just one example, the

way an academic paper is formatted, its structure, the content of its introduction (in fact, all

aspects of how it is formulated) help to construct the identity of the author. These also

contribute to understanding of the author's construction of the identity of the journal, its

editorial board and readers.

Developing an account of the pragmatics of production, and of our proposed production

heuristic, will involve consideration of identities and a wide range of other kinds of

assumptions with varying manifestness within and across individuals and groups. Variation

in the manifestness of particular assumptions plays a role in accounting for the variability of

communicative behaviour.

5.   Conclusion

We have only briefly discussed our thinking here and made a first attempt to characterise the production heuristic which we propose. There are many questions still to explore, including those we indicated above. We hope that we do not have unrealistic aims for this line of research. We certainly do not believe that we are close to being able to predict what any individual will say at a particular moment (just as we don't think we can predict the interpretations of specific individuals in advance). But we do think that the postulation of a production heuristic helps to understand production and the role of relevance considerations in production processes. We also believe that this line of thinking can help to develop understanding of the interactive nature of communication. We hope that future work will develop a fuller account of communicative interaction and the heuristics which help guide and constrain it.

While the relevance-guided comprehension heuristic guides the interpretation of utterances, the production heuristic contributes to the formulation and reformulation of utterances in the light of inferences about the responses of others to possible or actual formulations.

Finally, we think an important question to consider is whether our account could be replaced by one which simply sees the heuristic we propose as the application of a more

general mind-reading capacity. Sperber and Wilson (2002) make a convincing case for a

specific comprehension heuristic saying that 'given the particular nature and difficulty of the

task, the general mind-reading hypothesis is implausible' (2002: 20-21). We believe that a

similar argument applies to production and that it therefore makes sense to postulate a

heuristic which is focused specifically on production. We hope that further work will develop

and test more specific proposals, leading to fuller understanding of the pragmatic processes

involved in the production of communicative acts.

References

Austin, John L. 1962. How to Do Things with Words. Clarendon, Oxford.

Bender, Andrea. 2020 What is causal cognition? Frontiers in Psychology 11. Available at:

   https://doi.org/10.3389/fpsyg.2020.00003

Bock, Kathryn and Willem J.M. Levelt. 1994. Language Production: Grammatical Encoding.

   In M.A. Gernsbacher (ed.) Handbook of Psycholinguistics. Academic Press, San Diego

   CA: 945-984.

Brown, Penelope and Stephen C. Levinson. 1987. Politeness: Some Universals in Language

   Usage. Cambridge University Press, Cambridge.

Clark, Billy. 2012. Beginning with *One More Thing*: pragmatics and editorial intervention in

the work of Raymond Carver. Journal of Literary Semantics 41.2: 155-174.

Clark, Billy. 2020. Identity inferences: implicatures, implications and extended

interpretations. Language and Literature. 29.4: 424-445.

Clark, Billy and Nicola Owtram. 2012. Imagined inference: teaching writers to think like

readers. In M. Burke, S. Czabo, L. Week and J. Berkowitz (eds.) Current Trends in

Pedagogical Stylistics. Continuum, London. 126-141

Garcés-Conejos Blivitch, Pilar and Maria Sifianou. 2017. (Im)politeness and identity. In J.

Culpeper, M. Haugh and D. Kádár (eds.) The Palgrave Handbook of Linguistic

(Im)politeness. Palgrave Macmillan, Basingstoke: 227-256.

Garrett, Merrill F. 1988. Processes in Language Production. In F. J. Newmeyer (ed.)

Linguistics: The Cambridge Survey, Vol.3. Language: Psychological and Biological

Aspects. Cambridge University Press, Cambridge: 69-96.

Gibbs, Raymond W. 2012. The emergence of intentional meaning: a different twist on

pragmatic linguistic action. Łódź Papers in Pragmatics 8.1: 17-35.

Gibbs, Raymond W. 2013. A dynamical, self-organised view of the context for linguistic

performance. International Review of Pragmatics 5.1: 70-86.

Gibbs Raymond W. and Gregory A. Bryant. 2008. Striving for optimal relevance when

answering questions. Cognition 106: 345-369.

Gibbs, Raymond W. and Herbert L. Colston. 2020. Pragmatics Always Matters: An

Expanded Vision of Experimental Pragmatics. Frontiers in Psychology 11: 1619.

Gibbs, Raymond W, and Guy Van Orden. 2012. Pragmatic choice in conversation. Topics in

Cognitive Science 4: 7-20.

Gigerenzer, Gerd and Peter M. Todd. 2000 Précis of 'Simple heuristics that make us smart'.

Behavioral and Brain Sciences 23.5: 727-741.

Gigerenzer, Gerd, Peter M. Todd and the ABC Research Group. 1999. Simple Heuristics

That Make Us Smart. Oxford University Press, Oxford.

Giles, Howard and Nikolas Coupland. 1991. Language: Contexts and Consequences. Open

University Press, Milton Keynes.

Goffman, Erving. 1981. Forms of Talk. University of Pennsylvania Press. Philadelphia PA.

Grice, H. Paul. 1975. Logic and conversation. In: Cole, P. and J. Morgan. Eds. Syntax and

Semantics 3: Speech Acts. New York, NY: Academic Press. Reprinted in Grice, H.P.

1989. Studies in The Way of Words. Harvard University Press, Cambridge MA: 41-58.

Gudykunst, William B. 1995. Anxiety/Uncertainty Management (AUM) Theory: Current

status. In R.L. Wiseman (ed.) Intercultural Communication Theory. Sage, Thousand

Oaks, CA: 8-58.

Gudykunst, William B. 2005. Theorizing about Intercultural Communication. Sage, Thousand

Oaks, CA.

Gumperz, John J. 1982. Discourse Strategies. Cambridge University Press, Cambridge.

Hayashi, Hajimu. 2005. Truthfulness and Relevance in Japanese. Proceedings of the

Annual Meeting of the Cognitive Science Society 27: 2490.

Heintz, Christoph and Thom Scott-Phillips. 2021. Expression unleashed. PsyArXiv, January

8. doi:10.31234/osf.io/mcv5b

Hickock, Gregory. 2014. The Architecture of Speech Production and the Role of the

Phoneme in Speech Processing. Language and Cognitive Processes 1.29(1): 2-20.

Horn, Laurence R. 1984. Towards a new taxonomy for pragmatic inference: Q- and R-based

implicature. In D. Schiffrin (ed.) Meaning, Form, and Use in Context: Georgetown

University Round Table on Languages and Linguistics. Georgetown University Press,

Washington DC: 11-42.

Horn, Laurence R. 1988. Pragmatic Theory. In F. Newmeyer (ed.) Linguistics: The

Cambridge Survey, Volume 1: Linguistic Theory: Foundations. Cambridge University

Press, Cambridge: 113-145.

Horn, Laurence R. 1989. A Natural History of Negation. University of Chicago Press,

Chicago IL.

Horn, Laurence R. 2004. Implicature. In L.R. Horn and G. Ward (eds.) The Handbook of

Pragmatics. Routledge, London: 3-28.

Hua, Zhu. 2014. Exploring Intercultural Communication: Language in Action. Routledge,

London.

Kecskés, Istvan 2008. Dueling context: a dynamic model of meaning. Journal of Pragmatics

40.3: 385–406

Kecskés, Istvan. 2010. Formulaic language in English Lingua Franca. In P. Hanks and R.

Giora (eds.) Metaphor and Figurative Language: Critical Concepts in Linguistics.

Routledge, London.

Kecskés, Istvan. 2014. Intercultural Pragmatics. Oxford University Press, Oxford.

Kecskés, Istvan and Fenghui Zhang. 2009. Activating, seeking and creating common

ground: a socio-cognitive approach. Pragmatics and Cognition. 17.2: 331-355

Kolaiti, Patricia. 2015. The poetic mind: a producer-oriented approach to literature and art.

Journal of Literary Semantics 44.1: 23-44.

Leech, Geoffrey N. 1983. Principles of Pragmatics. Longman, London.

Levelt, Willem J.M. 1989. Speaking from Intention to Articulation. MIT Press, Cambridge MA.

Levelt. Willem J. M. 1996. Perspective Taking and Ellipsis in Spatial Description. In P.

Bloom, M. A. Peterson, L. Nadal, & M. F. Garrett (eds). Language and Space. MIT

Press, Cambridge MA: 77-107.

Levelt, Willem J. M. 1999a. Producing Spoken Language: A Blueprint of the Speaker. In C.

Brown & P. Hagoort (eds.) The neurocognition of Language. Oxford University Press,

Oxford: 83-122.

Levelt, Willem J. M. 1999b. Models of Word Production. Trends in Cognitive Sciences 3.6:

223-232.

Levinson Stephen C. 1987. Minimization and conversational inference. In J. Verschueren &

M. Bertuccelli-Papi (eds.) The Pragmatic Perspective. John Benjamins, Amsterdam: 61-

129.

Levinson, Stephen C. 2000. Presumptive Meanings: The Theory of Generalized

Conversational Implicature. MIT Press, Cambridge MA.

Park, Kyu Hyun. In progress. Relevance theory and the pragmatics of production. PhD

thesis, Northumbria University.

Pollard, Anna. 2012. Speech production, dual-process theory and the attentive addressee.

PhD thesis, University College London.

Schriefers, Herbert, Antje S. Meyer and Willem J.M. Levelt. 1990. Exploring the time course

of lexical access in language production: picture word interference studies. Journal of

Memory and Language. 29.1: 86-102

Sperber, Dan and Deirdre Wilson. 1986 (2nd edition 1995). Relevance: Communication and

Cognition. Wiley-Blackwell, Oxford.

Sperber, Dan and Deirdre Wilson. 2005. Pragmatics. In F. Jackson and M. Smith (eds.)

Oxford Handbook of Philosophy of Language. Oxford University Press, Oxford.

Tannen, Deborah. 1999. The display of (gendered) identities in talk at work. In M. Bucholtz,

A.C. Liang and L. A. Sutton (eds.) Reinventing Identities: The Gendered Self in

Discourse. Oxford University Press, Oxford: 221-240.

Tannen, Deborah. 2009. Framing and face: the relevance of the presentation of self to

linguistic discourse analysis. Social Psychology Quarterly 72.4: 300-305.

Van der Henst, Jean-Baptiste, Laure Carles and Dan Sperber. 2002. Truthfulness and

relevance in telling the time. Mind and Language 17.5: 457-466.

Verschueren, Jef. 1987. Pragmatics as A Theory of Linguistic Adaptation. Edward Arnold,

London.

Wilson, Deirdre and Dan Sperber. 2004. Relevance Theory. In L. Horn and G. Ward (eds.)

Handbook of Pragmatics. Wiley-Blackwell, Oxford: 249-287.

Wilson, Deirdre and Dan Sperber. 2012. Meaning and Relevance. Cambridge University

Press, Cambridge.

Yoon, K. K. 1991. Bilingual pragmatic transfer in speech acts: bi-directional responses to a

compliment. In L.F. Bouton and Y. Kacxhru (eds.) Pragmatics and Language Learning,

volume 2. University of Illinois at Urbana-Champaign Press, Urbana-Champaign IL: 75-

100.