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Experimental Approaches to Linguistic (Im) politeness

Thomas Holtgraves and Jean-François Bonnefon

1 Introduction

Experimental approaches to (im)politeness have a relatively long history but have tended to remain somewhat out of the mainstream of politeness research. This is unfortunate because experimental approaches are particularly useful for theory testing; as such they provide an important complement to more naturalistic research methodologies (see Jucker and Rüegg, this volume). The purpose of this chapter is to provide a relatively broad overview of experimental research on linguistic politeness, describing both methodological techniques as well as some of the major findings and their theoretical implications. We begin by providing a brief description of the key concepts and logic underlying experimental approaches. The largest section of the chapter follows and consists of a review of experimental research on politeness. In that section we first describe the early research testing certain propositions from Brown and Levinson's politeness theory. This is followed by a consideration of research across a range of topics examining some of the social and cognitive

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consequences of politeness, including an extended analysis of one case study. Our overall goal with this chapter is to articulate the manner in which experimental approaches can work hand-in-glove with other approaches to further our understanding of politeness.

2 Key Concepts and Methods

Two of the hallmarks of experimental approaches are manipulation and control. That is, researchers will manipulate the variable(s) of interest, such as the presence or absence of politeness, or different types of politeness, and then examine their impact on the variable(s) of interest such as politeness judgments, utterance interpretation, perceptions of a speaker and so on. Control of other variables is typically achieved via random assignment of participants to conditions. For example, a researcher interested in the role of politeness in persuasion could randomly assign participants to read a persuasive message that contains multiple politeness markers, or an identical message that does not contain those markers. After reading one of the two messages all participants might then be asked to indicate their attitude toward the message proposal. If politeness enhances persuasiveness, then those reading the polite version should have more favourable attitudes toward the message topic than those reading the control version. Any potential differences between participants, such as pre-existing differences in attitudes, intelligence, personality and so on, is controlled via random assignment of participants to conditions.

The issue then arises as to how much more favourable those attitudes need to be in order to conclude that politeness influences persuasiveness. This is answered by evaluating the results using some type of inferential statistical procedure. This is typically accomplished by estimating the probability of obtaining the observed difference in the sample of individuals participating in the study, if in fact there was no difference in the general population from which these individuals are sampled (i.e. the null hypothesis). If the probability of observing such a difference is low (typically less than .05), then the researcher will conclude that the effect is real (i.e. significant and unlikely to simply reflect chance variation). There are other statistical procedures that can accompany or replace null hypothesis testing (e.g. confidence intervals, effect sizes).[1] If the data suggest that only some politeness markers play a role in persuasion, then researchers may modify their theoretical approach and

[1] There continues to be some controversy surrounding the logic of null hypothesis testing (e.g. Levine et al. 2008).

collect additional data as a means of evaluating this alteration. The back and forth between theory and data is also one of the hallmarks of experimental approaches. Section 4 will use case studies to provide additional details in the specific case of politeness.

One potential problem with experimental approaches to politeness, as with all experimental approaches to language, is the issue of generalisability. Testing the effects of a language variable by manipulating certain words raises the issue of whether any observed effects are simply unique to those words, or whether they generalise to other words in that class. For example, if a persuasive message containing politeness markers was more persuasive than the control message, is that effect unique to the politeness markers used in the message, or does it generalise to all politeness markers? This is why experimental language researchers will often treat both participants and language as random variables, testing for the generalisability of results over both participants and verbal stimuli.

3 Critical Review of Relevant Empirical Research

3.1 Initial Tests of Brown and Levinson's Politeness Theory

The re-issue of Penelope Brown and Steven Levinson's politeness theory in 1987, followed by Roger Brown's (1988) endorsement of their theory, resulted in a brief flurry of experimental studies of politeness, research that was conducted primarily by social psychologists and communication scholars. In the main, this research was designed to test various propositions derived from Brown and Levinson's theory that focused primarily on (1) the ordering of politeness superstrategies and (2) the effects of imposition, power and distance on levels of politeness. We consider each of these two issues in turn.

Ordering of Superstrategies

Brown and Levinson proposed the existence of four linguistic superstrategies that constituted a universal continuum of politeness; bald-on-record was the least polite, followed in ascending order by positive politeness, negative politeness and off-record politeness. This was viewed as a testable proposition and several researchers did just that, with most of these studies examining

requests. To do this, researchers generated tokens of the four superstrategies which were then rated by participants in terms of politeness and related constructs (e.g. liking of the speaker). Partial support for the theory's ordering was obtained (Bauman 1988; Blum-Kulka 1987; Holtgraves and Yang 1990), and there was some evidence for its cross-cultural generality (Fraser and Nolan 1981; Hill et al. 1986; Holtgraves and Yang 1990).

At the same time, however, some of this research demonstrated problems with the superstrategy ordering. First, at least for requests, one major exception to the predicted ordering was that negatively polite forms were often ranked higher in politeness than off-record forms. Several possibilities were suggested to account for this. Some researchers suggested that off-record forms carry a cost because the recipient must make an effort in order to infer the speaker's meaning (Blum-Kulka 1987; Leech 1983). Others suggested that off-record forms give the impression of manipulativeness on the part of the speaker (Lakoff 1973). On the other hand, off-record forms may not function as truly ambiguous messages in an experimental context: given the fact that participants are asked to rate a set of requests, they are likely to catch up on the fact that all the utterances are requests, thereby eliminating their ambiguity. The broader issue here is whether politeness should be equated with indirectness; the failure of experimental research to provide total support for the Brown and Levinson's politeness ordering suggests that they are related but far from identical. As many have demonstrated, indirectness can occur for reasons other than politeness (e.g. Pinker et al. 2008), and of course politeness may be conveyed by means other than indirectness. The relationship between politeness and indirectness remains an important, unresolved issue that could benefit from additional experimental research.

A second and related issue arose regarding the proposed ordering of negative and positive politeness strategies. Some researchers argued that these forms are qualitatively different and hence cannot be ordered on a unidimensional continuum (Baxter 1984; Lim and Bowers 1991; Scollon and Scollon 1981; Tracy 1990). For directives (threats to the hearer's negative face) the proposed ordering makes sense theoretically (negative politeness grants the hearer greater autonomy than positive politeness) and is supported by empirical research (Holtgraves and Yang 1990). On the other hand, for acts that threaten primarily the hearer's positive face, research suggests that positive politeness may be perceived as more polite than negative politeness (Lim and Bowers 1991). In fact, for acts that threaten the recipient's positive face, it is difficult to imagine what negative politeness would look like. In experimental research on disagreements, instances of negative politeness were virtually nonexistent (Holtgraves 1997). One possibility in this regard is that politeness

strategies can be ordered on the basis of a specificity principle; a strategy that orients to the specific type of face threatened will be regarded as the most polite strategy. Thus, negatively polite strategies would be more polite for acts threatening the hearer's negative face, and positively polite strategies would be more polite for acts threatening the hearer's positive face. This also is an issue that could benefit from additional experimental research.

Imposition, Power and Distance

One of the attractions of Brown and Levinson's politeness theory for social psychologists was the specification of clear links between language and the major social dimensions of power and distance. As a result, multiple experiments were conducted, both in the lab and in the field, examining the impact of these variables on the production and perception of politeness.

Brown and Levinson's theory assumes that as hearer power, relationship distance and act imposition increase, so too does the overall weightiness of the act. Increased politeness is assumed to reflect increased weightiness. Researchers used relatively straightforward role-playing scenario techniques to manipulate power, distance, and imposition in order to examine their impact on the perceptions and production of politeness. Consistent support was found for the imposition variable, with increasing imposition associated with increasing levels of politeness. This effect was found for requests (Brown and Gilman 1989; Holtgraves and Yang 1992; Leichty and Applegate 1991), expressions of gratitude (Okamoto and Robinson 1997), recommendations vs. reports (Lambert 1996), accounts (Gonzales et al. 1990; McLaughlin et al. 1983), as well as other speech acts (Brown and Gilman 1989; Leitchy and Applegate 1991). Some null findings were reported (Baxter 1984) but they were rare.

Experimental research was also generally supportive of the power variable. Increasing politeness as a function of increasing hearer power was found with requests (Holtgraves and Yang 1990, 1992; Leichty and Applegate 1991; Lim and Bowers 1991), including observational studies of actual requests (Blum-Kulka et al. 1985). As well, power was found to have the predicted effects on the politeness of messages conveying bad news (Ambady et al. 1996), teasing (Keltner et al. 1998), remindings and complaints (Leitchy and Applegate 1991), criticisms (Lim and Bowers 1991), accounts (Gonzales et al. 1990) and questions (Holtgraves 1986). Some of these effects were replicated cross-culturally (Holtgraves and Yang 1992; Ambady et al. 1996).

Finally, the results for the effects of relationship distance on politeness were mixed. Consistent with the theory, some researchers reported greater politeness as a function of increasing distance between interlocutors (Holtgraves and Yang 1992; Wood and Kroger 1991); others reported the exact opposite (Baxter 1984; Brown and Gilman 1989). And some (e.g. Lambert 1996) have reported no relationship between distance and politeness. Distance, of course, is a multi-faceted variable and it has been measured and manipulated in a variety of ways. Slugoski and Turnbull (1988) (see also Brown and Gilman 1989) argued that researchers sometimes confounded distance (i.e. familiarity) and affect (i.e. liking). Higher levels of politeness have been found to be associated with greater interpersonal distance (i.e. interactants are more polite with people with whom they are less familiar) but also with greater liking (people are more polite with those whom they like). Recent research suggests, however, that relationship affect can be overridden by interactants' momentary emotional changes, an effect that undermines its usefulness in this regard (Vergis and Terkourafi 2015).

One issue that has been raised regarding the Brown and Levinson model is the manner in which power, distance and imposition interact. The model (implicitly) assumes that their effects are additive. Empirical research suggests otherwise. Many researchers who have examined the simultaneous impact of these variables on politeness have reported interactions between them, including Power by Distance interactions (Blum-Kulka et al. 1985; Holtgraves and Yang 1990; Lim and Bowers 1991), Imposition by Distance interactions (Holtgraves and Yang 1992; Leitchy and Applegate 1991) and Imposition by Power interactions (Holtgraves and Yang 1992; Gonzales et al. 1990). The existence of these interactions simply means that as the effects of one of the interpersonal variables become very large, the effects of the other two variables become much smaller. For example, a person making an extremely large request will tend to be polite regardless of power and distance.

A second issue is whether politeness is influenced by variables other than power, distance and imposition. Obviously it is. It is important to note, however, that power, distance and imposition are high-level, abstract variables that should subsume more specific variables. For example, gender, ethnicity, occupational differences and so on are variables that feed into power and distance, and, ultimately, politeness. Even mood states may be incorporated in the model in this way. For example, Forgas (1999a, b) demonstrated that people in sad moods prefer greater politeness than people in happy moods. But why does mood affect politeness in the first place? One possibility is that a person's mood influences their perceptions of the interpersonal context (power, distance and imposition). So, people in a sad mood may perceive themselves

as being relatively low in power, or perceive an act as being relatively more imposing, and it is these perceptions that affect their level of politeness.

On the other hand, Terkourafi (2001, 2005; Vergis and Terkourafi 2015) has argued for a frame-based approach to politeness in which different situational contexts, over time, come to be associated with expected politeness forms (i.e. they become conventionalised). Although these expectancies can be overridden by the context, the default meaning of these terms become part of the lexical meaning and do not intentionally convey (im)politeness. This alternative offers a more granular approach, one in which power, distance and imposition can play a role in politeness, but not the overarching role theorised by Brown and Levinson (1987).

Whether mood and other intrapersonal variables can be handled within the Brown and Levinson (1987) framework remains to be seen. The empirical examination of other variables theorised to impact politeness should simultaneously assess power, distance and imposition as potential mediating variables.

3.2 Experimental Extensions of Brown and Levinson's Politeness Theory

In addition to research designed to test propositions derived from politeness theory, other researchers have used politeness theory as a framework for examining a variety of social and cognitive processes related to language use. In this section, we review research on the role of politeness in person perception, memory and comprehension, reasoning (including a case study) and Parkinson's Disease.

Person Perception

Person perception has a long history of research and theorising in social psychology dating back to some of the field's founding scholars (e.g. Asch 1946). One of the fundamental issues in this research is the manner in which people translate raw sensory data into dimensions that can be used for perceiving people. Politeness provides one such avenue and the logic is straightforward. If the use of a particular linguistic form is affected by power and distance, it follows that the use of a particular linguistic form will be informative for observers (including the hearer) regarding the speaker's perceived power and distance. For example, if high-status speakers use less polite forms than lower-status interactants for performing the same act, then the use of less polite forms should result in perceptions of higher speaker status, other things being equal.

In a cross-cultural study using participants from the United States and Korea, Holtgraves and Yang (1990) found that less polite request forms were associated with perceptions of greater speaker power. This effect was similar for Koreans and Americans and occurred with relatively minor wording changes. For example, 'Would you get the mail?' resulted in perceptions of greater speaker power than 'Could you get the mail?' There are, of course, obvious limits to such an effect. In fact, when a high-status speaker is extremely polite to a subordinate it will often result in perceived sarcasm (Slugoski and Turnbull 1988). Other research has demonstrated that levels of politeness/facework can influence perceptions of participants on other dimensions such as assertiveness, credibility, attractiveness and so on (Holtgraves 1992).

Note that these findings should not be construed as indicating that language-based person perception is static. The existence of multiple determinants allows people to strategically vary their politeness as a means of negotiating and/or altering the interpersonal context; it is, in effect, an important component of impression management (Goffman 1959). So, a higher power person (e.g. a boss) who moves from negative politeness to positive politeness may be attempting to negotiate a closer relationship. Or, a person in an established relationship may begin to use less politeness as a means of negotiating higher power in the relationship. And so on. At the same time, the existence of multiple politeness determinants can also result in interpersonal misperceptions or misunderstandings. A speaker may assume his politeness level reflects one dimension (e.g. closeness), but his interlocutor may assume it reflects a different dimension (e.g. status). This negotiated nature of politeness-based person perception awaits further empirical investigation.

Powerful vs. Powerless Language

One particularly important subarea within this domain is research on what has been termed powerful vs. powerless language. The concept of powerless language originated in Robin Lakoff's (1975) writings regarding the 'female' register. Subsequent research, however, demonstrated that this register was not unique to women but instead reflected lower power (Crosby and Nyquist 1977; Erickson et al. 1978). In general, a powerless linguistic style refers to the presence of linguistic features such as tag questions, hesitations, disclaimers, hedges, indirectness and so on; powerful language refers to the absence of these features. At a very general level, then, powerless language is roughly equivalent to polite language. Researchers have examined the impact of a powerless linguistic style in a variety of contexts and found that the use of a powerless style

(relative to a powerful style) results in perceptions of less speaker credibility (Burrell and Koper 1998; Erickson et al. 1978), as well as lower scores on other dimensions associated with overall competence (Bradac and Mulac 1984; Gibbons et al. 1991; Hosman and Wright 1987). These effects occurred regardless of the speaker's gender and are consistent with previously discussed research demonstrating a link between politeness and power. In addition, other researchers have found that, depending on the context, messages phrased in a powerless style will be less persuasive than the same message phrased in a powerful style (Holtgraves and Lasky 1999; Blankenship and Holtgraves 2005). However, Carli's (1999) research suggests that this effect depends on the gender of the speaker and the recipient.

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Processing Politeness: Memory and Comprehension

As this review suggests, variations in politeness have effects on a range of social and cognitive processes. But how, exactly, is politeness processed? One line of research has examined memory for politeness wording. A long-standing finding in the memory literature is that people typically forget how something was said (i.e. the wording of an utterance) but retain the gist of what was said (Sachs 1967). An important exception to this, however, is that wording will be remembered well when it has interpersonal implications. For example, people remember the wording of jokes (Keenan et al. 1977; MacWhinney et al. 1982). Politeness, of course, is a dimension of language with clear interpersonal implications. And research suggests that this wording is spontaneously encoded and retained. In several experiments, Holtgraves (1997) examined incidental memory for wording that varied in politeness. In general, people remembered politeness wording at levels exceeding chance, and did so particularly for politeness wording that was inconsistent with the social context. For example, participants in a psychology experiment were more likely to remember impolite forms if the speaker was low in status (a graduate student) and polite forms if the speaker was high in status (a faculty member). Such forms violate expectations and hence are remembered well. Interestingly, even if the specific wording is not remembered, people appear to encode the overall level of politeness and recall wordings consistent with that level of politeness even if they cannot recall the exact wording. In others words, if participants heard an impolite request, when asked to recall that request they tended to recall an impolite (rather than polite) form, even if they could not remember the exact wording. Further, Slugoski (1995) demonstrated that politeness wording can influence the perceived imposition of a request.

Tests of Politeness and Reasoning

Reasoning operates through tool words which broadly fall under connectives (e.g. and, or, not, if ... then) and quantifiers (e.g. some, most, probable, possible). Politeness is important in this field because it can affect the interpretation of connectives and quantifiers, and therefore the conclusions that reasoners reach when manipulating connectives and quantifiers (Bonnefon 2014; Bonnefon et al. 2011b).

Consider for example the quantifier 'some' in 'Some Peruvian generals are male.' From this single piece of information, most reasoners conclude that not all Peruvian generals are male, or, equivalently, that there are female Peruvian generals (Schmidt and Thompson 2008). This interpretation of 'some' as implying 'not all' is based on a principle of pragmatic efficiency: if the speaker had known that all Peruvian generals were male, they would have just said so. The fact that they used the weaker term 'some' means that they were not in a position to use 'all', hence the inference that some Peruvian generals are female (Geurts 2010).

Politeness, however, can complicate the picture by introducing another reason why a speaker might want to use a weaker term. Compare 'some people loved your talk' and 'some people hated your talk'. In the latter case, a polite speaker may very well want to tactfully use the term 'some', even though they are aware that everyone hated the talk. And indeed, experimental findings confirmed that reasoners had trouble interpreting 'some' in threatening statements such as 'some people hated your talk': about half of them no longer concluded that some people did not hate the talk (Bonnefon et al. 2009). In a similar vein, other reasoning experiments showed that politeness could change the interpretation of the disjunction 'or' from exclusive (either one but not both) to inclusive (either one and possibly both), or change the way reasoners combined several 'if … then' conditional statements (Demeure et al. 2009; Feeney and Bonnefon 2013; Pighin and Bonnefon 2011). These experiments always combined a theoretical analysis based on politeness (in order to predict the contextual elements which may shift the interpretation of a connective or a quantifier) and the typical experimental approach used in reasoning research, in which pieces of information are presented to reasoners, who then rate or generate the various conclusions which can be drawn from these pieces of information.

Politeness theory was also instrumental in experimental research on the 'severity effect' (Bonnefon and Villejoubert 2006; Harris et al. 2009). A severity effect occurs when people overestimate the probability of an event as a function of the badness of this event. That is, when events A and B are both qualified as

'likely' (or probable, possible, etc.), and A is a worse event than B, then A will be estimated as having a higher probability than B. Consider for example:

(A) The offender will possibly kill again;
(B) The offender will possibly return to the crime scene.

When presented with these two statements, and asked about the probability of each event, people typically assign a greater probability to the offender killing again, than to the offender returning to the crime scene (Harris and Corner 2011;Pighin et al. 2011;Villejoubert et al. 2009).

Politeness was called upon to explain this robust experimental finding. The broad idea here is that the worse the news that a speaker must communicate, the more plausible it is that the speaker will politely attenuate the impact of the bad news by sugar coating it with a certainty quantifier such as 'possibly' (e.g. 'Your test results possibly suggest that you may have diabetes'). This is a testable prediction: the experimental strategy is simply to assess people's perception of the extent to which the speaker is being polite, to assess the numerical probability they assign to the event and to compute the correlation between these two measures. Such experimental tests have largely confirmed the politeness account of the severity effect (Bonnefon and Villejoubert 2006; Juanchich et al. 2012; Sirota and Juanchich 2012; Juanchich and Sirota 2013).

In sum, the use of experimental techniques has confirmed the important role of politeness in reasoning and risk communication, opening promising avenues for research integrating pragmatics, reasoning and decision making.

4 Case Studies

4.1 Experiments on Discourse Markers

In this section, we offer a more detailed description of a series of experiments on discourse markers and politeness (Bonnefon et al. 2015) in order to emphasise the process of experimental testing. This project started with a robust experimental finding already described in section "Tests of Politeness and Reasoning" of this chapter. When reasoners interpret a statement such as 'some people did *x*', they interpret 'some' as meaning 'not all' when *x* has positive valence for the listener (e.g. 'some people loved your talk' implies 'not everyone loved your talk'), but they hesitate between 'not all' and 'possibly all' when *x* has negative valence for the listener (e.g. 'some people hated your talk' is ambiguous between 'not everyone hated your talk' and 'possibly everyone hated your talk').

We hypothesised that reasoners might be able to use contextual cues in order to determine whether the speaker was straightforward (i.e. 'some' means 'not all') or polite (i.e. 'some' means 'possibly all'). We decided to study the impact of two such cues: prefacing the statement with 'well', and prefacing it with a silent pause. Because such discourse markers have been shown to signal an incoming polite statement (Holtgraves 2000), we predicted that they could help people detect the polite intention of the speaker. To test this prediction, we presented reasoners with statements such as 'some people loved your talk' or 'some people hated your talk', which could either be prefaced by the word 'well', by a silent pause or by neither. We expected that both markers would amplify the valence effect, making it easier to interpret 'some hated' as 'possibly all hated' and 'some loved' as 'not all loved'.

In three experiments, we obtained mixed evidence for our prediction. We found out that only pauses had the expected effect, whereas 'wells' only encouraged the 'not all' interpretation for 'some loved' statements, and did nothing for the interpretation of 'some hated' statements.

To make sense of these results, we engaged in a more subtle theoretical analysis of the two markers. From our literature review, we concluded that 'wells' and pauses had different cognitive effects: 'wells' signalled the need for further cognitive elaboration of the incoming statement (Blakemore 2002; Bronwen 2010), whereas pauses prepared listeners for a low-probability, unexpected statement (Corley et al. 2007; MacGregor et al. 2010). Based on this interpretation of our current results, we were able to generate a new series of testable predictions, which formed the impetus for a second series of experiments.

Consider again three possible types of scalar statements: *positive* statements like 'some people loved your idea', *negative* statements such as 'some people hated your idea', and *neutral* statements such as 'some people bought tickets'. Scalar inferences from positive and neutral statements are linked to greater cognitive effort (e.g. De Neys and Schaeken 2007), but the relation is not straightforward for negative statements (Bonnefon et al. 2011a). Accordingly, given the assumption that 'wells' signal the need for greater cognitive effort, 'wells' should increase the rate of scalar inferences for positive and neutral statements, but not necessarily for negative statements.

Predictions are different for pauses, given the assumption that pauses orient the listener to the least favourable interpretation of the statement. The least favourable interpretation of a positive statement is that not everybody 'loved', the least favourable interpretation of a negative statement is that possibly everybody 'hated' and neutral statements do not have a least favourable interpretation one way or the other. Accordingly, pauses should increase the rate of scalar inferences from positive statements, decrease the rate of scalar inferences from negative statements and have no effect on neutral statements.

Finally, if pauses prepare listeners for unfavourable utterances, they should prompt them to fill in statements like 'some people … your idea' with a negative verb such as 'hated', rather than with a positive verb such as 'loved'. No such effect, though, should be expected from Wells.

All these predictions were tested and confirmed in a series of five experiments. Overall, this example provides a good illustration of the strength of the experimental method in the politeness domain. In particular, it illustrates the back and forth dynamics of theory to data, and data to theory. An initial hypothesis on the role of discourse markers in politeness detection proved unsatisfying after a first stage of data collection; these data were explained by refining our initial theoretical model; and this refined theoretical model allowed new testable predictions which were confirmed in a second stage of data collection. We believe this back-and-forth dynamic can open very promising avenues of future research on (im)politeness.

4.2 Politeness and Parkinson's Disease

Politeness theory provides a coherent and relatively comprehensive framework for examining a variety of communication difficulties. Hence, it has proven to be useful in terms of understanding language deficits associated with certain disorders. Consider, for example, recent research on language deficits in Parkinson's Disease (PD). Although PD is primarily associated with debilitating extrapyramidal motor dysfunction, it also affects thinking, reasoning, planning and language functions, and in terms of the latter there is some evidence of pragmatic impairment in PD (e.g. Lewis et al. 1998; McNamara and Durso 2003), including politeness. To investigate the latter, Holtgraves and McNamara (2010) used a role-playing task and asked participants (those with Parkinson's disease and matched controls) to imagine being in situations in which they were to make a request of another person and to write out exactly what they would say in order to make each request. Two variables were manipulated: degree of imposition and relative status. Overall, the PD participants were less polite than the control participants. More importantly, the politeness of the PD participants (relative to the control participants) was less influenced by the size of the request. That is, for control participants, increasing imposition was associated with increasing politeness; this did not occur for PD participants. In terms of the effects of speaker status, the difference between PD and control participants was not reliable. However, sensitivity to status did vary significantly as a function of medication dosage. PD participants who were taking a lower dosage varied their politeness as a function of status in the predicted manner; PD participants in the high dosage group did not.

What are the potential sources of the politeness impairment in PD? One possibility is that it reflects an overall decline in cognitive capabilities, especially executive cognitive functions (ECFs) (Owen et al. 1992; Lange et al. 1992; Taylor and Saint-Cyr 1995; Troster and Woods 2003; McNamara et al. 2008). Reduced cognitive resources in PD could result in an attentional deficit such that variations in request size are not noticed; because they are not noticed there is no corresponding change in politeness. Consistent with this possibility, researchers have demonstrated a clear connection between executive function deficits in PD and the ability to contribute meaningfully (i.e. appropriately informative) to conversations (Holtgraves et al. 2013). Another possibility is that even when variations in the context are noticed, the cognitive capacities required to produce more polite (and cognitively complex) strategies is hindered in people with PD. In the Holtgraves and McNamara (2010) research, participants on higher doses of dopaminergic medication did notice variations in recipient status (based on manipulation check items) but they failed to produce more polite strategies for a higher power recipient.

Previous research has documented problematic social behaviors in patients with PD including inappropriate and ineffective attempts at communication, social withdrawal, sexual improprieties, ignoring doctor's orders/suggestions, irresponsible use of money (e.g. gambling away the family's savings) and a strange insensitivity to the social, moral and personal consequences of inappropriate social behaviours (Menza et al. 1993; Crucian et al. 2001). Some of these social deficits may be due to the inability of people with PD to accurately assess the weightiness of their remarks in varying social contexts, and thus to phrase their utterances most effectively and appropriately. Whatever the underlying mechanism(s), the diminished politeness capabilities of people with PD contributes to the communication and interactional difficulties associated with this disorder

5 Summary and Future Directions

In this chapter we have provided a summary and overview of the methods and findings of some of the major experimental approaches to politeness. This is a thriving subarea of research that has contributed both to the politeness literature and to a range of other areas. In this section we present and discuss some of the recent developments in this area along with suggestions for issues deserving of empirical investigation.

We believe the Brown and Levinson model continues to be useful as an overarching framework for examining the relationship between language and

basic psychological processes. Its usefulness derives in part from its hierarchical structure whereby high level variables such as power and distance can subsume other more concrete variables, such as gender, occupation and so on. It may also be possible to use the model to explore individual differences in politeness, an area that has seen relatively little research. That people differ from one another in their levels of politeness is obvious. But why? One possibility is that they differ in their perceptions of interpersonal situations. Introverts, for example, may perceive relatively greater distance between themselves and others, and hence produce higher levels of politeness. Extraverts, on the other hand, may perceive relatively less distance and hence favour the use of relatively less polite but more approach-based strategies (i.e. positive politeness). The possibility that high-level variables, such as (perceived) power and distance, can explain politeness variability (as a function of mood, personality traits, culture, gender and so on) should continue to be pursued.

We also believe that experimental approaches to politeness can provide important information regarding the *processing* of politeness and hence address theoretically important issues such as the relationship between politeness and indirectness. To do this requires the adaptation and use of on-line techniques and this represents something of a new avenue in politeness research. One such technique is an eye-tracking methodology. For example, Raizen et al. (2015) used an eye-tracking procedure to examine the processing of taboo words (i.e. potential violations of positive face). Their results demonstrate the early and important role played by identity-based expectations in the comprehension of taboo words.

Another important development in this regard is the use of electrophysiological techniques to examine politeness processing in real time. Although electrophysiological techniques have been used in psycholinguistic research for several decades (e.g. Kutas and Hillyard 1980), the use of these techniques to study pragmatic phenomena, including politeness, is relatively recent (van Berkum 2012; Hoeks and Bouwer 2014). A good example is the work of Jiang and colleagues (Jiang et al. 2013, 2015). These researchers recorded evoked related potentials (ERPs) as participants read conversations in which speaker status and pronoun type (respectful vs. disrespectful) were manipulated. Status inconsistent pronouns (e.g., disrespectful pronoun from a lower status speaker) resulted in an enhanced N400—an indicator of semantic integration effort—than status inconsistent pronouns, thereby suggesting that brain activity varies as a function of the pragmatic implications. Also noteworthy in this research was the investigation of individual differences; participants who were more tolerant of disrespectful usage tended not to display these effects. Clearly, the study of politeness using electrophysiological techniques is only

beginning, but it is a technique with the potential to provide unambiguous information regarding the processes involved in the comprehension of politeness. Moreover, the use of these techniques can be expanded to other areas as well. For example, the specific role played by politeness in processing scalar expressions—as described earlier in this chapter—could be usefully explored with electrophysiological techniques.

Experimental approaches to politeness allow for precise control over extraneous variables. There is a downside, of course, in that experimental stimuli may be sometimes artificial and divorced from the context in which they might actually occur. Trade-offs are obviously involved; gains in experimental control may be paid for with a decline in realism. Researchers, however, can strive to make their stimuli as realistic as possible, for example, by collecting actual discourse samples to be used in experimental research. And in fact, it may be possible to use electrophysiological techniques as individuals engage in (constrained) natural language use (e.g. Hoeks and Bouwer 2014). The gain in precise experimental control, coupled with the back and forth between theory and data, can allow for advances in our understanding of certain facets of politeness, an understanding that can contribute to and compliment advances made with non-experimental techniques.

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