

Social distribution and social psychology: An exemplary paradigm to rebuild social psychology from the bottom up

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This paper is aimed at introducing a neglected strand of research to mainstream audiences of American social psychology. Specifically, the so-called “social distribution” paradigm, as invented in European social psychology. The paper discusses the historical and conceptual foundations of this paradigm as well as possible implications for the field at large. Furthermore, classical empirical findings within this paradigm are reviewed and new applications of this paradigm within social psychology suggested.

1 Introduction

Social psychology deals with a large set of problems and phenomena that are both extremely important and interesting at the same time. Clearly, scientific answers to issues like prejudice, attitudes, social relationships or aggression (see Taylor, Peplau & Sears 2000 for an overview) are of an utmost societal relevance. Due to the highly multideterministic structure and extremely complex nature of these phenomena, over hundred years of intensive and quite successful social psychological research with a continuous methodological development couldn't satisfy the obvious need for methods and paradigms that provide good measures of the phenomena and behaviors of interest. The availability of good paradigms is still key to a successful scientific study to these problems. Good operationalisation that allows to disentangle the different effects and interactions that are involved is arguably the most crucial and challenging step in contemporary as well as historical social psychological research. Due to the challenging nature of this stage, even the most compelling social psychological experiments are often riddled with confounds or laden with complex constructs, rendering the interpretation of the results ambiguous, limiting the potential benefit that society can draw from social psychology.

Moreover, contemporary social psychology relies heavily on paper-and-pencil tests and introspective self-report measures with a complex relation to actual behavior in real-life situations and are of a highly problematic validity, as recently pointed out by Schwartz (1999).

Furthermore, these experiments often take place in highly artificial settings with an ecological validity that is – given the complex social nature of the studied phenomena - questionable at best.

Successful strategies to deal with these known problems include the refinement of available paradigms, multiple operationalisations of the same measures and even relating social phenomena to firm neural substrates, as exemplified by Cacioppo et al. (2001), thereby inventing the field of “social neuroscience”, which has become very popular lately (see Adolphs 1999, 2001 for reviews).

While these strategies seem to be quite promising to overcome the problems implied in the state of affairs that is discussed above, the point of this paper is to point out a complementary approach: Broadening the range of available paradigms by inventing or looking for suitable ones. One way to do this is to look into the psychology that is done in different countries.

The methods and contents of european psychology don't isomorphically map onto those of american psychology. This rather simple notion is still quite commonly overlooked by many students of psychology on both sides of the atlantic. Yet, it is the very reason why it is invaluablely useful to know both traditions: One can profit from the strengths of both, while avoiding or overcoming their respective weaknesses. Moreover, there are usually some approaches that are not represented at all in the other tradition. Discovering these gems and merging them with themes from the other tradition can turn out to be a most fruitful undertaking. In this paper, I want to suggest that the “social distribution” paradigm which was developed within european social psychology is one of these gems and point out that social psychology as a whole could profit much from an incorporation of this paradigm in the american social psychological tradition. As will be discussed in greater detail below, the reasons for this are manifold. The social distribution paradigm has many useful affordances: First, it is experimental. Second, it provides a reliable **production mechanism** for observable behavior, connecting with the behaviorist tradition and overcoming the many problems that come with a mere reliance on introspective self-reports (Nisbett & Wilson 1977, Bargh & Chartrand 1999). Third, it is as simplicistic and modular as possible to yield clear-cut interpretations of results while still retaining a high ecological validity.

With these strong virtues, a wide-spread implementation of the social distribution paradigm could be instrumental in enhancing the strength and power of social psychology as a whole.

2 Conceptual basics of the social distribution paradigm

This section determines the conceptual foundations of the social distribution paradigm, while differentiating it from other, related approaches.

One major conceptual differentiation needs to be made between social exchange research and social distribution research. There are structural similarities and differences between these approaches:

- Both approaches deal with the interaction between persons and involve resources.
- Social exchange paradigms involve at least 2 persons, social distribution paradigms need 3.
- Social distribution paradigms involve only one resource, social exchange often at least 2.
- Exchange generally fosters the heterogeneity of resource possession, which is not necessarily the case in distribution paradigms.

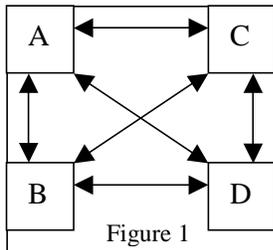
These conceptual differences justify to pursue social distribution paradigms as a separate branch of research, rather than a special case of research on social exchange. In the following sections, we focus on social distribution not social exchange, see Cook (1987) for a review of social exchange.

Social distribution paradigms originally strived to model activities like the everyday social behavior everyone engages in when deciding on which persons to spend time with, whom to give attention, whom to call back on the phone, love, etc.; resources that are available to everyone and that need to be distributed within the social context. Note that this decision-making process is fundamental to the social distribution situation. The resource-giver needs to be able to choose between at least two recipients. This is, why at least 3 people are necessary in this paradigm, with one of them having resources. This decision-making and distribution process is implemented within a small-group situation. The small-groups approach has been quite successful in social psychology as well as experimental economics in the study of communication (Bavelas 1950), hierarchies (Arney 1973), the study of altruism (Hauert et al. 2002), cooperation and competition (Wedekind et al 2000), etc. by such well-known paradigms as the prisoner-dilemma games (Poundstone 1993), ultimatum-games and others. This leaves a quite small and narrowly circumscribed literature that deals just with the social distribution paradigm and not other, similar issues and paradigms.

3 The classical study by Flament & Apfelbaum and their findings

This section explores the design and results by Flament & Apfelbaum (1966) who pioneered the social distribution approach.

In their study, subjects were randomly assigned to sit in boxes where they could only interact with



the other subjects via slits in the boxes. The communicative structure was that of a fully connected and symmetric graph, corresponding to a “pinwheel” (see figure 1). The only interaction that was allowed between the subjects was the passing of cards between senders and receivers.

At the beginning of the experiment, every subject was given a stack of 200 cards by the experimenters and they were instructed to distribute them among the other participants. The cards were color coded, with a different color assigned to every subjects, so that every receiver of a card could identify the respective sender. Moreover, every subject possessed two kinds of cards: “+”-cards and “0”-cards that were randomly intermixed in the pile of cards. The subjects were instructed to obtain as many “+” cards as possible to win the “game”. Due to the constraints of the interaction-situation, this goal could only be attained indirectly, by a favorable own distribution behavior.

Unbeknownst to the subjects, the resource distribution among the subjects was asymmetric: The “richest” subject possessed 130 “+”-cards, while the “poorest” was only given 70 “+”-cards at the beginning of the game. Their study was aimed at eliciting if the structure in the social relationships and interaction relationships among the subjects would result from the initial differences in the wealth of resources. The main finding was that this is in fact the case: The two subjects with the most resources (without even knowing about their relative wealth) quickly formed a coalition where they exclusively traded resources with each other. After the two “poorest” subjects unsuccessfully tried to gain the favors of the richer participants for some time, they formed a coalition of their own. These two distinct coalitions remained stable until the end of the experiment.

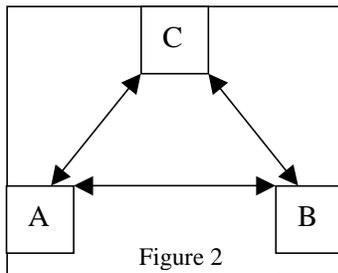
Even though the effects that were shown in this experiment were quite large and stable, this specific approach to the understanding of the formation of social relations was not immediately followed up.

4 The new series of studies by Feger & von Hecker and their findings

Curiously, it took almost three decades until these results were followed up in any systematic manner. Feger & von Hecker (1998, 2001) revived this tradition, basically dedicating their lab to social distribution research. In the beginning, they aimed just at a replication of the basic findings, with the replacement of the boxes with computer the only thing to change.

Their first finding was that they were generally able to replicate the classic findings by Flament & Apfelbaum. However, they were far less confident in reaching a conclusive interpretation on the causes of the resulting data patterns.

After realizing that Flament & Apfelbaum dealt with an unnecessarily complex case that is hampering an unambiguous interpretation, they cut down the paradigm to the theoretically possible



minimum: Only 3 participants, only 1 type of cards (“+”-cards) and no a priori differences in the wealth of resources among the participants, changing the communicative situation to figure 2.

The subjects were instructed to send their card to one of the two recipients in every of 200 rounds until the experiment was over, therefore resembling a 2-AFC paradigm in this respect. Every subject made 200 behavioral decisions throughout the experiment. This paradigm allows to study the time-course of the distribution process as well as the resulting end-distribution of resources.

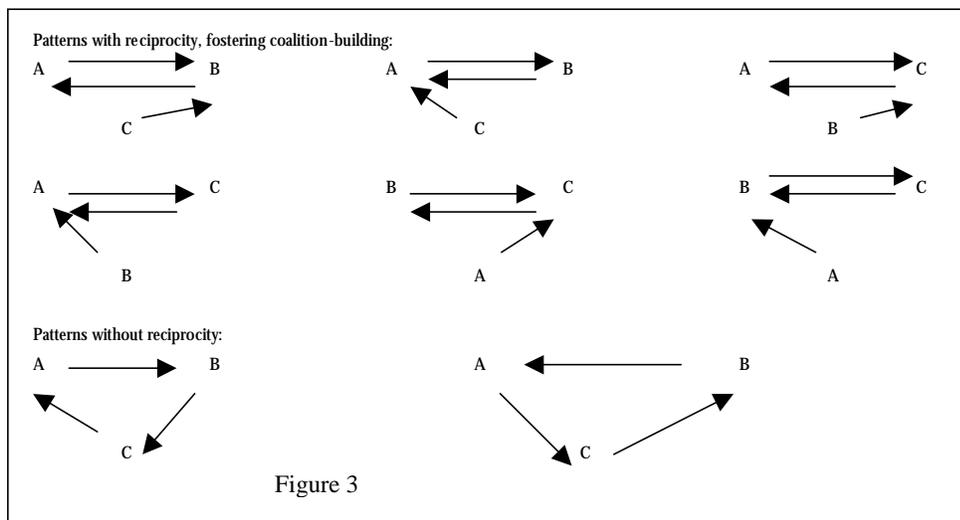
Surprisingly, even without any initial resource-differences, most groups developed a structured distribution of resources over the time-course of the experiment, again with subjects that were engaging in coalition-building and the maintenance of these coalitions.

The major difference was just of a gradual, not principal nature: The coalitions were less stable and the variance in the end-distribution of resources smaller than in the classical experiments.

Nevertheless, it is to be noted that subjects showed a tendency to build coalitions even in the absence of any initial differences in resources or status and therefore the resulting patterns couldn't be attributed to these differences, as was the case in the initial studies.

The appeal of this simple minimal group paradigm is that the resulting patterns of data and their social psychological meaning become interpretable: Teasing apart which factors contribute to the results becomes a tractable problem. For example, it is possible to determine what result stem from the structure of the situation, what results stem from inherent behavioral tendencies and what is owed to differences in socially relevant variables (like wealth).

The very structure of the situation (3 persons, discrete resources) fosters reciprocity and the building of coalitions: In any given of the 200 trials, 6 of the 8 possible distributions patterns lead to an unequal distribution of resources, only 2 allow an equal resource-distribution (see figure 3).



Therefore, the empirically observable distribution of resources has to be compared to the a priori expected distribution given these constraints, not an equal distribution.

All patterns that significantly deviate from the trends that can be expected by the structural properties of the situation alone can be attributed to inherent psychological tendencies:

It is plausible that persons have different value-systems, principles of distribution, for example either striving to achieve that everyone gets the same, independent of what they receive from others or striving to achieve reciprocity, giving proportional to what one receives.

The realization of these principles imposes cognitive demands on the subjects, especially in terms of attention and memory.

After taking both these confounding situational and cognitive/personality-wise tendencies into account, the paradigm allows the researcher to elicit the influence of genuinely social factors on the resulting resource distribution.

Before doing this, the authors ensured the validity of their paradigm by another critical test:

Nothing ensured that the subjects actually followed the instruction to interpreting the “points” or “cards” as resources in an “as if”-manner, as required by the instructions. The stable behavioral patterns that were observed could well be an artifact of subtle implicit demand characteristics or even sheer boredom on behalf of the subjects. Carelessness by the subjects about the supposed meaning of the abstract resource “points” without any incentive of winning the game could as well lead to the same stable behavioral patterns, as they avoid the effort of changing their behavior in order to win the game.

This possibility was investigated by Wallisch & Feger (unpublished). They followed up on the work of Foa & Foa (1976) who did research on what constitutes a resource and who elaborated on the relations between resources. The work of Foa & Foa suggests to replace the abstract points with a real resource. Wallisch & Feger chose to decide the points with money and try to replicate the classical findings once again. Subjects were instructed that they have to distribute 20\$ in discrete units of 10 cents over a course of 200 rounds and that they would be paid all money that they obtained from the other subjects during the course of the experiment as compensation.

The principal findings remained the same: Subjects tend to engage in coalition-building behavior even without initial differences in resources and more than would be expected by mere chance or the structure of the situation. Differences to previous studies were mainly a matter of degree: The coalitions tended to be less stable than before and the end-distributions of resources showed even greater variance. These findings make sense if one assumes that all subjects seriously try to maximize their outcomes – with varying degrees of success due to their strategic prowess.

Overall, these results suggest that the social distribution paradigm could be a useful and meaningful tool, suitable for a widespread utilization in social psychological research.

5 Discussion, conclusions and suggestions for future research

As was shown above, the social distribution paradigm affords experimental control, production mechanisms of observable behavior and psychologically meaningful as well as interpretable results. Moreover, it allows to elicit a time-series of behavior with the desired level of complexity.

The analysis of these behavioral results is possible on different levels, statistical analyses of the end-distributions as well as the local analysis of temporal relationships by simple logical rules (Feger, 1994). Given that the complex subjects that social psychology deals with and the fact that the behavior of populations is hard to intuit and determined by multiple interacting factors, the social distribution approach could be highly instrumental in analyzing these phenomena.

One example of an already successful application of the approach is the fact that the formation of social relations can obviously be stripped down to the minimal integral components within this minimal systems approach, yielding interesting and unexpected results. Making the interaction situation as elementary as theoretically possible simplifies the interpretation of the results. After establishing these basics, the situation can be enriched step by step, introducing one variable after the other while monitoring the impact on the distribution behavior. This subtractive “Dondersian” stepwise bottom-up approach should finally allow the conclusive analysis of highly complex systems. Limits to this approach could consist either in computational explosion through the introduction of too many factors or strictly nonlinear interactions between the factors or both.

Nevertheless, it is interesting to note that even equal starting conditions led to an strikingly unequal end-distribution of resources. Even without having verbal communication or other factors like status involved. Please note also that these results have direct implications for socialist or marxist political theories. These theories desire equal end-distributions. Social distribution research can show by simulations as well as empirically that equal end-distributions are very hard to come by: Even if subjects strive to distribute their resources equally, there is no equal end-distribution if there were initial differences in resources. Also, there is no equal end-distribution if the initial conditions are equal but subjects have a tendency towards reciprocal resource-distribution (which they have).

The number of possible applications of the social distribution paradigm to problems of social psychology is virtually limitless. After stripping down the paradigm to the theoretical minimum and observing the baseline behavior, the re-introduction of variables can yield valuable insights into social psychological processes, allowing to build social psychology from the bottom up.

Obviously, questions about communication, trust, attitudes, physical attraction, morals and values and their impact on social distribution behavior can easily be studied within this paradigm, supplementing these fields with hard experimental and behavioral data in return.

Especially the study of in-group and out-group processes by social distribution paradigms could be insightful. Within this approach, it's easy to label a subject as a member of an outgroup (foreigner, female, minority, etc.) while observing the impact of this labelling on the distribution behavior of the other subjects towards this participant. On the other hand, it would be insightful if prejudice can arise from differences in initial resource distributions or a particular distribution behavior.

Also, it can be studied with high experimental control if and how prejudice translates into actual behavior and which factors can prevent this translation.

Even self-construals and their relevance on behavior can be studied within this approach. For example, one could use the "self-construal priming" method as introduced by Gardner et al. (1999) within a social distribution paradigm and study the precise effects on behavior in a highly formalized and quantifiable way – the social distribution paradigm can be interpreted as a strictly formalized negotiation situation after all.

Other uses of the paradigm are possible. Especially appealing would be to take the approach to the next level and have people play this game in the internet, not knowing that the other "players" are computer programs with an algorithmically determined behavior. The huge amounts of data that can be collected in internet experiments and the total control over most of the "players" while observing the emergent behavioral patterns as a dependent variable would allow rigorous mathematical modeling of distribution situations, eventually leading to strong behavioral predictions and possibly even the formulation of laws and principles.

Of course, the hopes that we place in this approach may be far too high. Maybe the application of this paradigm to different social psychological problems doesn't yield any meaningful or interesting results. Similar developments occurred time and time again in the history of social psychology. Hence, a judgement of the social distribution approach in the current situation would be premature. Therefore, we reserve our judgement until application of this approach within social psychological research empirically shows the real benefits and limits of the social distribution paradigm.

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