British Journal of Psychology (2014)

The British Psychological Society

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Defining greed

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Although greed is both hailed as the motor of economic growth and blamed as the cause of economic crises, very little is known about its psychological underpinnings. Five studies explored lay conceptualizations of greed among US and Dutch participants using a prototype analysis. Study 1 identified features related to greed. Study 2 determined the importance of these features; the most important features were classified as central (e.g., self-interested, never satisfied), whereas less important features were classified as peripheral (e.g., ambition, addiction). Subsequently, we found that, compared to peripheral features, participants recalled central features better (Study 3), faster (Study 4), and these central features were more present in real-life episodes of greed (Study 5). These findings provide a better understanding of the elements that make up the experience of greed and provide insights into how greed can be manipulated and measured in future research.

> Greed, for lack of a better word, is good. Greed is right. Greed works. Greed clarifies, cuts through, and captures the essence of the evolutionary spirit. (Gordon Gecko)
>
> There is a sufficiency in the world for man's need but not for man's greed. (Mahatma Gandhi)

As the quotes above illustrate, people's opinions about greed range from very positive to very negative. Whereas some people acclaim the driving forces of greed that increase economic growth and development (e.g., Greenfeld, 2001), others condemn its immoral and exploitative qualities (e.g., Stigler, 1981). Despite the fact that greed is an important construct in economics and in moral reasoning and that many people such as journalists, pop-science writers, and novelists talk and write extensively about greed, empirical research on the topic is scarce. According to Wang and Murnighan (2011) the relative neglect of greed in contemporary research is partly due to the 'enormous difficulties that surround the seemingly simple task of defining greed' (p. 282).

The aim of this research is to gain more insight into how people conceptualize greed. In order to achieve this goal we conducted an extensive prototype analysis. However, before describing the prototype analysis, we first review the existing literatures on greed. In doing this we build on and extend Wang and Murnighan's (2011) pioneering work. We next explain some theory behind prototype analysis and proceed with an overview of the five studies that we conducted.

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DOI:10.1111/bjop.12100

What is greed?

One way to get a better conception of greed is to look at the origin of the word. 'Greed' originates from the Old English term 'græd' or 'grædig' (with cognates in a variety of other Germanic languages; for example, *gretig* in Dutch, *grådig* in Danish, and *gráðigr* in Old Scandinavian languages), meaning voracious or eager (Online Etymology Dictionary, 2013). Greed can thus be seen as an excessive desire or hunger. Definitions in leading dictionaries confirm this view; greed is described as the 'selfish and excessive desire for more of something (as money) than is needed' (Merriam-Webster Online Dictionary, 2013); 'a strong desire for more wealth, possessions, power, etc. than a person needs' (Online Oxford Advanced Learner's Dictionary, 2013), and 'when you want a lot more food, money, etc. than you need' (Online Cambridge Learner's Dictionary, 2013). As is apparent from all these definitions, greed refers to an inappeasable longing for not just money but also other goods and resources. Depending on the object of interest greed can manifest itself as avarice, cupidity, exceeding ambition, lust, or gluttony (Tickle, 2004). Thus, when people talk about greed they mean more than just an extreme desire for more money.

Besides the excessive desire that is fundamental to greed, the scientific literature often mentions the selfish nature of greed. Some even argue that greed is an extreme and immoral form of self-interest at the costs of others (Balot, 2001). In classical economic theory both self-interest and greed form key assumptions, as rational people should maximize their personal outcomes (Smith, 1776/1994). Most authors focusing on greed's economic consequences share this positive and productive view; greed and self-interest are for example, seen as principal motivators for a flourishing economy (Fehr & Gintis, 2007; Williams, 2000). Greed is said to increase economic development because it motivates the creation of new products and the development of new industries, which in turn enhances wealth, employment, and well-being (Melleuish, 2009).

Another viewpoint is that greed is inherent to human nature and that all people are greedy to some extent. Some argue that being greedy is vital for human welfare (Greenfeld, 2001; Williams, 2000) and that it is an important evolutionary motive that promotes self-preservation (Robertson, 2001; Saad, 2007). People who are more predisposed to gain and hoard as many resources as possible are argued to be better off and thus have an evolutionary advantage (Cassill & Watkins, 2005).

While rational and evolutionary approaches to greed stress its productive and reproductive advantages, much else that is written about greed focuses on its negative characteristics. For example, despite the differences in major religious traditions, they all seem to converge on the idea that greed is bad. Saint Paul states in the New Testament that 'The love for money is the root of all evil'. In Christianity greed is known as one of the seven cardinal sins that lead to eternal damnation. In fact, greed is sometimes even referred to as the mother of all sins (Tickle, 2004), with the other sins (anger, envy, gluttony, lust, pride, and sloth) stemming from greed. In Buddhism, greed is one of the three poisons that create bad karma (Nath, 1998). Other religions are equally outspoken about the negativity of greed (for Hinduism, see Sundararajan, 1989; for Islam, see Rafiabadi, 2003; and for Judaism, see Bloch, 1984).

In other writings, greed has been related to different forms of unethical and immoral behaviour. It is argued that greed is a cause of war (Collier & Hoeffler, 2004), fraud (Smith, 2003), theft (Caudill, 1988), corruption (Rose-Ackerman, 1999), and deception (Cohen, Gunia, Kim-Jun, & Murnighan, 2009). Furthermore, greedy behavior takes often place at the expense of others. Greedy individuals in a society often benefit from the rest of the (less greedy) population that has to pay the price (Foldvary, 1998).

One reason for the negative stance toward greed may be its insatiability. To greedy people, enough is never enough. Greedy individuals find themselves permanently on a hedonic treadmill (Brickman & Campbell, 1971); they expect that they will be happier with more money (Easterlin, 2001), but as soon as they get more they adapt their desires and expectations and want even more (Diener, Suh, Lucas, & Smith, 1999; Keely, 2001). For greedy people, the goalposts ever keep moving.

Finally, greed has been proposed to have negative consequences for the greedy themselves. Lunt and Livingstone (1991) relate greed to financial debts, implying impatience in the greedy with respect to things they desire (Johnson, 2008). According to Papatheodorou, Rosselló, and Xiao (2010) it is greed that made bankers behave recklessly and risky, which in turn led to the financial crisis (Zandi, 2008). A classic example of the negative consequences of greed is the well-known 'Tragedy of the Commons' (Hardin, 1968). Medieval herders in the United Kingdom could let their livestock graze on a common parcel of land besides on their own, private parcel. There was a clear preference for herders to let their livestock graze on these 'commons'. Although rational from an individual perspective, it led to overgrazing and the common ground becoming infertile and useless to all. According to Wilke (1991), these types of situations occur when greed wins it from the desire to be efficient and fair.

Thus, as a summary, much has been said about greed. However, there appears to be considerable variation in, and hence lack of agreement on the conceptualization of greed both in the scientific literature (Wang & Murnighan, 2011) and in the way people generally talk about it. Because greed is such a broad and ill-defined concept, we believe that a prototype analysis about greed can be helpful here in order to get at the central characteristics of this important motivational construct.

Greed and related constructs

As is apparent from the literature reviewed, greed is related to (and often confounded with) other constructs such as self-interest, materialism, and envy. Nevertheless, we think that they are distinct constructs. Below we explain why.

In the psychological literature greed is often, and mistakenly, used interchangeably with self-interest. In the rational economic model, agents are thought to be self-interested and to maximize their outcomes. Self-interest refers to the fact that rational agents only care about their own outcomes, and are indifferent concerning the outcomes of others. Greed is related to the assumption of maximization, which states that agents always prefer to have more rather than less of a good. We believe that greed is an exaggerated form of maximizing, in which people not simple prefer to have more, but are also frustrated by not having it. While it may be rational to strive for the maximum, striving for more than what is possible is not rational. Thus, when people are greedy, they can become so focused on what they want or desire that it leads to behaviour that is not rational anymore.

Another construct used interchangeably with greed is materialism. In Belk's (1984) definition, greed is even one of the core elements of materialism. Although materialistic people can indeed be greedy, greed is broader than just a desire for material possessions (Tickle, 2004). People can be greedy for food, power, or sex, which has nothing to do with materialism. Whereas materialists desire things because they signal success in life (Richins, 2004), greed can also be felt for things that do not signal success or status (e.g., being greedy for candy).

Lastly, we want to focus on the differences between greed and envy. Envy is experienced when people are not happy with their current state and it may induce a

desire for products (Van de Ven, Zeelenberg, & Pieters, 2011a,b). However, we think the antecedents of envy and greed are different. People are envious because others are better off and they desire the same things those others have, whereas people are greedy because they just have an inappeasable desire for more (Maijala, Mannukka, & Nikkonen, 2000). Envy is thus driven by an external factor (wanting what others have), whereas greed is driven by internal motivations (wanting more).

Why we can benefit from adopting a prototype approach

In science, good definitions are of vital importance. However, it is sometimes difficult to clearly describe the focal construct in a limited number of necessary or sufficient elements. When concepts have fuzzy boundaries, prototype analysis comes in handy (Fehr & Russell, 1984; Rosch, 1975; Shaver, Schwartz, Kirson, & O'Connor, 1987). In contrast to traditional dictionary definitions that identify a set of boundary conditions for a construct, a prototype analysis does not assume that all elements that are important for a construct are present at all times. Instead, it identifies a set of features that people see as representative to that construct. A common example to explain the need and benefits of prototype analysis is by demonstrating the impossibility to properly define the concept of a chair (see Shaver *et al.*, 1987). A prototype of a chair, in contrast, is easily found: it is a piece of furniture that one can sit on with four legs and a backseat. Clearly, none of these features are strictly necessary to classify an object as a chair, nor are they able to discriminate between chairs and other objects in an absolute sense. We can also use other objects to sit on, some chairs have only one leg or three legs, and some chairs have armrests while others do not. Despite the variability of what a chair looks like people are able to categorize objects as being more or less prototypical versions of a chair.

If even a simple object like a chair is so hard to describe, it is understandable that even more problems are encountered when describing complex constructs such as emotions. Therefore, we use a prototype approach to get a better idea of what greed is. With this approach laypeople are asked to list characteristics they think to be important to describe the construct under investigation. These characteristics are then evaluated and placed into larger sets of features by independent coders. The features that are identified as being most representative of a construct make up the prototype of the investigated construct.

In the past, prototype approaches have been fruitfully used to conceptualize many fuzzy concepts. They have been used to clarify the concepts of emotion (Shaver *et al.*, 1987), modesty (Gregg, Hart, Sedikides, & Kumashiro, 2008), relationship quality (Hassebrauck, 1997), commitment (Fehr, 1988), forgiveness (Kearns & Fincham, 2004), and prayer (Lambert, Fincham, & Graham, 2011). This approach has also successfully been applied to specific emotional states such as gratitude (Lambert, Graham, & Fincham, 2009), love (Fehr, 1988; Fitness & Fletcher, 1993; Regan, Kocan, & Whitlock, 1998), hate, anger, jealousy (Fitness & Fletcher, 1993), and nostalgia (Hepper, Ritchie, Sedikides, & Wildschut, 2011). In the present research we follow this research tradition by applying a prototype analysis to the study of greed.

It is arguable that everything can be conceptualized as a prototype, but this by itself does not make prototype analysis a worthwhile or worthless pursuit. In the case of greed we think a prototype analysis is particularly useful; not because we want to show that greed has a prototype structure, but rather to find what that structure is. Given the disparities in the scarce scientific literature on greed and the important role greed is thought to play in daily life, we simply want to get a better understanding of what people see as important characteristics of greed. A prototype analysis can provide us with these

insights because it gives us important information about the cognitive and emotional representations people have of greed (Shaver *et al.*, 1987).

A prototype analysis can benefit us in three ways. First, it provides information about people's perception of greed, helping us to create a working definition of greed. Second, it provides insights about whether greed is good or bad (and in what situations). Third, it provides information for the further empirical study of greed, for example, in scale construction. Thus, the analysis will give us insights in how, why, and when people feel and behave greedy and gives us important directions on how to manipulate and measure greed in future studies. It may enable us to more effectively grasp what greed is and what greed does.

Overview of the current studies

The total analysis of greed consists of five studies. The goal of Study 1 was to determine which features are prototypical for greed. Study 2 served to classify each of the features of greed as central or peripheral. Studies 3 and 4 investigated differences in automatic information-processing of central and peripheral features. Finally, Study 5 examined the ecological validity of central versus peripheral features by examining the prototype of greed in the context of real-life events.

STUDY 1

This study aims to provide a list of the features and characteristics that make up the experience of greed. Participants were asked to list as many exemplars of greed that they could think of, and these were later coded to extract the most common features of greed.

Method

Students (N = 195, 88.2% female, M_{age} = 19.19, SD_{age} = 2.46) participated in exchange for course credit. Participants had 5 min to list as many features of greed as they could think of.

Results and discussion

Following the procedure used by other prototype analyses, we first divided participants' total responses into a number of distinct exemplars (N = 1,660; M = 8.51, SD = 3.97, per person). Most exemplars were single items; when a description contained more than one related statement, these were divided into separate 'units of meaning' (Joffe & Yardley, 2004). The exemplars were then coded into larger categories by two coders (first author and a research assistant) following the procedure used by Hepper *et al.* (2011). This was accomplished by (1) grouping exemplars that were identical; (2) grouping exemplars that were semantically related (e.g., selfishness and selfish); (3) grouping exemplars that were meaning-related (e.g., desiring and wishing); and (4) grouping exemplars that had a common meaning (e.g., rich and millionaire).

As a result of this procedure, the two coders together constituted a list with categories; discrepancies were resolved by discussion and, in the few cases where this was not sufficient, by a third party (second author). This resulted in a coding scheme that contained 60 categories. We chose to use a strict coding scheme that consisted of many

categories because we did not want to lose too much information beforehand. In addition to constructing the coding sheet, the coders also jointly assigned each exemplar to one of the categories. Fifteen exemplars described groups or individuals (e.g., Scrooge McDuck and Berlusconi) and two exemplars literally mentioned *hebzucht* (the Dutch word for greed); these were excluded from the analysis. This left 1,643 exemplars for use in the analysis.

Next, two other research assistants independently assigned each of these exemplars to only one code. Interrater agreement between the joint coding of the first author and the first research assistant (coding 1) and the individual codings of the two research assistants (coding 2 and 3) ranged from good to very good ($\kappa_{12} = .87$, $\kappa_{13} = .77$, $\kappa_{23} = .76$). Therefore, the coding by the first assistant was used. The number of categories was reduced from 60 to 46, based on the number of times that categories were confounded and on comments by the coders about categories that were very similar (κ's go up to $\kappa_{12} = .88$, $\kappa_{13} = .81$, $\kappa_{23} = .80$). Table 1 displays the final categories and exemplar frequencies.

None of the features was mentioned by all participants. Only four features were mentioned by more than half of the participants (self-interest, acquisitiveness, stinginess, and materialism). *Self-interest* was the most frequently mentioned feature (166 times), which is consistent with Balot's (2001) definition of greed as self-interest taken to such an extent that the effects on others are seen as unacceptable or immoral. However, greed is more than just excessive self-interest.

Other important elements of greed are *acquisitiveness* and *stinginess*, which were mentioned 133 and 118 times respectively. Acquisitiveness refers to behaviour in which people have the urge to gain and possess as much as possible, whereas stinginess refers to behaviour in which people do not want to give to others and spend their possessions. These features refer to two sides of the same medal; people want to get as much as they can, and once they have it they do not want to give it up anymore.

Materialism is also seen as an important feature of greed (mentioned 112 times). Though greed can be felt when one wants to be the best at something (Tickle, 2004), it seems that greed is often felt as the result of wanting to attain material goals. Another frequently mentioned feature was that greed is something bad or sinful. This is in line with previous research that has found that people tend to disapprove of greed, especially when it impels other people's behaviour (Wang, Malhotra, & Murnighan, 2011). Other features that were often mentioned were money, envy, power, desire, not being generous and never being satisfied.

What is also interesting to note is that all other deadly sins, except wrath, were mentioned. Envy was the sin that was most often mentioned, and it seems that people get greedier when they see that others have what they lack. Greed is often seen as the root of all sins (Tickle, 2004), which might explain why other sins come so easily to mind when people have to describe greed.

Although several features of greed have negative connotations, people also described features of greed that are positive. People associated greed with ambition and the drive for more and better things. Thus, besides all the negative connotations that greed has, it can also help us to move forward by motivating us to attain our goals.

In conclusion, these findings reveal that the prototype of greed comprises of both positive and negative features. In extension of earlier definitions of greed (Balot, 2001) this study shows that greed is not just an extensive form of self-interest, but encompasses other features as well. Greed also motivates us to achieve our goals by making us strive for more and better things. However, it seems that though greed has positive sides, the consequences for others are mainly thought to be negative. This is

Table 1. Features of greed, exemplars, frequencies in study 1, and centrality ratings in study 2, ordered by mean centrality ratings in study 2

		Study 1	Study 2	
Feature	Exemplars by participants	*N*	*M*	*SD*
Central				
Acquisitiveness	Sticky fingers, taking everything you can catch	133	7.18	1.17
Selfishness	Selfishness, self-fulfilling, not thinking of others	166	6.90	1.28
Striving for quantity	Wanting more, wanting everything	31	6.79	1.41
Materialism	Materialistic, goods are important, valuing goods	112	6.73	1.40
Never satisfied	Never enough, insatiable, not easily satisfied	51	6.55	1.58
Money	Money, euros, dollars, earning (money)	77	6.36	1.57
Envy	Envy, jealousy, wanting things that others have	66	6.30	1.56
Not generous	Not sharing, keeping everything for yourself, not generous	55	6.29	1.65
Egocentrism	Egocentrism, self-centred	45	6.27	1.68
No matter what the consequences are	No matter what, going behind someone else's back	29	6.20	1.69
Capitalism	Capitalism, consumer society, Western world	28	6.06	1.50
Power	Power, sovereign	54	6.05	1.49
Desire	Desiring, longing, wishing	50	6.05	1.72
Stinginess	Stingy, miserly	118	5.91	1.82
Ungrateful	Ungrateful, spoiled	17	5.83	1.78
Immoral behavior	Fraud, stealing, blackmailing	20	5.66	1.87
Wealth	Rich, millionaire, rich people	40	5.64	1.80
Manipulation	Manipulation, manipulating	9	5.57	1.79
Gluttony	Gluttony, fat, voracious	18	5.54	2.00
Arrogance	Arrogance, cockiness	34	5.48	1.86
Tunnel vision	Narrow view, goal focused, obsession	22	5.48	1.65
Lust	Lust, sex, having many women	4	5.46	1.91
Striving for quality	Luxury, wanting the best, wanting new things	24	5.36	1.96
Peripheral				
Status	Status, famous, respect	15	5.24	1.97
Vanity	Vanity, narcissism	5	5.10	1.77
Ambitious	Ambitious, being driven, wanting to be the best	37	5.09	1.87
Addiction	Addiction, addicted, compulsive	7	5.07	2.08
Inequality	Inequality, not fair, first world against the second and third	26	5.04	2.07
No empathy	Emotionless, no empathy, no sympathy	17	5.00	1.96
Spending	Spending, buying things, having a hole in your pocket	25	4.99	2.18
Sinful/Bad	Bad, sin, negative	102	4.95	1.94
Pride	Pride, being proud, showing off	8	4.91	2.05
Frustration	Frustration, angry when you can't get what you want	4	4.80	2.02
Collecting/Saving	Collecting, hoarding, saving	14	4.70	2.00
Non-social behaviour	Not social, asocial, noisy	38	4.68	2.11
Unrealistic	Unrealistic worldview, wanting more than is realistic	2	4.63	2.19
Personality trait	Trait, universal, all humans have it	19	4.52	1.89

Continued

Table 1. (*Continued*)

Feature	Exemplars by participants	Study 1	Study 2	
		N	*M*	*SD*
Unhappy	Unhappy, sad, worrying	20	3.97	1.84
Thriftiness	Thrifty, not wasting, cheap	15	3.86	2.03
Alone	Alone in the world, no friends, lonely	43	3.78	1.97
Being smart	Smart, contrived	9	3.72	1.89
Standing up for yourself	Assertive, dominance, survival	17	3.57	2.00
Sloth	Sloth, lazy, taking the easy way out	4	3.52	1.96
No purpose	No purpose, things that have no purpose	2	3.15	1.94
Poverty	Poor, hunger, no money	5	2.24	1.41
Generous	Generosity, presents	6	2.09	1.38

Note. Features are ordered based on the centrality ratings in study 2, which used a scale from 1 (*not at all related to greed*) to 8 (*extremely related to greed*). Features were considered central or peripheral based on a median split in centrality ratings in Study 2 (median = 5.30).

in accordance with Wang *et al.* (2011), who found that people see greedy behaviour as bad especially when it drives other people's behaviour instead of their own.

STUDY 2

In Study 2 participants were asked to indicate how typical each of the features derived from Study 1 was for greed. A prototype should not only be represented by the number of times each feature is mentioned, but also by how representative people find this feature for the concept. The representativeness of features can be determined by letting participants rate the centrality of these features (e.g., Gregg *et al.*, 2008; Hassebrauck, 1997; Hepper *et al.*, 2011). We included both American and Dutch participants in this study so we could investigate whether the greed prototype is similar across cultures.

Method

Two-hundred and fifteen (45.1% American, 54.9% Dutch; 59.5% female, 40.0% male, 0,5% not specified; M_{age} = 26.76, SD = 9.96) participants were recruited via MTurk and received $0.30 in return for their participation or were recruited on the university campus and participated in exchange for course credit or money. Participants were shown each of the 46 features of Study 1 (in one of six random orders). For each feature, participants indicated how related it was to greed on an 8-point scale (1 = *not at all related*, to 8 = *extremely related*).

Results and discussion

Mean ratings and standard deviations of each feature are presented in the two rightmost columns of Table 1.[1] We analyzed these data following the procedure by Hassebrauck (1997) and Hepper *et al.* (2011). To evaluate the reliability of these means, we computed

[1] *Absolute agreement between the samples was very high (ICC = .93, p < .001, confidence interval = .82 to .97), indicating that American and Dutch people see greed similarly. We therefore report the combined ratings.*

the intraclass correlation (ICC)[2] ; this is the equivalent to the mean of all possible split-half correlations of the 215 subjects with regard to the 46 features. In order to do so, we transposed the dataset and treated the 46 features as cases and the 215 subjects as items. In general, participants' responses were very coherent (ICC = .99, $p < .001$, confidence interval = .98 to .99). Overall, the mean centrality ratings of Study 2 corresponded with the frequencies found in Study 1 ($r = .59, p < .001$). However, there were some features that were not mentioned very often in the feature generation task in Study 1, but that were seen as central to greed in Study 2 (e.g., lust, manipulation).

Based on the mean ratings we conducted a median split which labelled the highest 23 features as central to greed and the lowest 23 features as peripheral to greed. Although we immediately recognize that the centrality of features follows more a continuous than a dichotomous scale, a median split allows us to test for differences between features that are more prototypical for greed and those that are that are less prototypical for greed in subsequent studies.

In accordance with the results of Study 1 and Balot's (2001) definition of greed, a central aspect of greed involves placing oneself before others. Self-interest and egocentrism were seen as very central to greed. Greed is also characterized by desiring and acquiring goods and money. Desire, acquisitiveness, striving for quality and quantity, never being satisfied, materialism and money were all seen as highly characteristic of greed. Envy also seems to be a central characteristic. Envy is a catalyst of greed (Kleinberg, 2008), and it seems that we especially want things that belong to others. Immoral behaviour was also seen as central to greed, which is in accordance with Gino and Pierce (2009) who found that wealth triggered greed and envy, which in response led to more immoral behaviour. The peripheral features of greed that were being alone, having no empathy, and non-social behaviour. Other peripheral features of greed include that it is something bad or sinful, that it is a personality trait, that it has no purpose, and that it makes people unhappy.

As in Study 1, this study revealed that the prototype of greed consists of both positive and negative features. These findings are in line with previous observations (Hume, 1739/2001) in which greed is described as a two-edged sword. Greed is positive, because it helps us to reach our goals and to strive for more, however in this process greed often hurts others and sometimes even ourselves because it can make us selfish, irrational and immoral.

STUDY 3

In Study 3 we examined whether the features that were identified as being central to greed in Study 2 are indeed more important to greed than peripheral features. Previous research has found that that the activation of a prototype results in heightened accessibility of related features (Hassebrauck, 1997; Hepper *et al.*, 2011). The more central a feature is, the easier it comes to mind and the more likely it is that people remember this feature (even when it was not presented). We thus expected that people would remember central features better than peripheral features, and that they would more often falsely remember central features compared to peripheral features.

[2] *We used a two-way mixed intraclass correlation for absolute agreement.*

Method

Students (N = 102, 86.3% female, M_{age} = 19.63, SD = 2.14) participated in an online study in exchange for course credit. The 46 features of greed that we identified in Studies 1 and 2 were divided into two sets of 23 features. In each set eleven or twelve features were central and eleven or twelve features were peripheral. Following the procedure by Hepper *et al.* (2011), we enclosed each feature in a sentence (e.g., greed is about striving for more) to activate the concept of greed.

Participants were randomly assigned to one of two sets. Participants were told that they would be presented with each of the statements for 4 s and that they should remember each of the characteristics in the statement as good as possible. Participants then completed an unrelated study that took approximately 5 min. After this distractor, participants had 3 min to recall all features of greed that they saw before.[3] As a final task, participants received a list of all 46 features of greed and were instructed to drag each feature into a box that was called 'features that you did see before', when they saw this feature during the first part of the experiment, or into a box called 'features that you did not see before', when they had not encountered this feature in the first part of the experiment.

Results and discussion

One participant was excluded prior to the analyses because she indicated that she did not pay attention to the greed features. Central and peripheral features were compared on each of the four dependent variables (correct free recall, false free recall, correct recognition, and false recognition; see Table 2 for means and standard deviations).

A paired samples t-test was used to compare the amount of central and peripheral features that were correctly freely recalled. Participants freely recalled a higher number of central features than peripheral features, $t(100) = 4.70, p < .001, d = 0.57$.[4] Because the false recall data were not normally distributed we conducted a Wilcoxon Signed Rank tests. Participants falsely recalled a higher number of central features than peripheral features, Wilcoxon's $Z(100) = -2.64, p = .008, r = .26$.[5]

The memory data were normally distributed, allowing for paired sample t-tests. Participants recognized more central than peripheral features when they saw a list with all

Table 2. Mean number of recalled and recognized central and peripheral features (both correct and false) in study 3

	Central		Peripheral	
	M	*SD*	*M*	*SD*
Correct recall	3.47	1.97	2.42	1.66
False recall	0.21	0.52	0.06	0.24
Correct recognition	8.55	1.56	7.58	2.24
False recognition	3.69	2.13	1.98	1.51

[3] *Sometimes participants wrote down the same feature twice; in those cases we only counted the feature once.*

[4] *For all paired samples d was calculated as* $M_1 - M_2/sqrt((S_1^2+S_2^2)/2)$

[5] *A paired samples t-test gave similar results,* $t(100) = 2.69$, $p = .008$, $d = 0.37$.

the features of greed, $t(100) = 4.06, p < .001, d = 0.88$. In addition, participants also falsely recognized more central than peripheral features, $t(100) = 7.71, p < .001, d = 0.93$.

Central features of greed were better recalled and better recognized than peripheral features. Furthermore, participants more often recalled and recognized central features that they did not see before. This indicates that when the concept of greed is activated (by means of the presentation of concepts related to greed), central features are more accessible, and therefore people think they saw those features, even if this was not the case (Hassebrauck, 1997). In Study 4, we attempted to replicate this differential information-processing of central and peripheral features by studying speed of classification.

STUDY 4

In Study 4, we tried to further test the distinction between central and peripheral features of greed. Previous research has found that people are faster at classifying features that are central to a prototype (Fehr, Russell, & Ward, 1982; Hassebrauck, 1997; Hepper *et al.*, 2011) and are sometimes not able to determine whether peripheral features belong to the prototype at all (Fehr & Russell, 1984; Fehr *et al.*, 1982). We therefore expected that people would be faster and better able in classifying central compared to peripheral features of greed.

Method

Eighty-seven students (75.9% female, $M_{age} = 20.46$, $SD = 2.06$) participated in exchange for course credit or €8.00. For all of the 46 features of greed, we picked one of the most frequently used exemplars. This resulted in 46 greed related stimuli (e.g., for money the stimulus was 'money' and for striving for quantity the stimulus was 'striving for more'. In addition, we came up with an equal amount of control stimuli that were unrelated to greed (e.g., 'turtle' and 'window').

Participants were informed that they were participating in a reaction time study and that they were to respond as quickly as possible. For each trial, participants received 1 of the 92 stimuli and were asked to indicate whether this word was a feature of greed or not. Before the actual experiment started, participants received 10 practice trials. In the actual experiment, participants received all 92 stimuli. For each trial the answer (Is this a characteristic of greed? *yes* or *no*) and reaction time were recorded.

Results and discussion

First we checked the percentages with which central, peripheral, and control stimuli were classified as being a feature of greed (see Table 3). Because the skewedness of the three types of stimuli varied, we used non-parametric tests to test for a main effect of feature type on classification, Friedman $\chi^2(2, N = 87) = 170.16, p < .001$.[6] Central features were more often classified as features of greed than peripheral features, Wilcoxon's $Z(86) = 7.92, p < .001, r = .85$,[7] and peripheral features were more

[6] *A repeated measures ANOVA gave similar results,* $F(2,85) = 1,099.85$, $p < .001$, $\eta_p^2 = .96$.
[7] *A paired samples t-test gave similar results,* $t(86) = 19.744$, $p < .001$, $d = 1.72$.

Table 3. Percentages and speed in classification of central and peripheral features of greed in study 4

	Central		Peripheral		Control	
	M	*SD*	*M*	*SD*	*M*	*SD*
Percentage categorized as greed (%)	75.01	15.10	46.08	17.80	1.00	3.00
Response speed (ms)	1,116.79	328.16	1,247.40	431.43	952.82	680.84
Response speed (log)	6.98	0.27	7.08	0.32	6.72	0.49

often classified as features of greed than control features, Wilcoxon's $Z(86) = 8.11$, $p < .001$, $r = .87$.[8]

Following recommendations (Greenwald, Nosek, & Banaji, 2003), we recoded extremely slow (>3,000 ms) and extremely fast (<300 ms) latencies to respectively 3,000 and 300 ms and did a logarithmic transformation (Hepper *et al.*, 2011). We found a significant main effect of feature type on classification speed for features that were seen as related to greed ('*yes*'-responses), $F(2,85) = 5.79$, $p = .010$, $\eta_p^2 = .36$. Participants were faster in classifying central features as related to greed than peripheral features, $t(86) = -5.61$, $p < .001$, $d = 0.27$. Participants were slower in classifying peripheral features than control features, $t(22) = 3.08$, $p = .006$, $d = 0.64$. This might be the result of the weaker association between greed and the peripheral features. Central features are easy to classify (as being part of greed) because they are seen as very much related to greed. Control features are also easy to classify (as not being part of greed) because they are not related at all to greed. Peripheral features are harder to classify because they are to some extent related to greed, but the relationship between greed and these peripheral features is more ambiguous.

Consistent with previous prototype findings (e.g., Hassebrauck, 1997; Hepper *et al.*, 2011) this study found that people more often and quicker classify central than peripheral features as related to greed, Furthermore, this study found that participants were slower in classifying peripheral features compared to control features.

STUDY 5

Study 5 investigated the ecological validity of the greed prototype. Participants were asked to recall a real-life situation in which they felt greedy. If central features are more related to greed than peripheral features, then autobiographical events should be better described by central features than peripheral features. In addition, central features should be better at discriminating between greedy and everyday events.

Method

Participants ($N = 145$) were Americans recruited on MTurk (70.3%) and paid $0.40 for their participation and Dutch students approached on the university campus (29.7%) and asked to volunteer in this study (55.9% male, 43.4% female, 0.7% not specified; $M_{age} = 21.88$, $SD = 2.06$). Participants were randomly assigned to one of two conditions

[8] *A paired samples t-test gave similar results, t(86) = 23.71, p < .001, d = 3.53.*

Table 4. Means and standard deviations of central and peripheral features in greedy and everyday situations in study 5

	Type of situation			
	Greed		Everyday	
Type of feature	*M*	*SD*	*M*	*SD*
Central features	5.03	1.00	2.73	1.22
Peripheral features	3.85	1.10	2.85	1.12

Note. Features were rated on an 8-point scale ranging from 1 (*not at all*) to 8 (*very much*).

(Greed vs. Control). They were asked to recall a situation in which they felt greedy or an everyday situation.[9] After describing the situation, participants rated to what extent each of the 46 features was present in that situation (cf. Hepper *et al.*, 2011). Examples of statements were 'I behaved selfishly in this situation', 'This situation involved materialism', and 'I behaved arrogant in this situation', and they were all rated on a scale from 1 (*not at all*) to 8 (*very much*). Analyses were conducted on the averages for central ($M = 3.90$, $SD = 1.60$, $\alpha = .94$) and peripheral ($M = 3.36$, $SD = 1.21$, $\alpha = .88$) features.

Results and discussion

A 2 (Greed vs. Control) × 2 (Central vs. Peripheral) mixed ANOVA revealed an interaction effect between situation and centrality of features, $F(1,142) = 122.48$, $p < .001$, $\eta_p^2 = .46$.[10] See Table 4 for an overview of the means. Statements about the central features were rated to be more present by the participants than peripheral features in the greed condition, $t(73) = 11.89$, $p < .001$, $d = 1.12$, whereas there was no difference between central and peripheral features in the control condition, $t(70) = -1.10$, $p = .27$, $d = 0.07$. Furthermore, we found that the presence of central features differed stronger between everyday and greedy situations, $t(143) = -12.042$, $p < .001$, $d = 2.09$ than the presence of peripheral features between both conditions, $t(143) = -5.44$, $p < .001$, $d = 0.91$. This study showed that central features are more than peripheral features present during greedy situations. Furthermore, central features could differentiate better between greedy and everyday events.

GENERAL DISCUSSION

The aim of this research was to obtain a better understanding of what people define as greed. While there is much written and said about greed, it is also understudied. As Wang and Murnighan (2011) concluded, it is the fuzzy nature of the greed concept itself that lies at heart of these problems. Many things are related to greed, but none of these is necessarily present in every instance of greed. In this paper we presented a prototype analysis consisting of a series of five studies, allowing a better understanding of how

[9] *The types of situations described in the control condition varied (e.g., having dinner with friends, shopping for groceries, cleaning the bathroom).*

[10] *Because we had both Dutch and American participants we controlled for nationality. There was no effect of nationality on the ratings on central and peripheral features,* $F(1,142) = 0.061$, $p = .62$, $\eta_p^2 = .00$.

people view greed. People think that the desire to acquire more, the dissatisfaction of never having enough, self-interest, envy, materialism, and a tunnel vision in obtaining more are important components of greed. We will discuss each of these features of greed later on, after we have summarized the findings.

In five studies we investigated the prototypical features of greed. Studies 1 and 2 identified a list of features that are prototypical for greed and determined for each feature whether it was central or peripheral. Consistent with prototype theory we found that none of these features alone could describe each instance of greed, nor could any single feature be used to categorically discriminate between greed and related constructs and emotions. However, taken together, a limited number of central features were able to adequately describe greed in a variety of situations. In accordance with prototype analyses on other constructs, Studies 3 and 4 found that central and peripheral features are processed differently. People more readily remembered and classified central features than peripheral features (Hassebrauck, 1997; Hepper *et al.*, 2011). In Study 5 we showed that central features are more prominent in autobiographical greedy situations compared to peripheral features, and that those central features were able to distinguish everyday situations from greedy situations.

Toward a working hypothesis of greed

Based on these findings we propose a new working hypothesis on what greed is. Prototype analyses are extremely useful for identifying associations between constructs and their components, but remain mute about the nature of such associations (e.g., core experiences, concomitant experiences, or consequences). Our analysis is no exception to this; although we identify constructs that are closely linked to greed in the eyes of our participants, some of them are actually best seen as other (but related) constructs. For example, we find that envy is a central feature to greed. But they are obviously not the same experiences: a person can be greedy without being envious, or envious without being greedy (e.g., the malicious type of envy mainly contains ill will toward the envied person, but no coveting; Van de Ven, Zeelenberg, & Pieters, 2009). Although we cannot distinguish which central components of greed are core elements, concomitants, or consequences based on the prototype analysis itself, we formulate a working hypothesis based on a combination of the results of our prototype analysis and our reading of the literature that was reviewed in the introduction. Further research should further establish this definition of greed and its relationship with other, related constructs.

A working hypothesis of greed

Greed is the experience of desiring to acquire more and the dissatisfaction of never having enough. It is associated with goals of materialism and feelings of envy and it may lead to self-interested behaviour and tunnel vision.

Core elements

We believe that the core of the experience of greed lies in the *desire to acquire more* and the *dissatisfaction of never having enough*. Participants indicated that acquiring as much as possible and as good as possible of any desirable thing, be it material or social, is one of the key determinants of greed. Central features related to this component are ‘acquisitiveness’, ‘striving for quantity’, ‘striving for quality’, and ‘desire’. Participants

also mentioned that 'never being satisfied' and 'being ungrateful' were relevant to greed. This is in line with Levine's (2000) idea of greed as a gap between acquiring or consuming a product and gaining satisfaction and confirms the idea that greedy people find themselves on a hedonic treadmill (Diener *et al.*, 1999). Note that we consider two other (related) central concepts 'stinginess' and 'not generous' to be part of our definition as well, although more implicitly so. Our definition refers to the desire to acquire *more*, it is not just about acquiring things but about acquiring *more than one currently has*. To be able to acquire more than one currently has, it is of course also important to keep what one already has.

The desire to acquire more and the dissatisfaction of never having enough as the two core components of greed is in line with dictionary definitions of greed, which focus on greed as being an insatiable desire for more. The two components also signal the inherent ambiguity of greed: where a desire to acquire is something that can typically be seen as a positive thing, never being satisfied with what you have is clearly negative.

Concomitants

We believe that there are also central features of greed that can be seen more as concomitants than as core elements of greed itself. Experiences of greed are often accompanied by other, closely related experiences, and as a result it makes sense that these other experiences come easily to mind when people have to write down features of greed. One of these is the goal of *materialism*, exemplified by 'materialism', 'money', 'wealth', and 'capitalism'. Materialism and greed are sometimes used interchangeably, but they are clearly not the same. Although in the scientific literature materialism is often defined as a desire to acquire material goods (e.g., Belk, 1984), official dictionary definitions see it more as an attitude than a motivational drive, and describe it for example, as 'the belief that having money and possessions is the most important thing in life' (Online Cambridge Learner's Dictionary, 2013). This fits the view of Richins (2004) who sees materialism as the personal value that acquiring material goods is a central goal in life. To us this implies that materialism is the general mindset of people to value material goods, where greed is more the motivational force that makes people desire to keep wanting more (among which are material goods). For example, materialists place great value on status display and as a result desire products that signal status (Fournier & Richins, 1991). Greed on the other hand can also be experienced for things that do not signal status (Tickle, 2004). Furthermore, our prototype analysis shows that gluttony and lust (desires for experiences) are also seen as central components of greed, suggesting that greed is broader than the material domain.

An emotion that was associated with greed is *envy*, which involves the feeling of lacking something that someone else has (Smith & Kim, 2007). The line between greed and envy may sometimes be blurry, but they are clearly distinct processes. The main difference is that envy is about the realization that someone else is better off than oneself, whereas greed is focused on one's own insatiable desire for more (Maijala *et al.*, 2000). Of course, feelings of envy could be a catalyst of greed (Kleinberg, 2008). The common denominator in both emotions seems to be that they both signal that one is not satisfied with the current situation, but the focus is different. Where greed focuses on getting more than one currently has, envy focuses on getting what other people have.

Consequences

Lastly, we think that besides core elements and concomitants there are also features that can be classified as consequences of greed. Based on our prototype analysis and the literature, we believe that there are two main consequences of the experiences of greed. A social consequence is *self-interest*, exemplified by 'selfishness', 'egocentrism', 'not caring about the consequences for others', 'not being generous', 'stinginess', 'manipulation', and 'immoral behaviour'. The idea that self-interest is part of greed is consistent with Balot's (2001) definition of greed as self-interest at the cost of others. However, we think self-interest is better seen as a consequence of greed, rather than a core of its experience. Through the desire to keep acquiring more, one likely focuses too much on oneself and too little on others. But selfishness is not greed itself, rather it follows from the acquisitiveness and the continuous desire for more. The insatiable desire for more may even cause people to behave in immoral ways. Greed has for example, been related to corporate fraud (Smith, 2003), which has resulted in the downfall of large corporations such as Enron and Tyco (Wells, 2011). People also mentioned features that were related to *superiority* (e.g., 'arrogance' and 'power'). It is likely that because greed is related to superiority they also think they can behave more selfishly (cf. Campbell, Bonacci, Shelton, Exline, & Bushman, 2004).

Tunnel vision is another consequence of greed. Greed can cause an obsession with an object of desire and can make everything else seem less important. This component might explain why greedy people sometimes act in ways that are irrational and detrimental for themselves. Focusing too much on one's own immediate benefits may cause people to forget the consequences for society as a whole or for their own future situation. For example, greed has been found to be associated with higher debts (Lunt & Livingstone, 1991). Though some debts can involve wise investments (e.g., a mortgage for a house or a student loan to cover tuition), many debts do not. Most of the time, the interest that has to be paid for consumer loans (e.g., when buying a new TV or laptop) does not exceed the benefits of buying the item now compared to buying the item when one has saved for this purchase. So, the excessive focus on acquiring more and more that is characteristic of greed may lead people to neglect both their own long-term interests (tunnel vision) but also those of others around them (self-interest).

Furthermore, this prototype analysis revealed that *greed is broader than material goods* (Tickle, 2004). Greed is not only about having more money and goods, it also involves wanting to improve oneself and to be better. The two other sins of excess, 'lust' and 'gluttony', were both seen as central to greed, so greed clearly involves much more than mere materialistic desires. It must of course be noted that most non-materialistic excesses were peripheral features, so they do seem to be less important to greed than their more materialistic counterparts.

Different perspectives on greed

As was discussed in the introduction, there are different perspectives on the evaluation of greed. In the prototype analysis, we have found evidence for both positive and negative perspectives on greed, though the majority of greed components seem to have negative connotations. One explanation for this finding could be that greed is, on average, seen as much more negative than positive. However, an alternative explanation could have to do with the perspective that people take when thinking about greed. Other people's greedy behaviour is evaluated more negatively than one's own greedy behaviour (Wang *et al.*, 2011). So, when people think of greed as the property of others when asked to describe greed they will tend to come up more with negative features.

The difference in perspective taking relates to differences in evaluations of greed from economic and moral viewpoints. For a long time, economists have argued that people are rational agents that act self-interested to maximize their own profits (homo economicus). From this perspective, behaving greedy is thus good and rational. When people are not the victim of greed but the actor, or if people have learnt that 'greed is good', it is understandable that this colours their opinion of greed. Indeed, several studies have investigated the effects of exposure to economic models (people with economic education vs. people without economic education) and have found that economists indeed tend to lie more (López-Pérez & Spiegelman, 2012), are less cooperative (Frank, Gilovich, & Regan, 1993), keep more money to themselves (Carter & Irons, 1991), and are more likely to free ride (Marwell & Ames, 1981). These are all types of behaviour that are associated with being greedy. Whereas economics promotes taking the perspective of greed in the actor, negative, moral evaluations of greed often stem from taking the perspective of other people in the greedy actor's surroundings. So, the difference in evaluations of greed may not be caused by an intrinsic disagreement on the moral nature of greed, but rather by a difference in the perspective that people take when evaluating greed (i.e., an actor or observer perspective). This consistent with findings of Wang *et al.* (2011) that found that people are more likely to condemn other people's greed instead of their own. As such, exposure to economic models may cause people to become more positive toward greed compared to people who are not as familiar with these models.

Future research

Besides helping future research by formulating a novel working definition of greed, we see two plausible avenues for future research: the development of a greed scale that measures dispositional tendencies to experience greed and the study of the behavioural consequences of greed. First, the components that we identified are a good starting point to create a measure of how greedy individuals are. It is likely that individuals differ in their tendency to experience greed, so a logical next step in greed research would be to construct an instrument measuring individual differences in greed proneness. Such a dispositional greed scale would subsequently help to identify personality characteristics or demographics associated with greed.

Another interesting possibility is to study the behavioural consequences of greed. We found that people associate greed with self-interest, envy, and materialism. It is likely that people who are self-interested, envious, and materialistic are also more prone to be greedy. Greed may also be related to elements that were not explicitly mentioned in this research. Self-control and impulsiveness are very likely to play a role in greediness and these elements might be related to the irrational nature of greed. In addition, it would be interesting to further explore the phenomenological content of greed as an emotion (i.e., not a disposition). Experiential content analyses of the feelings, thoughts, action tendencies, and emotivations associated with an emotion have proven to be very useful for understanding the behaviour that follows from an emotion (Zeelenberg, Nelissen, Breugelmans, & Pieters, 2008).

Concluding remarks

In this research, we used layperson's conceptualizations to reveal the prototype of greed. This prototype research has identified a set of components that can be used to explain

why and when people are greedy and how this affects behaviour. We found that the desire to acquire more and dissatisfaction of never having enough are the two most important components of greed. Greed is associated with materialism and envy and may lead to self-interested behaviour and tunnel vision. We hope that these findings inspire and assist future research on this fascinating topic.

Acknowledgement

We thank Willem-Jan Bertram, Laura Straeter, and Maikel Gorissen for their help with the coding in Study 1. We also thank "Stichting Weet Wat Je Besteedt" for partially funding this project. Support from the Basic Research Program of the National Research University Higher School of Economics to the third author is gratefully acknowledged.

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Received 27 May 2014; revised version received 4 September 2014