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**Coupling: the implicit assumption behind sunk cost effect and related phenomena**

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**Abstract**

Coupling is the degree to which thoughts of consumption evoke thoughts of payment and vice versa. This mental association is crucial for diverse phenomena like sunk costs but has rarely been addressed in the literature. This article provides a framework for the phenomenon, highlights its theoretical and practical relevance, compiles existing literature, adds empirical findings, and comes up with directions for future research.

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# **Coupling: the implicit assumption behind sunk cost effect and related phenomena**

**Bernadette Kamleitner**

## **1. Introduction**

Sometimes, consuming makes people think of the payment and sometimes, paying makes people think of what they are paying for. Not much is known about when and why these thoughts occur and what they effectuate. Nevertheless, the mental association of consumption and payment--termed coupling (Prelec and Loewenstein 1998)--is often taken for granted. For example, phenomena like the sunk cost effect (Arkes and Blumer 1985)--the finding that past investments influence future spending decisions--are inherently based on the assumption that people mentally link costs and benefits. In case this assumption does not hold or in case the strength of the mental link varies, there will be an impact on, for example, the sunk cost effect.

This article aims to systematically analyze what is explicitly known and implicitly assumed about the simple but powerful phenomenon of coupling. After an outline of its relevance and a definition of coupling, a theoretical framework for coupling is introduced. Possible causes and consequences of coupling are discussed. Various hypotheses--bolstered by some preliminary evidence--and future research venues are identified.

## **2. The relevance of coupling**

Several phenomena build on the implicit assumption that payments are mentally associated with consumption. The probably best known of these phenomena is the sunk cost effect (Arkes

and Blumer 1985), which posits that prior investments (sunk cost) can have an impact on behavior. However, sunk costs have to be mentally tracked to matter. Therefore, consumers are thought to create transaction-specific mental accounts which associate costs and benefits of a transaction (Thaler 1980, 1985). This assumption is vital to any explanation of the sunk cost effect. Without coupling no sunk cost pressure on consumption will be experienced. Soman and Gourville (2001) even implicitly equal coupling with attention to sunk costs.

Another example for the importance of coupling is Thaler's (1985; 1999) notion of acquisition utility. Acquisition utility is the utility derived from a good if it were free minus the disutility of the payment. This computation only makes sense in the case of coupling.

So called mental accounting effects also underline the importance of coupling. People tend to set budgets for product categories, so that spending within one category decreases the probability of further spending in that category (Heath and Soll 1996). Again it is vital to track and associate costs and benefits. Without this association mental accounting effects should disappear.

A related phenomenon is payment depreciation (Gourville and Soman 1998) which describes the finding that mental accounting effects tend to fade away because the pain of paying decreases over time. Once more, payment depreciation only should matter if coupling occurs. Overall, coupling seems to lie behind diverse findings and to have a significant impact on consumer behavior.

### **3. A definition of coupling**

Coupling is an important concept within Prelec and Loewenstein's (1998, 4) theory of double-entry mental accounting which describes "the reciprocal interactions between the pleasure of consumption and the pain of paying". In the current article coupling is discussed in isolation

from other assumptions and concepts of double-entry mental accounting.

Prelec and Loewenstein (1998) define coupling as the degree to which thoughts of payment arouse thoughts of consumption and vice versa. Hence, coupling describes both the degree and the direction of mental association (i.e., elicited by consumption related thoughts or by payment related thoughts). Accordingly, coupling is characterized by the two coupling coefficients  $\alpha$  and  $\beta$  which signal direction ( $\alpha$ : from consumption to payment;  $\beta$ : from payment to consumption) and strength of associations (from 0 to 1). In their article, Prelec and Loewenstein (1998, 11) also define the coefficient  $\alpha$  as “the degree to which payments attenuate the pleasure of consumption” and the coefficient  $\beta$  as “the degree to which consumption buffers the pain of payments”. This second definition contains information on hedonic consequences of coupling and was particularly useful for the model of double-entry mental accounting. Here, a focus is put on the more general definition which allows separating coupling from its consequences.

The coupling coefficients  $\alpha$  and  $\beta$  may take on values between 0 and 1 and are not necessarily equally strong, although this is a common simplification in the literature (Prelec and Loewenstein 1998). An open question in this context is what a degree of  $\alpha$  of, for example, .5 actually means. It could relate to the frequency and/or the intensity with which thoughts of consumption lead to thoughts of payment. For example, even though a person might always think of the payment upon consuming, these thoughts might either pop up strongly or pass-by largely unnoticed. If considering only the automaticity with which thoughts of payments are evoked important information on the degree of coupling is lost. Consequently, in order to develop a better understanding of the phenomenon frequency as well as intensity (in the broadest sense) ought to be considered as important aspects of the degree of coupling.

All costs and benefits associated with a transaction can be subject to coupling. These may also be (thoughts of) insurance costs, rewarding memories, social reactions (e.g., disapproval),

and so forth. So far this very broad definition of costs and benefits has rarely been considered empirically. Yet, an interview study showed that factors apart from actual consumption and payment episodes, like memories of a holiday, were coupled (Kamleitner and Kirchler 2006).

#### **4. Coupling and its relation to other theories of integration**

Mental integration and segregation of different outcomes were already addressed in Thaler and Johnson's (1990) quasi-hedonic editing hypothesis and in Linville and Fisher's (1991) renewable resources model. Quasi-hedonic editing focuses on how multiple outcomes of the same domain (mostly it is talked about money) ought to be framed (i.e., segregated or integrated) in order to provide maximum utility. The prediction largely builds on prospect theory (Kahneman and Tversky 1979) and suggests that people (a) segregate gains, (b) segregate losses, (c) integrate small losses with larger gains, and (d) segregate smaller gains from larger losses (silver lining). Thaler (1985) assumes that people actually behave according to these rules if plausible. He also maintains that all voluntarily executed trades include losses that are smaller than gains. Thus, integration--or in other words coupling--should be preferred for transactions.

The renewable resources model (Linville and Fischer 1991) comes up with similar predictions. Yet, the theoretical basis differs. The renewable resources model is applicable to all sorts of emotionally impactful events (e.g., financial, social) and assumes that people have only limited but renewable resources to deal with such events. Thus, people are supposed to temporally integrate or separate events in a way that optimizes the resource household. Generally, this idea is also applicable to thoughts related to consumption or payment, and it would predict at least some degree of coupling.

There are four main differences between coupling and quasi-hedonic editing as well as the

renewable resources model. First, separation is viewed exclusively temporally in the renewable resources model and also tested in terms of temporal segregation in quasi-hedonic editing. Second, in both only pure segregation or integration is possible while coupling allows integration and segregation to different degrees and in two directions. Third, whereas magnitudes of outcomes are of immediate importance in quasi-hedonic editing and in the renewable resources model, they are of minor importance in coupling. Finally, coupling is even less dependent on actual physical events than previous models of segregation versus integration of outcomes. Coupling even works with single thoughts.

## **5. A framework of coupling**

Most that can be found on coupling is speculation. There are mainly three articles focusing on coupling empirically (Kamleitner and Kirchler 2006; Prelec and Loewenstein 1998; Soman and Gourville 2001), none of them actually measuring coupling. While two articles assume the existence of coupling due to certain characteristics of transactions, the most recent article assigns codes to interview statements containing information about the coupling coefficients  $\alpha$  and  $\beta$ . All three articles provide some speculation and evidence on when and why coupling occurs and which consequences it has. However, to the best of my knowledge this has neither been done systematically nor comprehensively.

This article aims to compensate for that by introducing a framework of coupling. The framework also considers implications for coupling that can be derived from phenomena assuming coupling as well as from previous theories of mental integration. After a short presentation of the framework, its main parts are considered in detail. To bolster some propositions, data of a study using scenarios (distributed to 59 persons intercepted in public

spaces) are provided.

Figure 1 schematically depicts causes, patterns, and consequences of coupling. The core element of the framework are the different coupling patterns which are determined by the combination of various degrees of the coupling coefficients. As  $\alpha$  and  $\beta$  can take on values between 0 and 1, a wide variety of theoretically possible coupling patterns results.

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insert figure 1 about here

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Which coupling pattern actually prevails depends on a variety of interacting causes that may originate from the particular circumstances, a consumer's personal characteristics, and/or motivated reasoning. The shaded area comprising these three different categories of causes signals that multiple interactions are conceivable. Coupling supposedly not only has various causes, it probably also leads to several interacting consequences. The magnitude of these psychological and behavioral consequences is likely to be influenced by the perceived importance of consumption and payment episodes.

## **6. Causes of coupling**

Coupling can be a situational by-product, depend on personal characteristics, and be driven motivationally. Consequently, there is a multitude of possible causes for coupling; some have already been investigated (indirectly) but most are plausible speculations.

### ***6.1. Coupling driven by situational circumstances***

There are two different kinds of situational characteristics (of payment methods) that might influence coupling: (a) factors that directly influence the degree of association between consumption and payment (mostly by providing external frames of association or by influencing the cognitive difficulty of associating) and (b) factors that influence magnitude and salience of the coupling components, that is consumption and payment events (see figure 1).

*6.1.1. Causes that affect coupling directly.* Three major aspects influence the degree to which an association between consumption and payment can arise. These are (a) temporal proximity, (b) complexity, and (c) perceived causality of the relationship between payment and consumption events.

*Temporal proximity.* Linville and Fischer (1991) as well as Thaler and Johnson (1990) explicitly posit that outcomes occurring within a short period of time are likely to be integrated (Heath and Fennema 1996; Thaler 1999). Temporal contiguity increases salience of events or objects which then facilitates their combination (Hirst, Joyce, and Schadewald 1994). In addition, Kivetz (1999) speculates that coupling driven by temporal proximity interacts with the frequency with which mental accounts are balanced. For example, if mental accounts are balanced weekly, it is likely that events occurring within one week are mentally integrated. Indirect evidence for the role of temporal proximity in coupling comes from experiments on sunk cost effects (Soman and Lam 2002). Results of two studies show that the payment episode (actual wealth depletion) impacts propensity to spend for similar items. Supposedly, this finding is subject to coupling, which increases, if payments are temporally close to consumption. The authors themselves allow for this assumption. They propose that the temporal distance between purchase and payment can cross a certain threshold which leaves the payment episode without relevance--maybe because



distance leads to decoupling.

*Complexity of payment-consumption relationship.* The more benefits and/or payments there are and the more ambiguity to the cost of a particular consumption there is, the more difficult it becomes to associate single benefits with payments and vice versa (Prelec and Loewenstein 1998). The cognitive difficulty of establishing associations then might result in decoupling. Situations in which the relationship of costs and benefits is one-to-many or many-to-many (e.g., fixed-fees, bundled, or lump sum prices) seem especially prone to decoupling. Another phenomenon maybe influencing coupling by complexity of relationships is the so called fan effect<sup>1</sup>. It refers to the increased difficulty of memory retrieval due to an increase in the number of competing associations (Anderson 1974). Depending on the transaction, consumption and payment events may lead to a variety of associations apart from payments which makes it difficult to cognitively access coupling-relevant associations. Empirical hints on the role of complexity come, in particular, from studies on price bundling--which is the factual integration of several goods into one price (Stremersch and Tellis 2002)--and from studies on credit card bills, which also comprise several purchases (Srivastava and Raghurir 2002). In an experiment, Soman and Gourville (2001) find that the mathematical difficulty to allocate a bundled price to its benefits marginally increases the probability of decoupling. For example, if a price of \$60 had to be allocated to three theater tickets, people were more likely to couple than if a price of \$52.58 had to be allocated. In addition, Srivastava and Raghurir (2001a) report that credit card purchases make it difficult to mentally access the price of single expenditures, that is to couple.

*Causal or topical relatedness.* Thaler and Johnson (1990) suggest that outcomes in different currencies or domains may be more difficult to integrate than outcomes in the same currency or domain. In a similar vein, Henderson and Peterson (1992) propose that costs and benefits will be

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<sup>1</sup> I thank Uri Simonsohn for this suggestion.

grouped in line with categorization principles. Grouping of payment and consumption events would, thus, only occur if they are perceived as belonging to the same category. Furthermore, Hirst, Joyce, and Schaedewald (1994) suggest that mental cost-benefit-integration is more likely if a cost is perceived as causally related to a benefit. One way to achieve relatedness is to provide easily adoptable topical or causal frames (e.g., external earmarking of money in Christmas clubs), which Prelec and Loewenstein (1998) believe to lead to coupling. Tests of the renewable resource model contradict the assumption that only events of the same domain can be integrated (Linville and Fischer 1991), yet they allow for the need for causal or topical relatedness for coupling. Indirect evidence for this need comes from the finding that the nominal amount of a payment influences to which mental category payment is compared (Ariely and Silva 2002). Translating this finding to coupling could mean that coupling will be inhibited if the nominal value of a payment is compared to other categories than the good purchased. A preliminary test shows that this reasoning is in line with people's intuition. Fifty-nine persons were provided with the following scenario. The items used and the number of responses of each type follow.

Scenario 1: Mrs. Sun and Mrs. Moon are colleagues and earn the same salary. Generally, they are much alike. Recently, they have each bought a small flat screen TV. Both took up a loan to finance the purchase. Yet, they decided for alternative schedules. Mrs. Sun pays €20 each month for a longer period. Mrs. Moon pays €100 each month for a shorter period. Both are just now looking at their monthly statement and seeing that the rate was deducted.

1. Who will be more likely to automatically think of the flat screen TV now.

6 Mrs. Sun            23 both equally            30 Mrs. Moon

Results of scenario 1 support the hypothesis that monetary incompatibility between payment

and consumption (as with Mrs. Sun) may hinder coupling (here  $\beta$ ). Yet, they do not allow disentangling this interpretation from a second--maybe co-occurring--explanation. It might also be that the higher absolute amount alone strengthened coupling (as discussed in section 6.1.2).

*6.1.2. Causes that affect coupling components.* Coupling is the mental interrelation of payment and consumption events. Thus, salience, accessibility, and perceived magnitude of these components can have an impact on the degree of coupling. For example, if pain of paying is barely felt, one component necessary for coupling is missing. Factors that might have an impact on perceived pain of paying and consumption pleasures are in particular the time since an event occurred, payment method, absolute magnitudes, type of product, as well as typicality and cognitive accessibility of events.

*Depreciation over time.* Temporal distance reduces the perceived magnitude of events. In the context of payment events, this phenomenon was called payment depreciation (Gourville and Soman 1998; Thaler 1985). Payment depreciation may start at the actual time of purchase and/or at the actual time of payment when the consumer is again reminded of an expense (e.g., credit card bills that are paid after the purchase) (Soman and Lam 2002). If reference prices are high, if a good is used frequently, and if usage is experienced positively, payment depreciation is believed to be strong and the good is believed to feel increasingly as if it were free (Okada 2001). Naturally, all factors influencing payment depreciation will also have an impact on coupling. They diminish the salience of payment which thus becomes less prone to be mentally associated, that is coupled. Although the literature predominantly deals with depreciation of costs, similar processes probably apply to benefits (Gourville and Soman 1998). For example, consumption events can create rewarding memories that fade away as time goes by.

*Method of payment* is another factor influencing salience and cognitive accessibility of

payments and was often assumed to influence coupling (Prelec and Loewenstein 1998). Payment transparency in terms of transparency of amount and physical form is supposed to be positively correlated with the pain of payment (Soman 2003). Also, other characteristics of payments, like rehearsal of the price paid and immediacy of wealth depletion, lead to differences in salience (Soman 2001a) and thus to differences in coupling. For example, writing a check is more salient and will thus lead to tighter coupling than paying by credit card.

An additional factor influencing salience and perceived magnitudes are *absolute magnitudes*. Evidence for the influence of absolute amounts on the pain of paying is comprehensive (Soman and Lam 2002). Especially small amounts may favor decoupling. If they are too small to be mentally booked (Thaler 1999), they can be categorized and perceived as zero (Ariely and Silva 2002). An analogous process for consumption episodes is easily conceivable. For instance, Chandon and Wansink (2002) show that large quantities of products (stockpiling) increase product salience. In addition, results of scenario 1 might also be explained by the impact of absolute magnitudes on coupling.

The *type of good* consumed can influence salience and perceived magnitudes of events, too. Whereas its impact on consumption events is straightforward, pain of paying is also supposed to vary across types of products. Kivetz (1999) argues that luxury goods lead to more pain of paying than necessities, and Gourville and Soman (1998) guess that the process of payment depreciation may be stronger for discretionary or hedonic types of products. However, there is not much empirical evidence for these suppositions. Moreover, a relation between different types of goods and coupling may not only result from product characteristics. It may also result from different motivational processes related to different types of goods (as discussed in section 6.3).

As for mental accounting and categorization, *typicality or representativeness* of events might also matter for coupling. Brendl, Markman, and Higgins (1998) suggest that the more

representative an event is for a mental category, the more it is weighted mentally and the easier it is cognitively accessible (Heath and Soll 1996). For example, washing a loan-financed car may be less typical for a consumption event than driving it. If in a further step less typical events are mentally weighted less, they might also be less prone to coupling.

In sum, there are various situational characteristics that might influence coupling. Mostly these characteristics will coexist and counteract or promote each other. Hence, the influence of single factors becomes difficult to identify and chances that influential factors are overseen are high. Soman and Gourville's (2001) impressive field study on purchase and consumption of theater tickets provides an illustrative example. They focus on transaction decoupling and argue that the number of performances purchased (i.e., the size of the bundle) is the only variable causing coupling. Various other factors, such as the time span between purchase and consumption, are controlled for. However, probably these other (significant) factors also relate to coupling although they are distinct from pure transaction decoupling. These are the time span between purchase and consumption (temporal separation stimulating decoupling), the amount paid (higher prices increase salience of payment and enhance coupling), and the method of payment (especially credit cards promote decoupling). Whereas Soman and Gourville state that consumption probability as measured in their study resulted from the summation of transaction decoupling and several other factors, in the understanding of this framework it results from the mediating effects of (several facets of) coupling mainly.

## ***6.2. Coupling driven by personal characteristics***

To date there seems to be little empirical work on a relation between personal characteristics and coupling. However, there is some speculation on personality characteristics, socio-

demographic characteristics, and habits that might play a role in coupling. Prelec and Loewenstein (1998) as well as Kivetz (1999) suspect that tightwads are more likely to engage in strong coupling than spendthrifts. People who care and are worried about costs might have a high baseline level of  $\alpha$ . This reasoning is in line with lay intuition. Overall, 59 people were asked to read the following scenario:

Scenario 2: Mr. Schneider works as a clerk and lives in the surroundings of a big city. Two years ago he bought a medium-sized vehicle on a loan (loan duration 5 years). When talking about it, Mr. Schneider likes to call it an investment in his mobility. Mr. Schneider is one of those who consider money as very important. Some might even call him tight-fisted.

After reading the scenario participants were asked to state whether they thought that the loan makes Mr. Schneider think of the car and vice versa. Subsequently, they were asked to state the degree to which they used each information of the scenario when making this estimate. The information that Mr. Schneider could be called tight-fisted was used most. Mean response on a seven-point-scale (from 1 = not at all to 7 = very much) was 5.75 ( $SD = 1.52$ ), while the means of all other information ranged between 2.54 and 4.90.

Also, income might play a role in the tendency to couple. Especially poor people, for whom paying is most painful, are supposed to prefer decoupling (Prelec and Loewenstein 1998). Another individual factor that might influence coupling is the subjective moment of payment (Prelec and Loewenstein 1998). Some people regard the moment of cash withdrawal as the moment of payment. Supposedly, these people face difficulties to associate single benefits with this subjective payment and tend to couple less than persons who identify payment at the cash desk as the moment of payment.

A long list of further speculations could be added. To name but a few: need for cognition may be positively related with coupling, and attitudes towards different payment methods (e.g., credit attitudes) might impact coupling. Only one study on mental accounting and worry provides some very weak and indirect evidence for a relationship between coupling and personal characteristics. The difference in willingness to pay for a bundled offer compared to an unbundled offer was higher for people with a high tendency to worry (Schade and Kunreuther 2001). If the bundled offer is interpreted as enhancing decoupling, one might suggest that people with a high tendency to worry preferred the possibility to decouple more than people with a low tendency to worry. However, this hint is rather weak and can be probably better explained by the bundled goods (product plus warranty) than by coupling. Still, it seems intuitive that people who tend to worry are better off if they can push the troubling thoughts of costs out of their mind.

### ***6.3. Coupling driven by motivation***

Several lines of literature support the idea that coupling can be driven motivationally. For example, sunk cost effects were shown to increase with felt responsibility and need for self-justification (Staw 1976), and mental accounting was shown to be motivationally used for the justification of purchases (Cheema and Soman 2006; Kivetz 1999). Furthermore, Thaler (1999) concludes that although people do not always frame multiple outcomes hedonically, they would like to do so whenever feasible. Motivated coupling may be a useful tool for steering perceptions and behaviors into desired directions.

The most direct test for whether coupling can be motivationally driven was provided by Soman and Gourville (2001). Using a scenario, they found that people purposefully decoupled benefits of a bundle (theater tickets or ski tickets) from its cost depending on the attractiveness of

alternative benefits. When people were highly motivated to forgo consumption (attend a prepaid play or go skiing) because of an attractive alternative (e.g., a tempting party) or because the consumption became unattractive (e.g., skiing in poor conditions), they were likely to decouple consumption from costs; presumably because decoupling released consumption pressure. Further evidence for motivational coupling comes from Heath and Fennema's (1996) notion of mental depreciation. Mental depreciation depicts the process of active cognitive allocation of expenses to units of time or consumption, in contrast to Gourville and Soman's (1998) payment depreciation which is a rather passive and continual decrease in felt pain of payment over time. Mental depreciation is similar to coupling because certain partitions of costs are mentally associated to (coupled with) units of consumption. Different to the notion of coupling which might be an active process or passively result from circumstances, mental depreciation is characterized as an active attempt to align costs and benefits in order to make it less likely that costs are experienced as losses. For example, actively spreading costs to benefits can be used to drive the average cost below some reference price and to make a deal seem good (Heath and Fennema 1996). Hence, any evidence for mental depreciation can also be interpreted as evidence for motivated coupling.

If consumers are motivated to influence coupling, they do not have to rely on their willpower alone. Most people might implicitly know about the hedonic consequences of coupling and about the impact of different payment factors on coupling. As a consequence they can resort to several mechanisms that lead to the desired degree of coupling. Above all, they can mentally prepay and push costs out of mind (Prelec and Loewenstein 1998), choose particular framings, choose situational characteristics (e.g., payment method), and/or time consumption and payment episodes. For instance, framing a purchase as an investment may make the association between costs and benefits less salient and may thus be an efficient strategy to increase decoupling (Kivetz 1999). Wine connoisseurs were shown to be good in applying that strategy (Thaler 1999). They



preferred to code an initial purchase of wine as an investment rather than as an ordinary purchase--presumably in order to protect consumption pleasure. A strategy closely related to framing is earmarking. Earmarking may not only be an external cause of coupling but can be willingly used to manage coupling. If people were told to save or borrow for a desirable and an undesirable object, they preferred to earmark the desirable object when saving and the undesirable object when borrowing (Prelec and Loewenstein 1998). The proposed reason is that savers need as much as possible to buffer the pain of saving whereas debtors try to avoid that payments spoil consumption pleasures.

A question arising in the context of motivated coupling asks which coupling pattern consumers prefer. An analysis of several findings suggests a preference for low  $\alpha$ . First, people often avoid piece-rate pricing policies and prefer fixed fees. For example, consumers prefer to prepay a monthly fee for a health club because it allows to push discouraging thoughts of the costs out of mind (Thaler 1999). Second, many people prefer to have their own cars although they might be financially better off if they used a combination of taxis and car rentals; presumably because every trip with the taxi would be unavoidably coupled with the subsequent consumption and would thus increase the perceived cost of consumption (e.g., seeing a movie) by the transportation cost (Thaler 1999). Whereas consumers seem to prefer low  $\alpha$ , they also seem to prefer high  $\beta$ . First, in an experiment on the effect of different payment methods participants preferred pre-consumption subscription, which assists coupling (in terms of  $\beta$ ) the most. Ariely and Silva (2002) explain their result with people's willingness to reduce pain of paying. However, the mechanism behind this reduction might be coupling. Second, people tend to match sources and uses of money in terms of seriousness (O'Curry 1999 as cited in O'Curry & Strahilevitz, 2001) and to match the duration of a loan with the life of the durable--even if they have to incur out-of-pocket costs (Hirst et al. 1994). This preference to match consumption and

payment with regard to different aspects signals a preference for transactions facilitating high  $\beta$ .

Another important and still open question in the context of motivated coupling asks which factors drive motivation. Possible answers to this question reach far and might loop back to personal and circumstantial characteristics. Soman and Gourville (2001) speculate that involvement with a product and/or the amount paid could play a role. In particular the amount of payment seems worthwhile for investigation because it can influence two counteracting forces. On the one side a high amount makes payment more salient and thus promotes coupling. On the other side it makes payment especially painful and consumers might be especially motivated to decouple and preserve consumption from being tainted.

To conclude, causes of coupling are manifold. ‘Who buys what when how and why’ matters. Circumstantial, personal, and motivational factors behind coupling are probably not independent from each other. For example, people with certain traits might react stronger to circumstances that promote coupling and hence also be more motivated to actively influence coupling. It is intuitively appealing that circumstantial and motivational causes might sometimes counteract each other (e.g., the amount of payment), that circumstances are selected in order to influence coupling (e.g., choosing payment method), or that individual differences influence the impact of circumstances (e.g., perception of topical relatedness is subject to individual interpretation). Yet, the best that can be done at the current state of knowledge is to draw a sketch of a complex network of interrelated factors.

## **7. Coupling patterns**

The respective degrees of  $\alpha$  and  $\beta$  determine the actual coupling pattern (see figure 1). These degrees are suggested to be result from multiplying frequency and intensity of associations. The

product can take on values between 0 (=complete decoupling) and 1 (=complete coupling) for both  $\alpha$  and  $\beta$ . The current state of knowledge makes it difficult to specify the multiplication term. Yet, it seems reasonable that the frequency of thoughts should be weighted more strongly than the intensity because it contains information on the automaticity of coupling. Also, frequency and intensity of associations ought to be averaged over a defined period that is easy to recall and depends on the actual transaction (e.g., all associations before the actual purchase).

There is not much evidence for which coupling patterns actually occur most often for which transaction. Causes and consequences of coupling have commonly been discussed as if there were only two extreme patterns--tight coupling (prototypically associated with immediate cash transaction for one product, e.g., Prelec and Loewenstein 1998) and de-coupling (prototypically associated with payment by credit card, e.g., Thaler 1999). In particular, patterns in which  $\alpha$  and  $\beta$  are assumed equally strong or not distinguished prevail in the literature. Nevertheless, an analysis of coupling causes suggests that often  $\alpha$  might be systematically lower than  $\beta$ . First, the discussion on motivational causes showed that people seem to prefer circumstances which favor low  $\alpha$  and/or high  $\beta$ . Second, the fan effect leads to a similar prediction. In most cases there will be more associations (not relevant for coupling) to consumption events than to payment events. Low  $\alpha$  compared to  $\beta$  might result. Third, the same asymmetry applies to the typicality of events, which was supposed to increase coupling. Many consumption events with low typicality and fewer payment events with less variance in typicality might lead to low  $\alpha$  compared to  $\beta$ . In addition, results of a small-sample interview study suggest that most personal loan users experience high buffering of payments ( $\beta$ ) and lower attenuation of consumption ( $\alpha$ ) (Kamleitner and Kirchler 2006). To further test whether  $\beta$  mostly exceeds  $\alpha$ , 59 people were asked to answer questions about a self-concerned everyday scenario (scenario 3). Scenario 3 read as follows:

Scenario 3: Imagine that YOU recently bought a fridge. It has already been delivered and you received delivery note and bill. You have not paid the invoice because it was not yet due.

Participants were then asked to state their agreement to two statements intended to get a proxy of  $\alpha$  and  $\beta$  on a seven-point-scale (from 1 = not at all to 7 = completely): “Whenever I think of the fridge (e.g., because I see it), it automatically makes me think of the payment”; “Whenever I think of the payment (e.g., because I see the bill), it automatically makes me think of the fridge”. Results show that the mean of the item intended to measure  $\beta$  ( $M = 4.46$ ,  $SD = 1.93$ ) is significantly larger than the mean of the item intended to measure  $\alpha$  ( $M = 3.69$ ,  $SD = 1.99$ ),  $t(58) = -2.11$ ,  $p < .05$ . In addition, participants were presented two bi-polar items (three-point scale) which asked for their most frequent coupling pattern: “When I think of a good, I automatically think of its payment”--“When I think of a good, I *do not* automatically think of its payment”; “When I think of a payment, I automatically think of the purchased good”--“When I think of a payment, I *do not* automatically think of the purchased good”. Again respondents were significantly more likely to report to automatically think about consumption when thinking of a payment ( $M = 1.74$ ,  $SD = 0.83$ ) than vice versa ( $M = 2.31$ ,  $SD = 0.84$ ),  $t(53) = 3.54$ ,  $p < .01$ . Although these tests are preliminary, the overall evidence suggests that mostly  $\alpha$  exceeds  $\beta$ .

## 8. Consequences of coupling

Coupling affects the degree to which consumption events can influence the perception and experience of payment events and vice versa. From the very first thought of consumption or

payment till the very last, coupling may influence hedonic and cognitive aspects (psychological consequences) as well as behavior (behavioral consequences).

### ***8.1. Psychological consequences***

Mental integration of outcomes can influence hedonic experiences (Linville and Fischer 1991). This also applies to coupling, which has an influence on experienced and anticipated net (dis)utilities; thus affecting how people feel and think about spending and consuming.

Both  $\alpha$  and  $\beta$  are important in determining the net (dis)utilities of payment or consumption events. For example, a person who pays for a newspaper subscription and automatically thinks of the future pleasure of reading the newspaper (high  $\beta$ ) will experience less pain of paying than a person who does not have these thoughts (low  $\beta$ ). If the anticipated consumption pleasure is large it is theoretically even possible that the benefits outweigh payment disutility in a payment episode. The opposite applies to consumption events. If reading the newspaper makes people think of paying (high  $\alpha$ ), this will attenuate consumption pleasure and make people experience the pain of paying several times. Again, in extreme cases the associated pain of paying may outweigh consumption benefits. Overall, a high degree of  $\alpha$  dampens hedonic experiences while a high degree of  $\beta$  enhances them<sup>2</sup>. Depending on the degree of  $\alpha$  and  $\beta$ , different coupling patterns serve two counteracting functions: they can boost hedonic efficiency if consumption feels free while payments are buffered (high  $\beta$ , low  $\alpha$ ) or they can boost decision efficiency if people are (painfully) aware of the costs of consumption (high  $\beta$ , high  $\alpha$ ) (Prelec and Loewenstein 1998). The hedonically efficient combination of high  $\beta$  and low  $\alpha$  supposedly reduces the felt pain of paying, and leaves consumption pleasure untouched. The decision efficient combination of high  $\beta$

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<sup>2</sup> This holds as long as consumption events provide pleasure and payment events provide pain.

and high  $\alpha$  supposedly reduces the felt pain of paying but also attenuates consumption pleasure and thus reduces the willpower necessary for regulating spending (Prelec and Loewenstein 1998).

The greater coupling becomes (here  $\alpha$ ), the lower the net satisfaction with consumption will be (Prelec and Loewenstein 1998). This is in line with the supposition that a person experiencing payment depreciation (de-coupling) most probably experiences an increase in consumption enjoyment (Gourville and Soman 1998). However, the experienced utility of a deal may play a moderating role here. If people feel that they made a good deal or if they value something because of its high price (e.g., snob effect) or the financial sacrifices made (e.g., installment credit), coupling might lead to an increase in consumption enjoyment and/or cognitive evaluation of the good purchased despite associated pain of paying. A preliminary test of this supposition is provided by scenario 4. Items used and the number of responses of each type follow the text of the scenario (N = 59).

Scenario 4: Miss Yellow and Miss Red have just bought the same leather jacket at the same price. Both have an equal amount of money at their disposal. They each bought the jacket mainly because it really appealed to them. Miss Red has also thought that she always wanted to have such an expensive piece. Before going to bed both have another look at the jacket, which makes them automatically think of the €200 they spent on it.

1. Who is happier about the jacket in that very moment?

3 Miss Yellow      15 both equally      41 Miss Red

2. A few days later Miss Yellow and Miss Red think of the €200 that they spent on the jacket.

Who experiences this thought as more painful?

25 Miss Yellow      23 both equally      10 Miss Red

Results on scenario 4 give a hint that some sort of snob appeal might at least diminish the effect of coupling on consumption pleasure and pain of payment. A majority of those who differed between Miss Red and Miss Yellow thought that coupling led to more consumption enjoyment and less pain of paying for Miss Red who partly bought the jacket because it was ‘such an expensive piece’.

Hedonic effects of coupling have mostly been assumed as given. Indirect empirical tests come from research on phenomena related or similar to coupling. Weak attention to sunk cost—possibly due to decoupling--was shown to decrease the pain and regret experienced if a benefit cannot be consumed (Heath and Fennema 1996; Soman and Gourville 2001). Moreover, results on payment depreciation (Gourville and Soman 1998) suggest that people feel less anxious about losing a goods or forgoing consumption if they decouple payments from consumption.

Coupling influences cognition, too. It probably increases total thoughts of payment and consumption. Thus, these events become mentally more present and easier to recall (Soman 2001a). Decoupling on the other hand may lead to loss of knowledge on how much things cost. A striking proof for this consequence of decoupling comes from Soman (2001a) who found that students leaving a bookstore were significantly less able to remember the amount spent when they had paid with credit card (leading to decoupling) than when they had paid in cash (Srivastava and Raghurir 2002). Not only were those paying by credit card less able to remember the amount, they also significantly underestimated the amount spent. In addition, especially frequent credit card users were shown to underestimate their future credit card bills because they recalled past expenses holistically (Srivastava and Raghurir 2002). If people were taught to decompose credit card expenses to single consumptions, that is taught to couple, biases in the recall of credit card expenses were diminished (Srivastava and Raghurir 2002).

Coupling may also relate to justification (Heath and Fennema 1996). If consumption makes

people think of the payment (high  $\alpha$ ), they will experience an increased need to justify the expenses; and if payment makes people think of its counter value (high  $\beta$ ), they will be able to justify the payment. Additional cognitions related to coupling can be derived from the argument that arrangements that make opportunity costs more salient promote tight coupling (Prelec and Loewenstein 1998). If such arrangements lead to coupling it might also be the other way round. Tight coupling might make opportunity costs more salient and thus influence cognition in diverse situations apart from actual payment and consumption events. Scenario 5 was designed to test for the effect of coupling on the salience of opportunity costs. The text of the scenario is followed by the items used and the number of response of each type ( $N = 59$ ).

Scenario 5: Mr. Hat and Mr. Hood are in the same financial position and would equally like to once build their own house. Yet, some time ago both have postponed this plan because they bought a car. Coincidentally it was an identical model. Ever since upon seeing the car, Mr. Hat thinks of the money the car has cost. Mr. Hood has no such thoughts.

1. Who thinks more often that the plan of a house has to wait now?

44 Mr. Hat    13 both equally    2 Mr. Hood

2. Both are also ardent motorcyclists. A motor-house nearby shuts down and offers now extraordinarily low priced motorcycles. Who is more likely to seize the opportunity to buy a motorcycle?    5 Mr. Hat    12 both equally    42 Mr. Hood

Results of the scenario convincingly show that consumers intuitively believe that coupling (here high  $\alpha$ ) has an effect on the salience of opportunity costs. Moreover, a majority of participants believes that coupling not only influences cognition but also behavior that is not directly related to the coupled transaction.



## ***8.2. Behavioral consequences***

Behavioral consequences of coupling may be experienced even before the first consumption or payment episode. Coupling could influence consumers' anticipations, affect the purchase decision (Heath and Fennema 1996), and thus have an impact on if and when which purchase is made and how. Especially consumers with very low levels of  $\alpha$  are assumed to prefer to consume first and pay later (Prelec and Loewenstein 1998). More generally, timing will be of particular importance to those with high  $\beta$  because they are in need for a counter-value to the payment. Those decoupling will not feel such a need and possibly weigh other attributes of a deal stronger. Thus, coupling might have an impact on purchase decisions by influencing anticipated utilities as well as the weights given to relevant attributes. For example, cheaper but less attractive options may become more appealing (Ariely and Silva 2002) to those who couple tightly than to those who do not. To preliminarily test for that supposition, scenario 6 was designed. Items used and the number of responses of each type follow the text of the scenario ( $N = 59$ ):

Scenario 6: Mrs. Pea and Mrs. Lentil have been considering buying a motor-scooter for the city traffic. Both can easily afford that acquisition and they are much alike in terms of financial and personal situation. Mrs. Pea is the kind of person who whenever buying or using something is well aware that she has/had to pay for it. Mrs. Lentil is not likely to think that things have to be paid for upon using something. Both want to buy a really good motor-scooter. They are advised by a shop assistant who strongly recommends two models.

Model 1) the awarded top model for €2800, the best and most reliable currently available

Model 2) the awarded model of the previous year for €2500, also very reliable but with fewer

extras than model 1.

1. What do you think who will buy which model?

Mrs. Pea:      19 model 1      40 model 2

Mrs. Lentil:   44 model 1      15 model 2

Results of scenario 6 show that even so participants were told that both women had enough money and wanted a really good motor-scooter, they made different choices (supposedly because they considered different attributes) which can only be accounted for by the information on coupling. Mrs. Pea who was described as a person with generally high  $\alpha$ , was thought to be more willing to trade price for extras than Mrs. Lentil who was described as a person with low  $\alpha$ .

The best discussed behavioral consequence of coupling is its impact on consumption. Overall, the less people couple, the more they will consume how they want instead of consuming the way they feel they should. Depending on the product consumed, different effects of coupling on consumption may result. For services, that can be used as often as one wants, decoupling will lead to less frequent usage. Or to put it more generally, decoupling will lead to “an increased willingness to forgo any individual benefit within a bundle of benefits” (Soman and Gourville 2001, 32). Gourville and Soman (1998) found that people were less attendant in an athletic facility, and less willing to drive through a snowstorm in order to see a basketball game, if the payment was depreciated (decoupled) compared to if it was not. Also, mental depreciation-- which corresponds to motivated tight coupling--can increase the need for justification, consequently stimulate consumption frequency and thus be used to drive the perceived average cost of a service below some (justifiable) reference level (Heath and Fennema 1996).

If decoupling occurs for physical goods, this ought to result in an increased likelihood of consumption because consumption could be enjoyed without thoughts of payment (Kivetz 1999;

Soman and Gourville 2001; Soman and Lam 2002). Several factors that drive decoupling were shown to increase and/or speed up consumption. These are low payment transparency (Soman 2001a, 2003), payment depreciation (Gourville and Soman 1998), bundling (Stremersch and Tellis 2002), stock piling (Ailawadi and Neslin 1998), and low experienced pain of paying (Ariely and Silva 2002). The evidence covers a wide field of applications. For example, it comprises the amount of pages copied, the amount of loads run by a Laundromat, the amount of dollars spent when shopping items with flexible consumption rates (Soman 2003), and the amount of web content purchased (Ariely and Silva 2002). Coupling may also influence how much care people take of their goods. Objects that feel free might be less carefully handled than objects evoking thoughts of payment. Evidence for this possibility is provided by Gourville and Soman (1998). They found that people were more willing to lend a big-screen television to a co-worker if the payment was depreciated (decoupled) compared to if it was not. Further, a decrease in coupling is probably reflected in a decrease in compensation demanded.

Analogous to mental depreciation (Heath and Fennema 1996), coupling may become especially relevant at certain key decision points, such as disposal of an item or repurchase. Okada (2001) suggests that consumers decide to replace old products depending on the mental book value, which is the difference between the initial price paid and the cumulative enjoyment of consumption. Willingness to replace is assumed to be high if the mental book value is low. In several experiments this assumption held (Okada 2001). However, this phenomenon is probably subject to tight coupling. If consumers decouple, book values become meaningless and willingness to replace an object should be high from the beginning.

In addition, coupling as well as payment depreciation (Gourville and Soman 1998) could speed up repurchases. Consumers who decouple will (a) experience less consumption pressure and (b) be more satisfied with their goods because they are not associated with painful thoughts

of paying. Consequently, they might be more likely to repurchase or replace goods earlier. Moreover, consumers who decouple might also be more likely to buy the same good again (see Heath and Fennema 1996; Soman and Gourville 2001 for these effects of mental depreciation and bundling), to be more satisfied with and to recommend the good (see Johnson, Herrmann, and Bauer 1999 for similar effects of bundling). Finally, coupling may also influence other purchases. Especially in the case of significant transactions (e.g., personal loan for a car) coupling might increase the salience of opportunity costs and thus have a general impact on consumption probability as shown in scenario 5.

## **9. The role of perceived importance of the coupling components**

Even if two people couple the same transaction to the same degree, they do not necessarily experience consequences to the same degree. For example, Prelec and Loewenstein (1998) assume that the marginal utility of money (e.g., as a result of income) matters and that people discount future consumption and payment events. To get a preliminary test of the influence of income as supposed indicator of perceived importance on the consequences of coupling, 59 persons were provided with the following scenario. The items used and the number of responses of each type follow.

Scenario 7: Mr. East and Mr. West are good friends and much alike. Mr. East earns €1500 and Mr. West earns €2000. Recently they decided to go on holiday together. They booked a luxury holiday for €1800 for which they both took up exactly the same short-term-loan. Whenever they now meet they talk about the upcoming holiday. Most of the time they mention that it surely was a good idea to take out a loan for this dream. Meanwhile both

always think of the holiday when thinking of the loan. Also, they always think of the loan when thinking of the holiday.

1. Both intend to absolutely enjoy the holiday. Who will enjoy it more in the end?

5 East    26 both equally    28 Mr. West

2. Both often think of the loan for the holiday. Who thinks of it more often?

37 East    20 both equally    2 Mr. West

3. Who will be more likely to take out travel insurance to avoid any risks?

19 East    38 both equally    2 Mr. West

For each item, a majority of those participants who did make a difference between Mr. East and Mr. West answered in the predicted direction. When keeping coupling constant, the financially better of Mr. West was thought to experience more consumption pleasure (enjoy the holiday), to think less often of the payment, and to be less likely to protect consumption (maybe also feeling less anxious about foregoing consumption). Financial well-being seems able to dilute consequences of coupling. In general, factors influencing the perceived importance of consumption and payment events seem to be important in determining the extent that consequences of coupling can reach.

## **10. Interactions of causes and consequences of coupling**

As with the general structure of mental accounts (Winnett and Lewis 1995) reality on coupling is probably much more varied and complex than presentable in an article. Considering that coupling can be actively and passively driven, diverse interaction patterns within and between different causes and consequences are feasible. Even situations in which consequences

of passive coupling differ from consequences of motivated coupling are conceivable. For example, if consumption of a car is motivationally associated to the repayment of a loan, this might enhance the valuation of the car (“it’s worth it”). In this case high  $\alpha$  might increase consumption pleasure whereas it might have the opposite effect if coupling was not motivated. In addition, coupling not necessarily only results from the causes mentioned, it is even possible to come up with situations in which consequences become causes. Imagine a person who decouples but often thinks about her loan financed car. The more she thinks about it, the more associations she will build and the more probable these thoughts will also co-occur with thoughts of the loan. In the end what was supposed to be a consequence of coupling (frequent thoughts of the good) might even become its cause. The same is true for the perceived importance of events.

Importance might not only moderate the consequences of coupling, it might also drive coupling as it makes its components more salient. It even seems possible that coupling plays a role in self-fulfilling prophecies. Consider a person with rather negative credit attitudes who takes on a personal loan. As her attitudes are negative she will be more apt to worry about the credit and think more about it. Consequently, payment becomes very salient and the probability of tight coupling increases. Coupling in this case (predominantly because of high  $\alpha$ ) can lead to severe attenuation of consumption pleasure. As a result those skeptical of credit use might subsequently also experience it as more aversive than those in favor.

## **11. Conclusions**

Coupling, the reciprocal mental association of costs and benefits, is a widely applied implicit assumption as well as a scarcely investigated phenomenon. It drives phenomena like the sunk cost effect but gets not much attention in the literature. This article provides a frame for the

phenomenon and highlights necessity and potential of future research. Overall, coupling emerged as a complex issue with significant implications for theory and practice.

### ***11.1. Limitations***

Limitations and shortcomings of the current article mostly originate in the fact that research on coupling is still in its infancy. First, although it was distinguished between the two coupling coefficients  $\alpha$  and  $\beta$ , causes for and consequences of different levels of  $\alpha$  and  $\beta$  were mostly not considered separately. Even though I expect systematic differences, the current state of knowledge leaves it mostly to speculation. In addition, a detailed discussion would have exceeded the scope of this article. Second, a summary of the most important causes and consequences of coupling was provided. Still, there may be several other relevant factors (e.g., the frequency of payment and consumption events) not yet identified in the literature. Nevertheless, they are likely to fit into the general framework. Third, although the scenarios used provide first tests of some propositions of the framework, they ought to be acknowledged as being preliminary. For participants' better understanding coupling was often simplified as a trait-like feature (e.g., in scenario 6). Also, coupling was measured by a proxy which did not measure frequency and intensity of the coupling components. In addition, results conform to the theoretical reasoning but they often do not pinpoint the phenomenon. Nevertheless, the scenarios mainly intended to check whether people intuitively develop a feeling for the phenomenon. This less ambitious goal was achieved.

### ***11.2. Future research***

There are a number of promising research directions. First, it seems most important for future research to tackle the problem of measuring coupling. As people are thought to be aware of the differential impact of payment on consumption and of consumption on payment (Prelec and Loewenstein 1998), it ought to be possible to find at least some proxies. The preliminary evidence of the scenarios used here suggests that simply asking for associative thoughts might already be a passable way of investigating coupling. However, future research should try to overcome these very first proxies by providing measures that consider frequency and intensity of coupling and allow their combination. Second (and with these measures), it would be worthwhile to analyze differences in coupling patterns across payment methods, products, income groups, and so on. Considering the manifold consequences coupling can have, it seems auspicious to have a much closer look on the shades of coupling. A third aspect in need for empirical clarification is causality. Future experimental or longitudinal studies could try to disentangle the role of causes, consequences, and moderators. A fourth and related aspect is the analysis of changes in coupling. Coupling has been implicitly assumed as stable over time (Prelec and Loewenstein 1998). However, a lot of research has dealt with inconsistencies between decision and consumption (Hsee et al. 2003). Coupling matters at the point of decision as well as during consumption. It would be surprising if there were no changes in coupling as well--especially as coupling can be caused by situational and motivational factors, which are often subject to change over time. Some evidence supports this notion. Actual consumer credit users reported and prospective consumer credit users anticipated a change in the degree of coupling (Kamleitner and Kirchler 2006). In addition, people tend to fully mentally depreciate payments before the end of the useful life of a good (Gourville and Soman 1998; Heath and Fennema 1996) thus making coupling impossible after some time. A fifth promising research venue is the analysis of timing influences of multiple consumption and payment events. As coupling relates to single thoughts,



measurement of consumption and payment events will pose some challenges. It mostly lies within people's discretion when to consume, when to think of the payment etc.

### ***11.3. Implications***

Coupling has practical as well as theoretical implications. Practical implications result from the facts that (a) coupling has an impact on consumer well-being, cognitions, and behavior and that (b) coupling can be manipulated by transaction characteristics (e.g., payment method) and the consumer herself. Mostly implications can be derived for marketing as well as consumer advisory services. Practitioners can try to manipulate coupling in various ways--from the way salespeople talk about a purchase to the actual earmarking of products with payment related messages. Overall, research on coupling is of great potential value for practitioners.

Coupling lies behind several phenomena and can thus be used to derive varied theoretical implications. For instance, previous studies on sunk cost effects barely took into account its dependence on a mental association between costs and benefits. This association was often implicitly established by experimental designs and scenarios (Garland 1990; Staw 1976). Yet, the cost-benefit-connection might not always be as salient in real world situations (Soman and Cheema 2001). Manipulating or controlling coupling in sunk cost experiments seems, thus, a promising further step in the sunk cost literature. One might for example discover that the reason that Soman (2001b) finds no sunk cost effect for past time investments is that consumers do not couple invested time with its benefits as strongly as they do for invested money.

Coupling may reach far beyond the scope presented here. It may be theoretically transferred to diverse fields of application apart from consumer behavior. Every time any kind of cost can be associated to any kind of benefit some degree of coupling applies. Two possible fields of

applications are wage compensation and tax perceptions. Labor might be coupled to wages as consumption can be coupled to payment (Prelec and Loewenstein 1998). Coupling of wages might moderate perceived fairness, interact with motivation, and/or impact spending behavior. Also, tax payments can be coupled with public goods or transfers from the state. Coupling in this case might enhance fairness perceptions, increase tax compliance, and influence the desire to get one's 'fair share' of public goods.

Overall, there is strong evidence that coupling is real and meaningful. Providing a framework, stressing its relevance, and highlighting possible research directions was a first step towards coupling becoming more than an implicit assumption.

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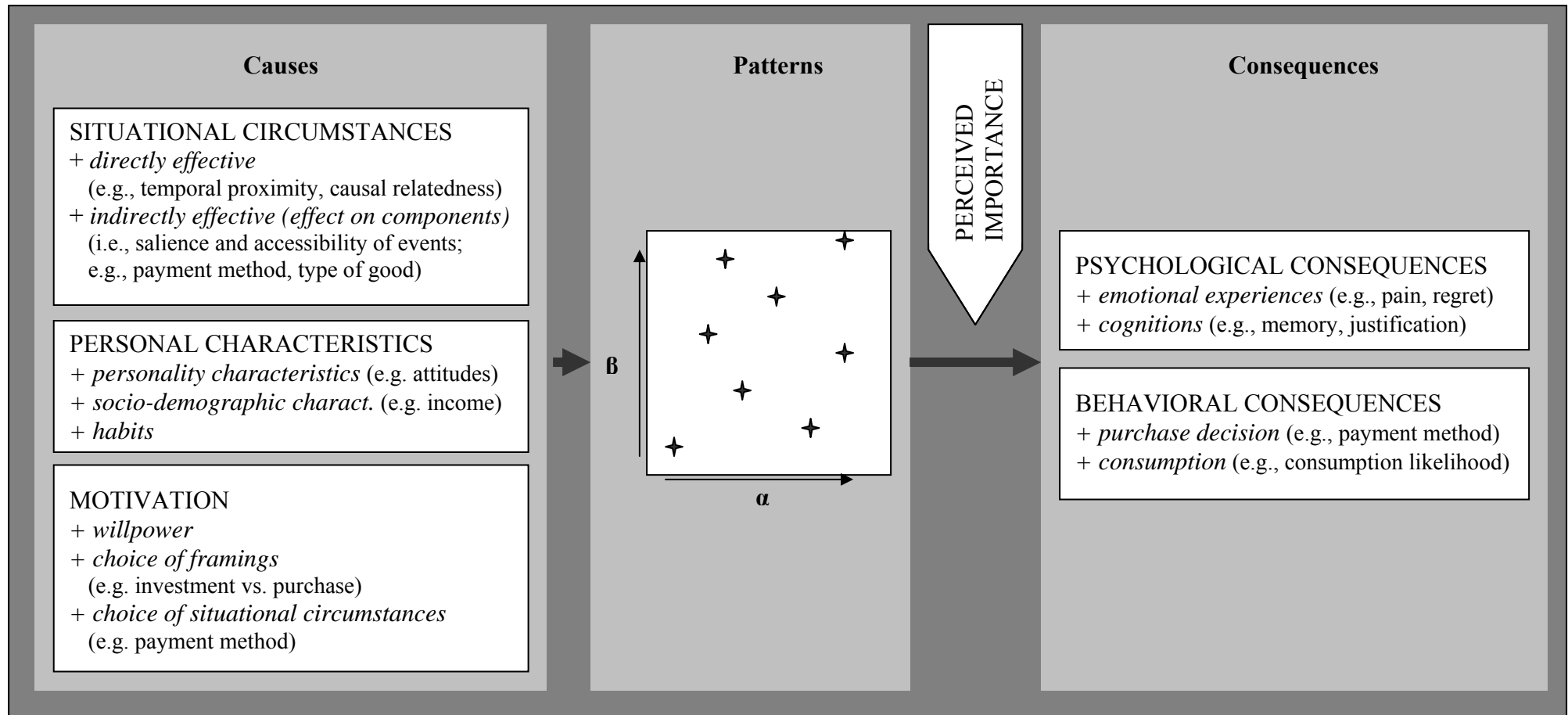
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FIGURE 1: COUPLING--CAUSES, PATTERNS AND CONSEQUENCES



Note: degree of  $\alpha$  = frequency x intensity of thoughts related to payment evoked by thoughts related to consumption

degree of  $\beta$  = frequency x intensity of thoughts related to consumption evoked by thoughts related to payment