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Friendship and Social Relationships

in a Tibetan Village

A dissertation submitted in partial satisfaction of the

requirements for the degree of Doctor of Philosophy

in Anthropology

by

Ming Xue

2014

ABSTRACT OF THE DISSERTATION

Friendship and Social Relationships

in a Tibetan Village

by

Ming Xue

Doctor of Philosophy in Anthropology

University of California, Los Angeles, 2014

Professor Joan B. Silk, Chair

Friendship is prevalent in human societies. Friendships are often formed among genetically

unrelated individuals, who are willing to help each other in times of need, without careful

accounting of benefits given to and received from each other. Evolutionarily, altruistic behavior

among nonrelatives is inherently risky. This raises a question: how is altruism maintained among

unrelated friends? The goal of my dissertation is to shed light on the form and function of human

friendship from an evolutionary perspective. In my dissertation, I evaluated the role of

reciprocity among friends, the contribution of friendship to an individual's social support, and

the ways in which people keep track of favors given to and received from friends and others.

Most ethnographic studies of friendship lack the systematic design to parse out different motives

and behaviors, and most of the carefully controlled studies have been conducted in the US and

Europe (often with college students), which may not be representative of a wider range of

cultures. To address these gaps, I chose a less well-studied area in a non-western society as my field site, and conducted ethnographic studies in a Tibetan village, Gashari, in Huangnan Tibetan Autonomous Prefecture in Qinghai province in China. I applied both qualitative and quantitative research methods in my fieldwork, including surveys, network analysis, semi-structured interviews, and participant observations. By working in a different ecology, where non-kin friendships are embedded in networks of kinship, and applying systematic approaches that enable me to compare friendships in this Tibetan village with friendships in western societies, my dissertation has important implications on the evolutionary processes and proximate psychology that shape human friendship.

The dissertation of Ming Xue is approved.

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2014

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Chapter 1 Introduction

1. Overview

Friendship is prevalent in human societies. Although friendships take various forms and people have different expectations from friends in different cultures (Hruschka, 2010; Adams & Plaut, 2003), friendships are often formed among genetically unrelated individuals, who are willing to incur cost to provide favors and services to each other, including both material and emotional support (Silk, 2003). Another important characteristic of friendship is that friends provide help in times of need, without careful accounting of benefits given to and received from each other (Hruschka, 2010). Altruistic behavior among nonrelatives is inherently risky, because one person may receive help from another without reciprocating (Silk, 2003). This raises an evolutionary question: how is altruism maintained among friends?

The goal of my dissertation is to shed light on the form and function of human friendship from an evolutionary perspective. Specifically, my dissertation focuses on friendships among genetically unrelated individuals. The major questions that guide my research include: (1) What are evolutionary forces that regulate altruism among unrelated friends? (2) What information do people keep track of, and how do they keep track in relationships with friends? (3) How do friendships contribute to the support that an individual receives from her social network?

In Western societies, friendships are thought to be voluntary and intimate bonds between individuals (Hinde, 2002). People have the freedom to choose their friends and to terminate those relationships (Eisenstadt, 1974; Hinde, 1997). Ideally, people value the friendship for its own

sake and do not care what they can get out of it (Mill & Clark, 1994). At the same time, they

expect their relationship to be equal, without judgment and authority (Fiske, 1992). Friends feel

close to each other, enjoy one another's company, develop mutual goodwill, help one another in

times of need, and constantly disclose private matters and personal feelings to each other (Desai

& Killick, 2010; Schug, et al., 2010). Some evolutionary psychologists hypothesize that there is

a universal psychology of human friendship (Bleske & Shackelford, 2001; Bleske-Rechek &

Buss, 2001). However, there is some dispute about whether the western notion of friendship is

shared in other cultures (Adams & Allan, 1998; Bell & Coleman, 1999). For instance,

instrumental support, including borrowing money, seems to be more important than emotional

support in friendships in China (Gummerum, et al., 2008), West Africa (Adams & Plaut, 2003),

and Indonesia (French, et al., 2005). There are also societies in which friendships are

institutionalized and lose something of their voluntary and private character (Adams & Allan,

1998; Pahl, 2000).

Most ethnographic studies of friendship lack the systematic design to parse out different motives

and behaviors, and most of the carefully controlled studies, including those comparing friendship

and kinship, have been conducted in the US and Europe (often with college students), which may

not be representative of a wider range of cultures (Henrich, et al., 2010). To address these gaps in

the literature, I chose a less well-studied area in a non-western society as my field site, and

conducted ethnographic studies in a Tibetan village, Gashari, in Huangnan Tibetan Autonomous

Prefecture in Qinghai province in China. I applied both qualitative and quantitative research

methods in my fieldwork, including surveys, network analysis, semi-structured interviews, and

participant observations. By working in a different ecology (where non-kin friendships are

embedded in networks of kinship) and applying systematic approaches that enable me to compare friendships in this Tibetan village with friendships in western societies, I hope my research will expand our understanding of the evolutionary processes and proximate psychology that shape human friendship.

2. Theoretical Perspectives

2.1 The regulation of altruism among friends

People apply kin-selected nepotism to unrelated friends

Altruism among genetically related individuals is favored by kin selection when it increases the helper's inclusive fitness (Hamilton, 1964). Some scholars have proposed that people "mistakenly" apply the feeling and emotions that underlie kin-selected nepotism to unrelated partners (Alexander, 1979; Kenrick & Trost, 2000; Ackerman, Kenrick & Schaller, 2007). This argument proposes that prosocial preferences evolved because people in ancient environments were embedded in a social network of close relatives. They proposed that our ancestors had little need to distinguish between kin and non-kin, and were generally altruistic to each other and treated non-kin like kin. This argument is supported by several lines of evidence, which suggest that people treat kin and friends in similar ways. People were reported to feel the same level of closeness toward best friends and immediate relatives (Kruger, 2003), but feel less close to distant kin, colleagues and neighbors (Brown & Brown, 2006; Korchmaros & Kenny, 2006). Aron, et al. (1992) found that people incorporate best friends and kin closely into the concept of self. Sometimes, they even confused close friends and kin (Bailey & Nava, 1989). Ackerman, et al. (2007) examined emotional responses to imagined sex with kin and friends, and found that women experienced the same level of disgust in the friend condition and in the kin condition. In

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addition, recent evidence suggested that the same brain region (ventromedial prefrontal cortex) was activated when people were thinking of a close friend and their mother (or child) (Aron, et al., 2005; Van Overwalle, 2009).

However, recent evidence on the co-residence patterns among foraging societies revealed that most individuals in residential groups were not genetically related (Hill, et al., 2011). These findings suggest people did not primarily interact with close genetic kin in early ancestral environments, which violates the key premise of the kin confusion argument (Hruschka, Hackman & Macfarlan, 2014). Moreover, even if close friendship and kinship inspire similar feelings, they seem to guide helping behavior in subtly different ways (Hruschka, 2010). For instance, people were willing to bear a greater cost to help a close friend than an extended or a distant kin, but to bear a lower cost to help a close friend than an immediate kin in a behavioral experiment (Madsen, et al., 2007), and in a vignette study (Rachlin & Jones, 2008). Moreover, Cialdini, et al. (1997) asked a group of students how likely they would be to help a close kin, a close friend, an acquaintance, and a stranger in situations with different severity of need. Students reported that they would bear a higher cost to help friends and relatives than to help acquaintances and strangers, but bear slightly higher cost for relatives than for close friends.

Altruism among friends is regulated by reciprocity

It is possible that the psychological systems underlying interactions among friends are favored by natural selection because they help to resolve common adaptive problems of cooperation and mutual aid in uncertain environments (Hruschka, 2010). The primary evolutionary model to explain friendship among unrelated individuals is reciprocal altruism. The model of reciprocal

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altruism suggests that unrelated individuals may be sensitive to the dynamics of contingent reciprocity in exchanges of costly help, i.e. I will help you, if you have helped me in the past (Trivers, 1971; Axelrod & Hamilton, 1981). Shackelford & Buss (1996) point out that one of the most important characteristics of close relationships is the exchange of time, resources, and effort between partners. Although close friends are less sensitive to negative imbalance than acquaintances are, people are reported to prefer well-balanced relationships to asymmetric relationships (Allan, 1998; Shackelford & Buss, 1996; Walker, 1995). The failure to provide help when requested or needed also produces a sense of betrayal and can lead to the dissolution of friendships (O'Connor, 1992; Walker, 1995).

If there are contingencies between favors given now and favors received in the past, in repeated interactions, individuals are expected to monitor the behavior of their partners and terminate cooperative relationship with partners who do not contribute at threshold levels (Bendor, Kramer, & Stout, 1991). A variety of strategies could be evolutionarily stable, but all require some degree of monitoring of the partner's behavior (Hruschka & Henrich, 2006; McNamara, et al., 2009). In section 2.2, I will discuss in detail what kind of information people should keep track of if contingent reciprocity is important in relationships with friends.

Friendship as a type of mutualism

Some scholars emphasize the role of common interest in the evolution of cooperation (Leimar & Connor, 2003), and there is growing interest in the role of mutualism in nature (Leimar & Hammerstein, 2010). They suggest that friendship may be a form of mutualism, because friendship increases the benefits that we gain from our relationships with others (Blieszner &

Adams, 1992). Biological market theory posits that the decision to cooperate is based on the comparison between the offers from several potential partners, rather than on the behavior of a single partner (Noe & Hammerstein, 1994; Bergmuller, et al., 2007). Therefore, tracking past interactions with a particular partner is not crucial. Instead, behavioral decisions are based on the benefits gained from the current interaction, and there is competition to be the most attractive partner (Noe, 2001).

Tooby and Cosmides (1996) propose that friends have an incentive to help because they have become mutually irreplaceable to each other. They suggest that given the time and energy required to initiate and maintain friendships, each individual can only make a restricted number of friends over their lifetime. Therefore, individuals face the computational problem of investing in friendships, from which they can reap the best long-term outcomes. They argue that the dynamic of this model is considerably different from the structure of a Prisoner's Dilemma, in which the primary threat to cooperation is defection. Tooby and Cosmides predict that when we choose friends, we consider the number of friends we already have, and evaluate the qualities of potential friends and prefer those who possess positive externalities (such as strength, wealth, and prestige). Desirable friends provide benefits with no obligation to repay, and people are expected to form friendships with those that anticipate their and desires and consider them irreplaceable.

DeScioli and Kurzban (2009) have extended Tooby and Cosmides' model, and propose that friendship is partially regulated by cognitive systems of alliance building. They argue that if friendship is generated by alliance-building mechanisms, then people should evaluate their

partners' loyalties to other friends, and use this information to rank their friends according to how their friends rank themselves. They conducted survey studies with both college students and non-student populations to investigate whether people rank their friends and what factors affect their rankings. They found that people's rankings of their ten closest friends were predicted by their own perceived rank among their partners' other friends. This result remains significant after controlling for a variety of factors that are considered to be important in friendship, such as perceived similarity, familiarity, and exchanges of benefits. Recently, they investigated the friendship rankings of over 10 million people on MySpace, a social network website, and found that an individual's choice of best friend is strongly predicted by their partners' ranking of themselves (DeScioli, et al., 2011). These results suggest that the computational system of partner choice is qualitatively different from two-player exchange. Instead of being cheated, the primary risk is winding up without any deeply committed partners or sufficiently beneficial partners.

However, mutualism or biological market theory does not sufficiently explain the choice of partner or the maintenance of friendship without relating to the underlying logic of reciprocity. The model of mutualism is difficult to explain how the preference for certain partners (or the ranking) is developed over time without tracking the history of favors exchanged between partners. Silk (2003) also points out that the model of mutualism implicitly assumes that costs limit people's engagement in their friendships. She argues that the partner choice is not resolved by ignoring costs and obligations to reciprocate; instead, an individual is better off by choosing friends for whom the cost-benefit balance is most favorable. Moreover, the mutualism model cannot explain the fact that friends sometimes incur substantive costs, that people maintain

enduring bonds with friends even when seemingly better options are available (Igarashi, et al., 2008).

2.2 Tracking among friends

Objection to reciprocity as mechanism for friendship is based on two concerns: (1) people don't seem to use a Tit-For-Tat logic for friends, and (2) it is implausible that the Tit-For-Tat logic would be used because of the high computational or cognitive demands. This is an argument about reciprocity in general, and not specifically linked to humans. In this section, I will discuss how people practice reciprocity in interactions with friends and possible forms of tracking.

Friends do not seem to apply strict reciprocity in their relationships

If friendship is regulated by reciprocal altruism, we would expect people to keep track of favors given to and received from friends. However, predictions derived from the logic of contingent reciprocity seem to contradict evidence drawn from empirical studies. A series of studies conducted by social psychologists suggest that people avoid tracking help provided to and received from friends, and feel offended if friends reciprocate immediately and directly (Mills & Clark, 1994). In two vignette studies, subjects were asked to judge the relationship of individuals who were involved in the exchange of favors. Researchers varied whether the favor was returned immediately or delayed, and whether the favor was repaid in kind or in another form. Subjects were more likely to characterize the two individuals as friends if they exchanged benefits of different types or if the favor was not reciprocated immediately (Clark, 1981; Shackelford & Buss, 1996). Clark and Mills (1979) also conducted a series of experiments to compare the dynamics of long-term friendly relationships and short-term exchanges among strangers. In one

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experiment, one subject was asked to do part of the task with a colored-ink pen; later, a second subject was asked to complete the task. The second subject was presented with a choice of pens and could choose the same color as the first subject or a different color. Pairs of friends were more likely to choose the same color pen than pairs of strangers, which suggests that subjects are more likely to obscure their contributions to joint tasks when paired with friends than with strangers (Clark, 1984). Based on this body of experimental work, Clark & Mills (1979) and Mills & Clark (1994) characterized friendship as a kind of communal relationship, in which help is based on the friend's current needs, not help previously received from the friend or help expected in the future. These data are generally consistent with ethnographic accounts from several cultures, which indicate that people do not monitor the flow of exchanges with their friends precisely (Hong Kong: Hwang, 2006; Japan: Rupp, 2003; Papua New Guinea: Schieffelin, 1976).

Friends do not seem to apply a strict Tit-For-Tat form of reciprocity in their relationships. However, friends are not completely unaware of help given to or received from each other. People were reported to feel uncomfortable with imbalances in their relationships with friends, and dislike receiving more than they have given and vice versa (O'Connor, 1992; Shackelford & Buss, 1996). In a behavioral experiment, we found an important distinction between tracking and tolerance among friends and strangers (Xue & Silk, 2011). We conducted parallel behavioral economic games with college students in the US, China, and Japan and found that subjects tracked contributions of their partners to joint tasks when they were paired with friends or strangers. However, friends were less likely to stop cooperating with friends than strangers even when they were aware of imbalances in the inputs of their partner. It is possible that friendship

psychology has evolved to deal with noisy information and to be tolerant to short-term imbalances. This is consistent with theoretical models, which predict that single acts of defection will not terminate a friendship immediately, but accumulated defections over time jeopardize relationships among friends (Hruschka & Henrich, 2006).

Does emotional bookkeeping reduce the cognitive demands of reciprocity?

Critics of the idea that contingent reciprocity regulates cooperative behavior in humans and other organisms often argue that contingent reciprocity imposes unrealistically high cognitive demands. This is because in order to practice contingent reciprocity, individuals need to keep track of their interactions with multiple partners in multiple contexts over long periods of time. However, some scholars, primarily primatologists, have proposed that animals circumvent this problem with a more economical system of emotion-based bookkeeping (Schino & Aureli, 2010; Aureli & Schaffner, 2002; de Waal, 2008; Romero & Aureli, 2008). They suggest that the exchange of favors elicits partner-specific emotional responses. Schino and Aureli (2010) argue that emotional bookkeeping reduces the demand on cognition and memory because it transforms details about various types of social interactions into a common currency—emotion—and eliminates the need to maintain distinct memories of individual events. de Waal and Suchak (2010) suggest that individuals build up emotional scores by taking the perspective of their partners. When they are faced with the need to decide whether to perform a cooperative act, individuals consider the current emotional scores of their partners and behave accordingly.

Three sets of empirical evidence seem compatible with the model of emotional bookkeeping. First, animals seem to develop consistent partner preferences that influences altruistic behavior

(de Waal, 2000; 2008). For instance, de Waal (1997) found that the short-term correlation between grooming and subsequent food tolerance only held for those who did not groom often; for pairs that groomed at high rates, tolerance did not depend on grooming immediately before provisioning. Second, animals do not always respond in a tit-for-tat way in social interactions. Naturalistic observations on female baboons suggest that grooming is often unbalanced in the short term, but females with strong social bonds tended to have more equitable grooming relationships over longer periods of time (Frank & Silk, 2009). In chimpanzees and capuchins, individuals tolerate others to different degrees, and such tolerance affects their success in cooperative tasks (Melis, et al., 2006; de Waal & Berger, 2000). There is some neurobiological evidence that is consistent with the emotional bookkeeping model. For example, brain opioids that are modulated by grooming interactions are also involved in social bonding (Keverne, et al., 1989).

Advocates of the emotional bookkeeping model assume that it provides an economical solution to the problem of tracking partner-specific accounts of benefits and costs. However, a number of questions remain unresolved. It is not clear, for example, how events are translated into emotion. Is each instance of grooming, coalition support, or food sharing transformed into the same level of positive emotion? Is the translation affected by partner's kinship, dominance rank, age, or sex? de Waal and Suchak (2010) suggest that individuals build up emotional scores by taking the perspective of their partners. Although some nonhuman animals have some understanding of the perspective of others, this ability is much more fully developed in humans than in other taxa. It is not clear, for example, whether even large-brained primates like chimpanzees and capuchin monkeys, have a well-developed understanding of others' intentions.

Different forms of tracking in different stages of friendship

In human friendships, people do not seem to provide help only based on emotional bonds (Silk, 2003). On the other hand, friends do not always follow the logic of strict reciprocity in their relationships. It is possible that tracking takes different forms at different stages of friendship. Hruschka (2010) proposes a general model of human friendship,

> "*The strategy involves three stages: (1) starting with small levels of calculated help, (2) moving to higher levels of calculated help if a friend's actions warrant it, and (3) finally a shift in decision making to knee-jerk altruism based not on past behaviors or the shadow of the future, but on simple decision about whether a partner is a friend.*"

This model seems to map onto our intuition about friendship in everyday lives. However, this trajectory elicits a number of important questions? First, how do people shift from TFT-like, calculated reciprocity to knee-jerk altruism? As I discussed in the previous section, the feeling of closeness may mediate altruistic help among friends. If subjective closeness can elicit knee-jerk altruism, we need to ask how the feeling of closeness is developed and maintained among friends (Roberts & Dunbar, 2011). Second, when the friendship has advanced to knee-jerk altruism, does it mean careful tracking or calculated reciprocity is completely turned off? If this is the case, how do people prevent cheating from those who manipulate the "close and trustworthy" friendship? Third, does the level of tolerance also rise as the strength of friendship progresses? My previous wok (Xue & Silk, 2011) indicates that friends are not completely unaware of imbalances in their relationships, but people are more tolerant of imbalances with friends than with strangers.

Therefore, it is important to make the distinction between tracking and tolerance in interactions among friends. Finally, are there common features of friendship across different cultures?

3. General Description to Ethnographic Settings

I conducted my fieldwork in Huangnan Tibetan Autonomous Prefecture (TAP) in Qinghai province in China. Huangnan TAP (Tibetan: རྨ་ལྷོ་བོད་རིགས་རང་སྐྱོང་ཁུལ་, Mandarin: 黄南藏族自治州) is an autonomous prefecture of eastern Qinghai province, People's Republic of China (PRC). The central government of PRC first established its office in Tongren County and declared Huangnan to be an autonomous district of Qinghai province in 1949. In 1955, the government changed Huangnna autonomous district to Huangnan Autonomous Prefecture (*Huangnan TAP official website: http://www.hntr.gov.cn*). The prefecture now encompasses an area of 6,919 sq mi. According to the 2010 census, the population of Huangnan TAP was 256,716. Although the largest population is Tibetan (about 69% of all population), there are multiple other ethnic groups residing in Huangnan TAP, including Mongol (about 14%), Hui (about 7%), Han (about 6%), Monguor (about 4%), Salar (about 1%) and others (*The National Bureau of Statistics: 2010 Census Report*).

My field site is in Tongren County in Huangnan TAP. Tongren County was known as Rebgong (Tibetan: རེབ་གོང་, Mandarin: 热贡) in history, and is well known for its arts and crafts, including Tibetan thangka painting, sculpture, barbola, and silversmith. Tibetan thangka is a painting on silk or canvas, usually depicting a Buddhist deity, scene, or mandala. Thangka painting appeared before Songtsan Gampo unified Tibet in the 7th century (Yu, 2006). According to Yu, some art historians believe that the Nepalese painting style had large influence in the early stage of

Tibetan painting. Meanwhile, thangka also assimilated elements of Dunhuang art and folk art from Han. When King Langdarma wiped out Buddhism in Tibet (838-841 CE), it also resulted in extensive destruction of Tibetan art (Chen, 2012). Many Buddhist scripts and thangka paintings were ruined during that period of time. Tibetan painting flourished after the establishment of the rule of Dalai Lama in the 15th century. Rebgong art began to form its distinction style in the 18th century (Tang, 2009). Tibetan thangka serves as important tool of teaching and meditation in Tibetan Buddhism. The visualized images are internalized by the practitioners and can assist the process of enlightened self-transformation (Landaw & Weber, 2006).

In particular, I conducted my studies in Gashari village in Tongren County. Gashari village is largely composed of extended families with patrilocal residence, that is, a married couple that lives with the husband's parents, and the family usually consists of the husband's siblings and their families living nearby or in the same household. In Gashari village, there were 213 households and the total population was 1,506 (according to 2010 census data of Tongren county in Huangnan TAP).

In Gashari, the subsistence economy includes wheat farming and herding of Tibetan yaks, sheep and goats, but the majority of household income comes from Tibetan thangka. The majority of Tibetan men in the village are thangka painters. Traditionally, men traveled to distant places, such as Lhasa, Qumdo, and Sichuan Kham, for extended periods to make and trade their paintings. Men returned to the village twice a year: around the Chinese New Year when they helped their family to plant the fields, and again for the June Festival (a sacrifice ceremony for the mountain gods) after which they helped their family with the harvest. Roughly half of the

men in the village still follow this system and travel to distant cities, such as Lhasa and Beijing. The other painters work at home or at studios in a nearby town. Social support is important for the villagers because of the poorly developed infrastructure and welfare system in this region. The village residents rely on support from friends and relatives in a variety of domains, including agricultural work, household maintenance, childcare, long distance travel, and trade.

The Tibetan concept of kinship is similar to the Euro-American concept of kinship, i.e. people consider biological kin and affinal kin as relatives, and can distinguish between them. The households in the village are also categorized into several tribes (*cuo-wa* in Tibetan), a heritage preserved since the Mongolians migrated from the northeast to Rebgong area in the 17th Century (Tang, 2009). Gashari village consists of four different tribes. Tribe members are related, but are not necessarily close relatives. The distinction between each tribe was largely based on geography, i.e. relatives living close to each other were historically categorized into one tribe. Although families have moved over time, village residents have good knowledge about who belongs to their own tribe, and there are explicit obligations to tribe members. In contrast to western societies, previous research of gender politics in Tibet reveal that wives are socially subordinate to their husbands and that Tibetan women rarely discuss their personal feelings with their husbands or even conceal their emotions in front of their husbands (Makley, 2002; Yang, 2006). People have monogamous marriage in Gashari village, yet women generally have lower social status than men. Even nowadays, marriages among young people are usually arranged by their parents instead of according to their own wills.

The Gashari villagers can also identify friendship ties among nonrelatives. The word of friend is translated as *zang-ca* in Tibetan. The concept of *zang-ca* may include close friends and more distant friends, but not relatives. According to the villagers, some *zang-ca* relationships, though not all, were ritualized hundreds of years ago. Both men and women could have ritualized *zang-ca* relationships. To go through the ritualization, the two people needed to go to the temple and to swear in front of the Buddha. They committed that they would help each other whenever the other was in need, and they would live together and die together. Nowadays, there is no ritualized *zang-ca* relationship any more, and *zang-ca* relationships are formed voluntarily among individuals. Gashari villagers usually refer their *zang-ca* by names. Only when an individual introduces her *zang-ca* to a stranger for the first time, she would say, "This is my *zang-ca*."

4. Overview of Empirical Studies

The goal of my dissertation is to shed light on the form and function of human friendship. Specifically, my dissertation focuses on friendships among genetically unrelated individuals, and evaluates the following questions: (1) what is the role of reciprocity among friends? And how important is reciprocity among friends as compared to that among kin? (2) How do friendships contribute to one's social life, and do people use different strategies to derive support from friends and relatives? And (3) how do people keep track of favors given to and received from friends, relatives, and others in their daily lives? My dissertation consists of three empirical studies that investigate these questions.

The first study investigates the importance of reciprocity among friends, and compares altruism and reciprocity among friends with those among relatives in Gashari village. To explain the high level of altruism among unrelated friends, some people propose that friends may apply the feeling and emotions that underlie kin-selected nepotism to each other. Alternatively, altruism among friends may be sustained by an evolved psychology that is sensitive to the dynamic of contingent reciprocity. A recent study (Stewart-Williams, 2007) with North American students showed that the amount of help given and received was less likely to be balanced among friends (as among relatives) than among acquaintances, suggesting that exchange among friends and relatives may rely on similar psychological mechanisms. To assess whether the similar pattern in exchange reflects the similar psychology in exchange, I used a systematic design of Stewart-Williams (2007)'s study and tested how different types of relationship regulated the amount of help given and received, and people's emotional reaction to non-reciprocation.

The second study explores the role of friendship in providing social support. Friends and relatives are important sources of social support (Wellman & Wortley, 1990; Wellman, 1992). However, no study has explored different strategies that individuals rely on to derive support from friends and relatives. Moreover, very few quantitative studies compared the role of friendship and kinship in rural settings where people are living with their extended families (examples of qualitative studies: Reed-Danahay, 1999; Santos-Granero, 2007). According to kin selection theory (Hamilton, 1964) and reciprocal altruism theory (Trivers, 1971), relatives are more likely than friends to provide unconditional help and care less about reciprocity than friends do, thus people may be less likely to seek support from friends if support from relatives are available. In contrast, other researchers propose that friendships evolved because they make

unique contributions to enhance mutual aid in uncertain environment (Tooby & Cosmides, 1996) and to provide benefits that may not be derived from relatives, such as job information (Eve, 2002) and informal matchmaking (Feiring, 1999). In this study, I evaluated the importance of friendship in this kin-based society, and investigated the strategies Gashari villagers rely on to derive social support from friends and relatives, through a survey that elicited the egocentric support networks of 40 residents in Gashari village.

In the third study, I investigated gift giving and recordkeeping in Gashari village. Gift giving is a nearly universal practice and gifts have special cultural importance in many societies (Mauss, 1967; Komter, 2007; Yan, 1996). Previous studies on gift giving focused on the practice of exchange and norms associated with gift exchange, but largely ignored the form and function of recordkeeping in gift exchanges. Moreover, there is no study on the recordkeeping of gift exchange in ethnographic settings, or systematic study on the pattern of bookkeeping in gift exchange across cultures. Gift giving is common and important practice in Gashari. The village residents frequently exchange material goods, such as sugar, flour, butter, tea, and cash, and provide labor for others on social occasions, including house building ceremonies, funerals, weddings, and Buddhist chanting sessions. These gifts and acts of helping are costly to the donor and provide benefits to the recipient, and thus can be considered as a form of altruism. Villagers provide gifts to many members of their village, including both relatives and nonrelatives. Moreover, villagers keep a written record of gifts in special "gift books". In this study, I evaluated predictions derived from evolutionary models of reciprocal altruism (direct reciprocity) and indirect reciprocity that might shape motives for gift giving and recordkeeping in gift exchanges. Extending from the Tibetan sample, I also examined the pattern of

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recordkeeping in gift exchange across cultures, using information extracted from eHRAF

(Human Relations Area Files) World Cultures database.

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Chapter 2 Altruism and Reciprocity among Friends and Kin in a Tibetan Village

Abstract

To explain the high level of altruism among unrelated friends, some people propose that friends may apply the feeling and emotions that underlie kin-selected nepotism to each other. Alternatively, altruism among friends may be sustained by an evolved psychology that is sensitive to the dynamic of contingent reciprocity. A recent study (Stewart-Williams, 2007) with North American students showed that the amount of help given and received was less likely to be balanced among friends (as among relatives) than among acquaintances, suggesting that exchange among friends and relatives may rely on similar psychological mechanisms. To assess whether the similar pattern in exchange reflects the similar psychology in exchange, I tested how different types of relationship regulated the amount of help given and received, and people's emotional reaction to non-reciprocation. I asked 45 participants from a Tibetan village in China to imagine how unhappy they would feel if the target person (sibling, cousin, friend or acquaintance) failed to reciprocate their help in various contexts. I found that overall, friends and relatives were more tolerant to non-reciprocation than acquaintances were. For emotional help, friends were more likely to feel unhappy about non-reciprocation than relatives were, but were similar to relatives in responses to other types of help (aid during crisis, labor, and financial help). The study suggests that people may evaluate the importance of reciprocity differently in various situations, and exhibit different levels of sensitivity to the dynamic of reciprocity. Thus it calls for careful distinctions between friends and kin in the everyday lives of individuals.

1. Introduction

Friendship has been documented all over the world. Although the form that friendships take varies considerably, mutual aid based on need is a fundamental component of friendship in numerous cultures (Hruschka, 2010). Intuitively, it makes sense that friends should help each other in times of need. However, it is a puzzle from the evolutionary point of view. Friendships are often formed among nonrelatives, who may incur costs when they provide benefits to their partners. Altruistic behavior among nonrelatives is inherently risky, because one person may receive help from another without reciprocating (Silk, 2003). This raises the evolutionary question: how is altruism maintained among friends?

Altruism among genetically related individuals is favored by kin selection when it increases the helper's inclusive fitness (Hamilton, 1964). Some scholars have proposed that people "mistakenly" apply the feeling and emotions that underlie kin-selected nepotism to unrelated partners (Ackerman, Kenrick & Schaller, 2007; Brown & Brown, 2006; Kenrick & Trost, 2000; Mills & Clark, 1994). This argument proposes that prosocial preferences evolved because people in ancient environments were embedded in a social network of close relatives. They proposed that our ancestors had little need to distinguish between kin and non-kin, and were generally altruistic to each other and treated non-kin like kin. However, recent evidence on the co-residence patterns among foraging societies revealed that most individuals in residential groups were not genetically related (Hill, et al., 2011). Moreover, even if close friendship and kinship inspire similar feelings, they seem to guide helping behavior in subtly different ways (Hruschka, 2010). For instance, people are willing to bare a greater cost to help a close friend than an extended or a distant kin, but to bare a lower cost to help a close friend than an immediate kin

(Madsen, et al., 2007). In addition, given the same level of subjective closeness, an individual is more likely to help a relative than a friend (Cialdini, et al., 1997; Rachlin & Jones, 2008; Curry, et al., 2012).

It is possible that the psychological systems underlying interactions among friends are favored by natural selection because they help to resolve common adaptive problems of cooperation and mutual aid in uncertain environments (Tooby & Cosmides, 1996; Vigil, 2007). Friendships may be sensitive to the dynamics of contingent reciprocity (Axelrod & Hamilton, 1981; Trivers, 1971). If this is the case, in repeated interactions with costly help, individuals are expected to monitor the behavior of their partners and terminate cooperative relationship with partners who do not contribute at threshold levels (Bendor, et al., 1991). A variety of strategies could be evolutionarily stable, but all require some degree of monitoring of the partner's behavior (Hruschka & Henrich, 2006; McNamara, et al., 2009).

Empirically, the role of monitoring in friendship is not entirely clear. A series of social psychology studies suggest that people actually avoid keeping track of help provided to and received from friends, and feel betrayed if friends reciprocate immediately or directly (Clark, 1984; Mills & Clark, 1994). However, people are also uncomfortable with imbalances in their relationships with friends, and dislike receiving more than they have given and vice versa (O'Connor, 1992; Shackelford & Buss, 1996). Thus, friends may not be completely unaware of help given to or received from each other. Our previous work suggests that there is an important distinction between tracking and tolerance among friends and strangers (Xue & Silk, 2011). We conducted parallel behavioral economic games with college students in the US, China, and Japan

and found that subjects tracked contributions of their partners to joint tasks when they were

paired with friends or strangers. However, friends were less likely than strangers to stop

cooperating even when they were aware of imbalances in the inputs of their partner. Moreover, if

altruism is contingent on the cooperative intention of the partner, an individual should also

compare the help his partner provided to him with the help the partner provided to others

(DeScioli & Kurzban 2009). It is possible that friendship psychology has evolved to deal with

noisy information and to be tolerant to short-term imbalances. This is consistent with theoretical

models, which predict that single acts of defection will not terminate a friendship immediately,

but accumulated defections over time jeopardize relationships among friends (Hruschka &

Henrich, 2006).

If altruism is based on either kin selection or contingent reciprocity, then people should be

sensitive to the costs of help that they give to others. There is some evidence that the cost of help

has a differential effect on kin and non-kin friends. In a questionnaire among college students in

North America, participants were asked to report the amount of help they had given to or

received from a target individual in the past two months (Stewart-Williams, 2007). The results

indicate that friends are more sensitive to the cost of help than kin, as increasing the cost of help

reduced the tendency to help a friend, but increased the tendency to help a sibling or a cousin.

If helping is based on reciprocity, then there should be positive association between help given

and received. This balance may be less important for kin than friends because kin may gain

inclusive fitness benefits from helping and therefore willing to tolerate greater imbalances in

help given and received. Stewart-Williams (2007) found that the amount of help given and

received was less likely to be balanced among friends (as among relatives) than among acquaintances, suggesting that exchanges among friends and relatives may rely on similar psychological mechanisms. However, the similar pattern in exchange might not necessarily reflect the similar psychology in change. It is unclear whether friends and relatives differed in their reactions when help was not reciprocated in various contexts.

Furthermore, it is difficult to make generalizations about the importance of reciprocity in friendship from studies conducted in a single cultural context. Patterns of behavior in contemporary developed countries might not be representative of other societies, in which kin networks may be more important (Henrich, et al., 2010). The importance of friendship might have been overemphasized in the studies of U.S. college students because most are living with friends and are far away from their families (Huang, 2006; Joy, 2001).

The present study assessed how different types of relationship (i.e. friends, siblings, cousins, and acquaintances) regulate help given and received, as well as people's emotional reaction to non-reciprocation in various contexts. I conducted the study with 45 participants from Gashari, a Tibetan village in Qinghai province, China. Gashari is largely composed of extended families and is patrilocal in residency. There are over 200 households in the village, and the total population is approximately 1,500. Gashari residents relied on support from friends and relatives in a variety of domains, including agricultural work, household maintenance, childcare, long distance travel and trade. Support from family and friends are important for residents of the village because of the poorly developed infrastructure and welfare system.

The present study investigated three related hypotheses. Following Stewart-Williams (2007), I predicted that as the cost of help increases, the level of altruism will decrease among friends and acquaintances, but will increase among siblings and cousins (Hypothesis 1). The importance of reciprocity is expected to be influenced by both the likelihood of future interactions and benefits derived from inclusive fitness. Acquaintances may have little certainty about whether they will interact again in the future or have the opportunity to reciprocate help. Friends, cousins, and siblings may have a high likelihood of interacting again in the future, but help to friends does not enhance fitness via the indirect component of inclusive fitness. Thus for a given level of cost, the magnitude of the association between help given and received is expected to be ordered as follows: acquaintances > friends > cousins > siblings (Hypothesis 2). Similarly, I would expect intolerance of temporary imbalances in help given and received would be ordered the same way, i.e. acquaintances > friends > cousins > siblings (Hypothesis 3).

2. Methods

2.1 Participants

The participants in this study were rural Tibetans living in the village of Gashari. All participants were recruited through haphazard sampling (Bernard, 2011) from the village. There were four major routes through the village. The researcher (MX) started on one route and visited all of the households on that route. If no one was present in the household at the time of visit, the researcher moved on to the next household. The researcher continued until she had visited 12 households on the route. Then she changed to another route and repeated the same sampling process, until all four routes had been covered. The researcher recruited only one participant from each household, based on the availability and willingness of people in the household. The

participants were not always the person who opened the door or the head of the household. In total, the researcher visited 48 households, about one quarter of the households in the village. There were three cases in which the participant failed to complete the survey because of emergency or unplanned activity. The final sample had 45 participants, including 27 females (60%) and 18 males (40%). The age of participants ranged from 15 to 63, with a mean of 33.96 ($\pm$ 0.54).

In the study, the researcher provided an introduction to the study and asked questions in Mandarin. A field research assistant (a Tibetan college student) helped to translate Mandarin into local dialect for participants. All participants responded in the local dialect, and the research assistant translated their responses back to Mandarin. The researcher then filled out the survey and took down notes in Mandarin.

2.2 Name the target person

Each participant was asked to respond to questions involving four relationship categories. I generated a random order of four relationships, i.e. sibling, acquaintances, friend, and cousin, and conducted the interview in this order. To avoid the problem of exhausting participants, the interview was divided into two parts, which were conducted on different days. For all participants, questions about siblings and acquaintances were asked on the first visit, and questions about friends and cousins were asked on the second visit. Each visit took about 30 min. After the researcher provided a brief introduction to the study, the participant was instructed to think of a person within a given relationship category, and told the researcher his or her name. The researcher wrote down the initial of the target individual.

Tibetans share the same concepts of sibling ($r = 0.5$) and cousin ($r = 0.125$) as Americans do. The concept of friend was translated as *zang-ca* in Amdo Tibetan (*peng-you* in Mandarin). *Zang-ca* can include close friends and regular friends, but rarely relatives. The participants were instructed to avoid relatives or romantic partners when they named friends. An acquaintance was defined as someone whose name the participant knew and could stop and chat with, but was not a relative or friend. There were no constraints on the gender of the named person. All subjects were able to identify target individuals in all four categories.

2.3 Measure the amount of help given and received

To assess the extent and degree of reciprocity in helping, I measured the amount of help given and received between the participant and the target individual. I largely followed the procedures used by Stewart-Williams (2007), but made some modifications to the survey instrument so it would be more culturally relevant to Tibetan participants.

I sorted the items into three categories based on cost (Table 1). I randomized the order of questions so participants were unaware of the category. For low and medium cost help, the participants were asked, "how much help have you given to [the target person] in past three months", and "how much help have received from [the target person] in the past three months?" Participants responded on a Likert-type scale, which ranged from 1 (*never*) to 5 (*very often*). For high cost help, the participants were asked to respond to two hypothetical questions and indicated how willing they would be to help the target person in such case. The participants responded to a Likert-type scale, from 1 (*not at all willing*) to 5 (*extremely willing*). Individual

items in the medium and high cost help category exhibited a high level of internal consistency (α = 0.82 and 0.90, respectively), and were aggregated as single variables in statistical analyses.

2.4 Emotional reaction to non-reciprocation

I also investigated subjects' responses to temporary imbalances in help given and received. For the low and medium cost help, the participants were asked how unhappy they would feel if the target person failed to reciprocate. The participants responded to a Likert-type scale from 1 (*not at all unhappy*) to 3 (*very unhappy*). Responses were elicited with the following prompt, "suppose you have helped this person with his house building, but when you needed help to build your house, he did not come to help. How unhappy would you feel?"

2.5 Other predictors

I collected information about participants' age, gender, and marital status, and the age and gender of the target individual. I also asked the participants to indicate their contact frequency with the target person. The means of contact included face-to-face communication, telephone calls, text messages, and mail. The frequency categories were daily, once per week, once per month, once per half year, to once per year or longer.

3. Statistical Analysis

I used multilevel mixed-effect models to analyze the effect of relationship category (acquaintance, friend, cousin, sibling) and the cost of help (low, medium, high) on the amount of help given and the responses towards non-reciprocation. The extent of reciprocity in helping was based on the association between actual help given and received between the participant and the

target individual. In a multilevel mixed-effect model, I used the amount of help given to predict the amount of help received, and tested the effect of relationship category on the association between help given and received. To control for the non-independence of responses by the same subject, I treated subject identity as a random effect. Post hoc analyses were used to identify the source of interactions and effect sizes.

The raw data collected in the study were converted to t-scores for statistical analysis. The transformation is based on z-scores centered on 50 and with a standard deviation of 10 units. All statistical analyses were conducted with STATA 12.0 (Stata Corp., 2012). All p values are two-tailed, based on the 95% confidence interval ($p = 0.05$ is the criteria for significance).

Preliminary analyses indicated that demographic variables (subjects' age, gender, and marital status; target individuals' age and gender) and frequency of contact had no significant effects on outcome variables, and these variables are not included in the analyses reported below.

4. Results

4.1 The amount of help given

There was a main effect of relationship category on the amount of help given (Fig. 1; $\chi^2 = 225.9$, $df = 3$, $p < 0.001$). The order of subjects' willingness to provide help was: sibling > friend > cousin > acquaintance. The cost of help did not have significant effect on help given ($\chi^2 = 3.3$, $df = 2$, $p = 0.19$), but there was a significant interaction effect between relationship category and the cost of help on the amount of help given ($\chi^2 = 124.6$, $df = 6$, $p < 0.001$).

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To assess the source of interaction, I tested the effect of relationship category at each level of cost (Table 2). For every level of cost, significantly lower amounts of help were given to acquaintances than to other categories of partners. However, the ordering among friends, siblings, and cousins varied as the cost of help increased. Subjects gave significantly more low cost help to friends than to siblings, and significantly more to siblings than to cousins (friends > siblings > cousins). For medium cost help, the order of friends and siblings was reversed (siblings > friends = cousins). When the cost of help was high, subjects said that they would give the same amounts of help to siblings and cousins, and less help to friends (siblings = cousins > friends).

I also examined the effects of the cost of help on the amount of help given within each relationship category (Table 3). The level of altruism directed toward a sibling was generally high, and there was no significant effect of the cost of help (low = medium = high). For cousins, the amount of help increased as the cost increased (low < medium < high). Subjects gave friends significantly more low cost help than more costly help (low > medium = high). The level of altruism was generally low among acquaintances. Subjects gave significantly less high cost help to acquaintances than medium or low cost help (low = medium > high).

4.2 The association between help given and received

The magnitude of the association between help given and received provides a measure of the extent of reciprocity in helping (Fig. 2). When the cost of help was low, the amount of help received significantly predicted the amount of help given among siblings ($Coef = 0.84$, $df = 43$, $z = 10.47$, $p < 0.001$), cousins ($Coef = 0.52$, $df = 43$, $z = 4.35$, $p < 0.001$) and friends ($Coef = 0.69$, $df = 43$, $z = 7.5$, $p < 0.001$). Participants never gave emotional help to or received emotional help

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from acquaintances. When we controlled for the amount of help given, the association between help given and received revealed significant differences among relationship groups ($\chi^2 = 9.01$, *df* = 3, *p* = 0.02 < 0.05). Notably, the magnitude of the association was significantly higher among siblings and friends than among cousins (sibling vs. cousin: *Contrast* = -4.46, *df* = 1, *z* = -4.58, *p* < 0.001; friend vs. cousin: *Contrast* = 6.26, *df* = 1, *z* = 5.40, *p* < 0.001), but the same for siblings and friends (*Contrast* = 1.79, *df* = 1, *z* = 1.63, *p* = 0.62).

For medium cost help, the association between help given and help received was significant for each relationship category (siblings: *Coef* = 0.88, *df* = 43, *z* = 12.67, *p* < .001; cousins: *Coef* = 0.91, *df* = 43, *z* = 20.57, *p* < 0.001; friends: *Coef* = 0.94, *df* = 43, *z* = 26.62, *p* < 0.001; acquaintances: *Coef* = 0.90, *df* = 43, *z* = 17.41, *p* < 0.001). However, when I controlled for the amount of help given, the magnitude of the associations between help given and help received did not differ among relationship groups ($\chi^2 = 1.12$, *df* = 3, *p* = 0.77).

4.3 Emotional reactions to non-reciprocation

I measured responses to non-reciprocation for low and medium cost help. Relationship category has a significant effect on subjects' responses (Fig. 3; $\chi^2 = 12.8$, *df* = 3, *p* = 0.005 < .05). Friends and acquaintances were more likely to feel unhappy about non-reciprocation than siblings and cousins were. The cost of help did not have significant effect on responses ($\chi^2 = 0.11$, *df* = 1, *p* = 0.74). However, there was a significant interaction between relationship category and the cost of help on subjects' responses ($\chi^2 = 36.9$, *df* = 7, *p* < 0.001).

To locate the source of interaction, I tested the effect of relationship category for each level of cost (Table 4). For low cost help, friends felt significantly more unhappy about non-reciprocation than siblings or cousins did (friends > cousins = siblings). For medium cost help, acquaintances felt significantly more unhappy about non-reciprocation than siblings, cousins, or friends did (acquaintances > friends = cousins = siblings), but there were no differences in the level of unhappiness among the latter groups.

5. Discussion

Both the degree of relatedness and prospects of reciprocity can influence people's sensitivity to the cost of help. As I predicted, the level of altruism was highest among siblings, and remained high as the cost of helping increased. As the cost of help increased the extent of helping among cousins also increased. Friends showed some sensitivity to the costs of help, giving more low cost help than high or medium cost help. The level of altruism among acquaintances was generally low compared to the other three relationship categories, and dropped greatly at high cost.

I predicted that the extent of reciprocity would reflect the degree of relatedness between subjects and their partners and the prospects for future interactions. In the study, two measures, the association between help given and received and the unhappiness about non-reciprocation, reflected the importance of reciprocity across relationship groups. I predicted that help would be more balanced among acquaintances and friends than kin, but our findings did not conform to this prediction. At low cost, friends and siblings maintained a higher level of reciprocity than

cousins did; at medium cost, the magnitude of the associations between help given and help received did not differ among the four relationship groups.

I also predicted that responses to non-reciprocation would be influenced by both the costs of help and relationship category, and would be ordered as: acquaintances > friends > cousins > siblings. In general, I found that friends and acquaintances (non-kin) were more likely to feel unhappy about non-reciprocation than siblings and cousins (kin). This suggests that reciprocity may matter less to kin because their gain benefits derived from inclusive fitness. However, this interpretation does not explain our finding that the cost of helping influenced the level of dissatisfaction about non-reciprocation. When the cost of help was low, friends were more likely to feel unhappy about non-reciprocation than siblings or cousins. But at medium cost help, there are no differences in feelings about non-reciprocation among siblings, cousins and friends.

The systematic approach enables me to compare our study with Stewart-Williams (2007)'s. Both studies revealed that the ordering of help given among friends, siblings, and cousins varied as the cost of help increased. In both studies, people provided higher amount of help to friends than to siblings or to cousins at low cost. However, Stewart-Williams (2007) found that at medium cost, the amount of help provided to friends ranked the same as siblings but higher than cousins; at high cost, friends ranked the same as cousins but lower than siblings. In contrast, the present study revealed that at medium cost, the amount of help provided to friends ranked the same as cousins but ranked lower than siblings; at high cost, friends ranked lower than both siblings and cousins. Taken together, these findings suggest that Tibetan villagers interact with their friends much like North American college students do; on the other hand, altruism directed toward kin

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might be more important among Tibetan villagers than among American college students. Living in the network with extended families, Tibetan villagers might be more likely to feel obliged to help their kin than American college students, who were living far away from their families.

The current study sheds some light on the evolution of human friendship. My findings do not support the argument that altruism among unrelated friends is derived from kin selection (Alexander, 1979; Kenrick & Trost, 2000). Although participants in the study lived with their extended families, they did not act as if they mistook non-kin friends for kin. The present study, along with previous findings (Stewart-Williams, 2007; Rachlin & Jones, 2008), reveals some distinctive patterns of altruism and reciprocity among kin and among friends, such as the sensitivity to the cost of help and the level of tolerance toward temporary imbalances. However, the framework that emphasizes the importance of mutualism and reciprocity in the development of lasting friendships (Cosmides & Tooby, 1992; Tooby & Cosmides, 1996) does not map very well onto actual behavior and psychology either. My study in rural Tibet validated the finding of Stewart-Williams (2007) that there was a considerable level of reciprocity among both siblings and cousins. I also found that friends cared about how much they gave to and received from each other, but were more resilient to temporary imbalances than acquaintances are. This pattern is consistent with previous findings in urban cultural contexts (Mills & Clark, 1994; O'Connor, 1992; Walker, 1995; Xue & Silk, 2011). In theory, there is a synergy between reciprocity and relatedness: McElreath & Boyd (2007) pointed out that small amount of relatedness can sustain reciprocal strategies, such as tit-for-tat reciprocity. In the everyday lives of individuals, the distinction between friends and kin seems complicated. Thus, the psychology of friendship does not seem to be neatly explained by either kin selection or reciprocal altruism.

My study also provided mixed evidence on the role of friends and kin in individuals' support networks. Unlike findings in Indonesia and West African, where people consider emotional support is not important and expect instrumental support from friends (Adams & Plaut, 2003; French, et al., 2005), our Tibetan subjects provided considerable amounts of emotional support to friends and were dissatisfied when emotional support was not reciprocated. Thus, it is not only North American cultures in which people place particular emphasis on emotional support given to and received from friends (Bell & Coleman, 1999; Desai & Killick, 2010; Gummerum, et al., 2008). Some researchers have suggested that when people can rely on kin to fulfill their instrumental needs, friendships tend to be based on emotional bonds (Castren & Lonkila, 2004; Rupp, 2003). However, my study revealed that siblings in Tibet were also important sources of emotional support and were more tolerant than friends of non-reciprocation of emotional support.

One of the difficulties of testing predictions about the forces that shape cooperative behavior in nature is that it is difficult to quantify the value of help given and received. Theoretical models generally assume that different kinds of help are converted to a common currency, fitness, but it is not clear how people (or other animals) perceive their exchanges. People can estimate the monetary value of many types of help given and received, but it is not at all clear that monetary value is a good proxy for fitness benefits or that it is possible to monetize emotional support. This is important because it influences the interpretation of our findings and those of others that study naturalistic patterns of exchange in human societies.

Following Stewart-Williams (2007), I used emotional support to represent low cost help, and various types of instrumental support to represent medium cost help. Like Stewart-Williams (2007), I found that the people of Gashari tended to give less instrumental help than emotional help to friends, and this suggests that friends are sensitive to the cost of help. This interpretation relies on the assumption that people think emotional help is less costly than instrumental help, and that emotional help is equally effective for all partners. However, it is possible that people are sensitive to the efficiency of help (Korchmaros & Kenny, 2006; Leider, et al., 2009), and that emotional help may impose small costs on the donor and provide large benefits to the recipient. Emotional support among friends may be more effective than emotional support among others. If this is the case, then differences in levels of emotional and instrumental support directed towards friends might reflect differences in efficiency, not difference in cost. Similarly, differences in levels of emotional support to friends and siblings might reflect differences in the ratio of costs and benefits.

Although the systematic approach enables me to compare the current study with previous studies, the survey methods might introduce some biases in these studies. First, the self-report survey is likely to be biased by social desirability, i.e. the participant tends to tell the researcher what he thinks the researcher might want to know, or tries to appear good in eyes of the researcher (Leary, 1995). Second, people are likely to overestimate help given to others but underestimate help received from others (Essock-Vitale & McGuire, 1985). As the participants in the current study were asked to recall the amount of help they given to and received from others, there might be recalling biases in their responses. Third, as the participants were asked to respond to hypothetical situations that measure high-cost help, their responses might not accurately map

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onto what they would actually do in such situations. To avoid these methodological biases, it would be helpful to employ behavioral observations along with the survey to evaluate the accuracy and validity in future studies.

In sum, I replicated and extended the previous study (Stewart-Williams, 2007) in a Tibetan village, by testing how different types of relationship regulated the amount of help given and received, and people's emotional reactions to non-reciprocation in various contexts. Although the present findings suggest that there are common elements in the psychology of friendship across cultures, more work is clearly needed. People may evaluate the importance of reciprocity differently in various situations, and exhibit different levels of sensitivity to the dynamic of reciprocity. Thus it calls for careful distinctions between friends and kin in the everyday lives of individuals. To examine people's tendency of providing altruistic help, it's crucial to map how people quantify costs/benefits of different types of help, for instance, whether people think about the amount of efficiency of help in different settings. To investigate whether friendship is characterized by same features across cultures, such as emotional self-disclosure (Schug, et al., 2010), future works need to extend the range of cultures, including societies with institutional forms of friendship (e.g. blood brothers, sworn brothers) and those with more informal types of friendships, and societies consist of nuclear families and extended families.

6. Tables

Table 1. The types of help based on cost

Low	Medium	High
Emotional support[*]	Aid during a crisis	Willingness to donate blood or organ
	Help with housing and labor	Willingness to risk injury or death providing life-saving help
	Financial help	

* The emotional support was interpreted with prompts, such as "comfort you when you are sad", or "listen to your personal problems".

Table 2. Comparison of help given across relationships at each level of cost

Cost	Relation	Mean	Pairwise comparison	Z	95% Conf. Interval	
Low	Sibling	54.48	Sib vs. Cousin	-6.32**	-11.94	-4.91
	Cousin	46.06	Sib vs. Friend	3.27**	0.84	7.87
	Friend	58.83	Sib vs. Acquaintance	-10.35**	-17.31	-10.28
	Acquaintance	40.68	Cousin vs. Friend	9.59**	9.26	16.30
			Cousin vs. Acquaintance	-4.03**	-8.89	-1.86
			Friend vs. Acquaintance	-13.62**	-21.67	-14.64
Medium	Sibling	56.12	Sib vs. Cousin	-4.18**	-9.09	-2.06
	Cousin	50.55	Sib vs. Friend	-4.34**	-9.29	-2.26
	Friend	50.34	Sib vs. Acquaintance	-9.83**	-16.61	-9.58
	Acquaintance	43.03	Cousin vs. Friend	-0.15 (n.s.)	-3.72	3.31
			Cousin vs. Acquaintance	-5.64**	-11.04	-4.00
			Friend vs. Acquaintance	-5.49**	-10.83	-3.80
High	Sibling	56.84	Sib vs. Cousin	-1.08 (n.s.)	-4.95	2.08
	Cousin	55.40	Sib vs. Friend	-4.83**	-9.95	-2.92
	Friend	50.40	Sib vs. Acquaintance	-14.61**	-22.99	-15.96
	Acquaintance	37.36	Cousin vs. Friend	-3.76**	-8.52	-1.49
			Cousin vs. Acquaintance	-13.54**	-21.55	-14.52
			Friend vs. Acquaintance	-9.78**	-16.55	-9.52

Table 3. Comparison of help given at different costs within each relationship category

Relation	Cost	Mean	Pairwise comparison	Z	95% Conf. Interval	
Sibling	Low	54.48	Low vs. Medium	1.23 (n.s.)	-1.55	4.83
	Medium	56.12	Low vs. High	1.77 (n.s.)	-0.83	5.54
	High	56.84	Medium vs. High	0.53 (n.s.)	-2.47	3.90
Cousin	Low	40.06	Low vs. Medium	3.37**	1.30	7.68
	Medium	50.55	Low vs. High	7.01**	6.15	12.53
	High	55.40	Medium vs. High	3.64**	1.66	8.04
Friend	Low	58.84	Low vs. Medium	-6.37**	-11.68	-5.30
	Medium	50.34	Low vs. High	-6.33**	-11.63	-5.25
	High	50.40	Medium vs. High	0.04 (n.s.)	-3.14	3.24
Acquaintance	Low	40.68	Low vs. Medium	1.76 (n.s.)	-0.84	5.54
	Medium	43.03	Low vs. High	-2.49*	-6.51	-0.13
	High	37.36	Medium vs. High	-4.25**	-8.86	-2.48

Table 4. Comparison of unhappiness about non-reciprocation across relationships

| Cost	Relation	Mean	Pairwise comparison	Z	95% Conf. Interval	
Low	Sibling	47.65	Sib vs. Cousin	0.59 (n.s.)	-3.42	5.37
	Cousin	48.63	Sib vs. Friend	3.34[**]	1.16	9.95
	Friend	53.20	Sib vs. Acquaintance	1.57 (n.s.)	-1.78	7.00
	Acquaintance	50.26	Cousin vs. Friend	2.75[*]	0.18	8.97
			Cousin vs. Acquaintance	0.98 (n.s.)	-2.76	6.03
			Friend vs. Acquaintance	1.77 (n.s.)	-7.33	1.45
Medium	Sibling	47.09	Sib vs. Cousin	1.15 (n.s.)	-2.48	6.30
	Cousin	49.00	Sib vs. Friend	1.19 (n.s.)	-2.41	6.38
	Friend	49.08	Sib vs. Acquaintance	4.63[**]	3.32	12.11
	Acquaintance	54.81	Cousin vs. Friend	0.04 (n.s.)	-4.32	4.47
			Cousin vs. Acquaintance	3.49[**]	1.41	10.20
			Friend vs. Acquaintance	3.44[**]	1.34	10.13

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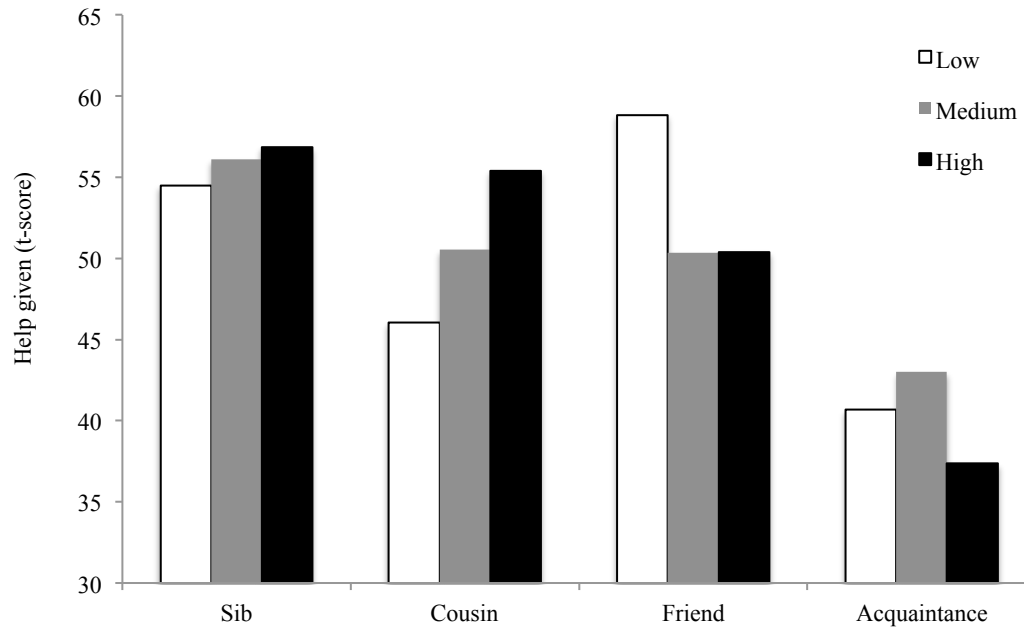
7. Figures

Figure 1. Help given at different costs across relationship categories
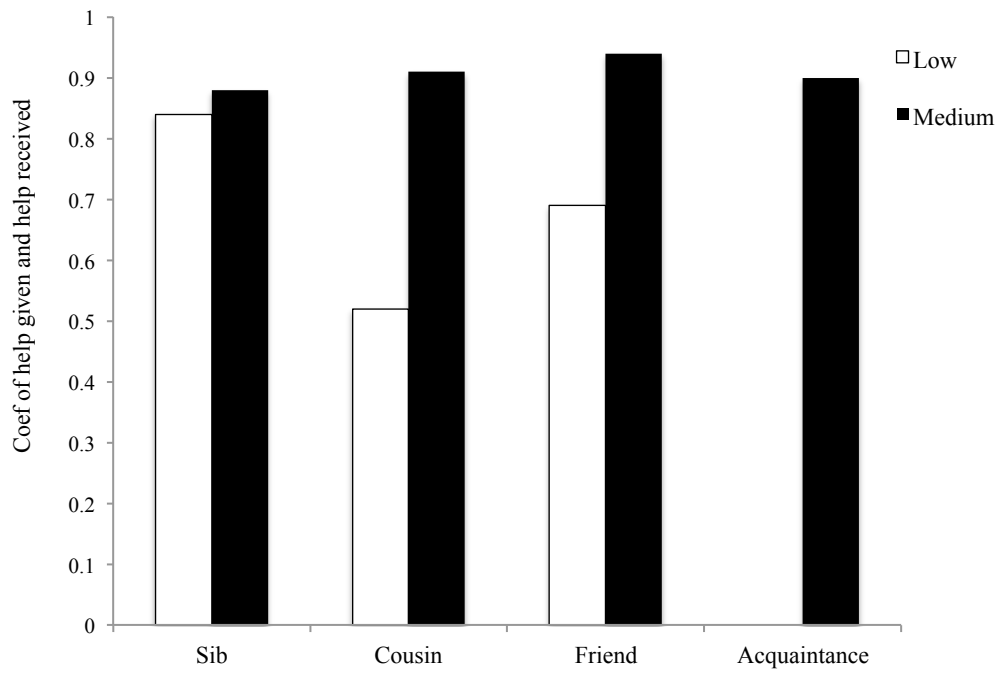
Figure 2. The association between help given and help received at low and medium cost
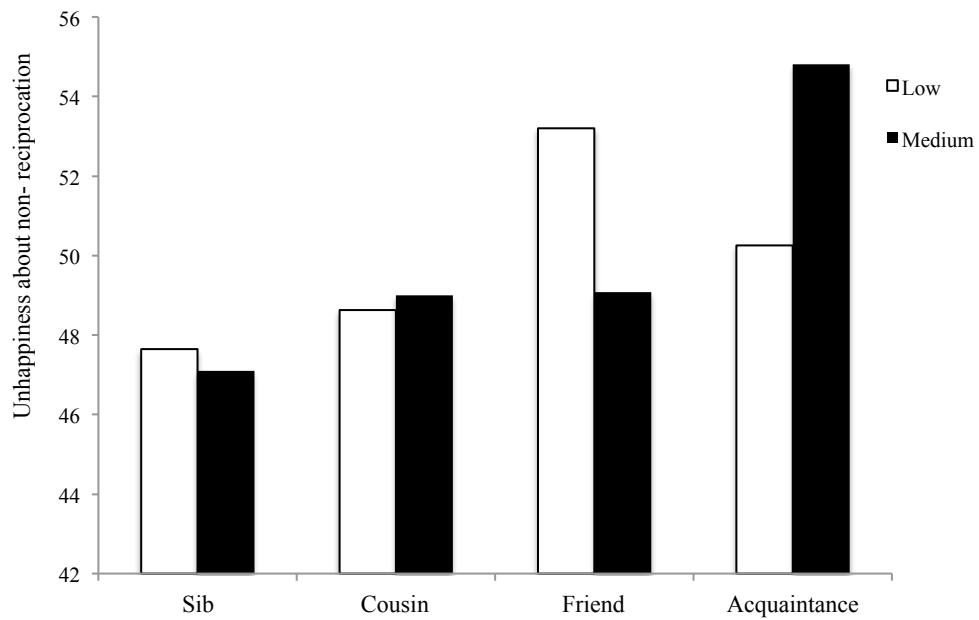
Figure 3. Unhappiness toward non-reciprocation across relationship categories

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Chapter 3 Social Support from Friends and Family in a Tibetan Village

Abstract

Friendships are prevalent in human societies. However, it is unclear whether people rely on the same strategy to derive support from friends and relatives. In the present study, I conducted a survey to elicit the egocentric support networks of 40 residents of a Tibetan village in Qinghai province in China. Through the survey, I found that the participants listed similar numbers of friends and relatives in their support networks and reported equal amount of support from friends and from relatives. To derive support from friends, the participants preferred a shallow strategy (i.e. having a large number of friends, with each one only providing certain types of support) over a deep strategy (i.e. having a few close friends, with each one providing a broad range of support); they equally preferred the two strategies to derive support from relatives. In addition, the participants were more likely to go to friends than to relatives for emotional and informational support. My study suggests that even if friends compensate for the variation of kin support in quantity, friendship should not be considered as one-for-one substitute for kinship.

1. Introduction

Friendships are prevalent in human societies. However, it is unclear the role of friends in providing social support when relatives are available. Altruism among relatives is regulated by kin-selected nepotism (Hamilton, 1964), while the exchange of favor among non-relatives often requires reciprocity (Trivers, 1971). Thus, people may be less likely to seek support from friends if support from relatives is available, because relatives are more likely than friends to provide unconditional help and care less about reciprocity than friends do. In contrast, other researchers propose that friendships evolved because they make unique contributions to enhance mutual aid in uncertain environments (Tooby & Cosmides, 1996) and to provide benefits that may not be derived from relatives, such as job information (Eve, 2002) and informal matchmaking (Feiring, 1999). Moreover, we do not know whether people rely on the same strategy to derive support from friends and from relatives. An individual may rely on a few strong ties, with each one providing a broad range of support (i.e. a deep strategy; Binder, Roberts, & Sutcliffe, 2012). Alternatively, an individual may have a large number of ties, each of which only provides a limited number of types of support (i.e. a shallow strategy; Plickert, Cote, & Wellman, 2007). No quantitative study has been conducted to distinguish different strategies of getting support from different types of relationships. In the present study, I conducted a survey to elicit the egocentric support networks of 40 residents in a Tibetan village (Gashari) in Qinghai province in China. The present study aims to evaluate the importance of friendship in this kin-based society, and to investigate the strategies Gashari villagers rely on to derive support from friends and relatives.

1.1 The motives of seeking support from friends and relatives

Friends and relatives are important sources of social support (Wellman, 1992). Sometimes, friends and relatives are willing to incur great costs to provide benefits to their partners (Fischer, 1982), thus there is considerable level of altruism among friends and among relatives. Evolutionarily, altruism among genetically related individuals is favored by kin selection when it increases the helper's inclusive fitness (Hamilton, 1964). The model of kin selection predicts that the type of kin relationship should regulate the motives of helping. Close relatives, such as parents and siblings, are more likely to provide altruistic help than distant relatives (Fischer, 2011). In addition, kinship serves as a salient cue for helping. Based on evidence from western societies, Wellman (1992) suggested that norms that link relatives help them to be active and intimate network members. Xue (2013) reported that in a Tibetan village, there are different norms for interactions with immediate kin, distant kin, and clan members; these norms specify things like how much to help and what kinds of gifts to bring to social events. However, there is no explicit norm for friends in these situations.

In contrast, altruistic behavior among nonrelatives is inherently risky, because one person may receive help from another without reciprocating (Silk, 2003). Trivers (1971) proposes that altruism among nonrelatives can be explained by reciprocal altruism. The model of reciprocal altruism suggests that unrelated individuals are sensitive to the dynamic of contingent reciprocity when they exchange help and favor with each other in repeated interactions, i.e. I will help you, if you have helped me (Axelrod & Hamilton, 1981). If helping among unrelated friends is based on reciprocity, there should be a positive association between help given and received. Friends are also expected to monitor the behavior of their partners and stop helping partners who do not reciprocate appropriately (Bendor, Karamer, & Stout, 1991; McNamara, Stephens, Dall, &

Houston, 2009). Friends in western societies reported that they were aware of and felt uncomfortable about the imbalances in their relationships (O'Connor, 1992; Shackelford & Buss, 1996). Xue and Silk (2011) conducted parallel behavioral economic games with college students in the US, China, and Japan and found that participants in all three sites tracked the behavior of friends did in a cooperative task, but they were less likely to monitor their friends accurately than they were to monitor strangers.

The balance between help given and received may be less important for relatives than for friends, because relatives can gain inclusive fitness benefits from helping (Hamilton, 1964; Queller, 1985). Therefore, relatives are more likely than friends to provide unconditional help, and may care less about reciprocation than friends do. Empirical findings support this argument. Based on vignette studies, researchers found that given the same level of subjective closeness, individuals are more likely to help a relative than a friend (Cialdini, Brown, Lewis, Luce, & Neuberg, 1997; Curry, Roberts, & Dunbar, 2012; Rachlin & Jones, 2008). In an experiment, people are willing to bear a greater cost to help a close friend than a distant relative, but to bear a higher cost to help an immediate relative than a close friend (Madsen, et al., 2007).

H1: Because relatives are more likely than unrelated friends to provide unconditional help, and care less about reciprocation than friends do, when relatives are available (e.g. living with extended families), people are more likely to seek support from relatives than from friends.

1.2 The contribution of friends and relatives in social support

Friends and relatives may provide the same type of support. Some researchers suggest that if

relatives are not available, the construction of friendship networks may be a risk sharing strategy,

that is, friendships can provide backup in case there is a shortage of kin support (Hara, 1980).

For instance, individuals tend to establish non-kin friendships to compensate for the loss of kin

support after migration (Hammel, 1968), or after relocation due to marriage (Lindenbaum, 1979).

In contrast, some researchers proposed that friendship evolved because it provides benefits that

cannot be derived from relatives (DeScioli & Kurzban, 2009). Relatives usually have access to

the same resources, but a broad network of friends may help an individual to reach novel, non-

overlapping resources (Hruschka, 2010). It has been suggested that friends are more valuable

sources of informational support than kin or others (Burt, 1992; Putnam, 2000). Granovetter

(1983) found that individuals of lower socioeconomic status relied heavily on close friends in job

seeking. Studies of organizational behavior have shown that friendship networks provide a way

for newcomers to improve professional performance, acquire implicit knowledge of social roles,

and assimilate in the workplace (Morrison, 2002). In the social sphere, friendship ties can lower

the cost of accessing a cultural model (Henrich & Broesch, 2011), facilitate the establishment of

group membership (Richman, 2002), or increase the chance of finding a mate (Feiring, 1999).

Friendship is also considered to be an important source of emotional support (Furnham & Argyle,

1998; Mills & Clark, 1994), because of their similarity in age, gender, or temperament, or

because they can be chosen for their compatibility and capacity for empathy (Bigelow & La

Gaipa, 1995). In western societies, individuals, especially women, report that their friendships

are based on emotional bonds rather than material needs (O'Connor, Adams, & Allan, 1998).

Individuals in North American reported that they constantly disclosed and exchanged personal

matters and secrets with their friends (Gummerum, Keller, Takezawa, & Mata, 2008; Schug, Yuki, & Maddux, 2010).

H2: If friends are specialized in providing different types of support than what relatives provide, based on previous empirical findings, I predict that individuals will be more likely to go to friends than relatives for emotional and informational support.

1.3 Network strategies

Although friends and relatives are important sources of social support, it is not clear whether people rely on the same strategy to derive support from friends and from relatives. Previous network studies show two alternative strategies for getting support from one's social network. An individual may rely on a few strong ties, with each one providing a broad range of support (a "deep strategy"; Binder, Roberts, & Sutcliffe, 2012). In this case, each tie has high multiplexity (Krohn, Massey, & Zielinski, 1988; Berg & McQuinn 1989). Alternatively, an individual may have a large number of ties, each of which only provides a limited number of types of support. This is a "shallow strategy", in which specific ties have low multiplexity (Plickert, Cote, & Wellman, 2007). The two strategies are not mutually exclusive, that is, an individual may apply different strategies to construct his/her support network with different types of social ties. However, it is not clear whether friendship ties and kinship ties have the same network properties.

The preference between the two strategies may be regulated by relationship types. Given the limited resource an individual can invest in her social relationships, she may either have a few strong ties or many weak ties (Hill & Dunbar, 2003; Roberts, Dunbar, Pollet, & Kuppens, 2009).

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Stronger ties are reported to provide broader support than weaker ties, thus stronger ties have higher multiplexity than weaker ties (Wellman & Wortley, 1990). If an individual has a few strong ties, she may rely on the deep strategy for support; in contrast, if she has many weak ties, she will reply on the shallow strategy for support. Empirical evidence suggests that it is more costly to invest and maintain the strength of friendship ties than kinship ties. For instance, Roberts and Dunbar (2011) followed 25 UK students over an 18-month period as they made the transition from high school to college and found that the emotional intensity of friendships is more sensitive to decreases in contact frequency and shared activities than relationships with relatives are. If it is more costly to maintain the strength of friendships than kinship, we may expect an individual to prefer having a large number of friend ties with low multiplexity (the shallow strategy) for support. In contrast, the tradeoff between tie number and tie multiplexity is less important for relatives than for friends, we may expect an individual to equally prefer the shallow strategy and the deep strategy to derive support from relatives.

H3: People apply different strategies to derive support from friends and relatives. An individual would prefer the shallow strategy to derive support from friends. In contrast, an individual would equally prefer the shallow and the deep strategy to derive support from relatives.

The importance of friends and relatives in providing social support has long been recognized by researchers (Wellman & Wortley, 1990; Wellman, 1992). However, no study has explored the strategies that individuals rely on to derive support from friends and relatives. Moreover, very few quantitative studies compared the role of friendship and kinship in rural settings where people are living with their extended families (examples of qualitative studies: Reed-Danahay,

1999; Santos-Granero, 2007). To expand our current knowledge, I conducted the present study in a Tibetan village, Gashari, in the Huangnan Tibetan Autonomous Prefecture (TAP) in Qinghai province in China. Social support is important for the villagers because of the poorly developed infrastructure and welfare system in this region. The village residents rely on support from friends and relatives in a variety of domains, including agricultural work, household maintenance, childcare, long distance travel, and trade.

2. Methods

2.1 Field site

The data for the present study were collected during two one-month fieldwork seasons in 2012. Gashari village is largely composed of extended families with patrilocal residence, that is, a married couple that lives with the husband's parents, and the family usually consists of the husband's siblings and their families living nearby or in the same household. According to 2010 census data of Tongren County in Huangnan TAP, there were 213 households in the village, and the total population was 1,506. The subsistence economy includes wheat farming and herding of Tibetan yaks, sheep and goats, but the majority of household income comes from Tibetan thangka painting. Almost all Tibetan men in the village are thangka painters. Traditionally, the village residents traveled to distant places, such as Lhasa, Qumdo, and Sichuan Kangpa, to make and trade their paintings (Tang, 2010). They made extended trips, usually coming back to the village twice a year; first around the Chinese New Year when they helped their family to plant the fields, and second for the June Festival (a ritual ceremony for worshiping mountain gods, usually in the end of August) after which they helped their family with the harvest. Nowadays, roughly half of the villagers still follow this system and travel to distant places, such as Lhasa

and Beijing. The other painters work at studios in a nearby town (Tongren County, about 10 miles away from the village) or at home.

2.2 Participants

I recruited participants during the Chinese New Year and June Festival in 2012, when most Tibetan men were in the village. During the day, I visited households along each of the four major routes through the village, skipping households in which no one was present at the time, and continued until I had visited about 12 households along each route. Thus, the study covered about one quarter of the households in the village. I recruited one subject from each household; the selection of subjects was based on their availability and willingness to participate. The subject was not always the person who opened the door or the head of the household.

In total, I recruited participants from 49 households. Nine subjects failed to complete the survey because of an emergency or unplanned activity. The final sample included 40 participants, including 23 females (57.5%) and 17 males (42.5%). The age of participants ranged from 19 to 48, with a mean of 25.8 (± 0.8). Among male participants, 14 were married and 16 were thangka painters. Among female participants, 20 were married and 14 of these women were married to a thangka painter.

2.3 Survey instrument

I modified standard social support scales (Cohen & Wills, 1985; Sarason, Sarason, Shearin, & Pierce, 1987) to generate a list of culturally relevant types of help. In a pilot study, I tested the questions with randomly selected individuals in the same village ($N = 15$). In the pilot, I asked

them whether they understood the question, and whether they encountered this type of support regularly in their daily lives. I deleted the question in which more than half of people responded that they never or rarely encountered this type of support (e.g. *"Who can help you if you need to borrow a car for a few hours?"* in: Cohen & Wills, 1985). In addition, I asked them whether any important type of support was missing from the list. According to their responses, I added one item, "*Who can help you to buy a train, bus, or flight ticket*", into the survey. In the survey, each participant was asked to respond to 12 different questions about social support in one of three domains, i.e. instrumental, informational, or emotional (Table 1). For each question, the participant named three different helpers. In principle, for 12 questions combined, a participant could list a minimum of three and maximum of 36 different helpers.

For each unique helper, the participant reported the type of relationship with the helper, contact frequency with the helper, and his/her feeling of closeness to the helper. The Tibetan concept of kinship is similar to the Euro-American concept of kinship, i.e. people consider biological kin and affinal kin to be relatives, and can distinguish between them. The concept of friend was translated as *zang-ca* in Amdo Tibetan (the equivalent is *peng-you* in Mandarin). *Zang-ca* includes close friends and more distant friends, but rarely relatives. If a participant indicated that a helper was a friend, I asked them whether this was also a relative. If so, I categorized this helper as kin instead of a friend. An acquaintance was defined as someone whose name the participant knew and whom he could stop and chat with, but was not a relative or friend.

Contact frequency was measured on a scale which ranged from once a day (coded as 1), once a week (2), once a month (3), or once a year or more (4). For subjective closeness, I modified the

scale developed by Aron, Aron, and Smollan (1992) and I asked the participant to put each

helper's name into the appropriate circle (Figure 1). The position of the name in these circles

indicated the degree of closeness. Names in the innermost circle were the closest and those in the

outermost circle were the least close. Participants also reported how satisfied they felt about their

support network on a Likert-type scale (1 = very unsatisfied to 5 = very satisfied). The survey

was conducted in Mandarin. All participants had a good understanding of the survey questions,

and were able to communicate in Mandarin.

I also collected information about the participant's age, gender, geographic mobility (measured

by *the number of cities you have lived in for more than a month in the past year*), and home

proximity (measured by *how often do you see or visit your family*, *once a day*, *once a week*, *once

a month*, or *once a year or more?*). This information is summarized in Table 2.

3. Data Analysis

3.1 Motives for seeking support from friends and relatives

I calculated the number of friends and relatives that each participant named, and the total amount

of support received from each individual that was named. In a linear regression model, I

examined whether the number of friend ties was predicted by the number of kin ties. If naming

more relatives predicted naming fewer friends, it supports H1 that when relatives are available,

people are more likely to seek support from relatives than from friends. I also tested the effect of

age, gender, mobility, and home proximity on the number of friend ties one had in a linear

regression model.

3.2 The contribution of friend ties and kin ties

The 12 survey questions covered three domains of support: material, informational, and emotional. I examined whether people preferred friends or kin for a given type of support. Across 40 subjects, I calculated the number of friends and kin named as helpers for each domain, after controlling for the number of questions in each domain. I ran the Pearson's Chi-squared test to determine whether there was difference in the number of friends and kin distributed in each domain of support. If H2 is true, I would expect that the number of friends named for emotional and informational support was significantly higher than the number of relatives named in these domains. I also used an ordinal logistic regression model, to determine whether the number of friend ties and the number of kin ties had any effect on subjects' satisfaction with their support networks.

3.3 Network strategies

In the study, multiplexity is defined as the number of times a helper was named in response to the 12 questions in the social support survey. A helper could be named from one to 12 times. I calculated the multiplexity for friends, kin, and acquaintances separately. For each subject, the average multiplexity of each type of tie equals the sum of multiplexity of all helpers of a given type divided by the number of helpers of the given type. In a multilevel mixed-effects model, I tested the effect of relationship type (kin, friend, or acquaintance), contact frequency, and subjective closeness on the multiplexity of each tie.

If people apply the same strategy to derive support from different types of social partners, then each of a subject's helper would have the same multiplexity. For example, if a subject named

nine different helpers, then each would have a multiplexity of four (i.e. 36/9). I used this reasoning to generate an expected value of tie multiplexity for each helper. Knowing the relationship (friend or kin) of each helper with the participant, I generated new distributions of the multiplexity of friend ties and kin ties, which I treated as the expected distribution. I used the Mann-Whitney U test to determine whether the observed distributions differed significantly from the expected distribution among kin and friends, respectively.

To test which strategy (i.e. deep or shallow) people used to derive support from friends and from relatives, I did the following analyses. For each participant, the amount of friend support equaled the total number of times friend were mentioned; the amount of kin support equaled the total number of times kin were mentioned in the survey. In a linear regression model, I tested whether the number of friend ties or the multiplexity of friend ties predicted the total amount of friend support. I did the same analysis for kin ties.

All statistical and simulation analyses were conducted in STATA 12.0 (Stata Corp. 2012). Unless stated otherwise, all p values are two-tailed with $p = .05$ as the criteria for significance. When appropriate, I report means and standard errors.

4. Results

4.1 Motives for seeking support from friends and relatives

On average, participants named 14 different individuals as helpers (Table 3). Among these helpers, there were on average 7 friends (range from 1 to 20), 6 relatives (range from 1 to 15), and 2 acquaintances (range from 0 to 3). The composition of kin helpers was further broken

down into parents, siblings, grandparents, uncle/aunt, and cousins (Figure 2). None of the participants listed affinal kin as helpers. There was no significant difference between the number friends and relatives named in the support network ($z = -.28$, $n_1 = n_2 = 40$, $p = .78$).

I found that the number of friends named (ties, hereafter) was not significantly predicted by the number of relatives named ($b = -.06$, $t(38) = -.13$, $p = .90$). Age, gender, geographic mobility, and home proximity had no significant effect on the number of friends named (age: $b = .04$, $t(38) = 0.28$, $p = 0.78$; gender: $b = 1.75$, $t(38) = 1.11$, $p = .27$; mobility: $b = .10$, $t(38) = .15$, $p = .87$; home proximity: $b = 1.70$, $t(38) = 1.56$, $p = .12$).

4.2 The contribution of friendship and kinship in social support

I found that friends and kin contributed to support networks in significantly different ways ($\chi^2 (2, N = 40) = 22.14$, $p = .004$). Participants were more likely to go to friends than kin for emotional and informational support, but equally likely to go to kin and friends for material support (Figure 5). Participants who reported more friend ties were significantly more satisfied with their support networks than subjects with fewer friend ties ($b = .09$, $t(38) = 3.02$, $p = .004$). In contrast, the number of kin ties did not have significant effect on network satisfaction ($b = .03$, $t(38) = .45$, $p = .66$).

4.3 Network strategies

In the study, the average multiplexity of friend ties was 2.33 ($\pm .21$), which indicated that if the helper was a friend, the participant would go to him for about 2 different types of help. For relatives, the average multiplexity was 2.90 ($\pm .24$), and for acquaintances, 1.51 ($\pm .10$).

Relationship type significantly predicted the multiplexity of ties ($b = -.23$, $t(564) = -5.53$, $p < .001$). The average tie multiplexity of parents was 4.7, which was significantly higher than that of friends (Table 4). There was no significant difference in the average tie multiplexity among friends, siblings, and cousins. However, the average tie multiplexity of friends was significantly higher than that of grandparents, uncle/aunt, and acquaintances (Figure 3). Subjective closeness significantly predicted the multiplexity of ties ($b = .52$, $t(564) = 6.41$, $p < .001$), but contact frequency did not ($b = .14$, $t(564) = 1.34$, $p = .18$) (correlation matrix see Table 5).

The Mann-Whitney U test showed that the observed multiplexity of friend ties was significantly lower than expected ($z = -2.56$, $n_1 = n_2 = 40$, $p = .01$), while there was no significant difference between the observed and expected multiplexity of kin ties ($z = 1.53$, $n_1 = n_2 = 40$, $p = .12$) (Figure 4).

In the study, the total amount of support from friends was 15.42 (± 7.44); the total amount support from kin was 16.42 (± 6.82), and there was no significant difference between the total amount of support from friends and from kin ($z = -1.06$, $n_1 = n_2 = 40$, $p = .28$). The amount of friend support was significantly predicted by the number of friend ties ($b = 1.19$, $t(38) = 5.43$, $p < .001$), but not by the multiplexity of friend ties ($b = -0.44$, $t(38) = -0.72$, $p = .48$). The amount of kin support was significantly predicted by both the number of kin ties ($b = 1.15$, $t(38) = 2.35$, $p = .002$) and the multiplexity of kin ties ($b = 3.81$, $t(38) = 5.18$, $p < .001$) (correlation matrix see Table 6).

5. Discussion

The present study elicited the egocentric support networks of 40 residents in a Tibetan village. On average, participants named similar numbers of friends and relatives in their support networks. However, the average multiplexity of friend ties was significantly lower than the average multiplexity of kin ties. Parents had the highest tie multiplexity, while friend ties had the same level of multiplexity as siblings and cousins, and were higher than that of grandparents, uncle/aunt, or acquaintances. For each type of relationship, subjective closeness significantly predicted tie multiplexity. The participants in the study reported equal amount of support from friends and from relatives. However, the participants did not apply the same strategy to derive support from friends and from relatives. To derive support from friends, the participants preferred the shallow strategy (i.e. having a large number of friends, with each one only providing certain types of support) over a deep strategy (i.e. having a few close friends, with each one providing a broad range of support); they were equally likely to prefer the shallow and the deep strategy to derive support from relatives. In the study, friends were more likely to be named for informational and emotional support than relatives, but were equally likely to be named for material support as relatives.

The present study did not support the hypothesis that people would be more likely to seek support from relatives than from friends when relatives are available. Although all of the participants lived with their extended families, participants named similar numbers of friends and relatives in their support networks and reported equal amount of support from friends and from relatives. Moreover, the number of friend ties, but not the number of kin ties, predicted the participants' satisfaction with their support networks. The present study is consistent with evidence that non-kin relationships are important in small-scale societies. Hill, et al. (2011)

report that in foraging societies less than ten percent of individuals in residential groups are immediate kin and most individuals are not genetically related. Among the Hadza, hunter-gatherers of Tanzania, people reside in campus with nonrelatives and engage in entensive gift exchanges and food sharing with them (Apicella, Marlowe, Fowler, & Christakis, 2012).

In my study, participants were equally likely to go to friends and relatives for material support, while they preferred friends over kin for emotional and informational support. Both Tibetan men and women in the study reported that they shared their secrets with friends and talked with friends about relationships, marriages, work, and family issues. The previous study in the same village also revealed that friends are more likely to feel unhappy about the non-reciprocation of emotional support than material support (Xue, 2013). These findings do not support the argument that emotional support is more important for friends in North American than for friends in Asian cultures (Gummerum, et al., 2008). I also found that the participants were more likely to rely on friends than kin for informational support. Consulting friends is particularly beneficial for Tibetan thangka painters, who frequently travel out of town and have constant needs for job and trading opportunities. The findings suggest that friendships may benefit an individual in two ways: (1) by enhancing the same type of material support provided by relatives, and (2) by providing emotional and informational support that cannot be derived from relatives.

The present study supported the hypothesis that people use different strategies to derive support from friends and relatives. Some social scientists have argued that friendship and kinship are substitutive, but often depicted the substitution in terms of the number of partners (Fehr, 1996; Kazak & Wilcox, 1984). My study distinguishes different strategies of obtaining support from

friends and kin and suggests that even if friendships compensate for variation in the quantity of kin support, friendship is not an exact substitute for kinship. As predicted, the participants preferred the shallow strategy to derive support from friends, but equally preferred the shallow and the deep strategy to derive support from relatives. The preference was unlikely to be driven by the limited available number of relatives, because participants lived with close relatives and had extended family members in the same village. In contrast to kinship, friendship is costly to build and to maintain over time. Individuals need to spend time with friends to maintain closeness (Roberts & Dunbar, 2011), to track the help given and received among friends and reciprocate appropriately (Xue & Silk, 2011), and to evaluate the importance of themselves with their friends' social networks (DeScioli & Kurzban, 2009). For Tibetan thangka painters, in particular, it is may be advantageous to have a broad network of weak friend ties for long distance travel and trade.

One advantage of the approach taken in this study is that participants were primed to think about real life situations, not just asked to report the number of ties in their social networks. Thus, the survey captured active and relevant ties with friends and relatives (Binder, et al., 2012). It was also possible to examine tradeoffs in network strategies, i.e. between friendship ties and kinship ties, and between tie number and tie multiplexity. However, this approach did not generate an exhaustive picture of an individual's entire network, or the entire support network. Therefore, we do not know the baseline, that is, the number of friends and relatives an individual has and could potentially derive support from, and how that would affect individuals' network strategies. However, on average, participants named 14 different helpers (range from 7 to 35). The mean is roughly consistent with estimates from previous social network studies, which reported that the

size of support groups range from 0 to 14 individuals (Dunbar & Spoors 1995; Hill & Dunbar, 2003).

One limitation of the study is that participants were not a random sample of village residents. Although I sampled along the four major routes of the village and randomly picked households on each route, the selection of subjects within each household was based on their availability and willingness to participate. There were two possible biases in the selection of participants. First, there were more female participants (n = 23) in the study than male participants (n = 17). Although the present study did not reveal gender difference in the composition of support networks, a larger sample with equal number of male and female participants is needed to determine whether the results reported here are equally representative of men and women's support networks.

Second, the study was conducted in Mandarin, which is spoken by most young villagers (under 50 years old), but not by most older adults. One consequence of this is that the sample was biased toward residents under the age of 50. This may explain why children were not mentioned in the study as helpers, since most participants did not have children who were old enough to provide substantial amounts of help. It is possible the composition of support networks of older adults differ from those of younger adults. Studies in Japan and in some western societies reveal that the expectations about social support and the sources of social support are influenced by age, and that the association between the structure of social networks and health outcomes is stronger for older adults than for younder adults (Sugisawa, Liang, & Liu, 1994; Phillipson, 2001; Penninx, et al., 1997).

One puzzle of the current study is that none of the subjects mentioned their spouses as helpers. It is possible painters and their wives were less likely to rely on one another than on relatives or friends, because the painters spent so much of their time out of town while pursuing their careers. Previous work indicates that spouses provide important forms of social support (Cutrona, 1996; Wellman & Wortley, 1990). Although spouses are considered as importance source of emotional support in western societies (Wellman & Wortley, 1990), this is not always the case. For example, a study with married couples in North America showed that extroverted individuals show higher sensitivity to emotional support from spouse than did introverted individuals (Cutrona, Hessling, & Suhr, 1997). Straus (1980) suggests that marriage bonds sometimes introduce violence and stress instead of emotional satisfaction. In contrast to western societies, Tibetan wives are socially subordinate to their husbands, and that Tibetan women rarely discuss their personal feelings with their husbands and may even conceal their emotions in front of their husbands (Makley, 2002; Yang, 2006). In Gashari , women generally have lower social status than men, and most marriages are arranged by parents. It is possible that the participants did not seek emotional support from their spouses because of gender inequality or the lack of intimacy in their marriage.

The present study has important implications for our understanding of close social relationships and social support. First, the study reveals that friendships with non-relatives are important even when individuals are living with their extended families. Friendship should not be considered as a residual category that can only flourish when kinship weakens (Kazak & Wilcox, 1984). It calls for careful examination of the role of friendships and other non-kin relationships in

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societies where extended families are prevalent. Second, the study suggests that individuals may rely on different strategies to derive social support from different types of social partners. In addition, the study indicated that emotional support should not be considered as the characteristic of friendships in western cultures alone (Gummerum, et al., 2008), as in Gashari village emotional support is important among friends. Therefore, it calls for careful examination of the nature of friendship across cultures. In particular, future work on friendship and social support needs to (1) extend the range of cultures, with variations in subsistence systems, social mobility, and quality of welfare systems, (2) distinguish societies with institutional forms of friendship (e.g. blood brothers, sworn brothers, compadres) and those with more informal types of friendships, and (3) compare societies with widely differing kinship systems.

6. Tables

Table 1. Social support questions

Type	Questions
Material	Who would take care of you and help around the household, if you get sick?
	Who would you go to if you need to borrow a large amount of money?
	Who can take care of your precious belongings when you are out of town for a while?
	Who can help you to buy a train, bus, or flight ticket[‡]?
	Who would you go to for a ride to a distant place?
Informational	Who would you go to for job-related information?
	Who would you go to for advices on decision making?
	Who would you go to for tips on food, health and daily livings?
	Who would you go to for knowledge of traditional and cultural practices?
Emotional	Who can accompany you and make you feel you are not alone?
	Who would you disclose to or talk about your personal matters with?
	Who can comfort you when you are down?

[‡]"Buy train, bus, or flight ticket" does not involve paying money. It means standing in line and making reservation of tickets for someone else. This is useful given the limited availability of tickets in this region.

Table 2. Individual characteristics of participants

	Mean	*SD*	*Min*	*Max*
Age	25.78	5.19	19	48
Mobility	2.15	1.67	1	5
Home proximity	2.45	0.71	1	4
Network satisfaction	3.92	1.02	1	5

Table 3. The number of ties in an individual's support network

	Mean	*SD*	*Min*	*Max*
All helpers	14.2	5.75	7	35
Kin	6.0	2.76	1	15
Friend	6.7	4.85	1	20
Acquaintance	1.5	0.82	0	3

Table 4. Correlation matrix of tie multiplexity, relationship type, closeness and contact frequency

($^*p < .05$)

	Multiplexity	*Relation*	*Closeness*	*Contact*
Tie mpx	1.00			
Relation	-.23*	1.00		
Closeness	.26*	-.17	1.00	
Contact	.10	.008	.14	1.00

Table 5. Comparison between the tie multiplexity of friends and those of other social relations

(friend as the reference group, $^*p < .05$)

	Z	95% Conf. Interval	
Parent	8.63*	1.64	2.61
Sibling	-0.50	-0.56	0.33
Grandparent	-3.03*	-1.96	-0.42
Uncle/aunt	-2.99*	-1.72	-0.36
Cousin	-0.78	-0.85	0.28
Acquaintance	-3.52*	-1.51	-0.50

Table 6. Correlation matrix of tie number and average tie multiplexity ($^*p < .05$)

	Kin number	Friend number	Kin mpx	Friend mpx
Kin number	1.00			
Friend number	-.03	1.00		
Kin mpx	-.29	-.67*	1.00	
Friend mpx	-.28	-.55*	.29	1.00

7. Figures
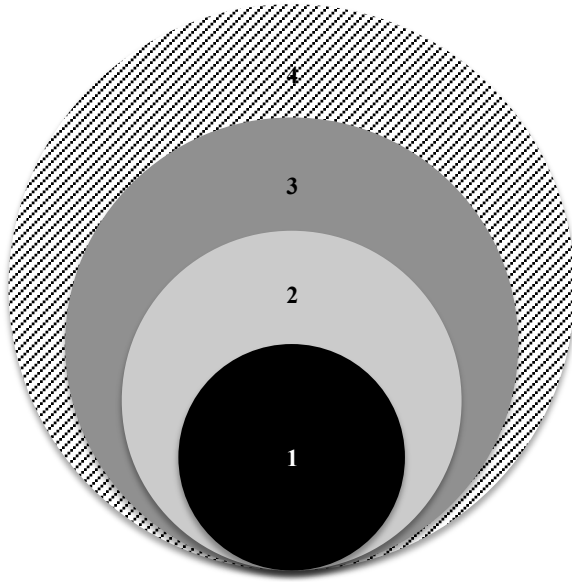
Figure 1. Subjective closeness scale. The position of the name in these circles indicated the

degree of closeness, from 1 (the closest) to 4 (the least close).
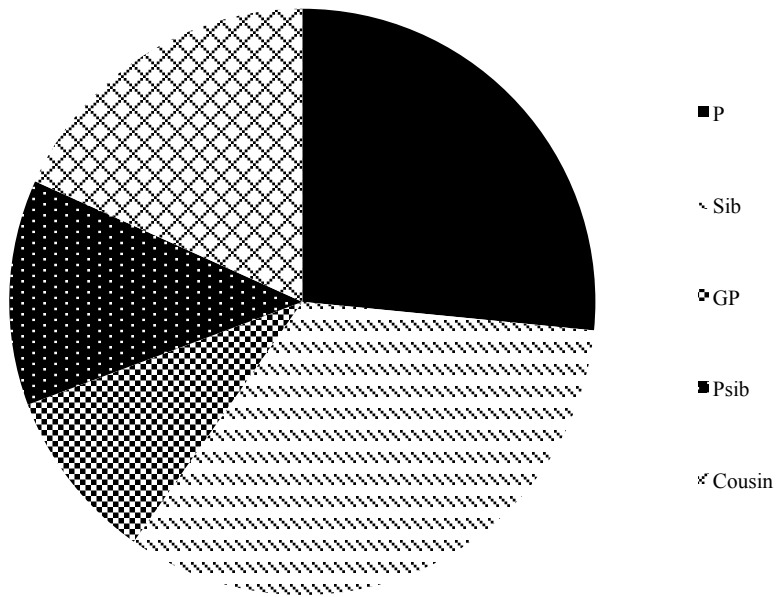
Figure 2. The composition of kin ties. P = parents, Sib = siblings, GP = grandparents, Psib = uncle/aunt, and Cousin = cousins.
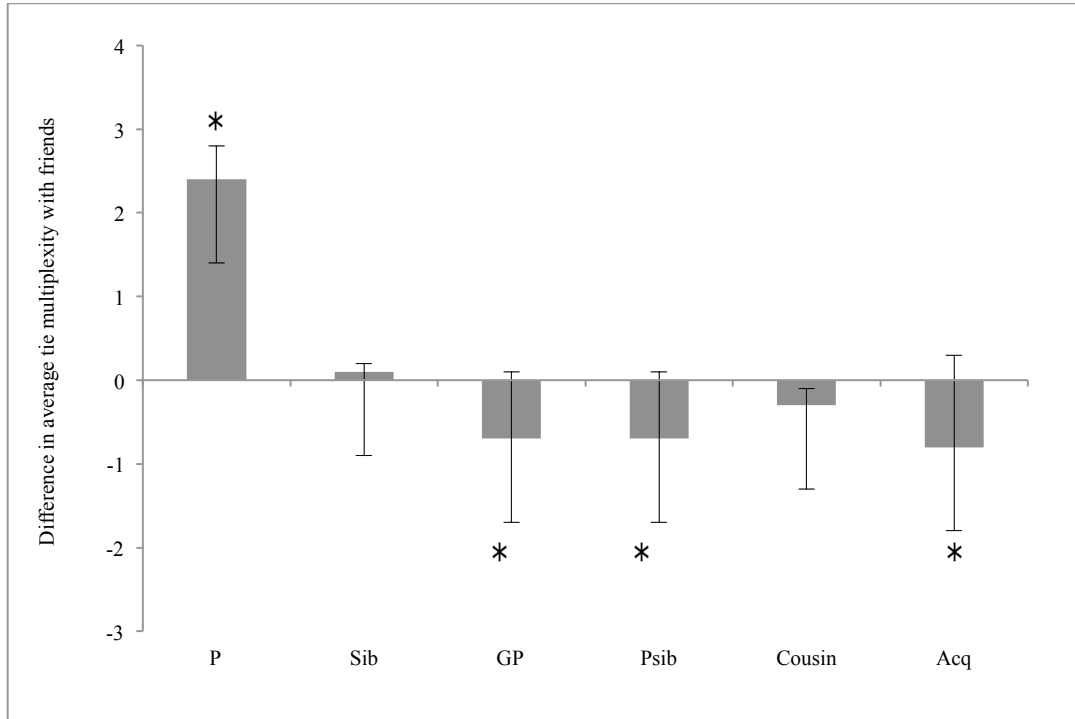
Figure 3. Difference in the average tie multiplexity between other relationships and friendship. The bar showed ± SD, $^*p < .05$. P = parents, Sib = siblings, GP = grandparents, Psib = uncle or aunt, Cousin = cousins, Acq = acquaintances.
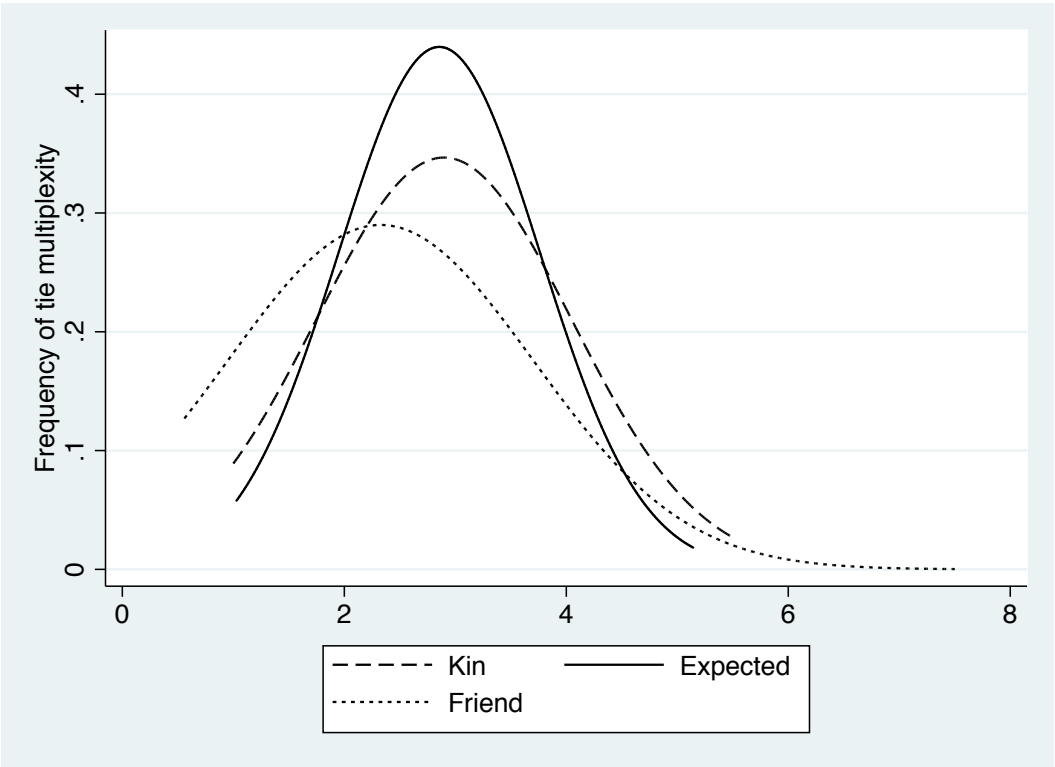
Figure 4. The observed and expected frequency of tie multiplexity of friends and relatives.
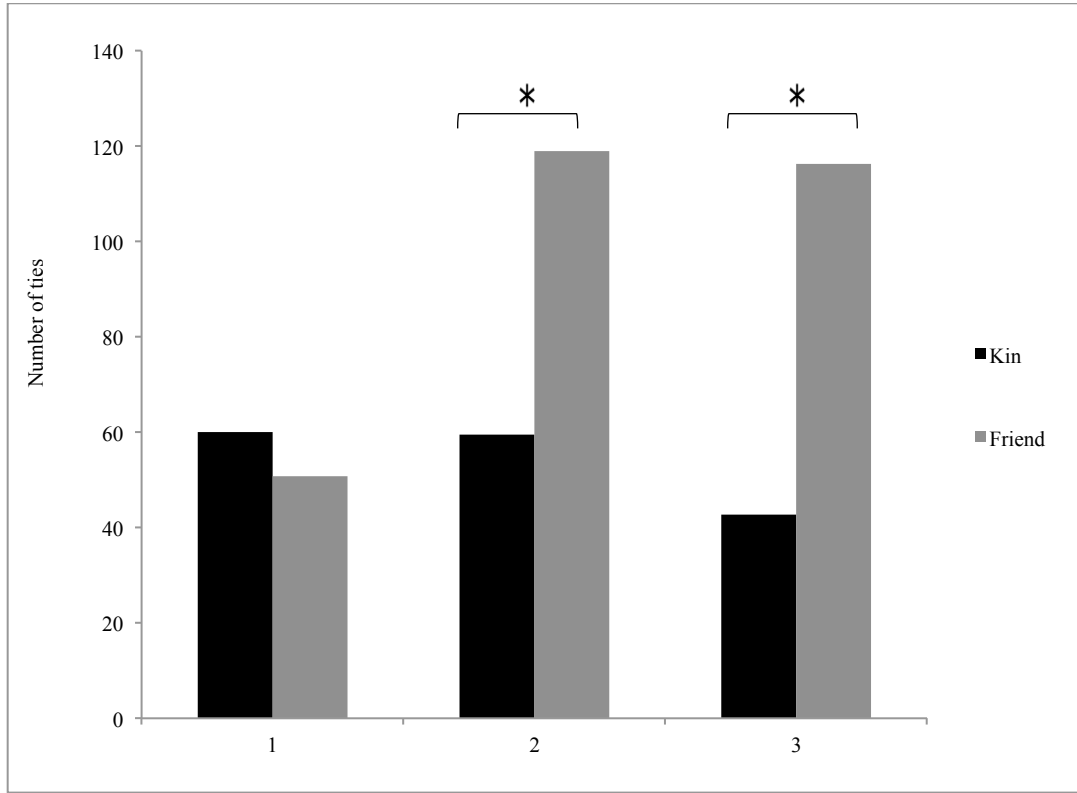
Figure 5. The average number of kin ties and friend ties in each domain of support. 1 = material support, 2 = informational support, 3 = emotional support ($^*p < .05$).

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Chapter 4 Gift Giving and Recordkeeping Across Cultures

Abstract

Gift giving is a nearly universal practice and gifts have special cultural importance in many societies. Previous studies on gift giving focused on the practice of exchange and norms associated with gift exchange, but largely ignored the form and function of recordkeeping in gift exchanges. Moreover, there is no study on the recordkeeping of gift exchange in naturalistic settings, or systematic study on the pattern of bookkeeping in gift exchange across cultures. In the present study, I investigated gift giving and recordkeeping in Gashari, a Tibetan village in Huangnan Tibetan Autonomous Prefecture in Qinghai province in China. Extending from the Tibetan sample, I also examined the pattern of recordkeeping in gift exchange across cultures, using information extracted from eHRAF (Human Relations Area Files) World Cultures database. The study suggests that direct reciprocity is important in the practice of gift exchange in Gashari and in many other cultures. My study also reveals that people care about their own reputations and reputations of others in gift exchanges, and transgressions are subjected to social sanction in Gashari and in many other cultures. In sum, the present studies suggest that evolutionary models of direct reciprocity and indirect reciprocity both partially explain gift exchange and recordkeeping in various cultures.

1. Introduction

Gift giving is a nearly universal practice and gifts have special cultural importance in many societies. Previous studies on gift giving focused on the practice of exchange and norms associated with gift exchange, but largely ignored the form and function of recordkeeping in gift exchanges. Moreover, there is no study on the recordkeeping of gift exchange in naturalistic settings, or systematic study on the pattern of bookkeeping in gift exchange across cultures. In the present study, I investigated gift giving and recordkeeping in Gashari, a Tibetan village in Huangnan Tibetan Autonomous Prefecture in Qinghai province in China. Extending from the Tibetan sample, I also examined the pattern of recordkeeping in gift exchange across cultures, using information extracted from eHRAF (Human Relations Area Files) World Cultures database.

1.1 Forms of gifts

Some gifts are efficient, because the recipient can benefit directly from the gifts. For instance, Yan (1996) suggested that gifts given in a village in northeast China, such as flours, sugar, and cash, can substantially cover the expense of the recipients in cases of funeral, wedding, childbirth, or sickness recovery. Some gifts are inefficient, such as perishable flowers, candies, or an overpriced dinner, which do not seem to have direct usage to the recipients, thus are not economically efficient. Camerer (1988) argued that inefficient gifts are better signals than efficient gifts to reveal an individual's intentions about future investment in a relationship. He also suggested that accepting an inefficient gift instead of its cash equivalent imposes an opportunity cost to the receiver; therefore incurring such cost is simultaneously a signal of the giver's intentions and of the recipient's intentions.

Gift giving is common and important practice in Gashari. The village residents frequently exchange material goods, such as sugar, flour, butter, tea, and cash, and provide labor for both relatives and nonrelatives on social occasions, including house building ceremonies, funerals, weddings, and Buddhist chanting sessions. The villagers consider material goods, cash, as well as labor helping exchanged in social events as "gifts" (Tibetan: རྫོང་ཚན་གསུམ་པ། ཡང་འཇུག, Mandarin: 礼物), and keep a written record of these gifts in special gift books. There are three reasons that I consider gifts exchanged in social events in Gashari village as efficient gifts. First, some small material goods, such as tea, home-made bread, and sugar, are conventional gifts to give in social events. Although the cost of these items is not substantial nowadays, they were expensive to buy or to make in previous times, when transportation and market were poorly developed in the area (Yang, 2006). Second, along with material goods, the villagers also provide labor help, and increasingly, cash gifts in social events. The amount of time spent on helping and the amount of cash are not always trivial. The collective labor and the cash received in a social event do provide direct benefits to the recipient. Third, the villagers care about the reciprocity of material goods, labor helping, and cash gifts, and carefully keep records for the exchange of these gifts. Therefore, I consider the gifts are costly to the donor and provide benefits to the recipients.

What are evolutionary forces shaping the motives of gift giving and recordkeeping in Gashari village? Altruism among genetically related individuals is favored by kin selection when it increases the helper's inclusive fitness (Hamilton, 1964). Evolutionary models explaining the exchange of costly help among non-relatives include reciprocal altruism (Trivers, 1971) and indirect reciprocity (Nowak & Sigmund, 1998). The model of reciprocal altruism suggests that

unrelated individuals may be sensitive to the dynamic of contingent reciprocity in exchanges of costly forms of help, i.e. I will help you, if you have helped me (Trivers, 1971; Axelrod & Hamilton, 1981). Some scholars suggest that indirect reciprocity can promote altruism within a group, i.e. third parties will help individuals with an altruistic reputation as a means to enhance their reputation (Alexander, 1987; Nowak & Sigmund, 1998). If indirect reciprocity is operating, there is no expectation of direct reciprocation. These two models generate different predictions about the motives for gift giving and the kinds of information that people should keep track of when gifts are given.

1.2 Direct reciprocity

If gift exchange is regulated by direct reciprocity, gifts given to a partner should be contingent on previous gifts received from this partner. Strict reciprocal strategies, such as tit-for-tat predict that an individual should stop providing help to a partner if the partner failed to reciprocate help received from the individual in the past. However, the strict reciprocal strategy makes cooperation or cooperative relationships quite vulnerable to a single defection (McElreath & Boyd, 2008). Theoretical models suggest that tolerant strategies are more stable than strict tit-for-tat reciprocity (Bendor, Karamer, & Stout, 1991; Hruschka & Henrich, 2006), and people seem to use tolerant strategies in real life situations (Clark, 1984; Silk, 2003). As reciprocal altruism requires individuals to have reasonable probability of interacting again in future, the quality of relationship may influence opportunity for reciprocity, and this may influence the extent of tolerance in reciprocity. One behavioral experiment suggests that there is an important distinction between tracking and tolerance among friends and strangers (Xue & Silk, 2011). The researchers conducted parallel behavioral economic games with college students in the US,

China, and Japan and found that participants in all three sites kept track of what their friends did in a cooperative task, but they monitored their friends less accurately than they monitored strangers. In Gashari, I found that villagers were more resilient to imbalances in the exchange of social support with close relatives and friends than with acquaintances (Xue, 2013).

Although individuals may exhibit different levels of tolerance towards different partners, if direct reciprocity is important, individuals are expected to monitor the behavior of their partners and terminate cooperative relationship with partners who do not contribute at threshold levels (Bendor, Karamer, & Stout, 1991; McNamara, et al., 2009). If gift exchange is regulated by direct reciprocity, individuals are expected to keep track of gifts given to and received from their partners. In social events, gifts are usually exchanged among a large number of individuals. With a large number of participants, variations in the amount or type of gifts, and variable time lag between giving and receiving gifts, it is likely to be difficult for individuals to remember accurately who gave what in gift exchange events. In this case, written records provide long-lasting information with high fidelity as an external mnemonic device (Mullins, et al., 2013; Basu & Waymire, 2006). Thus, we would expect both gift donors and recipients to keep written records, such as gift books, to keep track of the history of gift exchange. As the written records assist dyadic reciprocity, such records do not have to be public.

1.3 Indirect reciprocity

The model of indirect reciprocity suggests that an individual may help another without the expectation of direct return benefit. An individual can acquire a positive reputation through helping an altruistic individual or punishing a non-altruistic individual (Nowak & Sigmund,

2005). The model of indirect reciprocity requires individual behaviors to be observed, remembered, and shared with others in the social network (Leimar & Hammerstein, 2001; Nowak & Sigmund, 2005). Such social monitoring helps to deter transgressors and to promote norms of helping among individuals (Haley & Fessler, 2005; Bateson, et al., 2006). If the exchange of gifts is regulated by indirect reciprocity, individuals should keep track of the reputation of their partners and their own reputations when they make gift giving decisions.

However, indirect reciprocity is challenging in large groups (Boyd & Richerson, 1989). First, reciprocal acts in large groups are more numerous and heterogeneous, which impose heavy psychological demands on tracking (Trivers, 1971), especially when individuals need to track interactions over long time scales (Melis & Semmann, 2010). Second, social exchanges require the computation of various cost/benefit ratios and complex forms of reciprocity (Boyd & Richerson, 2006). Finally, all the information of transactions and individual reputation associated with social exchanges need to be stored and readily recalled at a high fidelity to serve as a guide for future behavior (Mullins, et al., 2013).

Recent examinations on the role of writing in the evolution of human cooperation suggest that recordkeeping facilitates the construction of external mnemonic devices for the tracking of large numbers of heterogeneous interactions, which reduces computational problems posed by increases in reciprocal behaviors (Postgate, et al., 1995; Trigger, 2004; Mullins, et al., 2013). Moreover, writing and recordkeeping systems provide long-lasting and verifiable records of various variables in a given reciprocal exchange (Goody, 2000; Basu & Waymire, 2006). Behavioral experiments in western societies reveal that the level of cooperation in a group is

enhanced by providing measures of individual's past cooperative behavior in public goods games (Wedekind & Milinski, 2000; Milinski, et al., 2002). Across societies, there is an association between literacy and the size of complexity groups (Basu, et al., 2009). In an experiment, Basu, et al. showed that recordkeeping promotes reputation formation and maintenance.

In the case of gift exchange, multiple individuals are involved in social exchange simultaneously and repeatedly (Yan, 1996; Komter, 2007). Beyond recording dyadic transactions, gift books can serve as a system of social monitoring and facilitate reputation building within a social group. For instance, Yan (1996) pointed out that village residents in northeast China tend to evaluate the generosity of other villagers and talk about norm-abiding behavior of others based on records in gift books. In a gift-giving event, the gift recipient is the hub of the flow of gifts, thus has the highest network centrality (Borgatti, 2005). Information of gift exchange can be more efficiently and accurately recorded by the recipient in one event than through accumulating records from different donors at separate occasions. Thus, for the purpose of social monitoring, it is more efficient for the recipient than for the donor to keep records of gift exchanges. If indirect reciprocity influences gift exchange, then information recorded in gift books should be publicly available individuals should be aware that their behaviors in the gift exchange have been monitored, recorded, and also shared by others (e.g. via gossip). If the gift book serves as a social monitoring system, we need to further investigate how individual reputations are formed and spread in a social group, who is responsible for social sanctioning, and how non-reciprocation is punished.

2. Gift Giving and Recordkeeping in Gashari Village

2.1 Methods

Field site

There were 213 households in Gashari village, and the total population was 1,506 (according to 2010 census data of Tongren county in Huangnan TAP). The subsistence economy includes wheat farming and herding of Tibetan yaks, sheep and goats, but the majority of household income comes from Tibetan thangka. Thangka is a painting on silk or canvas, usually depicting a Buddhist deity, scene, or mandala. The majority of Tibetan men in the village are thangka painters. Traditionally, men traveled to distant places, such as Lhasa, Qumdo, and Sichuan Kham, for extended periods to make and trade their paintings. Men returned to the village twice a year: around the Chinese New Year when they helped their family to plant the fields, and again for the June Festival (a sacrifice ceremony for the mountain gods) after which they helped their family with the harvest. Roughly half of the men in the village still follow this system and travel to distant cities, such as Lhasa and Beijing. The other painters work at home or at studios in a nearby town.

Gashari village is largely composed of extended families with patrilocal residence, that is, a married couple that lives with the husband's parents, and the family usually consists of the husband's siblings and their families living nearby or in the same household. The Tibetan concept of kinship is similar to the Euro-American concept of kinship, i.e. people consider biological kin and affinal kin as relatives, and can distinguish between them. The households in the village are also categorized into several tribes (*cuo-wa* in Tibetan), a heritage preserved since the Mongolians migrated from the northeast to Rebgong area (the valley where Gashari village is located) in the 17th Century. Gashari village consists of four different tribes. Tribe members are

relatives, but are not necessarily close relatives. The distinction between each tribe was largely based on geography, i.e. relatives living close to each other were historically categorized into one tribe. Although families have moved over time, village residents have good knowledge about who belongs to their own tribe, and there are explicit obligations to tribe members. The Gashari villagers can also identify friendship ties among nonrelatives. The word of friend is translated as *zang-ca* in Tibetan. The concept of friend may include close friends and more distant friends, but not relatives. Gashari villagers consider an acquaintance as someone they know by name and can stop and chat with, but not a relative or friend.

Sampling

The data were collected during my fieldwork seasons in 2011 (2 months) and 2012 (8 months). Gifts are exchanged in formal social events in Gashari village. Every household keeps gift books, which record gifts received from guests in social events. However, the Gashari villagers rarely share their gift books with others in public. As a consequence, I recruited participants through the technique of chain referral (Bernard, 2011), i.e. I asked the participant to refer another villager who would be willing to show me his gift books and to be interviewed. I conducted in-depth interviews with 25 individuals, who were the heads of households. The household heads showed me one or several types of their gift books. In total, the interviews generated information from 37 gift books. I also conducted participant observation in ten social events, including three house building celebrations, one wedding, two funerals, and four Buddhist chanting sessions from 2011 to 2012.

Interview questions

The interview questions included, (1) what are specific norms of gift giving and helping associated with different types of social relationships for each occasion? (2) What was recorded on gift books? And (3) how did the household head use the gift book to practice gift exchanges? Based on information recorded on the gift books, I asked the household head to identify different types of social relationships among all guests recorded in the gift book: tribe relatives, non-tribe relatives, and nonrelatives.

In addition, I asked the household head to identify two types of ties based on the sensitivity to reciprocity: (1) tolerant ties—the participant would still send gifts and provide help even if this person did not give gifts or come to help the participant on the previous occasion; and (2) intolerant ties—the participant would give gifts or provide help only if this person has sent gifts or provided help to the participant on the previous occasion. In the interview, I also asked the household heads to rank the importance of reciprocating an equivalent amount for different types of gifts (i.e. material gift, money gift, labor) to tolerant and intolerant ties.

2.2 Results

Gift giving occasions

I collected 37 gift books from 25 household heads. The gift books cover seven types of social events, including house building celebration (n = 11), funeral (n = 5), Buddhist chanting sessions (n = 12), sickness care (n = 3), wedding (n = 3), birthday celebration (n = 2), and childbirth (n = 1).

Gifts are exchanged among a large number of individuals in social events (Table 1). In contrast,

the informal exchange of gifts usually occurs between two individuals, such as the gift for visit or anniversary gifts. For social events, the host rarely sends out formal invitations (e.g. an invitation card). Instead, the host usually tells some of his relatives and friends in the village about the type of the event and the date through face-to-face communication or through phone calls. Some people keep a checklist for phone calls, in order to make sure they have informed everyone they would like to invite, especially relatives and friends who are living in other villages. The news of the event will soon be spread out through the network of relatives, friends, neighbors, and co-workers. Thus, not all people who came to the event were invited directly by the host. It would not be considered impolite if a person came without being invited, as long as he brought gifts or lent a helping hand. Guests know by convention what to bring and how to help for each kind of events.

Norms of gift giving and helping in Gashari village

In each social event, there are different norms of gift giving and helping associated with different types of relationships. I will use house building celebration and funeral ceremonies for examples. House building celebrations are usually held when most of the construction has been completed except the roof of house and some interior decorations. In the morning of the house building celebration day, the tribe members of the host family come and help with carrying mud onto the roof and ramming the roof. For tribe members, at least one person per household is required to come and help. Non-tribe members are welcomed to help, though they are not obliged to do so. All villagers, including tribe relatives, non-tribe relatives, and nonrelatives, bring gifts to the host family on the celebration day. Gifts include tea, homemade bread (*mo-mo* in Tibetan) and cash. There is no explicit norm about how much cash to give as gift. The roof construction normally

takes about half a day. When it is done, the host family sets up firecrackers to celebrate the completion of the house construction. The host family serves hot tea and bread to their guests. Usually, the household head will also share cigarettes, beer or white wine with other male guests.

During funerals, male tribe members gather before dawn at the home of the family of the deceased. They wait until the lama (an honorific title conferred on a monk to designate a level of spiritual attainment and authority to teach) from the local monastery finishes praying for the deceased, and then carry the body up the hill behind the village for cremation or burial. Female tribe members and other relatives stay with the family of the deceased to help with cooking, cleaning, butter lamp lighting, praying, and chanting. All residents of the village and relatives in other villages bring gifts to the family of the deceased. Conventional funeral gifts include tea, white sugar, butter, wheat flour, and cash. As in house building celebrations, there is no explicit norm about how much money to give as gift. Tribe members and other close relatives and friends may continue to visit for a few more days, to assist with cooking, praying, and taking care of daily chores of the family of the deceased. There is no set convention about the number of days they will stay. Forty-nine days after the death, the family holds a Buddhist chanting session at home and invites lamas and monks from the monastery to pray for the deceased to release the soul from purgatory. Female tribe members are expected to help cook for the lamas and monks on that day.

Gift books in Gashari village

Gashari villagers only keep gift books for the exchange of gifts in formal social events. At the event, the household head usually asks one of his relatives or a literate person, such as a

schoolteacher, to make the entries in the gift book. When the guests come and present their gifts, the host greets them and passes the gifts to the accounting person. The accounting person will write down who brings what in the gift book. On the first page of the gift book, he writes down the date (sometimes only the year) of the event, the type of event, and the name of the household head. The gift book usually takes the format of a "spreadsheet", with the name (sometimes also with identification information, such as work group number, village residency) of the gift giver on each row, and different types of gifts in separate columns. In each cell, the gift amount is given (Fig. 1). The household head keeps separate gift books for different types of event, i.e. house building celebrations in one book, and funerals in another. Thus, each household keeps several different gift books.

Gift books are kept by the head of the household and are passed down from generation to generation. As Gashari village is largely patrilocal in residency, the gift books are passed from the father to the oldest son, who will stay in the household after marriage. Interestingly, the household is the unit of gift exchange, and the individual that takes over the gift book also takes on the obligation to reciprocate. For instance, if a father received a gift from a friend for his 60th birthday and then passed the gift book to his oldest son, the oldest son would be responsible for making a reciprocal gift to his father's friend when the friend had his birthday celebration. In the village, younger sons usually move out when they get married and build their own houses. When they hold house building celebrations, they establish their own gift book records and become independent units of reciprocation.

In Gashari village, there is no equivalent written record for gifts given out. The villagers could

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not provide a clear explanation for why they did not keep track of gifts given out. Some villagers explained that they simply did not track what they had given to others, as gift giving was motivated by the need of the recipient or the intimate relationship with the recipient. Some other villagers indicated that as there were certain norms of giving and helping, the type of gifts and the amount of gifts were somewhat formalized, so that they could easily recall what they had given to others under certain circumstances. Moreover, people do not keep gift books for informal gift exchanges. Records of loans or financial transactions are sometimes kept, but they are not included in gift books.

The gift book provides villagers two levels of information for reciprocation, i.e. dyadic exchange (what the other gave last time) and how much other villagers normally give on the same type of occasion. In most cases, the reciprocation of material goods is in-kind and equivalent to the original gift. This may be because the type and amount of material gifts are relatively conventional. For instance, the villagers usually brought one bag of tea and two homemade breads for house building celebrations. In contrast, there is more flexibility in the amount of money given. The villagers also pointed out that it is desirable to give a slightly larger amount of money than previously received. However, this depends on the quality of the relationship between the giver and the recipient, and the time lag between giving and reciprocation. One household head indicated that, "you don't have to raise the stake for people who are distant to you, such as an acquaintance in the village or a distant relative. You increase the amount of money gift for those who have close relationships with you." Moreover, if the time lag between giving and reciprocation is long, villagers rely on what others have recently given in similar situations. One household head gave me an example. Twenty years ago, his father's friend gave1

RMB for his father's 60th birthday (note: Tibetans only hold social event to celebrate their 60th and the 80th birthdays). He would not simply return 1 or 2 RMB to this friend for his 80th birthday. Instead, he would give the amount of cash other people now give for birthday celebrations, which is 50 RMB, plus bags of tea and butter.

Reciprocity with gift books

Reciprocity is important in gift exchanges in Gahsari village. The household heads distinguished between tolerant ties and intolerant ties. In general, intolerant ties are more common than tolerant ties (Fig 2). Both tolerant ties and intolerant ties consist of tribe kin, non-tribe kin, and nonrelatives. Tolerant ties usually consist of close relatives and friends. However, there is no clear cut between tolerant and intolerant ties among an individual's social network. The distinction between the two types of ties varies in different gift giving occasions. For instance, two household heads provided both gift books for house building celebrations and for funerals. Both of them identified particular partners as intolerant ties in the house building celebrations, but the same partners as tolerant ties in funerals in their gift books. It indicates that the sensitivity to reciprocity depends on the type of social relationship and the type of gift giving occasion.

For non-tribe kin, the participants identified greater number of tolerant ties than intolerant ties across all gift exchange occasions. In contrast, for nonrelatives, the participants indicated greater number of intolerant ties than tolerant ties across all occasions. For tribe kin, the participants identified more intolerant ties than tolerant ties in house building celebration and Buddhist chanting sessions. However, they identified more tolerant ties than intolerant ties among tribe kin in funerals. As deaths are unpredictable and funerals usually impose considerable cost on the

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families of the deceased, gift giving and helping can buffer risk. This suggests that the motives for giving and the sensitivity to reciprocation may be linked to the recipients' needs.

The gift books reveal that, on average, partners with tolerant ties contributed larger amounts of money than partners with intolerant ties across all gift exchange occasions (Fig. 3). Although the household heads did not apply the Tit-For-Tat form of reciprocity to tolerant ties, they kept track of gift exchanges and were aware of imbalances in gift exchanges with tolerant ties based on the record in their gift books. Among the 25 household heads, 17 indicated that they had the experience that a partner with tolerant tie did not send gift or did not come to help in their social event. The household heads reported that they did not stop giving or refuse to help upon a single non-reciprocation. When they noticed that a partner did not reciprocate their gifts or did not attend their events, they first went to the partner to figure out if there was anything wrong with their relationship, or if the partner had any difficulties. After fixing the problem, they continued the gift exchange relationship with the partner. All household heads had the experience of non-reciprocation from an intolerant tie. Unlike tolerant tie, the household head did not communicate with the partner who did not reciprocate appropriately, but simply stopped giving gift next time.

The distinction between tolerant and intolerant ties reveals sensitivity to reciprocation, but does not specify how important balanced reciprocity is. In the interviews, participants ranked the importance of balanced reciprocity for tolerant ties in the order of: money > labor > material goods. There was considerable variation in the amount of money given by tolerant ties. For instance, monetary gifts varied from 0 to 1,000 RMB (18.1 ± 3.0) (mean ± SE) in house building celebrations, and from 0 to 1,600 RMB (43.3 ± 7.7) in funerals. The recipients carefully tracked

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the amount of money received from tolerant ties, and reciprocated an equivalent or a slightly larger amount. For intolerant ties, the participants ranked the importance of balanced reciprocity in the order of: labor > money > material goods. The ordering may reflect the fact that individuals gave small amounts of money to intolerant ties. For example, the money received from intolerant ties ranged from 0 to 50 RMB (3.1 ± 0.2) in house building celebrations, and from 0 to 150 RMB (5.4 ± 0.3) in funerals. It suggests that the household heads also exhibited different levels of sensitivity to different types of gifts. The more costly the gift is, the more important balanced reciprocity is.

Reputation building through gift exchange

In general, gift books are not supposed to be shown to the public. If the household heads lent me their gift books, they would advise me not to show these books to others. Most participants did not provide a specific reason for this. They simply reported that they felt uncomfortable if others saw their gift books. One household head provided a possible explanation, "You don't want to show off how much you received, or you don't want to shame people who might have brought smaller gift than others." In the same line, some household heads suggested that individuals should not send expensive gifts in order to show off one's wealth. One household head commented that, "You can give another one a large amount of money as gift, such as 1,000 RMB, if you two have a very close relationship. However, everyone should be humble. An individual should not be judged by how much money he has."

Besides the head of the household and his wife, certain people are able to see the gift book in some circumstances. These people include their closest relatives and friends, the shaman, or

well-respected people in the village. The head of the household would show the gift books to

their closest relatives or friends if they would like to consult about holding a social event. The

shaman or well-respected people in the village would visit households to examine their gift

books upon detecting an individual who did not engage in the exchange of social support or did

not reciprocate favors given by others. During my observation at the June Festival (a sacrifice

ritual to the mountain gods before the harvest), the shaman, in the state of being incarnated by

the mountain god, made public announcements in which he accused people of such social

transgressions. In one case, the villager, who was said to not give or reciprocate without an

appropriate reason, was beaten by the shaman in public. It suggests that gift books in Gashari

village help to document individual behavior, which is subject to social monitoring and social

sanctions.

The household heads indicated that they never used gift books for direct disputes about

imbalance in gift exchange. However, they reported that villagers do talk about their gift books,

usually through gossip. For example, one household head pointed out a name on the gift book to

me. This guest and the household head were in the same tribe. However, the guest only brought 1

RMB for his father's funeral, while other tribe relatives brought at least 10 RMB, plus bags of

tea, flour, and sugar. This man was recognized as behaving impolitely and inappropriately.

Overhearing my interview with the household head, two elderly people sitting around us added

their comments, "This guy is bad. His father died too early and he does not know how to behave."

They also told me that this man had a difficult time recruiting help from other villagers for

agricultural work during the harvest season. He had to spend a considerable amount of money to

hire people from outside to work on the farm. This suggests that individual behavior and

reputation formed through formal social events may affect the exchange of social favors on other occasions. With gossip and the verbal sanctions, Gashari villagers are aware that their behavior is being monitored by others and that transgressions can lead to the loss of reputation or social exclusion.

3. Gift Giving and Recordkeeping Across Cultures

Extending from the Tibetan sample, I did a survey on the eHRAF World Cultures database to investigate the pattern of recordkeeping of gift exchange across cultures. The eHRAF World Cultures contains 280 cultures that are specifically chosen by anthropologists in the 1960s to ensure a representative coverage of peasant and small-scale societies around the world. In order to derive excerpts that contain information about account keeping in gift exchanges, I searched three sets of keywords: "gift + account", "gift + record", and "gift + book". I also enabled the flexibility of searching, so the keywords may also contain gifts, gift-giving, accounting, booklet, and recording, etc.

I reviewed each excerpt and located 111 excerpts with explicit description of account keeping of gift exchange, derived from 61 societies across eight geographic areas (Table 2). These societies cover a wide range of subsistence types, ranging among horticulturalists, settled farmers, pastoralists, hunter-gatherers, and merchants.

These excerpts cover gift exchanges in various occasions (Table 3; also see supplementary material for the coding of occasions). Among them, 6 excerpts indicate that it was dyadic exchange of gifts. The other 105 excerpts describe situations where more than two individuals

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were involved in the exchange of gifts, such as weddings, funerals, and social ceremonies, etc. 54 excerpts indicate that the return gift is expected to be equal to the original gift; seven excerpts indicate the return gift needs to be equal or larger than the original gift; one excerpt indicates that the value of return gift may be smaller than the original gift; and 49 excerpts do not provide any information about the value of returning gift. These results suggest that balanced reciprocity seems important in gift exchanges in various occasions.

Among the 61 cultures, 49 cultures indicate that it was the receiver who keeps gift account. In the other 12 cultures, both the receiver and the giver had some forms of bookkeeping for gift exchange. It suggests that the account keeping of gift exchange may be more important for the recipient than for the donor in various cultures. When it was the recipient who kept gift account, gifts were often given by a large number of donors in a social event, such as wedding, funeral, and social rituals. For example, the Shokleng hunter-gatherers recorded gifts received in a wedding ceremony, such as knives, cups, shirts and blankets, (Urban, 1993). Javanese boys who have been newly circumcised keep careful accounts of what they have received from other villagers in the ceremony, so they can make accurate returns in the future (Jay, 1969).

The excerpts also indicate that people may keep gift account as a form of social monitoring, which promotes social norms of helping and cooperation. For instance, in Croats' wedding ceremonies, people use gift accounts to compare gifts given by guests on the bride's side and gifts given by guests on the groom's side (Gilliland, 1986). In a Sherpa village, villagers sent food and money to monks and abbots as donation gifts (Adams, 1992). However, villagers demanded that the monks announce the contribution of each individual based on their records.

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Because the gifts were given for the merit of the giver and all other villagers' next lives, those who contributed less than others felt "in debt" to more generous contributors and were expected to take more responsibilities in other religious practices.

I also examined cases in which both the donor and the recipient kept gift accounts. I found that it occurred when the exchange of gifts was between dyads (in Kazkh, Seminole, Tlingit, Maori), between trading partners (in Monguor, Assiniboine, Cherokee, and Ojibwa), between individuals with different social status (in Gond and Omaha), and when it was inheritance gift (in Vedda and Belau). For instance, in Kazakh, friends (who swear to be tamyr to one another) took turns visiting each other and brought gifts, including cattle and other goods (Hudson, 1938). Both parties carefully recorded gifts given and received. In some cases, they even computed the money value of the gifts on both sides and required partners that had given less than they received to make up the difference.

4. Discussion

In the present study, I evaluated predictions derived from evolutionary models of reciprocal altruism (direct reciprocity) and indirect reciprocity that might shape motives for gift giving and recordkeeping in gift exchanges, through an ethnographic study in a Tibetan village and cross-cultural survey on eHRAF World Culture database.

The results suggest that direct reciprocity is important in the practice of gift exchange in Gashari and in many other cultures. Gifts are not always given out of pure affection or as tokens of emotional closeness, as suggested by some scholars (Bohannan, 1959; Godbout, 1998; Schrift,

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1997). In Gashari, the villagers kept written records of gift received from others in social events and were concerned when gifts were not reciprocated. However, individuals did not apply the tit-for-tat form of reciprocity to all partners in gift exchanges. The importance of reciprocity in gift exchange depends on the type of social relationship between the donor and the recipient. In the study, the villagers were more tolerant of imbalances in gift exchange with close relatives and friends than with distant relatives or acquaintances. This is consistent with the previous finding that the villagers were more resilient to imbalances in the exchange of social support with close relatives and friends than with acquaintances (Xue, 2013). However, the distinction between tolerant and intolerant ties varied across different gift giving occasions. It suggests that the villagers are more tolerant to imbalances in gift exchange if their partners are in greater need of help. In addition, the villagers exhibit different levels of sensitivity to different types of gifts, i.e. the more costly the gift is, the more important balanced reciprocity is. The findings suggest that both tracking with gift books and the resilience to imbalances in gift exchange may help an individual to maintain mutually beneficial relationships with others.

However, I found that only recipients kept written records of gifts received in social events, and there was no equivalent donation gift book in Gashari village. In addition, the survey on eHRAF World Culture database reveals that although account keeping for gift exchange is a widely spread phenomenon across cultures, it is more common for recipients to record what they have received than for donors to record what they have given in gift exchanges. This is a puzzle as the model of direct reciprocity predicts that both the donor and the recipient should keep track of the history of gift exchange.

It is possible that both gift receivers and donors keep track, but the dynamic of gift exchange imposes a higher psychological demand on receivers than on donors, so receivers are more likely than donors to keep written records. My studies reveal that gift books are more likely to be kept when gifts are exchanged among a large number of individuals than between dyads. With a large number of gift donors, the variation in the amount and type of gifts, and the unpredictable time lag between giving and reciprocation, it seems difficult for the recipient to remember accurately who gave what in a social event. Thus, gift accounts serve as external mnemonic devices (Mullins, et al., 2013; Basu & Waymire, 2006) to help the recipient to keep track the flow of gifts and to make appropriate reciprocation in the future. It is also possible that as people tend to overestimate help given to others but underestimate help received from others (Essock-Vitale & McGuire, 1985), keeping written records of gifts received helps individuals to avoid such self-deception.

Another reason that recipients are more likely to keep gift accounts than donors is that gift books provide an individual with rich information of social relationships beyond dyadic interactions. It helps to resolve evolutionary problem of group living: with limited cognitive capacity and resources, individuals need to make decisions about who to trust, to ally with, and to rely on in times of need (Hill & Dunbar, 2003; Stiller & Dunbar, 2007). For instance, Mullins, et al., (2013) argue that the degree to which a given exchange with a given partner is deemed positive or negative must be negotiated through a much larger web of social relations. As gifts may signal the commitment of the donor to the relationship with the recipient (Camerer, 1988; Ruth, et al., 1999), by keeping gift accounts, the recipient can evaluate, construct, and navigate among his relationship with others. Such evaluation is particularly helpful for relationships with ambiguity,

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such as newly established relationships and unstable friendships (Binder, et al., 2012; Roberts & Dunbar, 2012), or when obligations to different relationships are in conflict (Desai & Killick, 2010).

My study reveals that Gashari villagers care about their own reputations and reputations of others in gift exchanges, and transgressions are subjected to social sanction. The survey on eHRAF World Culture database also reveals that gift accounts are kept as a form of social monitoring. These findings suggest that indirect reciprocity may also regulate gift exchange and recordkeeping. As Mauss (1967) called gift exchange "a total presentation" of social phenomenon, the exchange of gifts help to form and spread individual reputations and to enhance cooperative norms in a social group. The gift account helps individuals to track numerous and heterogeneous interactions over long time scales with high fidelity. As predicted by the model of indirect reciprocity, recipients are more likely to keep gift accounts than donors in Gashari and in various cultures. In Gashari, when recipients keep records of gifts received from others, it particularly helps to build the reputation of generosity among villagers. The reputation formed through gift exchange also affects the exchange of help and favor in other social domains in the village.

If indirect reciprocity regulates the exchange of gifts and recordkeeping, information recorded in gift books should be available to public. However, Gashari villagers claimed that gift books should be kept in private and they were often reluctant to share their gift books with others. One reason they provided was that they did not want to show off how much they received in a social event or shame individuals who brought smaller gifts than others. On the other hand, I found that

Gashari villagers did talk about information recorded in their gift books with others via gossip, although they rarely show their gift books to others directly. To gossip about outliers, i.e. individuals who did not give or reciprocate gifts, the villagers may avoid the problem of revealing one's earning, but still monitor and punish transgressions in gift exchanges. Nevertheless, if gift books are kept in private, we need to further investigate how information recorded in gift books is spread out to form consistent reputation of individuals in a social group.

In sum, the present studies suggest that evolutionary models of direct reciprocity and indirect reciprocity both partially explain gift exchange and recordkeeping in various cultures. The present study is not able to make generalization about when people are more likely to keep written account for gift exchanges. In addition, there is no clear evidence of whether or how people keep track of gifts given out in Gashari or in other cultures. Yan (1996) reported that some village residents in northeast China did keep records of gift expense. However, they only recorded the total amount of expense on gift, instead of itemizing the gift given to each partner. Thus, it is not clear whether people have equivalent account for gift donation as for gift receipt, and how gift donors keep track of gifts given and reciprocated with different partners over time. In future studies, it would be helpful to investigate in societies where people keep gift accounts, how bookkeeping in gift exchange differs from bookkeeping in other types of social exchange, how the exchange of gifts between dyads differs from the exchange of gifts in social events, and whether and how the gift donor keeps track of gifts given out and returned over time.

5. Tables

Table 1. The number of guests in each gift giving occasion

	House Building	Funeral	Buddhist Chant	Sickness Care	Wedding	60th Birthday	Childbirth
Mean	99	221	119	97	66	60	56
Min	57	112	62	65	41	32	56
Max	140	285	224	147	90	88	56

Table 2. The number of cultures and excerpts in each geographic region

	Africa	Asia	Europe	Middle America & Caribbean	Middle East	North America	Oceania	South America	Total
Culture	9	18	3	1	2	15	10	3	61
Excerpt	13	39	3	6	4	19	24	3	111

Table 3. The number of excerpts in different gift giving occasions

Gift Giving Occasion				
Dyadic	Nuptial	Funeral	Childbirth	Social Ceremony
6	33	9	1	25
Gift Giving Occasion				
Inheritance	Donation	Trade	Power	General
4	9	10	4	10

6. Figures

Figure 1. A page from a funeral gift book. The columns (from left to right) recorded: name, the amount of cash (RMB), and tea (bags); the following three columns repeated the same items.
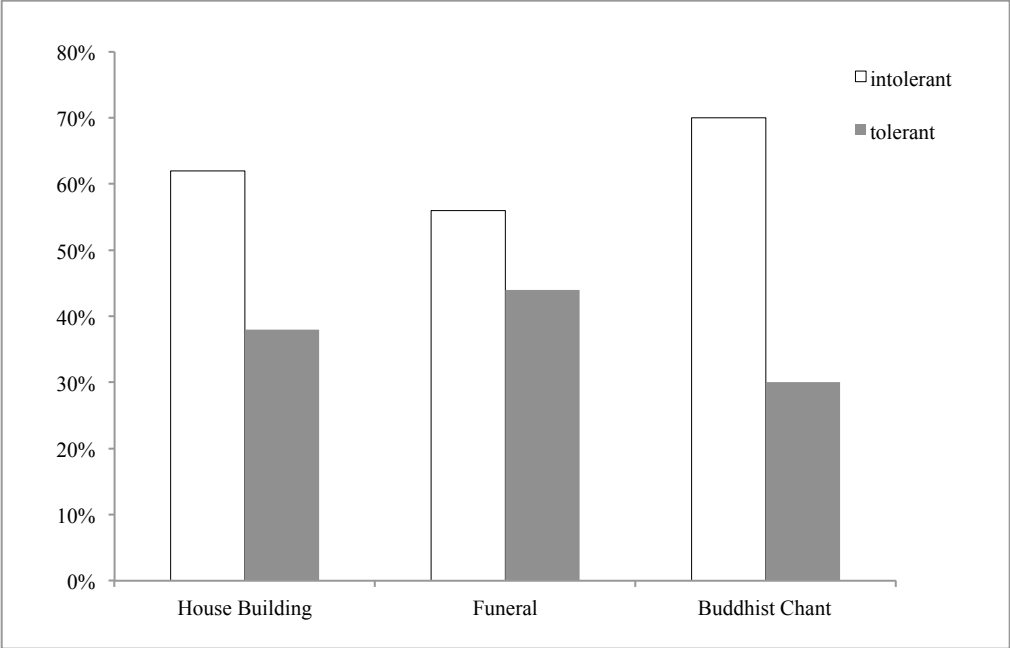
Figure 2. The percentage of tolerant and intolerant ties in each gift giving occasion
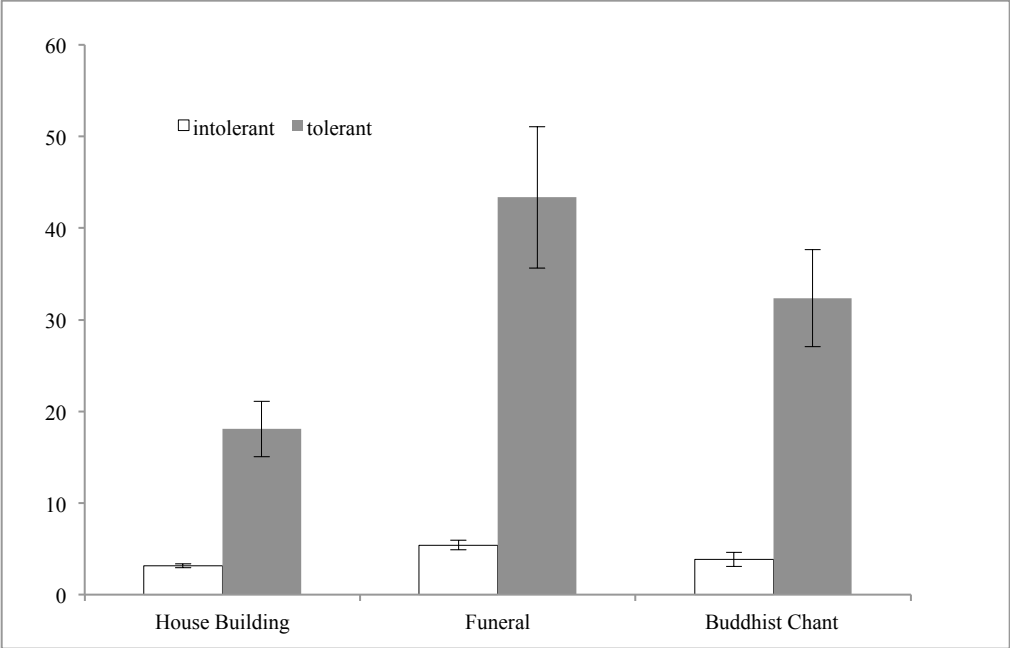
Figure 3. The average amount of monetary gift per guest (±SE) with tolerant and intolerant ties in each gift giving occasion

7. Supplementary Materials

Area codes

AF = Africa

AS = Asia

EU = Europe

MA = Middle America and Caribbean

ME = Middle East

NA = North America

OC = Oceania

SA = South America

Subsistence codes

Based on the HRAF categorization of subsistence type for each culture

Account keeper

R = receiver

G = giver

Return gift

When the excerpt described the value of return gift, whether the return gift should be >, =, or < the value of original gift

Occasions codes

Code	Coding Description
Dyadic	The excerpt explicitly described that the exchange of gifts was between two individuals; otherwise the excerpt would be coded as one of the following occasions.
Nuptial	The excerpt described gifts given at weddings, gifts as dowry, gifts as bride price, and other marriage-related gifts.
Funeral	The excerpt described gifts given at funeral or to the family of the deceased.
Childbirth	The excerpt described gifts given upon the birth of a baby.
Social Ceremony	The excerpt described the gift exchange at feast, religious ceremonies, potlatch, and social gathering, etc.
Inheritance	The excerpt explicitly described gifts as inheritance.
Donation	The excerpt described the gift was a donation.
Trade	The excerpt described the gift exchanged between trading partners; however, the gifts should not be things traded between the partners.
Power	The excerpt described that gifts are given and received between individuals who have different social hierarchies; gift giving enhanced the social status and power structure in a given society.
General	The excerpt did not describe a specific situation; generally it described norms of gift giving, norms of reciprocity, or traditions in a particular culture.

Table S1. Account keeping of gift exchange across cultures on HRAF database

Area	Culture	Subsistence	Account Keeper	Occasion	Return Gift
AF	Azande	Horticulturalists	R	General	NA
AF	Ganda	Intensive Agriculturalists	R	Nuptial	NA
AF	Hausa	Other Subsistence Combinations	R	General	>
AF	Igbo	Intensive Agriculturalists	R	Funeral	NA
AF	Igbo	Intensive Agriculturalists	R	Child birth	=
AF	Libyan Bedouin	Pastoralists	R	Power	>=
AF	Nyakyusa and Ngonda	Intensive Agriculturalists	R	Power	NA
AF	Shluh	Intensive Agriculturalists	R	Power	NA
AF	Tallensi	Intensive Agriculturalists	R	Inheritance	NA
AF	Tallensi	Intensive Agriculturalists	R	Nuptial	=
AF	Wolof	Horticulturalists	R	Nuptial	NA

AF	Wolof	Horticulturalists	R	Social Ceremony	NA
AF	Wolof	Horticulturalists	R	General	=
AS	Alorese	Horticulturalists	R	Nuptial	NA
AS	Cambodians	Intensive Agriculturalists	R	Nuptial	NA
AS	Central Thai	Intensive Agriculturalists	R	General	>=
AS	Central Thai	Intensive Agriculturalists	R	General	=
AS	Central Thai	Intensive Agriculturalists	R	General	NA
AS	Gond	Other Subsistence Combinations	R, G	Social Ceremony	NA
AS	Javanese	Intensive Agriculturalists	R	Social Ceremony	NA
AS	Javanese	Intensive Agriculturalists	R	Social Ceremony	=
AS	Javanese	Intensive Agriculturalists	R	Social Ceremony	=
AS	Kachin	Horticulturalists	R	Nuptial	=
AS	Kachin	Horticulturalists	R	Nuptial	=
AS	Kazakh	Pastoralists	R, G	Dyadic	=

AS	Kazakh	Pastoralists	R, G	Dyadic	=
AS	Korea	Intensive Agriculturalists	R	Donation	NA
AS	Korea	Intensive Agriculturalists	R	Nuptial	=
AS	Korea	Intensive Agriculturalists	R	Social Ceremony	=
AS	Korea	Intensive Agriculturalists	R	Nuptial	=
AS	Korea	Intensive Agriculturalists	R	Funeral	>=
AS	Malays	Intensive Agriculturalists	R	Social Ceremony	=
AS	Monguor	Intensive Agriculturalists	R, G	Trade	NA
AS	Okayama	Intensive Agriculturalists	R	Nuptial	NA
AS	Okayama	Intensive Agriculturalists	R	Funeral	=
AS	Okayama	Intensive Agriculturalists	R	Nuptial	=
AS	Okayama	Intensive Agriculturalists	R	Donation	NA

AS	Okayama	Intensive Agriculturalists	R	Funeral	NA
AS	Sherpa	Agro-pastoralists	R	Donation	NA
AS	Sherpa	Agro-pastoralists	R	Donation	NA
AS	Sherpa	Agro-pastoralists	R	Nuptial	=
AS	Sherpa	Agro-pastoralists	R	Nuptial	NA
AS	Sherpa	Agro-pastoralists	R	Nuptial	=
AS	Sherpa	Agro-pastoralists	R	Nuptial	=
AS	Southern Toraja	Intensive Agriculturalists	R	Social Ceremony	=
AS	Taiwan Hokkien	Intensive Agriculturalists	R	Nuptial	=
AS	Taiwan Hokkien	Intensive Agriculturalists	R	Social Ceremony	=
AS	Tamil	Intensive Agriculturalists	R	Nuptial	>=
AS	Vedda	Hunter-gatherers	R, G	Inheritance	NA
AS	Vietnamese	Intensive Agriculturalists	R	Nuptial	=
AS	Vietnamese	Intensive Agriculturalists	R	Funeral	=
AS	Yakut	Other Subsistence Combinations	R	Trade	>=

EU	Basques	Other Subsistence Combinations	R	Social Ceremony	NA
EU	Croats	Commercial Economy	R	Nuptial	=
EU	Imperial Romans	Intensive Agriculturalists	R	Social Ceremony	NA
MA	Zapotec	Horticulturalists	R	Social Ceremony	=
MA	Zapotec	Horticulturalists	R	Nuptial	=
MA	Zapotec	Horticulturalists	R	Nuptial	NA
MA	Zapotec	Horticulturalists	R	Social Ceremony	=
MA	Zapotec	Horticulturalists	R	Trade	=
MA	Zapotec	Horticulturalists	R	General	=
ME	Iran	Intensive Agriculturalists	R	Nuptial	=
ME	Iran	Intensive Agriculturalists	R	Trade	NA
ME	Palestinians	Commercial Economy	R	Nuptial	=
ME	Palestinians	Commercial Economy	R	Nuptial	NA
NA	Amish	Intensive	R	Nuptial	=

		Agriculturalists			
NA	Assiniboine	Hunter-gatherers	R, G	Trade	NA
NA	Cherokee	Other Subsistence Combinations	R, G	Trade	NA
NA	Chicanos	Commercial Economy	R	Social Ceremony	=
NA	Chinese Americans	Commercial Economy	R	Nuptial	NA
NA	Chinese Americans	Commercial Economy	R	Donation	NA
NA	Chinookans	Intensive Agriculturalists	R	Social Ceremony	=
NA	Gros Ventre	Hunter-gatherers	R	Social Ceremony	NA
NA	Italian Americans	Commercial Economy	R	Nuptial	=
NA	Italian Americans	Commercial Economy	R	Nuptial	=
NA	Italian Canadians	Commercial Economy	R	Donation	NA
NA	North American Hmong	Commercial Economy	R	Funeral	=

NA	North American Hmong	Commercial Economy	R	Nuptial	NA
NA	Nuu-chah-nulth	Hunter-gatherers	R	Social Ceremony	NA
NA	Ojibwa	Hunter-gatherers	R, G	Trade	NA
NA	Omaha	Primarily Hunter-gathers	R, G	Social Ceremony	NA
NA	Seminole	Horticulturalists	R, G	Dyadic	=
NA	Tlingit	Hunter-gatherers	R, G	Dyadic	NA
NA	Yokuts	Hunter-gatherers	R	Social Ceremony	=
OC	Belau	Other Subsistence Combinations	R, G	Inheritance	NA
OC	Belau	Other Subsistence Combinations	R	Funeral	=
OC	Belau	Other Subsistence Combinations	R	Social Ceremony	=
OC	Chuuk	Other Subsistence Combinations	R	Nuptial	=
OC	Hawaiians	Other Subsistence Combinations	R	Inheritance	=
OC	Kapauku	Intensive	R	Dyadic	<=

		Agriculturalists			
OC	Manus	Hunter-gatherers	R	Social Ceremony	NA
OC	Manus	Hunter-gatherers	R	General	>=
OC	Manus	Hunter-gatherers	R	Funeral	=
OC	Manus	Hunter-gatherers	R	Nuptial	=
OC	Manus	Hunter-gatherers	R	Trade	=
OC	Maori	Primarily Hunter-gathers	R, G	Dyadic	=
OC	Maori	Primarily Hunter-gathers	R, G	General	=
OC	Orokaiva	Other Subsistence Combinations	R	General	NA
OC	Orokaiva	Other Subsistence Combinations	R	Nuptial	NA
OC	Orokaiva	Other Subsistence Combinations	R	Nuptial	NA
OC	Samoans	Horticulturalists	R	Donation	NA
OC	Samoans	Horticulturalists	R	Funeral	=
OC	Samoans	Horticulturalists	R	Trade	=
OC	Samoans	Horticulturalists	R	Social Ceremony	=
OC	Samoans	Horticulturalists	R	Social	=

				Ceremony	
OC	Samoans	Horticulturalists	R	Donation	NA
OC	Tongans	Horticulturalists	R	Donation	NA
OC	Trobriands	Horticulturalists	R	Trade	=
SA	Bahia Brazilians	Intensive Agriculturalists	R	Social Ceremony	NA
SA	Inka	Intensive Agriculturalists	R	Power	NA
SA	Xokleng	Hunter-gatherers	R	Social Ceremony	NA

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Chapter 5 Conclusion

My dissertation has important implications for our understanding of interpersonal relationships in general, and human friendships in particular. In my dissertation, I evaluated the role of reciprocity among friends, the contribution of friendship to an individual's social support, and the ways in which people keep track of favors given to and received from friends and others. I conducted my studies in a Tibetan village and applied both qualitative and quantitative research methods in my fieldwork, including surveys, network analysis, semi-structured interviews, and participant observations. By working in a different ecology (where non-kin friendships are embedded in networks of kinship) and applying systematic approaches that enable me to compare friendships in this Tibetan village with friendships in western societies, my studies contribute to our understanding of the evolutionary processes and proximate psychology that shape human friendship. Based on the current findings, I will discuss both theoretical and methodological implications of my studies to future research.

1. The Psychology Regulating Altruism among Friends

It is unlikely that people express goodwill or provide costly help to their friends because they mistake unrelated friends for relatives. Numerous studies have demonstrated a "kinship premium", i.e. given the same level of subjective closeness, people are more altruistic to genetic kin than non-kin (Curry, Roberts, & Dunbar, 2012; Rachlin & Jones, 2008). Moreover, recent analyses of the co-residence patterns among foraging societies revealed that most individuals in residential groups are not genetically related (Hill, et al., 2011). It violates the key premise of the kin confusion argument that people primarily interacted with close genetic kin in early ancestral

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environments (Hruschka, Hackman & Macfarlan, 2014). In my first empirical study (*Altruism and reciprocity among friends and kin*), I replicated and extended an earlier study (Stewart-Williams, 2007. I found that Gashari villagers were more likely to provide help to a relative than a friend when the cost of help increased. Overall, friends and relatives were more tolerant of non-reciprocation than acquaintances were. For emotional help, friends were more likely to feel unhappy about non-reciprocation than relatives were, but were similar to relatives in responses to other types of help (aid during crisis, labor, and financial help). In the second empirical study (*Social support from friends and family*), I found that the participants were more likely to rely on friends than on relatives for emotional and informational support, and applied different strategies to derive support from friends and relatives. These findings suggest to make distinctions between close friends and relatives in their everyday lives.

Social closeness mediates the extent of help given to non-relatives. People are more likely to provide costly help to a close friend than a distant relative, acquaintance, or stranger (Cialdini, et al., 1997; Madsen, et al., 2007; Stewart-Williams, 2007; Hackman & Hruschka, 2013). If subjective closeness has important mediating functions, we need to ask how subjective closeness is developed among unrelated friends, and whether unrelated friends and relatives maintain the feeling of closeness in the same way. Roberts & Dunbar (2011) followed 25 UK students over an 18-month period as they made the transition from high school to college and found that the emotional intensity of friendships is more sensitive to decreases in contact frequency and shared activities than relationships with relatives are. These findings suggest that it is more difficult and costly costly to maintain close relationships with friends than with kin. More research that compares how people think about, respond to, and help kin and unrelated friends will be

necessary to understand whether and how the capacity for friendship emerged from ancestral capacities for kin relationships (Hruschka, 2010).

2. Tracking Psychology among Friends

Reciprocity plays an important role in interactions among friends. If altruism among friends is a form of reciprocal altruism, we would expect people to keep track of favors given to and received from friends. But friends do not seem to apply strict forms of reciprocity to each other (Xue & Silk, 2011; Silk, 2003; Clark & Mills, 1994). The first empirical study (*Altruism among friends and kin*) reveals that friends care more about the reciprocity of emotional help than about instrumental help in Gashari. The third empirical study (*Gift giving and recordkeeping*) demonstrates the way in which Gashari villagers practice reciprocity and tracking in their daily lives. The villagers kept written records of gift received from others in social events, and were concerned when gifts were not reciprocated. However, the importance of reciprocity in gift exchange depended on the type of social relationship between the donor and the recipient, the gift giving situation, and the type of gifts given. Villagers were more tolerant of imbalances in gift exchange with close relatives and friends than with distant relatives or acquaintances. They were less concerned about reciprocity in funerals than in other social events; and cared more about the reciprocity of monetary gifts than other types of material gifts.

If people exhibit different levels of sensitivity to different social partners, different types of favors, and in different situations, we need to carefully distinguish between differences in tracking and tolerance of imbalances in interactions among friends. We need to investigate how people keep track of various types of favor exchanged with their friends over time, and how the

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tracking of previous events affects decision-making in current situations. As tracking psychology is subtle and people may be attentive to cues that they are not consciously aware of, interviews or survey studies may not be appropriate for capturing the psychology of tracking in real life situations, because these approaches are subjected to impression management problem (Leary, 1995), or errors of recalling. For instance, Paolisso & Hames (2010) point out problems with time diary surveys, including the fact that respondents do not remember all their behaviors, overestimate self contributions, use different definitions or labels for their activities, and underreport socially undesirable or unacceptable behaviors.

Alternatively, experiments, especially field experiments, can be helpful tools to investigate tracking psychology. Two field experiments incorporating real-life social relationships reveal interesting patterns of behavior that have not been captured in anonymous experiments. Rucas, et al. (2010) introduced a semi-anonymous experiment (*Social Strategy Game*) that was designed to simulate resource competition among women in Bolivia. They collected information about dyadic social relationships and demographic data to identify relational variables influencing resource competition intensity, as measured by the number of beads one woman took from another. They found that women competed with those with whom they were quarreling over accusations of meat theft, mate competition, and rumor spreading, as well as those who were designated as cooperative helpers or as close kin. Women were more generous towards desired friends, neighbors, and those viewed as enemies. This experiment has an important implication that social relations among women are multifaceted and often cannot be simplified by exclusive focus on genetic relatedness, physical proximity, or reciprocity. They argued that contextual

information is quite important in understanding cooperation and competition in women's network.

In another study, Leider, et al. (2009) asked Harvard College students to identify up to ten mutual best friends on Fackbook. Some of the participants were designated "decision makers" and over the course of several days, the researchers asked them to make decisions to help particular partners, with real money provided by the experimenters. They were asked about a close friend or about a distant friend (i.e. a friend-of-a-friend-of-a-friend-of-a-friend). The researchers also compared a non-anonymous condition, in which the close friend would be informed about the donor's identity, with an anonymous condition, in which identities of the donor and recipient remained unknown. The study found that levels of helping in the non-anonymous condition were up to 35% higher than in the anonymous situation. However, close friendship had a much stronger effect, i.e. people helped and shared 52% to 95% more with close friends than with acquaintances. This suggests that generosity among friends is strongly regulated by the decision-maker's baseline altruism, which is independent of audience effects.

As field experiments can help to capture the nature of friendship and the contextual information underlying interactions among friends, it is crucial that the experimental design maps closely onto how people quantify costs/benefits of different types of favors in real life. For instance, do people think about the cost of help in terms of amount or efficiency? Do people consider the affordance or the intention of the partner when they evaluate the importance of reciprocity? In addition, if tracking takes different forms at different stages of friendship (Hruschka, 2010), we need to further ask when the friendship has advanced from calculated reciprocity to knee-jerk

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altruism, and whether careful tracking is completely turned off among close friends. If this is the case, how do people prevent cheating from those who tend to manipulate the "close and trustworthy" friendship? Longitudinal studies, incorporating field experiments, will be very helpful to understand the psychology underlying tracking and how friends practice reciprocity in real life.

3. Expectations about Friendship across Cultures

In Western societies, friendships are thought to be voluntary and intimate bonds between individuals (Hinde, 2002). People have the freedom to choose their friends and to terminate those relationships (Eisenstadt, 1974; Hinde, 1997). Ideally, people value the friendship for its own sake and do not care what they can get out of it (Mill & Clark, 1994). At the same time, they expect their relationship to be equal, without judgment and authority (Fiske, 1992). Friends feel close to each other, enjoy one another's accompany, develop mutual goodwill, help one another in times of need, and disclose private matters and personal feelings to each other (Desai & Killick, 2010; Schug, et al., 2010). Some evolutionary psychologists hypothesize that there is a universal psychology of human friendship (Bleske & Shackelford, 2001; Bleske-Rechek & Buss, 2001). However, there is some dispute about whether the western notion of friendship is shared by other cultures (Adams & Allan, 1998; Bell & Coleman, 1999). For instance, instrumental support, including borrowing money, seems to be more important than emotional support in friendships in China (Gummerum, et al., 2008), West Africa (Adams & Plaut, 2003), and Indonesia (French, et al., 2005). There are also societies in which friendships are institutionalized and lose something of their voluntary and private character (Adams & Allan, 1998; Pahl, 2000).

My first empirical study (*Altruism and reciprocity among friends and kin*) reveals that friends are more likely to feel unhappy about the non-reciprocation of emotional support than material support in Gashari village. My second empirical study (*Social support from friends and family*) suggests that Gashari villagers prefer to go to friends than relatives for emotional and informational support. Both Tibetan men and women in the study reported that they shared their secrets with friends and talked with friends about relationships, marriages, work, and family issues. These findings do not support the argument that emotional support is more important for friends in North American than for friends in Asian cultures. Hruschka (2010) suggests that social and ecological circumstances may influence the specific functions of friendship and the relative importance of friendships compared to other institutions (e.g. kinship) in a society. For instance, Schug, et al. (2010) found that friends tended to disclose personal matters to each other as a commitment device in societies where relational mobility was high; the variation in self-disclosure behavior could exist in a single culture. Therefore, it requires cross-cultural researchers to carefully investigate the ecology where friendships are embedded, instead of simply drawing the cultural boundary based on geographic boundary. In addition, several questions should guide the investigation of different expectations of friendship across cultures: (1) does friendship make sense as an analytic construct, although it may exhibit different features in various social ecological circumstances? (2) Can we predict the function of friendship in different types of ecologies, or in different stages of an individual's life? (3) What factors influence people's expectation for their friends, and what contributes to the cross-cultural differences? In addition, it is important for future works to extend the range of cultures, including societies with institutional forms of friendship (e.g. blood brothers, sworn brothers)

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and those with more informal types of friendships, and societies consist of nuclear families and extended families.

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