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SOCIAL PSYCHOLOGY | NEW PERSPECTIVE

Princes Charming are not all made equal. The social cognition of mating strategies in four classical fairy tales

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Abstract: In this paper, we apply the so-called Tie-Up Theory to the analysis of the social cognition of mating processes in fairy tales. Our analysis considers the four classical fairy tales that are more relevant to this topic, and proves how their structure systematically reflects the logic of the male–female interaction anticipated by the theory, and in addition allows to formulate an interesting typology of strategic approaches by the male partner. Unlike preexisting interpretations, where fairy tale characters tend to be presented as stereotypes, our analysis shows how, in their most sophisticated and interesting variants, the said fairy tales place an emphasis on the unique individual traits that make the potential partners reciprocally fit to form the couple. This change of perspective is conducive to interesting applications both from the viewpoint of the analysis of fairy tales and in terms of the implications of the related form of social cognition for the study and the understanding of human behavior.

Subjects: Multidisciplinary Psychology; Social Psychology; Popular Culture; Literature & Culture

Keywords: fairy tales; social cognition; mating; tie-up; tie-up cycle; way

ABOUT THE AUTHORS

Lorenza Lucchi Basili and Pier Luigi Sacco are working together on a long-term project on the social psychology of mating processes. They have developed an innovative approach to the analysis of human heterosexual mating called Tie-Up Theory, and are currently developing two complementary streams of research: a first round of experimental trials to test some key implications of the theory for the formation of actual human couples; and the analysis of the social cognition valence of mating-related narratives across different media and cultures, as an alternative form of validation of the theory's predictive content. Lorenza is an independent researcher with a background in complex systems theory and urban studies and a past career as an international visual artist. Pier Luigi is a social scientist with a vast spectrum of interdisciplinary research interests. He is the Scientific Director of FBK-IRVAPP research center in Trento, professor of Cultural Economics at IULM University Milan, Visiting Scholar at Harvard University, Senior Researcher at the metaLAB (at) Harvard.

PUBLIC INTEREST STATEMENT

Fairy tales have an important social cognition value, i.e. they provide us with relevant information related to the behavior of humans in certain circumstances, although in a highly stylized form. In this paper, we analyze four of the most well-known fairy tales that deal with the formation of a romantic couple: Cinderella, Sleeping Beauty, Bella and the Beast, and Rapunzel. Making use of a new conceptual approach that we have developed in previous research, the so-called Tie-Up Theory, we show how these fairy tales each present a specific type of Prince Charming, that is, a particular instance of male psychology in the content of the mating process. We show that these four classical fairy tales offer us useful insights on the male role models of some of the most common interaction scenarios that lead to the formation of a romantic couple. This is probably one of the reasons why they have been so successful and transmitted from generation to generation.

1. Introduction

Fairy tales have a long history and a complex phylogenesis (Tehrani, 2013). Despite that they often express a “naïve morality” that may look simplistic to the inhabitants of contemporary societies, they nonetheless continue to maintain a capacity for fascination that seems linked to an effective typization of relevant aspects of human nature (Zipes, 2012). Fairy tales seem moreover to play a particularly relevant role in the development of human expressive capacities. An articulate understanding of their narrative mechanisms is already reached in early childhood, which soon evolves into a capacity to actively and sophisticatedly appropriate them for personal children narrations (Bears, 1992), and even to use them as cognitive-behavioral resources for children to orientate in complex situations (Hill, 1992). A possible explanation of such an enduring fascination and deep cognitive rooting already in early developmental stages is the potential of fairy tales as a narrative form of social cognition (Oatley, 2016). There is a vast literature that associates to fictional narratives, and to fairy tales in particular (Hinchcliffe, 1996), an adaptive value that relates to the possibility to learn indirectly from experiences made by others, or just imaginary (Mar & Oatley, 2008). Such indirect learning is functional to the development of a theory of mind that allows, on the basis of the social simulations harnessed by the narrative situation, to build capacities to infer the intentions, desires and beliefs of other human subjects (Boyd, 2009). Not all fairy tales carry the same social cognition potential, and not all of them succeed in keeping several generations of listeners intensely engaged through time (Zipes, 2006). However, the most successful ones can be safely considered as true *topoi* of the global narrative imaginary.

One of the topics that is most thoroughly covered in fairy tales is human mating (Gottschall, 2005a). The final wedding of the two main characters (generally, the Prince and the Princess) is often not only the landing point of the storyline, but also its emotional climax, so that, once the mating has been secured, the story simply stops without the need to proceed further. The repertoire of romantic fairy tales could therefore offer some room for reflection on the social cognition of mating. There is however a vast literature that not only openly questions the social cognition value of fairy tales as far as mating processes are concerned, but also denounces its entire narrative construction as a form of perpetuation of patriarchal dominance structures (Haase, 2004). In this perspective, fairy tales would contribute to the legitimization of exploitative gender role models, and to the consolidation of their social salience (Lieberman, 1972). The debate between these two conflicting visions of the social implications of fairy tales is understandably heated, and summing it up here goes beyond the scope of this paper. However, the few available studies that have attempted a comparative test of the two alternative approaches on specific narrative corpora show how the social cognition one is better supported than the gender dominance one (for instance Gottschall, 2005b). In this study, we refer to the social cognition approach to fairy tales, and analyze a few fairy tales of special importance as to their cultural and social relevance in the global romantic imagery. Our implicit hypothesis is that, as argued by Zipes (2006), the fact that a given fairy tale “sticks” in the imaginary and life experience of people reflects its ability to capture, in an especially clear, effective way, some key aspects of social situations—in our case, of the mating process. In particular, our analysis builds upon a specific theoretical approach to the mating process, the so-called Tie-Up Theory (Lucchi Basili & Sacco, 2016), whose framework tries to reconcile the two main theoretical perspectives developed in the social psychology literature about this topic, namely Sexual Strategy Theory (Buss, 2013) and Attachment Theory (Del Giudice, 2009). In Lucchi Basili and Sacco (2017), the same approach has been applied to the analysis of a selected sample of successful Hollywood romantic comedies, showing that part of their enduring success may be traced back to the social cognition value of their insightful exploration of interesting variants of typical mating interaction schemes.

The purpose of this paper is twofold. On the one side, it aims at showing how Tie-Up Theory may offer a novel perspective on a much-analyzed topic such as fairy tales. Moreover, and vice versa, it contends that the structures of some of the most well-known fairy tales of the entire Western repertoire may be regarded as “exemplary” models of key interaction modes in the mating process. In this paper, we examine such modes from the male perspective, looking at the attitudes and choices of the male character (the “Prince Charming”) in the context of his interaction with the female

character (the “Princess”). Our sample of fairy tales shows that, under the surface of a uniform, stereotypical characterization, the motivations of the male characters may be much more diversified and complex than commonly maintained, and the details of their strategies and of the situations in which they are deployed may make a difference for the interaction’s unfolding. This subtlety is captured to a limited extent by critical approaches to fairy tales that uniformly characterize their logic in terms of mere gender dominance, and is not entirely catered even by previous studies that focus upon the social cognition potential of fairy tales (Gottschall, Martin, Quish, & Rea, 2004; Gottschall et al., 2003).

The fairy tales that we choose, as anticipated, are among the most well-known of the entire repertoire, and all belong to the canonical list of the 14 classical Western fairy tales identified by Zipes (1993). Within this list, the chosen fairy tales are, in a sense that will be clarified below, the all-and-only ones that fully qualify for our analysis. We show that not only such fairy tales present a significant social cognition value as to the fine-grained structure of the interaction in the mating process, but also that they span all the major interaction scenarios of our theoretical approach. This result is coherent with what already found in Lucchi Basili and Sacco (2017) as to a sample of popular Hollywood romantic comedies.

The remainder of the paper is organized as follows. Section 2 presents a synthesis of the main concepts of the Tie-Up Theory on which our analysis is based. Section 3 analyzes our sample of classical fairy tales from the perspective of the approach presented in the previous section. Section 4 briefly discusses the results and concludes.

2. Tie-Up Theory: Basic concepts

In this section, we provide a necessarily concise presentation of the basic concepts of Tie-Up Theory. For a more complete presentation, and for an extensive discussion of the relationships between this theoretical approach and the broader literature on mating, see Lucchi Basili and Sacco (2016, 2017).

In its current version, the theory focuses upon the heterosexual couple. We then consider a male subject (M), and a female subject (F), each characterized by a specific psychological structure, that consists for both of an active and a passive element. We call the former Active Area (AA), and the latter Receptive Area (RA), which will be indicated for M as M-AA and M-RA, respectively, and likewise for F, as F-AA and F-RA. It is the interaction between the AAs and RAs that determines whether there is the possibility that a stable bond, that we call Tie-Up (TU), is created between M and F. The TU can be one-sided, on the male (M-TU) or female (F-TU) side, or reciprocal, that is, double (D-TU). The AAs elaborate the attraction for the opposite sex, as well as any action or behavior, intentional or instinctual, aimed at attracting or seducing the potential partner. Their operation is reinforced by a psychological reward, that depends both on the chosen course of action and on the reactions of the potential partner, and that culminates with the TU of the other. RAs are instead passive structures whose function is to evaluate the attraction toward the opposite-sex subject, and their functioning is reinforced by the perception of any characteristic or behavior, be it intentional or not, that turns out to be seductive in terms of one’s own TU.

The basic assumption at the root of Tie-Up Theory is that the AAs and RAs are asymmetrically characterized in the two sexes. For M, the sexual dimension is centered upon M-AA, and the psycho-emotional one upon M-RA, whereas for F, vice versa, F-AA has a psycho-emotional focus and F-RA a sexual one. AAs experience a reward whenever they act in conformity with the socio-biological and social recognition incentives that pertain to the respective gender identities, which make the sexual dimension salient in M-AA, and the psycho-emotional one in F-AA (Buss, 1989). RAs, instead, having the task to evaluate the attraction toward the opposite sex, will enact a specific test of compatibility with the potential partner. Such compatibility will be judged on a sexual level for the F-RA, and on a psycho-social one for the M-RA. The subject that carries out the test need not be aware of it. In other words, F gets tied up to M only if an effective physical involvement ensues—and this does not necessarily mean genital contact, as a wide spectrum of vocal, olfactory, visual and haptic signals may

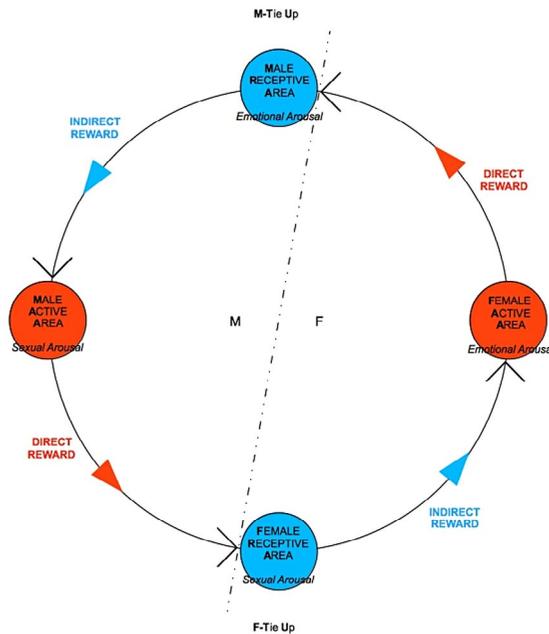
also be contemplated (Roberts & Little, 2008). The test carried out by F is called Biological Compatibility Test (F-BCT), in that F-RA selects M partners through a screening of the appropriateness of their genetic endowment, and of the compatibility between the latter and that of F herself (Havlicek & Roberts, 2009), rather than on the basis of mere physical prowess (Lucas, Koff, Grossmith, & Miglioni, 2011). M gets tied up to F only in case of an effective psycho-emotional involvement, without which, once obtained his sexual gratification, M has no incentive to pursue the relationship further (Burriss, Welling, & Puts, 2011; Swami et al., 2010). The test carried out by M is called Psychological Compatibility Test (M-PCT), in that M-RA selects F partners through a check of psychological complementarity that will facilitate the pursuit of couple goals. Experimental evidence shows that the association with desirable personality traits has positive effects on perceived physical attractiveness not only for women, for whom such effect is controlled by the F-AA and therefore conscious and predictable (Penton-Voak et al., 2007), but also for men (Lewandowski, Aron, & Gee, 2007; Little, Burt, & Perrett, 2006), whose M-AA, to the contrary, typically focuses the evaluation of attractiveness upon physical traits (Fales et al., 2016). The evolutionary criterion for the selection of M in the mating process operates at the sexual, genetic level, as far as F's choice is concerned. From the perspective of M's long-term investment in a stable mating, however, F's emotional intelligence is what matters, both in its capacity to engage M by dis-activating his potential sexual opportunism, and to guarantee a rewarding enough within-couple interaction to secure effective offspring rearing.

Our previous remarks explain why the supervision of the stability of the bond, i.e. of the TU which will cause the tied-up subject to stay focused upon the chosen partner, is assigned to the RAs. The non-fungible trait that tells the AAs and the RAs apart is therefore that the former have no interest in getting tied-up. The excitations of the AA never bring a TU about, if the corresponding same-sex RA remains, in turn, switched off—that is, if the compatibility test on the opposite-sex subject happens to be negative. AAs therefore function as a security system that guarantees the perpetuation of the species when the RAs are not successfully stimulated to seal a durable mating.

A stable mating calls for the emergence of a double Tie-Up (D-TU), where both RAs have been turned on successfully, thanks to the positive outcome of the respective compatibility tests. In the case of a one-sided TU, the couple is not stable. The occurrence of one or more TUs is the result of the interaction of the AAs and RAs of the two subjects in the context of the Tie-Up Cycle (TU-C). TUs are ruled, as anticipated, by two types of reward, each one characteristic of the respective Area, which we will more precisely call direct or active reward (for AA), and indirect or passive reward (for RA). The direct reward is the reinforcement that is generated in the AA through its functioning, and in particular as a consequence of the positive feedbacks from the other-sex subject. The indirect reward is, instead, the reinforcement that is un-voluntarily produced in the RA as a result of a suitable stimulation, intentional or not, by the opposite-sex subject's AA. But since the RA operates below the threshold of awareness, indirect reward, despite being originated in the RA, reaches the conscious level only when it is perceived by the AA—possibly through a threshold-crossing effect on cumulated (indirect) reward, e.g. analogous to the one found by Kang, Petzschner, Wolpert, and Shadlen (2017) in the decision-making sphere. Being perceived in the AA as well, indirect reward also stimulates the AA, and thus prompts the production of further direct reward. There is therefore a complementarity in the production of the two forms of reward.

The relationship between the AAs and RAs of the two subjects shapes the TU-C, as a subject's AA, being aimed at the communication with the external world, always relates to the opposite-sex's RA, whereas the RA itself, by operating below the threshold of awareness, needs to pass through its own AA to send signals externally. The TU-C then typically proceeds anti-clockwise (Figure 1), and may start from any position. The emergence of a D-TU requires that the cycle (or several cycles, according to cases) gets completed so that all Areas are successfully engaged. The larger the number of subsequent cycles that are successfully completed, the more the couple tends to consolidate. Since TU is formed at the RA, a subject cannot intentionally decide to get tied-up. Vice versa, if his/her RA is successfully stimulated, and the compatibility test yields a positive outcome, TU occurs even if the subject is not intentionally willing to make it happen. Moreover, a subject may unintentionally cause

Figure 1. The tie-up cycle.



a TU to occur for the opposite-sex subject if s/he unwittingly puts him/herself in the condition to be tested by the other, and successfully passes the test. On the other hand, the existence of a TU makes a subject relatively less sensitive to the seductive signals sent by subjects other than the one s/he is tied-up to, and this condition persists insofar as the TU keeps its strength. If the TU weakens for some reason, the subject regains his/her susceptibility to external seductive signals.

A one-sided TU may be either nurtured or opposed by both the same subject's and the opposite-sex subject's AAs, according to cases, thus leading to a TU-C or, to the contrary, thwarting its development. Without the emergence of a stable D-TU, the cycle cannot but extinguish itself, and yet the emergence of a one-sided TU might spark a complex interaction dynamics where the other subject's TU might occur ever after a long time, provided that the cycle keeps on working.

The fact that TU occurs in the RA also implies that one cannot decide to get tied-up to another just because of socially desirable characteristics such as F's physical attractiveness, or M's power and resourcefulness. Such characteristics are especially attractive for the opposite-sex subjects' AAs (Buss & Barnes, 1986). However, it is only the successful outcome of the F-BCT for F and of the M-PCT for M that may cause a TU to occur, and the outcome of the test is not necessarily dependent upon any of the above-mentioned characteristics. At most, the opposite-sex subject's endowment with such desirable characteristics may elicit the cooperation of the subject's AA in favoring the execution of the test. Consequently, if the test is successfully passed, a TU—or even a D-TU, if the test is reciprocally launched and successful for both—might occur. It remains possible, of course, that a subject has a propensity to mate with another carrying desirable characteristics despite not being tied-up to him/her, due to an instrumental pursuit of social or economic advantage, or both. In the absence of a D-TU, however, the couple will not be stable, and will therefore remain vulnerable to a gradual deterioration of the relationship, as well as to a wide range of disruptive external influences and situations.

The flow of rewards, that is, the fact that the Areas produce, when suitably prompted, rewarding stimulations depending on their specific nature, sexual or emotional, active (focusing upon external actions and relationships), or passive (focusing upon inner states), is what sets TU-C in motion and makes it function. That is, it is the dynamics of incentives that makes M and F crave for reciprocal interaction. The more intense and persistent the flow of rewards for each Area of each sex, the

stronger the incentives to build and secure a long-lasting bond. When, instead, the flow of rewards within the TU-C is interrupted, a frustration will occur, that is, at least one of the four rewards, direct or indirect, male or female, will be blocked. Frustrating even just one type of reward breaks the continuity of the whole flow, whose purpose is that of constantly feeding all the Areas in the cycle. This creates a real threat of dissolution of the TU-C.

Once the TU-C has been launched, there is a self-regulation mechanism that spontaneously switches on in case threatening situations for the cycle show up, and particularly so if one of the partners experiences a state of frustration due to the interruption of one or more rewards. Such mechanism, however, only intervenes if the interruption concerns direct rewards, and therefore damages the AAs. If the compromised Areas are the RAs, so that the interruption concerns indirect rewards, that is, if F's sexual self-confidence or M's emotional self-confidence are undermined—with serious consequences in terms of sense of self-worth, balance and trust in the partner—the problem readily escalates to a critical level. In this case, the damage to the TU rooted in the attacked RA may quickly and painfully manifest itself, as what is being targeted is ultimately the deep motivational pillar on which the couple relationship has been built. Attacking the partner's RA by suspending the flow of indirect rewards that feeds it, amounts to attacking the partner's TU itself, and it is therefore extremely dangerous for the survival of the TU-C—and of the couple.

If on the contrary the TU-C launch is still in progress and the TUs have not occurred yet, frustrating the potential partner's indirect reward (by putting M under pressure on a psycho-emotional level, or F on a sexual level) does not cause any significant level of stress in the RAs. However, the annoyance experienced by the frustrated subject puts at risk the positive outcome of the compatibility test, and consequentially inhibits the occurrence of his/her TU, causing a sudden stop of the TU-C. The frustration of the direct reward, however, is in any case a source of stress for the affected AAs, whether TU has already occurred or not, in that the offense is perceived as a personal attack to one's own identity, on a sexual level for M and on an emotional level for F.

It is interesting to remark that, because of TU-C's spontaneous self-regulation mechanism, in an early phase of the mating process, a well-aimed, well-dosed frustration of the potential partner's direct reward may be of strategic value in facilitating his/her TU. And especially so if the potential partner's RA has been already stimulated, even to a small extent. The reason is that, when a decrease in the level of direct reward is experienced, the resulting deprivation pushes the frustrated subject toward one of two possible options. One is finding an alternative source of gratification as a substitute of the interrupted one—for instance, the indirect reward generated by the RA, thereby switching to an entirely new dimension of seductive interaction with the frustrating partner. The other is seeking elsewhere that very same kind of gratification that went missing, shifting the focus of interest toward another potential partner—a likely development if the frustrated partner's RA was not previously engaged to some extent. The frustration of the AA, which is perceived as a devaluation of one's own identity, is quite upsetting, and can be tolerated only in the light of the existence of a still ongoing stimulation of the RA, which induces the frustrated subject to persist in the interaction nonetheless. Otherwise, there is no reason for the frustrated subject to be willing to go through such a stressful condition.

The self-regulation mechanism that functions as a homeostatic (reward) system for the TU-C is named flow inversion, in that it determines a change in the direction of the flow of communication within the TU-C, from anti-clockwise to clockwise. The inversion in the direction of the flow of the TU-C is carried out by the subject who is frustrated in his/her direct reward. However, the suspension of the flow depends on the action of the subject who is frustrating the partner, be him/her actual or potential. Traveling the TU-C along the opposite direction to the default one does not allow its successful completion, and determines a concentration and a strengthening of the remaining rewards, namely the ones that do not get frustrated, in a single hemicycle: the sexual one if it is M who is frustrating F, or the psycho-emotional one if it is F who frustrates M.¹ The effect that results is a state of over-stimulation of the Areas that sit in the affected hemicycle, that is, the AA of the partner who

is administering the frustration and the RA of the partner who gets frustrated. The possible result is the induction of the AA to feel satisfied, and thus to remove the block that inhibits the direct reward of the frustrated partner, and—in the absence of a TU—the induction of the RA to tie-up as a consequence of the increase in its own stimulation. This is the reason why the inversion within a TU-C still in-the-making ends up favoring the TU in the stimulated RA while, to the contrary, it precludes the occurrence of the second TU, the one of the RA sitting in the hemicycle that is left outside the flow of rewards, which remains turned off. When instead the TU-C works at full regime, this same mechanism, which will likewise switch on to compensate the shortage in indirect reward, will become fairly risky, in that the longer one of the RAs will be left out of the flow, the more likely the deterioration of its corresponding TU. Clearly, this state of things cannot last much, due to the uneven distribution of the rewards which end up hurting the affected Areas, and the respective TUs. Therefore, in order to bring about positive effects, the switch in the direction of flow of the cycle must be temporary, so that the TU-C may restore its distinctive anti-clockwise flow as soon as possible.

The last key concept of the Tie-Up Theory is the notion of Way. The term ‘way’ stands for the initial path that characterizes the early phase of a TU-C. It determines the dynamic unfolding of the cycle itself, depending upon the Area from which the interaction between the partners starts, and upon their own initial choices. A TU-C may originate from any of the four areas, that is, it may start from an AA (M-AA or F-AA), or from a RA (M-RA or F-RA). Depending upon where the Area is located within the cycle—male or female hemicycle—it will be M or F who takes the initiative, and commences the interaction. Starting from different Areas causes a change in the goal of the communication flow, which reflects the nature of the Area of origin, as the Areas communicate among themselves according to a specific active vs. passive mode which defines, and diversifies, their function. The AA’s goal is that of communicating with the opposite-sex partner’s RA to incentivize its own production of direct reward, and the RA’s goal is that of communicating with the same subject’s AA, transmitting to the latter its own production of indirect reward. However, we need to keep in mind that the RA has a passive nature, and its production of indirect reward exclusively depends upon the opposite sex’s AA. We could therefore regard as a second goal for the RA the need to find a way to encourage the stimulation coming from the opposite-sex subject’s AA to guarantee, and increase, its own production of indirect reward. Consequently, depending upon the Area from which the TU-C moves, the potential partners’ perspectives in the interaction could change significantly.

The kick-off of the TU-C by one of the potential partners inevitably implies a response by the opposite-sex subject toward whom the interest of the former is focused. If the latter accepts to be involved, s/he enters in turn the TU-C with a characteristic Way of his/her own, that is, choosing a personal entrance path into the TU-C. The Ways can be classified, therefore, into those pertaining to the subject who takes the initiative, called Impulse Ways (Way-I), and those pertaining to the potential partner who reacts accordingly, called Response Ways (Way-R). For the purpose of the formation of the TU-C, and thus of a possible long-term couple, Way-I is simply the first step, whereas the crucial move for the eventual success or failure of the TU-C relies to a large extent upon the Way-R.

Each partner has two Areas at his/her disposal to start the TU-C, AA or RA. But while the start from the AA contemplates only one possible path, with a rapid landing upon the partner’s hemicycle, simply by following the anti-clockwise direction of the TU-C flow, a start from the RA, thanks to the possibility of a flow inversion, allows two distinct possibilities to reach the partner’s hemicycle. The first is slower and more demanding, and consists of traveling across one’s own hemicycle and the potential partner’s, completing a full cycle before reaching the partner’s AA that stimulates the RA from which the interaction departs. The second is faster but also riskier, in that it makes use of the inversion of the flow to directly reach the partner’s AA, moving along the cycle clockwise, that is, without traveling across the partner’s hemicycle (and thus without stimulating his/her RA). To sum up, there will be three possibilities for each partner, for a total of six Ways.

The Ways pertaining to the female subject correspond to odd numbers (1, 3 and 5), whereas those pertaining to the male one have even numbers (2, 4 and 6). Specifically, the Ways departing from the

AAs are Ways 1 and 2. Way 1 entails an emotional excitation by F-AA directed toward M's psychological sphere, namely M-RA. Way 2 entails a sexual excitation by M-AA aiming at F's sexual sphere, namely F-RA. These can be seen as classical approaches to the other sex, which reflect the constitutional characteristics of the AAs of the respective sexes. The Ways that depart from the RAs, instead, are Ways 3 and 4 and, in case of an inversion of the flow, Ways 5 and 6. When moving from a RA, the first step will always be toward the corresponding, same subject's AA. Being RA a passive Area without an executive function, the task of deciding where to move to is delegated to the same subject's AA itself, which will have to decide whether to proceed further anti-clockwise, traveling along the whole cycle to reach the opposite-sex partner's AA, or rather inverting the flow and getting there from the opposite direction, through its own RA from where the initial excitation started. This latter possibility implies, in other words, a direct gratification of the potential partner, that is, sexually gratifying M if the TU-C has departed from F-RA (this is the case of a female Way 5), or emotionally and psychologically gratifying F if the TU-C moved from M-RA (and we will have the male option Way 6). Instead of being complacent with the identity confirmation demands of the (potential partner) AAs, the strategies of Ways 3 and 4 are at face value much more similar to those of Ways 1 and 2, in that they aim at seducing the unaware side of the potential partner, his/her RA, that is the sexual female one (Ways 2 and 4) or the psycho-emotional male one (Ways 1 and 3). The deep difference, however, consists in the fact that whereas Ways 1 and 2 try to seduce without an involvement of their own RAs—that is, they attempt to tie-up the other without being tied-up in turn—Ways 3 and 4 may refer to subjects who are already tied-up even before trying to tie-up the potential partner.

In conclusion, it is quicker and easier to seduce a potential partner by feeding his/her direct reward, both because this does not call for particularly complex strategies, and because it provides a ready-made satisfaction of one's own indirect reward, already pleasantly experienced (remember that, in this case, we are departing from the RA). But this makes the other's TU less than likely, and may even preclude it if, once his/her own direct reward has been obtained, the potential partner looks for someone else—and this is what may happen to the Ways 5 and 6 that invert the flow of the TU-C. More demanding and uncertain is, instead, the seduction that aims at turning on the RA of the other subject. This inevitably implies the willingness to submit oneself to the other's compatibility test, which in case of an unfavorable outcome would kill from the start any chance of success. On the other hand, though, aiming at his/her RA offers a real possibility to tie-up the potential partner, even in the case the latter would be willing to stand clear of his/her own TU, as it happens with Ways 1 and 2 which are not truly interested in the launch of a proper TU-C. Finally, from the viewpoint of Ways 3 and 4, the determination to find a long-term mate allows them to embrace the prospect of a long, difficult road toward the potential partner's RA. This entails not merely paying attention to their own return in terms of direct reward, but going for a substantial increase of their indirect reward through the successful, iterated completion of several TU-C rounds.

Let us now consider a few concrete examples to arrive at a clearer illustration of the features of each Way.

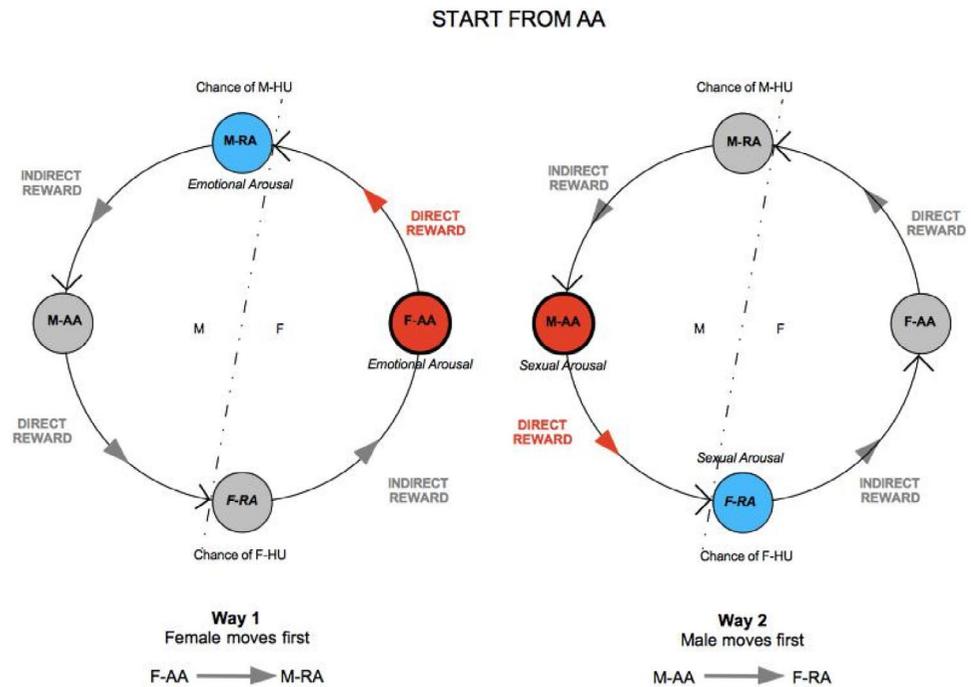
2.1. Way 1

This is the entrance into the TU-C that moves from the F-AA which, being psycho-emotionally excited, aims at the psycho-emotional seduction of M-RA (See Figure 2, F-AA → M-RA). This might be for instance the case of a woman who admires a man for his endowment of psychological (gentleness, agreeableness, intellectual wit, talent, professionalism) or material (wealth, power, earning capacity) resources and skills. Such assets represent for her a source of attraction on a psycho-emotional level (F-AA), in that they cater benefits in social, relational, intellectual, quality of life terms, etcetera. In Way 1, F may be so fascinated by M to feel a psychological attraction toward him, irrespectively of his looks and physical characteristics.

2.2. Way 2

Now, we enter TU-C from M-AA which, being sexually excited, tries to sexually seduce F-RA (see Figure 2, M-AA → F-RA). This is the classical case where a man spots a woman to whom he is

Figure 2. Ways 1 and 2.



physically attracted, and thus sexually engaged. This turns on his M-AA, and depending on personality and circumstances the sexual activation can also evolve into a predatory attitude that leads to sexual opportunism. M-AA will generate increasing doses of direct reward, which will lead M into seeking close physical contact with F, and the choice of the how, and of the how much, will be an integral part of M's calibration of the strategy. Such a direct approach exposes M and, if the level and kind of physical contact becomes improper from F's viewpoint, may slip into socially sanctionable sexual misconduct. Way 2 is the position chosen by a man who does not care for psycho-emotional involvement that ties him up to a specific F, preferring instead to concentrate upon the mere accomplishment of his direct reward (see e.g. Goetz, Easton, Lewis, & Buss, 2012).

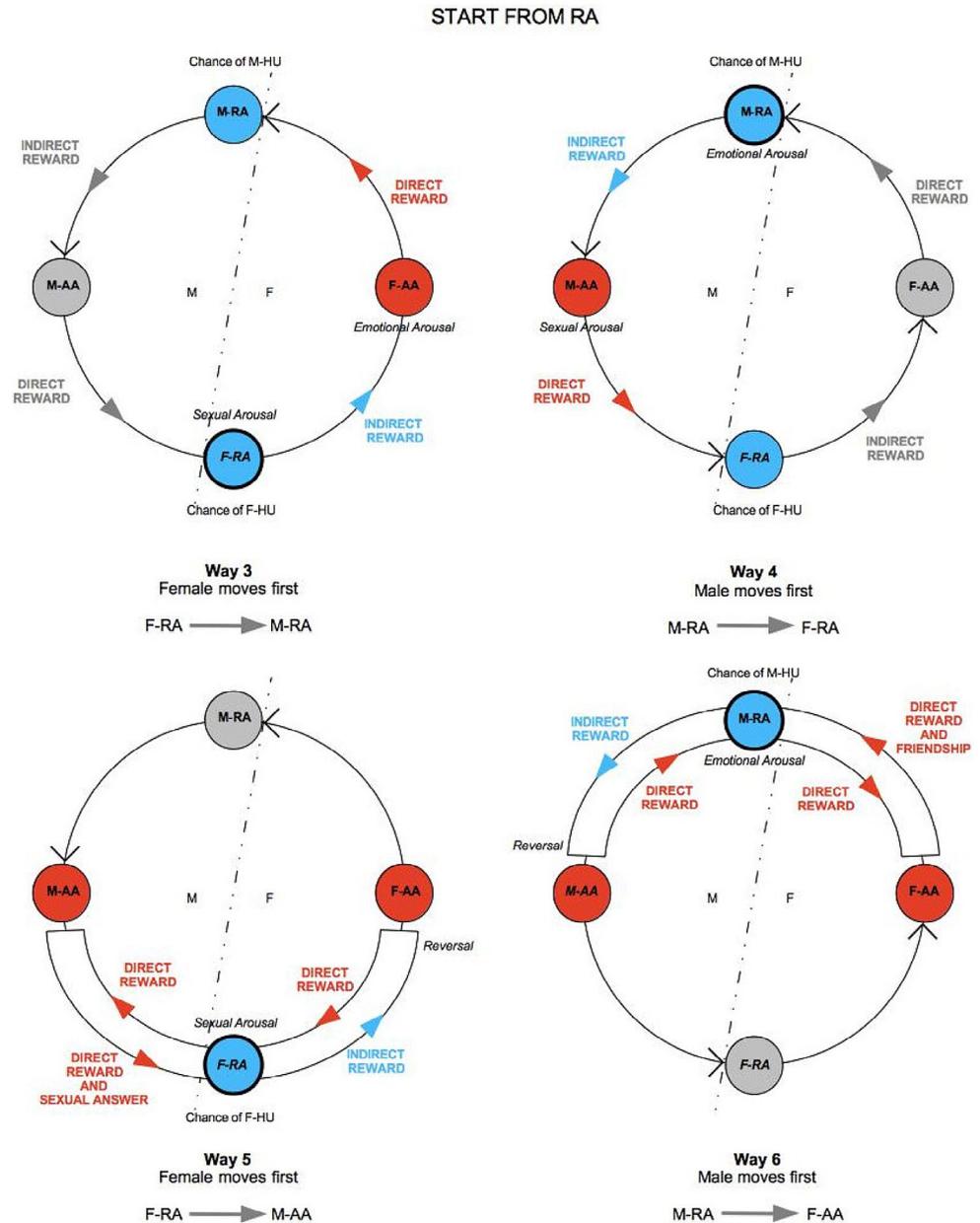
2.3. Way 3

This time, the start is from F-RA which, being sexually excited, aims at a psycho-emotional seduction of M-RA (see Figure 3, F-RA → M-RA). This is a case where F-BCT has taken place for F, even fortuitously without anyone noticing, including the M who is being tested (Way 3-I). If the test is successful, F begins to feel a sexual attraction toward M which is not initially accommodated by F-AA, which instead opts for a psycho-emotional seductive approach to the M in question. This Way covers examples of women who proceed with caution, without exposing themselves too prematurely to a F-TU, and emotionally re-processing their sexual instinct. But even if F-TU has already occurred, Way 3 women pay attention not to let it show before having (positively) checked the existence of the M-TU (see e.g. Harrison & Shortall, 2011). This strategy fits into a context of female emotional intelligence that minimizes the risk of (male) sexual opportunism, in the search for a long-lasting TU-C that guarantees a successful joint offspring rearing within the couple.

2.4. Way 4

Now we have a start from M-RA which, being psycho-emotionally excited, goes for a sexual seduction of F-RA (see Figure 3, M-RA → F-RA). Way 4 regards a man who feels a psycho-emotional attraction toward a woman. This leads him to be infatuated and even tied-up, and prompts him to try and make her tied-up in turn, through a physically centered approach. This is the Way that best represents a male subject who is fit for long-term mating and offspring rearing. The Way 4 man instinctively screens his possible female partners in this perspective, looking in the first place for a psychological compatibility with the woman who could sexually interest him, and turning down

Figure 3. Ways 3 and 6.



women who could be of interest on a purely sexual level. Way 4 represents the man who also wants to be mentally intrigued by a woman, and not only sexually. Moreover, the Way 4 man feels confident about being engaged on a sexual level once a suitable partner has been found, and proves to be more skilled and determined than the Way 2 one in the construction of a couple relationship. In fact, the Way 2 man feels accomplished with his own sexual, direct reward, and his search for guaranteed (physical) pleasure leads him to be selectively less demanding in terms of possible mating partners.

2.5. Way 5

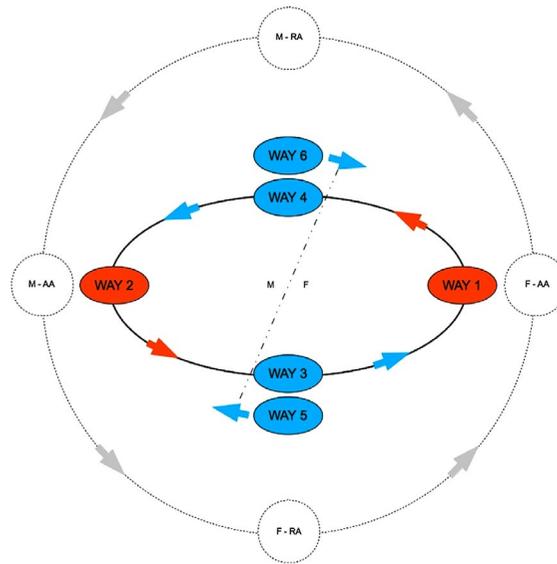
This is the case of a female subject who enters TU-C from her F-RA, gets sexually stimulated, but instead of following the default direction of the cycle, chooses to invert it to directly aim for the sexual M-AA which has caused her excitement—for instance, unknowingly in a Way 5-I mode, or consciously in a Way 5-R one (see Figure 3, F-RA → M-AA). This Way represents for instance the case

of single women who make their sexual choices as an expression of personal freedom and autonomy. The Way 5 woman sexually approaches the man at the beginning of the interaction, with the goal of reaching a satisfactory level of indirect reward. In the context of TU-C, however, this option does not necessarily guarantee to F an accomplishment in psycho-emotional terms, and many women complain about their extra difficulty in obtaining a satisfactory level of direct reward in the romantic sphere, if compared to men (Darghouth, Brody, & Alegria, 2015; Schmitt & Jonason, 2015). The reason is that, for F, the entry into the TU-C through a flow inversion according to the Way 5 logic indeed allows an immediate access to sexuality, but at the same time, in the absence of a tied-up M, strongly limits the opportunity for direct reward, and therefore the full social recognition of her (gendered) identity, which is linked to the expression of the F-AA. M, to the contrary, obtains a peak of direct reward from a relationship centered upon the sexual dimension, which allows him to feel entirely confirmed, in social terms, in his (gendered) identity. Being Way 5 centered upon indirect reward, it will expose F to the prospect of facing, and managing, a constant risk of a one-sided TU. A matching of a Way 5, be it in Impulse or Response mode, to a Way 2, for instance, will inevitably lead to the dissolution of the TU-C, in that M-TU is precluded. If M achieves the peak of his direct reward through the sexual intercourse before being induced to carry out M-PCT, he will have no incentive to explore F on a psycho-emotional level, in search of an indirect reward associated to a currently unstimulated M-RA. To the contrary, he will be urged by his M-AA to look elsewhere for new opportunities of direct, physical reward. A more fulfilling outcome will be at hand for the Way 5-R who ties-up to a Way 4-I or to a Way 6-I, as in this case the consequent D-TU will secure a durable TU-C.

2.6. Way 6

The last case left is that of the flow inversion operated by M, starting from a M-RA which, being psycho-emotionally excited, with a likely M-TU already in place, aims at psycho-emotionally gratifying F-AA, instead of following the natural anti-clockwise direction of TU-C, sexually seducing F-RA (see Figure 3, M-RA → F-AA). A typical Way 6 can be a very young male, but also a mature one, who is insecure in approaching and physically seducing the woman toward whom he feels attracted or to whom he is tied-up. Such insecurity may simply reflect lack of experience, as in the case of a teenager, but also a sense of inadequacy of some sort, or just a fear/certainty to be turned down by the woman. The Way 6 male, rather than running the risk of undergoing F-BCT and failing it, with the consequent dissolution of any further chance to remain by the side of the woman to whom he is tied-up, chooses the way of the friendship, the one that a woman never refuses, being for her a safe source of unwavering direct reward. The Way 6 then confines himself into the role of F's friend-confidant, making the shift to the sexual dimension increasingly difficult as the relationship moves further along these tracks. M's hope is that it is F to take the first step, which is ultimately the goal of a male-prompted flow inversion: rewarding F on the emotional level to unblock a frustration on the sexual level. This happens, for instance, in the matching between Ways 6-I and 5-R, the only one leading to a successful TU-C from such premises. But if the woman chooses to enter the TU-C from a Way 3-R position there is no chance. Even if she is physically attracted to M, she will nevertheless wait for M to move forward, not because of insecurity or lack of determination, but rather because this is a way to select a partner with a threshold level of masculinity, with the consequent exclusion of partners too lacking in their initiative. But the worse possible matching for a Way 6, be it in the Impulse or Response mode, is with a Way 1, who enters the TU-C without involving her sexual F-RA at all, and is consequently more than pleased by, and satisfied with, the mere friendship offered to her by the Way 6 male. If on the one side the Way 6 position may look irresolute and weak, it must be said as well that it opens some opportunities that may be fully tapped into for strategically sophisticated goals, and especially so in view of a future shift of Way (by migrating into Ways 2 or 4). The strength of this position lies in the very possibility to gratify the woman, even by means of a simple exercise in chivalry, or of a mild courtship. A man skillfully exploiting the Way 6 position is therefore able to gain an influence on many women, and consolidate a situation that might also prelude to a development of the relationship in sexual terms. In particular, Way 6, in the absence of close competition with other suitors, may represent an effective preparation strategy to gain female esteem and appreciation before a sexual approach, or simply to allow M to carry out his M-PCT on F without pressure, taking all the time needed.

Figure 4. The six ways and their relationships with the TU-C.



The final diagram below helps us to associate the numeration of the Ways to the typology of cases (see Figure 4), by visually synthesizing the relationships between each Way and the AAs and RAs of M and F, from which the TU-C moves in the various situations. In particular, we color in red the starts from the AAs, and in blue the starts from the RAs of each hemicycle, male and female.

3. Princes Charming are not all made equal: The characterization of the male Ways in four classical fairy tales

In this section, we present an analysis of four well-known fairy tales, all belonging to the list of the 14 fairy tales that Zipes (1993) defines as *classical* of the Western canon, that is, those whose knowledge and presence in the popular culture may be considered ubiquitous in Western countries, and which are moreover often present, with local variants, also in different cultural traditions. Within the list, in particular, we have chosen those fairy tales whose key topic is the mating process, and in which the couple is successfully formed. The four fairy tales that we analyze here are the only ones in the list that meet both conditions. Interestingly, they can all be read as conspicuous characterizations of one among the three male Ways of entry into the TU-C presented in the previous section. We will specifically deal with *Cinderella* (as an illustration of the typical male Way 4 approach), *Sleeping Beauty* (illustrating the Way 2 approach), and *Beauty and the Beast* (illustrating the Way 6 approach), and finally *Rapunzel* as an example of a transitional Ways 2–4 case of special interest. The other fairy tale in the Zipes list that lends itself to an interesting reading in the perspective of the mating process, namely *The Little Mermaid*, is not fully examined here in that it focuses upon the theme of the one-sided passion. We will present however some brief remarks on this fairy tale in the final paragraph of this section. It is also fair to observe that classification criteria entirely different from our own can be meaningfully applied to the Zipes' list, depending on the goal of the analysis. For instance, Bacchilega (1993) groups four fairy tales from the list, which partially overlap with the ones chosen here (*Rapunzel*, *Sleeping Beauty*, *Cinderella* and *Snow White*) as instances of the narrative topos of the prosecuted, innocent heroin.

From the viewpoint of their social cognition value, the popularity of these fairy tales may be interpreted, among other things, in terms of their capacity to capture the main features of the basic male mating strategies. At the same time, the analysis also shows how the most important elements of the narrative development of the story may be read as symbolic representations of key structural aspects of the interaction that eventually leads to the successful mating. The social cognition dimension, therefore, does not seem superimposed to the narrative structure of the fairy tale as an external interpretive layer, but rather appears to be a key constituent. The specific characteristics of

the acting subjects (including magical agents) and of the situations seem, specifically, to reflect in an accurate, punctual way, according to cases, various possible interaction scenarios as they have been conceptualized in terms of the Tie-Up Theory.

Our results may look at least partially at odds with those of Gottschall et al. (2003, 2004), which show how, on the basis of a vast collection of fairy tales from a variety of geographical and cultural contexts, a common narrative pattern is found, according to which male characters consistently place a greater emphasis upon the physical attractiveness of the female partner, whereas female characters mainly focus upon the male partner's capacity to gather material and social resources, and upon his reliability in securing them to the benefit of the family. There are certainly many fairy tales, including some variants of those analyzed in this paper, which consistently support this characterization. And yet, if the social cognition value of *all* fairy tales would be limited to this aspect, it should follow that, ultimately, both Princes and Princesses (that is, the male and female lead characters of the fairy tale) should, in a sense, be "all equal". It would, in other words, suffice that they embody the right bundle of desirable characteristics to be, *ipso facto*, chosen as ideal partners by the other. But the fairy tales (and in particular, the variants of the most well-known ones) which carry the highest social cognition value are in fact those that also lend themselves to further, more complex interpretations from the viewpoint of the structure of the interaction between sexes. And they generally are just those variants that gain the bigger salience in the collective imaginary, in that they present richer elements of knowledge if compared to more conventional variants and stories. As we will see in our analysis, in such variants of special interest, Princes Charming (as well as Princesses) are not "all equal". The results found by Gottschall et al. must therefore be understood from an appropriate perspective. They emphasize the narrative relevance of the characteristics that are typically associated to the social identity of the respective genders, and that are consequently deemed desirable for each. That is, in the terminology of the Tie-Up Theory, the characteristics that result most palatable from the viewpoint of the respective AAs. At this level, all possible partners are fungible, provided that they possess the prescribed characteristics. The key aspect of the mating process, however, concerns the reasons that lead somebody to tie-up to a *specific* person, and not to the exponent of a *generic* category. And it is at this level that the viewpoint of the RA comes into play, as it evaluates exactly those *unique* characteristics of the potential partner which turn out to be compatible with one's own, and functional to the creation of a well-balanced couple bond that may be resilient against the many internal and external circumstances that tend to destabilize it. Seen from this angle, even the well-known final clause that "they lived happily ever after" may be interpreted as a sanctioning of the stability and of the resilience of the mating just occurred. As we will see, the issue of the uniqueness of the characteristics that enable two potential partners to form a stable couple is expressed with special clarity in *Cinderella*. Not incidentally, this fairy tale explores the interaction scenario that most directly leads to the formation of a stable couple, the one corresponding to the combination Way 4-I + Way 3-R.

3.1. Why does Prince Charming fall in love with Cinderella?

The most obvious answer is that Cinderella sums up all the virtues that are normally associated to a desirable female potential partner in the context of the fairy tale. She is generous, humble, patient, abiding, and loving toward animals and more generally fragile creatures (even if with relevant differences between variants; see for instance Yolen, 1977). There is moreover a crucial intervention by magical agents which work hard to make Cinderella fit to the Prince's social context, putting at her disposal magical objects such as the carriage and the regal outfit. The only female figures to whom Cinderella is compared are her stepsisters, which represent mirror-like negative models of the least desirable characteristics for a successful mating: they are pretentious, self-regarding, intolerant, overbearing, and gross. In its essential synthesis, the fairy tale builds upon this contraposition as if there were no other suitable female candidates who could aspire to the hand of the Prince. As to Cinderella, the magical objects with which she is endowed, and in particular the magnificence of the dress, together with her beauty and her grace that denotes a noble soul, all conjure up in making her stand out from all the other young ladies, and to consequently attract the attention of the Prince,

who does not want to dance with anyone else during the whole evening. But is this enough to ensure that the Prince gets tied-up to Cinderella?

In the narrative development of the story there is in fact a key moment, when a stratagem is enacted, which is not the fruit of an intentional choice by Cinderella, but rather of the Good Fairy's astuteness (which seems here to implicitly legitimize herself as the true connoisseur of the nuances of the male nature). The spell cast by the Fairy has a limitation: it does not last beyond midnight, and this unwillingly forces Cinderella to abandon the Prince in the very middle of the party, when he has eyes only for her. This unexpected turn of the events throws the Prince into despair: what kind of woman would ever flee from Prince Charming? In terms of the Tie-Up Theory, the answer is: most likely, or better certainly, a Way 3 one. And especially so as the night gets deep (that is, when the time of sexual intimacy arrives). The mechanism of temporal limitation of the spell clearly amounts to a frustration exerted by Cinderella upon the Prince, who for the first time comes to ask himself a question that until then he had (significantly) ignored for the whole evening: "Who is she?". It is only when the Prince suddenly loses Cinderella that he realizes to know nothing about her. But this omission is neither fortuitous nor a distraction. The Prince, fascinated by the mysterious beauty of Cinderella, has been so far stimulated only in his M-AA, and in fact a M-AA does not lose itself into preambles or sideways when it focuses its attention upon an attractive female subject. The Prince's goal, in this situation, is simple and concrete: the tie-up of F-RA and the sexual seduction. It is true that the Prince has been courting Cinderella for the whole evening, but his interest has been basically pointed toward feeding his own direct reward. That is to say, confirming, in the first place to himself, his successful masculine identity, as well as his regal power as the Prince who is entitled to have all for himself the most charming lady of the party. When midnight arrives, the Prince ignores everything about Cinderella, including her name, because his M-RA has not yet come into play at all. The eloquent proof that all his attention and interest have been so far exclusively driven by his M-AA stems from the fact that the Prince has only cared about the pleasure of the seduction, probably reaching his goal to make Cinderella tie-up as they danced all along, during the moment of close physical contact which enabled Cinderella to carry out her F-BCT.

Frustration therefore plays a key role in the mating interaction between Prince Charming and Cinderella, and especially so if an expert Fairy intervenes to dose it well. The Fairy's imposed limit of the duration of the spell, by causing the Prince's frustration, has indeed brought about a stimulation of his M-RA. Because of his condition of privilege, the Prince is probably self-complacent enough to think that everything is due to him, even love. Without this stratagem, the Prince would have probably entered the TU-C from a Way 2-I position. And Cinderella would have perhaps naively accommodated him with a Way 5-R, clearly intimidated by the patent difference in status, and in the impossibility to ponder a more cautious Way 3-R position reflecting the maxim that "in love, the winner is the one who flees".

The fact that the Prince now looks more desperate than disappointed from having let the object of his desire flee from him, seems to suggest that his M-RA has turned on. The young man's despair is the external signal of the engagement of his M-RA, and therefore of the launch of his M-PCT. The party at the Palace goes on for three evenings, and this sequence symbolically denotes the time needed by the Prince to carry out the M-PCT and to get tied-up. Not incidentally, on the third and last night Cinderella's dress is the most gorgeous and regal of all, to certify that the test has been positively passed. She is, therefore, the young woman who has managed to conquer the Prince's heart not just on the apparent level of physical beauty, but on the essential one of her psycho-emotional qualities. The little shoe—that in the French version by Perrault is made of fine crystal—stands here for a double metaphor. As long as it is worn by the delicate, graceful foot of Cinderella, the transparency of the crystal reflects the transparency of the young woman's soul, that does not hide, unlike her stepsisters, any deceit, any gulf between reality and appearance. But when Cinderella loses one of the shoes in her last flight, her shoe becomes the symbol of the M-PCT itself, and is consequently used by the Prince as a benchmark to select his spouse. A test of compatibility between a shoe size—out of the ordinary because uncommon—and a foot—whose shape corresponds to the required

canon. This is the essence of the M-PCT—*only one* young woman in her marriage age in the whole kingdom will be able to wear *that* little shoe so peculiar, of an uncommon size, that reveals a small, graceful foot, but also delicate, fragile and, above all, transparent like an undecieving psyche. It is meaningful to notice that, in the versions preceding the French one by Perrault (cf. Dekker, van der Kooi, & Meder, 1997),² Cinderella's little shoe was not made of crystal, but of a precious metal (generally gold), that is, it merely indicated preciousness, namely its relevance from the AA's viewpoint. The choice of the crystal, which is tellingly fixated into the canonical variant of the story, is instead a symbol that is entirely centered upon the logic of the RA. It underlines the crucial character of the male test, illustrating its deep rationale, that is the psychological "transparency" of Cinderella and the frail sensitivity of the Prince's psycho-emotional sphere—an aspect that is systematically (and improperly) removed from the definition of the male gender identity (Kraemer, 2000).

The lost little shoe puts the Prince on the trail of Cinderella. The Prince strives to find her, that is, to finally know her for what she really is. The raging search through the whole kingdom is the symbol of the shift of the male interest from the sexual to the psycho-emotional level. The small-sized foot denotes Cinderella's humbleness, whereas her grace denotes her noble feelings. At this point—in the German Grimm Brothers version—the stepsisters make a resolution to cut a body part of theirs in order to fit the little shoe that will allow the marriage with the Prince. One cuts her toe, the other her heel: their feet, which are too big and graceless, symbolize their arrogance and their coarse soul. The self-mutilation, concealed and sneaky, stands for the self-manipulation by someone who pretends to be what (s)he is not, in order to successfully pass the test carried out by the potential partner. In other words, the self-mutilation denotes the violence individuals may direct upon themselves by literally self-intimating to remove or silence parts of their own personality, with all the psychic suffering that ensues. This is what happens when someone enters a TU-C by simulating a TU which has not really occurred, to achieve some sort of extrinsic benefit like status, power or wealth. The blood that stains the little shoe exposes the attempt at manipulation by the stepsisters, the sign of something that does not naturally fit—once again, a metaphor of the impossibility of the trick to last long enough, so that it sooner or later becomes manifest and visible, both in the fairy tale and in the TU-C, like the bright red of the blood spilled from the amputation.

The TU-C has finally kicked off. The Prince enters into it already tied-up, in a Way 4-I (Impulse) mode, resolute and ready to overcome all obstacles—represented by the stepmother who keeps Cinderella relegated in the servants' room. The Prince neither gives up, nor pays attention to those who assure that Cinderella cannot be the young lady he is looking for, given the position she occupies within her own family. But now, it is not the M-AA (and thus the pressures and the social conditionings to which the M-AA is sensitive), but rather the M-RA that ponders the real, psycho-emotional value that the young woman has for the Prince. The eventual success of the search, that is, finding the one to whom the little shoe belongs, will feed the Prince's indirect reward, and in addition confirm to Cinderella that the M-TU has occurred—that is, what a Way 3 expects to ascertain before revealing, in turn, her own F-TU. Therefore, Cinderella steps out to the presence of the Prince and of the court dignitaries, to eventually reveal her identity.

3.2. Why does the Prince wake Sleeping Beauty up with a kiss?

Sleeping Beauty—Little Briar Rose in the Grimm Brothers version—is a female beauty as rare as deeply asleep since at least one hundred years. Even the castle where she lies is asleep with her, since that fatal day when the malicious spell has been cast: "In the castle, everything that is alive instantly falls into a deep sleep. Even the wind stops. Around the castle, a wall of thorns grows, that hides it from view and makes it inaccessible" [English translation ours] (Dekker et al., 1997). The castle is a typical *topos* in fairy tales. Interpreting it in the light of the Tie-Up Theory, in the fairy tales focusing upon the mating process, the castle may be seen as the instantiation of the TU-C itself—curiously, it even reminds its graphical scheme, with the circular paths of the walls and of the moat, the defensive towers that stand, like the Areas, along symmetric axes, and the centrality of the whole fortified structure. When, in this fairy tale, the Prince manages to sneak into the castle, he in fact

enters first in a TU-C which does not show any vital sign, that looks asleep because asleep (that is, inactive) is the Princess' F-RA—a sexual RA that, as a matter of fact, has never switched on.

The age of the Princess whose coming activates the spell, the day of her 15th birthday, has a clear meaning. It is the age that represents the gateway toward the physical (sexual) maturity, the watershed between the biological state of child and that of woman who can generate an offspring, but also get in love. Symbolically, the Princess is blocked into a frozen time that precedes love passions. Consequently, if the F-RA does not manage to switch on, the TU-C cannot start, as the F-RA is unable to generate by itself the reward component, the indirect one, that is necessary to feed the cycle. “The wind stops”, says the fairy tale’s text. The wind is, here, the flow of rewards that moves along the cycle and keeps it going, as it would be for a wind that circulates within the walls of a castle, refreshing the air in its rooms.

The dense bushes of thorns that have grown all around the castle stand for the inaccessibility of the TU-C. Therefore, becoming part of such a TU-C is practically impossible, as long as the Princess' F-RA does not wake up and the F-BCT cannot be carried out. The Prince is the only one who succeeds to get in, obviously because he is the chosen one, the one who can successfully pass the Princess' F-BCT. But in order to launch the test, in this difficult case of total inactivity and lack of sensitivity of the F-RA—as it is the case when one is asleep—a well-aimed intervention that deeply shakes the F-RA is called for: that is, a kiss. The kiss is, in itself, a perfect physical-chemical test. Starting from the contact of the lips, and the probing of the odor and the taste, up until the exchange of saliva and microbiome (Kort et al., 2014), a true concentrate of sensory experiences, of energetic samplings, of hormonal exchange (Floyd et al., 2009). This is why, with a kiss, the Prince is able to wake Sleeping Beauty up and to get her tied-up.

But what does the fairy tale tell us about the Prince? Why does he enter the unwelcoming castle/TU-C? He cannot be tied-up already, as he does not know the Princess—and however, the beauty of a sleeping woman would not suffice to cause a M-TU anyway. As a matter of fact, the Prince cannot finalize his M-PCT being the woman asleep even in her active, conscious part: the F-AA, the psycho-emotional area that needs to be tested by M. The occurrence of the Prince's M-TU before the Princess awakes is therefore out of question. This necessarily implies, therefore, that the Prince has entered the castle, and therefore the TU-C, with a Way 2-I intention. In fact, in an earlier version [which can be found in Giambattista Basile's *Pentameron*, 1634–1636; cf. Dekker et al. (1997)] the Prince does not quite appear to us in a good light at all. Indeed, his behavior is rather vile: he impregnates the Princess while she is asleep, and she eventually wakes up only thanks to one of her children who, sucking one of her fingers, removes a flake of flax stuck in her flesh, that was the cause of her perennial sleep. “Perrault must have thought that the motif of the impregnation during the sleep were inappropriate for the public of his readers, and the impregnation is therefore postponed after Little Briar Rose wakes up. With this civilization of the Prince, the motif of the birth of the two children during the sleep, and that of the flake of flax sucked away are dropped. The flake is therefore substituted by the spindle. As regards the sexual theme, the fairy tales by Perrault and the Grimm Brothers clearly differentiate themselves from the previous versions” [English translation ours] (Dekker et al., 1997). In this case, it is questionable to maintain that the Prince may be “in love” with Little Briar Rose, in the light of the condition of the Princess and of the fact that the Prince has never met her in a vigilant state. Therefore, the attraction must have been mainly sexual, with an entry into the TU-C without a M-TU. Moreover, generating an offspring and giving birth to them while asleep, that is, a sexual activity without any involvement of the F-RA, may also be considered a metaphor of the once frequent combined marriages, which did not leave to the couple a previous chance to reciprocally test their compatibility. Perrault and the Grimm Brothers elevate the Sleeping Beauty fairy tale to a romantic love story, at least as regards the version whose main character is Little Briar Rose. With the kiss that awakes her from sleep, that is which turns the Princess' F-RA on, the Prince successfully passes the F-BCT, revealing himself as a carrier of a genetic endowment that is perfectly compatible with that of the Princess.

The Prince's TU, however, remains to our judgment uncertain, and one hopes that it has finally occurred with the marital cohabitation, making the clause of the "lived happily ever after" a little more credible. This latter clause is another *topos* that recurs in many fairy tales. In those where the triumphant formation of the couple finally takes place, it may be, as already remarked, interpreted in Tie-Up Theory terms as a way to denote a perfectly functioning TU-C, fed by its own flow of direct and indirect rewards that self-regenerate in time. There is however a clear diversity between Cinderella's Prince, whose enamoring is founded upon the M-TU (and therefore upon the psycho-emotional M-RA's switch-on in Way 4 mode), and the Prince of Little Briar Rose, who just enamors himself by looking at the Princess, i.e. because of a simple fascination with the physical beauty of the asleep young woman (and therefore, by switching on his sexual M-AA in Way 2 mode).

3.3. Does Bella love the Beast, or the Prince of whom she ignores the existence?

The question posed by *Beauty and the Beast* concerns the possibility for a woman to feel attraction for, and therefore get tied-up to, an unappealing man according to the prevailing esthetic canons. And consequently, whether is it possible, even for frankly ugly men, to find women who are sincerely attracted by them on a sexual level. Obviously, esthetic canons are entirely relative to epochs, places, conventions and personal tastes, and yet this fairy tale provides an opportunity for reflection on the complexity and lack of predictability of the F-BCT, which is not exclusively based on visual criteria. It is moreover interesting to point out that the fairy tale is inspired to real events happened in XVI century France, at the court of Henry II, who received, as a wedding gift for his marriage with Caterina de' Medici, a caged *homme sauvage*. He was believed a man-animal hybrid due to his monkey-like semblance, entirely covered with hair, face included, but he was in fact a common human being, called Pedro González and captured in the Canary Islands (Katritzky, 2014). González was simply affected by hirsutism—a somatic trait which, within reasonable limits, may even function as an attraction cue (Dixon, Halliwell, East, Wignarajah, & Anderson, 2003). The King gave the man an opportunity for education, which was readily tapped into, and made of him a cultivated, appreciated person. The Queen also decided, for the amusement of the court, to find him a bride, and an attractive one in particular, to sharpen the contrast of physical appearances, with the goal of breeding a dynasty of human freaks to exhibit at the court events. Subsequently, the entire "monster" family was ceded to the Princes of Parma. It is reported that the couple led, despite the circumstances, a fulfilling life. The Prince Ranuccio Farnese acknowledged González as a dignified, fine-mannered gentleman, and conceded him to retire with his family in the estate of Capodimonte, on the shores of the Bolsena Lake in Central Italy. González's story caused an uproar at the time, and his singular vicissitudes broke into the collective imaginary, inspiring the fairy tale which spread over Europe starting from the second half of the XVI century.

In the case of a healthy man, of normal complexion if not for the hypertrichosis disturbance, whose dysfunctionality is more esthetic than organic, the biological compatibility with a woman is in principle always possible, provided that F-BCT is successfully carried out. The excess of hair thus becomes a peculiar, distinctive personal feature, whose esthetic evaluation depends on subjective judgment not unlike a big nose, a chubby body, a bald head or a couple of protruding ears. A mere visual test, despite its unquestionable relevance, is not enough to confirm or exclude a genetic compatibility, to the benefit of men who poorly exemplify the most ordinary esthetic canons. And it is far from granted that, to the opposite, a man that meets all the conventional criteria for handsomeness would result attractive to all women. Traits like skin odor, bodily energy, the sound and pitch of the voice, the masculinity of the somatic traits, and even the gesturing and the posture, may trigger quite diverse levels of appreciation in different women (Ferdenzi, Lemaitre, Leongomez, & Roberts, 2011; Hodges-Simeon, Gaulin, & Puts, 2010). In the case of Pedro González, one may conjecture that the culture and personal qualities of the hirsute man have likely contributed to turn his combined marriage into a stable union according to the chronicles, improving the chance of a TU in his wife. In fact, the F-AA plays a complementary role to the F-RA in the formation of the TU, either by contrasting its development, even to the point of psychologically filtering off all the related signals and events, or to the contrary by favoring it and providing emotional support to its positive unfolding. Much depends as well upon the male approach. In situations marked by a potentially problematic

physical aspect of M, his way of addressing F cannot be too exuberant, and calls for a flow inversion in the direction of a psycho-emotionally rather than sexually focused communication, to exploit the advantages of an entrance into the TU-C in a Way 6-I position.

Paradoxically, it is instead in the fictional imaginary of the stories whose main characters are physically repulsive men that any possibility to form a stable couple seems denied, and especially so in the absence of magical expedients. One may easily think of well-known examples such as *The Phantom of the Opera*, *Notre Dame de Paris* or *King Kong*. In these stories, not only the female character does not get tied-up to the “monster”, but although unintentionally, she typically becomes an indirect cause of his death. In this perspective, *Beauty and the Beast* represents an interesting exception. In fact, the Beast eventually returns to his original guise as a handsome Prince once the spell is broken, and this happy ending tends to reassure the audience. However, it remains true that Bella has no foreknowledge of this scenario, and must therefore consider the possibility to tie herself up to a monster-looking potential partner at the key moment of choice in the story.

How can it be possible that Bella gets tied-up to a partner like that? We have seen so far two different possibilities of entry into a TU-C by fairy tale Princes: the Way 4-I of *Cinderella*'s Prince Charming, and the Way 2-I of the Prince of *Sleeping Beauty*. The case still missing, the Way 6-I one, is conspicuously represented by the Prince in the shoes of the Beast in the classical fairy tale we are now dealing with. From Tie-Up Theory, we know that the Way 6 position is the most strategic, and the best option when the possibilities of success look meager if not hopeless. How can physical revulsion not be a dead end, provided that F-BCT is entirely based upon the probing of genetic endowment to be transmitted to the offspring? It is on the other hand true that the test does not rate certain desirable physical traits (beauty, strength, healthy look) at their face value, but rather sanctions the *compatibility* between the genetic endowments that will have to be combined. As a consequence, the outcome of the evaluation may be driven by widely subjective criteria. But still, how can a repulsive “beast” be palatable to a young woman, and a very beautiful one at that, who could safely aspire to a true Prince, that is, to a highly desirable male partner (Buss & Shackelford, 2008)? The perpetrator of the malicious spell has contemplated, probably with an equally malicious intention, a very remote possibility to break it, which entirely builds upon such a paradoxical situation. The Beast must elicit sincere love from a young woman who is unaware of the spell. In such a condition, therefore, the adoption of Way 6 is not the consequence of an insecurity in one's own seductive abilities, but rather the only reasonable strategy that may offer some chance that the carrying out of F-BCT is not refused in principle by a disgusted, panicking woman.

The fact that the Beast's choice of the Way 6 option does not stem from insecurity but, to the contrary, from an intentional, well-pondered choice, is proven by the resolute, almost violent approach with which he barges into Bella's life. He takes her away with him as a retaliation to her father, to punish him for having stolen a rose. The Beast “generously” concedes not to take the man's life, a quite far-fetched punishment for a minor infringement, and to claim Bella as a pawn instead. Bella accepts the sacrifice as a token of filial love, and voluntarily moves into the Beast's enchanted castle, that is, enters the TU-C. The Beast then impersonates a rather self-confident Way 6-I, who makes use of a stratagem to attract the woman into the TU-C and to conquer her trust, leading her to respond to the initial impulse from a Way 1-R position. The Way 6-I + Way 1-R generally represents a no-go, in that it does not lead to the occurrence of a stable TU-C due to the male's one-sided TU. The only concrete chance of a different unfolding lies in the fact that F-BCT has not occurred yet. This at least leaves some hope still alive, however feeble, as to the possibility that the test, once carried out, yields a positive outcome. The goal of the Beast, quite ambitious and rather difficult, is that of inducing a change of Way in Bella, from Way 1-R to Way 5-R, as an outcome of the F-BCT that he cannot but hope will turn out positive. As far as he is concerned, the Beast, due to his hideous looks, may only remain confined into Way 6—and such narrowness of possibility is in fact the riskiest feature of Way 6 in TU terms—with no chance to switch to Way 4 without alarming Bella. The Beast can only wait, and hope that Bella will make the crucial first step for the launch of the TU-C, proposing to him.

A key resource for the Beast is the power of magic that pervades his whole castle. It is him who sets the rules, with full faculty to pour into the castle/TU-C all the direct rewards that may be of help in fascinating Bella. He inundates her with presents, and especially clothes to gratify her F-AA, that is, the female gender identity, making her feel beautiful and desirable. Moreover, his gentleness, interest and care inspire a sense of appreciation and consideration in Bella, thus generating further direct reward with the goal of making her F-AA the accomplice of an apparently impossible F-TU. Bella grows affectionate toward the Beast, and finds in him a reliable friend, whose generosity and noble feelings—that is, the opposite of the qualities that his horrible looks might suggest—are gratefully acknowledged by her. However, in terms of physical attraction, Bella keeps on remaining quite distant. From its early developments, in fact, the fairy tale maintains an ambiguity about Bella's real dispositions, without taking a clear position as to the possibility that her affect may turn into love, or else that what she may feel for the Beast only derives from pity or sense of guilt. In the version of the *Histoire de la bete* by Gabrielle Suzanne Barbot (1740), the story simply concludes that: "The maiden returns to the castle too late [after having visited her father] and, finding the monster terminally ill, decides to concede herself to him. The monster slips besides her into the bed. The morning after, the young woman wakes up next to a handsome young man" [English translation ours] (Dekker et al., 1997).

Even the Beast's real feelings get little attention in the fairy tale, that seems to take them for granted, both because of the combination of the physical and psycho-emotional virtues of the young woman, that make of her an ideal female partner, and because of the lack of real alternatives for the Beast to recover his original condition. It is interesting to remark that this fairy tale has originated a rich repertoire of TV, movie, and cartoon versions, each of which seems to propose a free interpretation of its own of such ambiguities, that reflects the tastes and orientations of the reference audience, of the country of production, and of the epoch. For instance, in France we have Jean Cocteau's 1946 movie version, where Bella declares her love only when the transformation of the Beast has already happened, and when she discovers that the Prince's looks are identical to those of an idle young man that she liked, but that she previously refused for being permanently penniless, and who now suddenly turns desirable in his new guise as a Prince. And we have the recent 2014 movie version by Christophe Gans, where the Beast's approach is decidedly more sensuous, and more apt to credibly engage Bella's F-RA without willing to elicit her pity. Both versions, despite their wide differences, provide enough reasons to justify the Beast's TU, and quite significantly they symbolically insist on the visual sphere, that of Bella's gaze, whose eyes stand for the psycho-emotional dimension that goes beyond the appearance. In the 1946 movie, the Beast intimates to Bella: "Never look into my eyes!" and subsequently: "Your gaze makes me burn! I cannot resist your gaze!". In the more recent version, instead, the Beast says: "You have seen me for what I am. Tell me that I disgust you! Tell me!". In both cases, Bella's gaze makes the Beast feel dismayed and in awe because her gaze has the capacity to penetrate and to read behind the surface, that is, to arrive at deciphering and knowing the male interiority sphere. Bella's gaze, in other words, hits the M-RA, subjugates it, and makes the Beast tied-up. The Beast certainly gets tied-up, neither because Bella is beautiful, nor because she represents the chance to break the spell. The Beast gets tied-up because Bella succeeds in understanding him, in penetrating his world of contrasted emotions, and to behold the Prince who is in him despite the beastly appearance. In the 1946 version, however, there is no trace of the TU of Bella, who only speaks about affection and points out that love is an entirely different thing. In the more recent version that leverages upon an erotic tension factor, the possibility of the F-TU seems less remote. Conquered in her F-AA, Bella does not suspect that her defensive barriers are lowering down, and that she is gradually accepting not just the company, but also the *physical* closeness of the Beast. And such closeness will finally allow the F-BCT to be carried out.

The scene of the ball, which is present in several versions but significantly absent from the 1946 one, represents the crucial, only legitimate moment of close physical contact between Bella and the Beast, and is a unique opportunity for the execution of F-BCT. In the 2014 version, it is Bella herself who asks for it: "I have a proposal. A few hours with my family", and the Beast: "In exchange of what?", and Bella: "A ball. But you have to let me see them". Not even the Beast fully understands the implications of this offer, and complains: "I feel like I am a beggar to you". But Bella provokes him to

force his acceptance: “I will guide you if you are scared”, to which the Beast responds: “Are you not afraid to dance with me?”. Bella ends up answering with an invitation that she will be the first to accept herself: “Let go”. This exchange seems to hint, by alluding to Bella’s possible guidance role in the dance, to her active role in carrying out the test, and consequently the nervous reaction of the Beast seems to reflect his fear of the upcoming final, irrevocable examination of his genetic fitness by Bella. All the versions where Bella dances with the Beast agree about the fact that Bella does not find the experience unpleasant. The sensory close contact, and especially the kinesthetic harmony, the correspondence in the dance movements which is an energetic metaphor of sexual resonance, her half-closing eyes and her head leaning on the Beast’s chest, all reveal that F-BCT has been positively passed even if Bella does not look like she has been tied-up. It might be, however, that Bella got tied-up with the dance but did not immediately become aware of it. Most likely, her F-AA refuses the very idea to feel attraction for a being who, as shown in another scene to an utterly horrified Bella, satiates her hunger by brutally tearing his prey apart. Such a refusal is metaphorically represented by Bella’s attempt at flight in the middle of the snow storm. When the Beast reaches her, taking her down on the icy surface of the lake, and while lying with his body on hers attempts a kiss, Bella strangely does not scream nor tries to squirm out. This staying still, even if petrified from terror, reveals that her F-RA is turned-on by now. At this point, the possible death of the Beast and her desperate reaction acquire a new meaning. This is no longer the pitiful weeping about an agonizing King Kong, to whom the female character is certainly not tied-up. Here, the agony of the Beast becomes for Bella the opportunity to acknowledge her own feelings, and in particular the existence of the bond, the TU, which the Beast’s death could break off forever, throwing her into a deep affliction. Eventually, then, Bella responds in Way 5 and kicks off the TU-C—that is, she takes the initiative by proposing to the Beast and, in some versions of the story, even kissing him. This is the indispensable move for the spell to be broken and the Prince to be freed from the curse—which is apparently the curse of the Way 6 man trapped in his role of the everlasting friend to whom love is sadly precluded.

Bella tests the Beast for real, and the test ends up successful despite the Beast’s horrifying aspect. The nature of the test, as we have seen, is all but psychological, even if in many versions the fairy tale insists on the fine qualities of the hideous being’s personality—therefore speaking a language that is more consonant to the F-AA than to the F-RA. The F-BCT that Bella carries out upon the Beast, and not upon the Prince, seems to allude to the testing of the animal-within-the-man (Puts, 2010). If this weren’t so, Bella’s declaration of love for the Beast could be maliciously read as a sign of a camouflaged opportunistic interest on her side, aiming for instance at the Beast’s wealth or power—an interpretation that conflicts, however, with Bella’s qualities and motivations. Or, Bella’s declaration could be a sign of compassionate pity for the Beast’s fate—a feeling which is quite distant from what is needed to consolidate a stable couple. When Bella leaves the castle to go and visit her family, the acknowledgment of having put the Beast at a distance and the consequent sense of loss that assails her, causing a frustration, makes her finally aware of the occurrence of her F-TU, and of the bond that finally unites her to that uncanny, but no longer horrible, being. The spell is thus broken and the man is saved from his animalism, from the instinctiveness of his M-AA, through the conquest of his M-RA. That is, by pouring new life into his human part, the most emotionally, psychologically evolved one, and thus by giving him a new balance.

3.4. Is Rapunzel truly locked into her tower?

The Way 5-R replies by the female characters of the fairy tales are not so rare. Rapunzel represents a perfect incarnation of the young woman who takes the initiative in the relationship with the other sex, dropping down from her room’s window her long braids of hair to allow the Prince to climb directly into the TU-C—the door-less, stair-less tower where only the chosen ones may enter. This is a Response and not an Impulse mode in the TU-C though, because it is the Prince who makes the first move and, with a stratagem—imitating the Witch and pretending to be her—manages to penetrate the inaccessible tower. He could be a Way 2-I in search of adventure, attracted by Rapunzel’s beauty. The unfolding of the events will tell, and the crucial passage will be the ordeal that follows the offensive of the Witch, who is vengeful and incapable to love Rapunzel like a true mother would, that is, by desiring the fulfillment and the happiness of her daughter.

In this fairy tale, we meet a Prince that undergoes a change of Way. Initially, as already remarked, he is the classical, passing-by Way 2-I, who however gets tied-up and shifts to a Way 4-I position. But it is how this happens that makes this fairy tale of special interest. Quoting from the fairy tale's text: "When the Witch finds out that the Prince is visiting, she confines Rapunzel in a desolate place. The Prince jumps down from the tower, loses his sight in the act and wanders for years and years. Finally, he finds the young woman: Rapunzel's tears fall upon the Prince's eyes, and he regains his sight. The young couple lives a long, happy life with their children" [English translation ours] (Dekker et al., 1997). The Prince's blindness is not a minor detail here, but stands for his exit from the TU-C—"the Prince jumps down from the tower"—when M-TU has already occurred. His wandering blind "for years and years" symbolically represents the man who remains tied-up to a woman but roams from one relationship to another without appeasing his lack of indirect reward, that is, remaining emotionally blind with respect to the other women. For the Prince, finding Rapunzel again, the woman he longs for, means recovering his lost sight, that is, returning to savor those indirect rewards that once made him tie-up to the young woman. Likewise, also for Rapunzel the "desolate place" is another metaphor of the forced exit from the TU-C when the F-TU has already occurred. The desolation here emphasizes the absence of female indirect reward, that is, the implausibility of finding another partner, to substitute the still living TU with a new one, and to form a new couple.

This fairy tale tells about how a Way 2-I may engage a female Way 5-R into a TU-C which has apparently no chance to last. But then it is revealed that, as a matter of fact, M-PCT had somehow been carried out with a positive outcome—the fairy tale does not insist on what happened in the tower during the Prince's visits. In some older versions, the young couple conceives of two children, whereas in other, purged versions for the childhood they limit themselves to talk and to know each other. The happy end depends on the fact that the D-TU has stayed alive beyond the dissolution of the TU-C for external causes. A new TU-C can therefore start after the positive ending of the ordeal, and its long-lasting outcome will be the happy couple with their children. A failed cycle may therefore also lay the premises for a new one, built on a firmer basis. When Rapunzel weeps for the sad fate of the Prince, who has become a poor, blind beggar, she does not take again the Way 5-R position but now moves to Way 3-R, as she communicates with him no longer on a sexual level but on an emotional one: "Rapunzel's tears fall upon the Prince's eyes", and therefore the fact that "he regains his sight" clearly represents a newly switched-on M-RA, which causes in turn the re-launching of the TU-C.

3.5. What about the other Princes?

The Zipes' list of the classical fairy tales also includes very well-known Princes such as the character of *The Frog Prince*, and the Prince of *Snow White*. However, we do not analyze them in this paper as the corresponding fairy tales are focused upon different themes and not upon the mating process, so that when there is a marriage in such tales, its occurrence is merely the sanction of the resolution of other kinds of issues.

The Frog Prince fairy tale, for instance, provides a metaphor of the exit from the infantile age and of the female sexual maturation, because of which the male transforms from a repelling frog into an attractive, lovely Prince. In this case, the inter-subjective perspective is entirely focused upon the female viewpoint, and the Prince is in fact a virtual character of whom nothing is said, apart from his mere gender identity. Very little, on the other hand, is also known about the *Snow White* Prince, who appears at the last moment and only indirectly determines the dissolution of the spell: "One day, the son of a King happens to pass there: he gets in love with the beautiful dead woman, and the dwarfs give him the coffin as a gift. As they carry it away, the servants trip. The collision causes the bite of poisoned apple to get out of Snow White's throat, and she wakes up" [English translation ours] (Dekker et al., 1997). This Prince sits in an indefinite position, somehow in the middle between the Prince of *Sleeping Beauty*, which however intentionally ventures into the forest of thorns that surrounds the enchanted castle to reach the Princess—and is not passing there by chance—and the Prince of *Cinderella*, who after having met her at the party looks for her throughout his kingdom: that is, between the non-tied-up Way 2 and the tied-up Way 4. This indeterminacy must have been disturbing to Walt Disney, who in his cartoon version has made this Prince more engaged, more

romantic, and already present before Snow White's escape into the wood, when Snow White is still at the castle, but is relegated by the stepmother-witch to the housework that is typical of Cinderella. Moreover, Disney has assigned to the Prince the key task of breaking the spell with a kiss, like the kiss that marks the *Sleeping Beauty* narrative arc. Apart from such ambiguity, though, the focal topic of *Snow White* is not the troubled building of the relationship between the heroine and the Prince, like in Cinderella, but rather the conflictual relationship between the stepmother and the stepdaughter—and in some versions, even between mother and daughter—where the elder tries several times to kill the younger to get rid of her. “The fear of the elder to be overcome in her beauty by her own daughter is a matter of interest for psychologists”, comment Dekker et al. (1997), also underlining how, in the *Snow White* story, we can read, from an anthropological perspective, another metaphorical rendition of the transition from childhood to adulthood not dissimilar, in principle, from the one found in the *Frog Prince*.

The last Prince of the classical fairy tales that has not been analyzed in this paper is the one from the XIX century fairy tale by Hans Christian Andersen, *The Little Mermaid*. His exclusion follows from his being a *Prince without a Way*, namely, he does not enter at all into a TU-C with the female character of the story. It is however meaningful to mention this fairy tale as an interesting example of both a Way 5-I—as a matter of fact, we have here the only Princess in the classical fairy tales who moves first to start the TU-C—and of a one-sided F-TU that suffers all the pains from remaining excluded from the TU-C. This situation is symbolized by the torment of staying suspended between two worlds, having abandoned the original condition of a mythical being, but without managing to become a full human being with a soul. An even more painful wound comes from witnessing the appropriation of her role of savior of the Prince by another woman and, *because of this*, seeing how the latter manages to tie-up the M-RA of the beloved Prince, i.e. of the potential male partner she was aspiring to. The fact that the Prince gets tied-up to the woman to whom he attributes the merit of having saved him confirms once more how the M-TU is sensitive to the perceived psycho-emotional consonance with the potential female partner. It is also instructive to compare the Good Fairy of Cinderella, whose spell calls for a price to pay for the good of the female character, and the Evil Witch of this fairy tale, who trades the human legs of the Little Mermaid for her tongue, and thus for her voice. In this case, the spell looks more like a curse that prevents the Prince's M-PCT to be carried out upon the Little Mermaid, and therefore his M-TU from occurring. This happens because the Little Mermaid's muteness totally inhibits her F-AA, and consequently blocks the stimulation of the M-RA of the Prince who, despite having noted the beauty and the grace of the young woman, is not engaged at the psycho-emotional level.

4. Discussion

The fact that in fairy tales the social cognition dimension turns out to be more relevant than that of gender domination does not rule out, of course, that fairy tales reflect significant elements of a patriarchal logic that assigns to the woman socially subordinated roles and prescribes her to maintain attitudes that are consequent to such subordination (Rudman & Heppen, 2003). It is easy to think, for instance, of the importance given to docility and obedience among the prescribed qualities of the ideal female partner, or of the role of male appreciation in determining the level of social recognition of the female character (Stone, 1975). However, in fairy tales these elements are found in highly conventional, stereotypical forms, and can be read at most as indirect historical-documental materials on gender inequality, as well as on many other aspects of a cultural, political or social nature that are characteristic of the places and epochs in which a certain fairy tale or a specific variant emerged and disseminated (Thelander, 1982). As we have seen in this paper, in the case of the fine-grained structure of the mating-related interaction, on the contrary, fairy tales reveal a surprising richness and precision of knowledge elements that maintain still today some relevance beyond the imaginary, stylized situations that provide their narrative context, and beyond the historical and social circumstances in which they have emerged, not unlike what happens for mythical narrations (Zipes, 1993). As such, fairy tales may continue to exert a deep influence also on more recent, and far more articulate and sophisticated narrative forms (Simpson, 1987). Not incidentally, the social cognition value of the fairy tales proves to be, in Tie-Up Theory terms, comparable to that of

contemporary narrations that are explicitly developed to reflect entirely different societies in terms of reference values and gender roles, such as in the case of Hollywood romantic comedies from the Forties to today (Lucchi Basili & Sacco, 2017). In this paper, the comparative analysis of four classical fairy tales yields an interesting typology of “Princes Charming”, that is, a set of possible male strategies of entry into the TU-C, which allows us to operate some subtle distinctions with respect to a figure, the Prince Charming, that the common sense tends to characterize in a rigidly stereotypical way and with a low level of psychological complexity. In real life situations, the figure of the Prince Charming may be invoked by women as a sort of ideal, unrealistic *deus ex machina* that escorts them into an escapist, dreamlike “happy end”, as opposed to the frustrating, painful intricacy of actual romantic interactions (Bredow, 2015). Our analysis shows how, to the contrary, learning to differentiate the various possible ways of being a “Prince Charming”, and to associate such ways to specific mating issues and social situations, it is possible to refine our understanding of the conditions under which certain male–female interactions may lead or not to the emergence of a stable couple. The fact that the fairy tale imaginary proposes a vast repertoire of narrative situations rather than many variants of a single narrative situation turns out to depend upon the complexity of the alternative scenarios that have to be taken into account according to cases, and which call for different types of “Princes Charming” whose characteristics vary according to the nature of the specific issues dealt with in a given fairy tale.

The social cognition value of the fairy tales does not lie therefore in the perpetual, mechanical reproduction of a same, fundamental interaction scheme, but rather in the constant exploration of different, specific variants of alternative behavioral schemes subject to “situational perturbations” of various nature and entity. It is the scheme’s capacity to maintain its relevance and its prescriptive-predictive efficacy with respect to a constellation of specific circumstances of particular interest that determines the attention paid to a specific fictional narrative, and thus its major or minor inter-generational salience. Stories then function as “simulations” where certain key cognitive elements are tested and validated with reference to a set of situational characteristics and environmental parameters that are symbolically codified in the typical fictional modes. It is then meaningless to evaluate such codifications in terms of the realistic adherence of their representation of a certain historical and socio-cultural context. In the case of *Cinderella*, for instance, the theme of the qualifying trial that allows the Prince to recognize her female partner through the uniqueness of the characteristics that are needed to match the benchmark, and at the same time the symbolic transparency value associated to the trial itself, give us many important knowledge elements to understand the nature and the modes of functioning of the M-PCT. The main difference between fairy tales and contemporary romantic comedies lies, from this angle, in the complexity of the variants that are explored in the simulation, and which in the latter case result, as it is predictable, more articulated if compared to the essential narration of the fairy tale (but equally subjected to the same constraints of symbolic codification, that make the typical criticisms of lack of social realism ill-posed; see e.g. Cooks, Orbe, & Bruess, 1993).

Despite that the sample of stories in our analysis includes all the appropriate entries of the Zipes’ list of classical fairy tales, it is clear that a first, necessary development of this research is that of extending the analysis presented here to a wider sample of fairy tales with the same thematic focus, possibly belonging to different corpora in terms of origin, modality of transmission, and geographical pertinence. And yet, we have to keep in mind that, in social cognition terms, the most interesting cases are those which have reached significant levels of diffusion and social salience, and thus necessarily the search space is relatively limited compared to general fairy tale repertoires. Another potentially interesting development is that of evaluating how the social cognition content of fairy tales keeps on being acknowledged by contemporary human subjects, for instance as a priming factor in certain social situations. Research in this domain is still extremely limited and generally considers, for understandable reasons, experimental subjects in their early childhood (Crain, D’Alessio, McIntyre, & Smoke, 1983). And yet, in the case of mating processes, the relevant social cognition dimension clearly refers to the adult world, and this amounts to call for possibly demanding, complex experimental treatments of the behavioral implications of fairy tales for adult subjects, which

could be however of great potential interest. The exposure to fairy tales tends to be concentrated in childhood, and to possibly peak again when individuals assume a parental role, that is, when the couple has generally already formed and consolidated. However, the grip of the fairy tale imaginary on the psychology of adult individuals continues to be a far from negligible topic, as testified by the density of references to the fairy tale context and to its logic that can easily be traced in recent fictional narratives, and more specifically in narratives that are explicitly addressing an adult audience (Collin, 2012). We should not be led to think that the social cognition value of fairy tales may be easily recognized and appreciated by any adult subject as such (Steinzeig, 2012). Quite to the contrary, a conventional interpretation of the fairy tale character roles and narrative plots may easily elicit in adults biased, unrealistic expectations as to the qualities of potential partners, and to the dynamics of the couple relationship—and the search for the “Prince Charming”, under the form of a stereotypical idealization of a real partner, is one of the most evident examples of this fallacy (Shapiro & Kroeger, 1991). What our analysis shows is that fairy tales may provide important elements for the understanding of the dynamics of mating relationships, but they also require a capacity to decipher their symbolic codes. The Tie-Up Theory may be of help in offering a possible access to this important repertoire of inter-generationally transmitted knowledge.

Finally, from the analysis presented in this paper one might be led to think that the Tie-Up Theory only applies to the interpretation of fictional characters and situations. However, the Theory has been initially conceived as a response to existing psychological approaches to actual mating processes and to the formation of real couples (Lucchi Basili & Sacco, 2016). Our interest for fictional settings and characters is due to the social cognition valence of narratives in providing valuable, inter-generationally transmitted knowledge about human mating. They are therefore of interest not in themselves, but as a way to provide us with a special kind of “experimental” evidence about real mating processes (Lucchi Basili & Sacco, 2017). This form of “empirical” corroboration does not dispense with the need of developing more standard empirical approaches to test the Theory through experimental and even possibly clinical evidence, for instance in terms of predictions on biomarkers patterns in certain settings (e.g. in terms of neurotransmitter and/or hormonal signatures of direct vs. indirect rewards in the course of the mating interaction).

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Notes

1. For a thorough discussion of how TU-C diagrams are altered by inversions of the flow, see Lucchi Basili and Sacco (2016).
2. Here and in what follows, all references to Dekker et al. (1997) always pertain to the lemma in the dictionary that is specifically devoted to the cited fairy tale. English

translations of quotes are from the Italian edition.

References

- Bacchilega, C. (1993). An introduction to the ‘innocent persecuted heroine’ fairy tale. *Western Folklore*, 52, 1–12. <https://doi.org/10.2307/1499490>
- Bearse, C. I. (1992). The fairy tale connection in children’s stories: Cinderella meets Sleeping Beauty. *The Reading Teacher*, 45, 688–695.
- Boyd, B. (2009). *On the origin of stories. Evolution, cognition and fiction*. Cambridge, MA: Belknap Press.
- Bredow, C. A. (2015). Chasing Prince Charming: Partnering consequences of holding unrealistic standards for a spouse. *Personal Relationships*, 22, 476–501. <https://doi.org/10.1111/pere.2015.22.issue-3>
- Burriss, R. P., Welling, L. L. M., & Puts, D. A. (2011). Men’s attractiveness predicts their preferences for female facial femininity when judging for short-term, but not long-term, partners. *Personality and Individual Differences*, 50, 542–546. <https://doi.org/10.1016/j.paid.2010.11.022>
- Buss, D. M. (1989). Sex differences in human mate preferences: Evolutionary hypotheses tested in 37 cultures. *Behavioral and Brain Sciences*, 12, 1–49. <https://doi.org/10.1017/S0140525X00023992>
- Buss, D. M. (2013). The science of human mating strategies: An historical perspective. *Psychological Inquiry*, 24, 171–177. <https://doi.org/10.1080/1047840X.2013.819552>
- Buss, D. M., & Barnes, M. (1986). Preferences in human mate selection. *Journal of Personality and Social Psychology*, 50, 559–570. <https://doi.org/10.1037/0022-3514.50.3.559>
- Buss, D. M., & Shackelford, T. K. (2008). Attractive women want it all: Good genes, economic investment, parenting

- proclivities, and emotional commitment. *Evolutionary Psychology*, 6, 134–146.
- Collin, R. (2012). Mirror, mirror. How Hollywood fell for fairy tales. *The Telegraph*, April 2. Retrieved August 9, 2017, from <http://www.telegraph.co.uk/culture/film/9174410/Mirror-Mirror-How-Hollywood-fell-for-fairy-tales.html>
- Cooks, L. M., Orbe, M. P., & Bruess, C. S. (1993). The fairy tale theme in popular culture: A semiotic analysis of pretty woman. *Women's Studies in Communication*, 16, 86–104. <https://doi.org/10.1080/07491409.1993.11089775>
- Crain, W. C., D'alessio, E., McIntyre, B., & Smoke, L. (1983). The impact of hearing a fairy tale on children's immediate behavior. *The Journal of Genetic Psychology*, 143, 9–17. <https://doi.org/10.1080/00221325.1983.10533528>
- Darghouth, S., Brody, L., & Alegria, M. (2015). Does marriage matter? Marital status, family processes, and psychological distress among latino men and women. *Hispanic Journal of Behavioral Sciences*, 37, 482–502. <https://doi.org/10.1177/0739986315606947>
- Dekker, T., van der Kooij, J., & Meder, T. (1997). *Van Aladdin tot Zwaan kleeft an. Lexicon van sprookjes: Ontstaan, ontwikkeling, variaties*. SUN: Nijmegen [Italian edition: *Dizionario delle fiabe e delle favole. Origini, sviluppo, variazioni*, Milano, Bruno Mondadori, 2001].
- Del Giudice, M. (2009). Sex, attachment, and the development of reproductive strategies. *Behavioral and Brain Sciences*, 32, 1–21. <https://doi.org/10.1017/S0140525X09000016>
- Dixson, A. F., Halliwell, G., East, R., Wignarajah, P., & Anderson, M. J. (2003). Masculine somatotype and hirsuteness as determinants of sexual attractiveness to women. *Archives of Sexual Behavior*, 32, 29–39. <https://doi.org/10.1023/A:1021889228469>
- Fales, M. R., Frederick, D. A., Garcia, J. R., Gildersleeve, K. A., Haselton, M. G., & Fisher, H. E. (2016). Mating markets and bargaining hands: Mate preferences for attractiveness and resources in two national US studies. *Personality and Individual Differences*, 88, 78–87. <https://doi.org/10.1016/j.paid.2015.08.041>
- Ferdenzi, C., Lemaitre, J. F., Leongomez, J. D., & Roberts, S. C. (2011). Digit ratio (2D:4D) predicts facial, but not voice or body odour, attractiveness in men. *Proceedings of the Royal Society B: Biological Sciences*, 278, 3551–3557. <https://doi.org/10.1098/rspb.2011.0544>
- Floyd, K., Boren, J. P., Hannawa, A. F., Hesse, C., McEwan, B., & Veksler, A. E. (2009). Kissing in marital and cohabiting relationships: Effects on blood lipids, stress, and relationship satisfaction. *Western Journal of Communication*, 73, 113–133. <https://doi.org/10.1080/10570310902856071>
- Goetz, C. D., Easton, J. A., Lewis, D. M. G., & Buss, D. M. (2012). Sexual exploitability: Observable cues and their link to sexual attraction. *Evolution and Human Behavior*, 33, 417–426. <https://doi.org/10.1016/j.evolhumbehav.2011.12.004>
- Gottschall, J. (2005a). The heroine with a thousand faces: Universal trends in the characterization of female folk tale protagonists. *Evolutionary Psychology*, 3, 85–103.
- Gottschall, J. (2005b). Quantitative literary study: A modest manifesto and testing the hypotheses of feminist fairy tale studies. In J. Gottschall & D. S. Wilson (Eds.), *The literary animal. Evolution and the nature of narrative* (pp. 199–224). Evanston, IL: Northwestern University Press.
- Gottschall, J., Berkey, R., Cawson, M., Drown, C., Fleischner, M., Glotzbecker, M., ... Patterson, S. (2003). Patterns of characterization in folktales across geographic regions and levels of cultural complexity. *Human Nature*, 14, 365–382. <https://doi.org/10.1007/s12110-003-1011-3>
- Gottschall, J., Martin, J., Quish, H., & Rea, J. (2004). Sex differences in mate choice criteria are reflected in folktales from around the world and in historical European literature. *Evolution and Human Behavior*, 25, 102–112. [https://doi.org/10.1016/S1090-5138\(04\)00007-8](https://doi.org/10.1016/S1090-5138(04)00007-8)
- Haase, D. (2004). Feminist fairy tale scholarship. In D. Haase (Ed.), *Fairy tales and feminism. New approaches* (pp. 1–36). Detroit, MI: Wayne State University Press.
- Harrison, M. A., & Shortall, J. C. (2011). Women and men in love: Who really feels it and says it first? *The Journal of Social Psychology*, 151, 727–736. <https://doi.org/10.1080/00224545.2010.522626>
- Havlicek, J., & Roberts, S. C. (2009). MHC-correlated mate choice in humans: A review. *Psychoneuroendocrinology*, 34, 497–512. <https://doi.org/10.1016/j.psyneuen.2008.10.007>
- Hill, L. (1992). Fairy tales: Visions for problem resolutions in eating disorders. *Journal of Counseling and Development*, 70, 584–587. <https://doi.org/10.1002/j.1556-6676.1992.tb01665.x>
- Hinchcliffe, V. (1996). Fairy stories and children's developing theories of mind. *International Journal of Early Years Education*, 4, 35–46. <https://doi.org/10.1080/0966976960040103>
- Hodges-Simeon, C. R., Gaulin, S. J. C., & Puts, D. A. (2010). Different vocal parameters predict perceptions of dominance and attractiveness. *Human Nature*, 21, 406–427. <https://doi.org/10.1007/s12110-010-9101-5>
- Kang, Y. H. R., Petzschner, F. H., Wolpert, D. M., & Shadlen, M. N. (2017). Piercing of consciousness as a threshold-crossing operation. *Current Biology*, 27, 2285–2295. <https://doi.org/10.1016/j.cub.2017.06.047>
- Katritzky, M. A. (2014). Literary anthropologies and Pedro González, the 'wild man' of Tenerife. In J. Slater, M. López-Terrada, & J. Pardo-Tomás (Eds.), *Medical cultures of the modern early Spanish Empire* (pp. 107–128). Ashgate: Abingdon.
- Kort, R., Caspers, M., van de Graaf, A., van Egmond, W., Keijser, B., & Roeselers, G. (2014). Shaping the oral microbiota through intimate kissing. *Microbiome*, 2, 41. doi: <https://doi.org/10.1186/2049-2618-2-41>
- Kraemer, S. (2000). The fragile male. *BMJ*, 321, 1609–1612. <https://doi.org/10.1136/bmj.321.7276.1609>
- Lewandowski, G. W., Aron, A., & Gee, J. (2007). Personality goes a long way: The malleability of opposite-sex physical attractiveness. *Personal Relationships*, 14, 571–585. <https://doi.org/10.1111/pere.2007.14.issue-4>
- Lieberman, M. R. (1972). "Some day my Prince will come": Female acculturation through the fairy tale. *College English*, 34, 383–395. <https://doi.org/10.2307/375142>
- Little, A. C., Burt, D. M., & Perrett, D. I. (2006). What is good is beautiful: Face preference reflects desired personality. *Personality and Individual Differences*, 41, 1107–1118. <https://doi.org/10.1016/j.paid.2006.04.015>
- Lucas, M., Koff, E., Grossmith, S., & Migliorini, R. (2011). Sexual orientation and shifts in preferences for a partner's body attributes in short-term versus long-term mating contexts. *Psychological Reports*, 108, 699–710. <https://doi.org/10.2466/07.PRO.108.3.699-710>
- Lucchi Basili, L., & Sacco, P. L. (2016). Tie-up cycles in long-term mating. *Part I: Theory. Challenges*, 7, 12. doi: <https://doi.org/10.3390/challe7010012>
- Lucchi Basili, L., & Sacco, P. L. (2017). Tie-up cycles in long-term mating. II: Fictional narratives and the social cognition of mating. *Challenges*, 8, 6. doi: <https://doi.org/10.3390/challe8010006>
- Mar, R., & Oatley, K. (2008). The function of fiction is the abstraction and simulation of social experience. *Perspectives on Psychological Science*, 3, 173–192. <https://doi.org/10.1111/j.1745-6924.2008.00073.x>
- Oatley, K. (2016). Fiction: Simulation of social worlds. *Trends in*

- Cognitive Sciences*, 20, 618–628.
<https://doi.org/10.1016/j.tics.2016.06.002>
- Penton-Voak, I. S., Cahill, S., Pound, N., Kempe, V., Schaeffler, S., & Schaeffler, F. (2007). Male facial attractiveness, perceived personality, and child-directed speech. *Evolution and Human Behavior*, 28, 253–259.
<https://doi.org/10.1016/j.evolhumbehav.2007.03.002>
- Puts, D. A. (2010). Beauty and the beast: Mechanisms of sexual selection in humans. *Evolution and Human Behavior*, 31, 157–175.
<https://doi.org/10.1016/j.evolhumbehav.2010.02.005>
- Roberts, S. C., & Little, A. C. (2008). Good genes, complementary genes, and human mate preferences. *Genetica*, 132, 309–321.
<https://doi.org/10.1007/s10709-007-9174-1>
- Rudman, L. A., & Heppen, J. B. (2003). Implicit romantic fantasies and women's interest in personal power: A glass slipper effect? *Personality and Social Psychology Bulletin*, 29, 1357–1370.
<https://doi.org/10.1177/0146167203256906>
- Schmitt, D. P., & Jonason, P. K. (2015). Attachment and sexual permissiveness: Exploring differential associations across sexes, cultures, and facts of short-term mating. *Journal of Cross-Cultural Psychology*, 46, 119–133.
<https://doi.org/10.1177/0022022114551052>
- Shapiro, J., & Kroeger, L. (1991). Is life just a romantic novel? The relationship between attitudes about intimate relationships and the popular media. *The American Journal of Family Therapy*, 19, 226–236.
<https://doi.org/10.1080/01926189108250854>
- Simpson, J. C. (1987). Fanny Price as Cinderella: Folk and fairy tale in *Mansfield Park*. *Persuasions*, 9, 25–30.
- Steinzeig, A. E. (2012). Waiting for Prince Charming: Gender expectations in the European fairy tale. *Humanities Capstone Projects* (Paper 12), Pacific University. Retrieved from <http://commons.pacificu.edu/cashu>
- Stone, K. (1975). Things Walt Disney never told us. *The Journal of American Folklore*, 88, 42–50.
<https://doi.org/10.2307/539184>
- Swami, V., Furnham, A., Chamorro-Premuzic, T., Akbar, K., Gordon, N., Harris, T., ... Tovée, M. J. (2010). More than skin deep? Personality information influences men's ratings of the attractiveness of women's body sizes. *The Journal of Social Psychology*, 150, 628–647.
<https://doi.org/10.1080/00224540903365497>
- Tehrani, J. (2013). The phylogeny of little red riding hood. *PLoS ONE*, 8(11), e78871. doi:
<https://doi.org/10.1371/journal.pone.0078871>
- Thelander, D. R. (1982). Mother Goose and its goslings: The France of Louis XIV as seen through the fairy tale. *The Journal of Modern History*, 54, 467–496.
<https://doi.org/10.1086/244179>
- Yolen, J. (1977). America's Cinderella. *Children's Literature in Education*, 8, 21–29.
- Zipes, J. (1993). *Fairy tale as myth/myth as fairy tale*. Lexington, KY: University Press of Kentucky.
- Zipes, J. (2006). *Why fairy tales stick. The evolution and relevance of a genre*. London: Routledge.
- Zipes, J. (2012). *The irresistible fairy tale. The cultural and social history of a genre*. Princeton, NJ: Princeton University Press.



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