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# Mobile publics: beyond the network perspective

**Mimi Sheller**
Department of Sociology, Lancaster University, Lancaster LA1 4YL, England;
e-mail: m.sheller@lancaster.ac.uk
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**Abstract.** As practices of social coordination and connectivity shift in contemporary urban spaces, in part because of the increasing hybridisations of technologies and infrastructures of communication and transportation, public life is being reconfigured and respatialised. In this paper I argue that models of 'publicity' have paid insufficient attention to the ways in which publics are deeply embedded in social and machinic complexes involving the mobilities of people, objects, and information. The first half offers an overview of how the converging technologies of mobility and communication have created new temporalities and spatialities for public participation. In the second half I turn to a theoretical programme for rethinking public connectivity and disconnectivity not in terms of the conventional imagery of networks, but as more fluid and contingent social structures that Harrison White has described in terms of coupling and decoupling. Publics are becoming more 'mobile' in two ways: first, there is an increasing tendency to slip between private and public modes of interaction, as a result of the new forms of fluid connectivity enabled by mobile communication technologies; and, second, there are opportunities for new kinds of publics to assemble or gel momentarily (and then just as quickly dissolve) as a result of newly emerging places and arenas for communication.

Cities are constituted by flows of people, vehicles, and information such that infrastructures of human, technological, and informational mobility are crucial to the articulation of 'networked urbanism' (Graham and Marvin, 2001, pages 30 – 33). Urban geographers also argue that new mobile communications systems are transforming urban temporalities and "the metabolism of urban systems" (Graham and Marvin, 1996; Moss and Townsend, 2000; Townsend, 2000). Yet, these insights have not been fully extended to rethinking the changing spatial and temporal patternings of publicity and privacy enabled by this embedding of mobile information and communication technologies into architectures of mobility. New forms of mobility, new technologies of communication, and novel convergences between travel, mobile communication, and the infrastructures that support them are reconfiguring public and private life such that there are new modes of public-in-private and private-in-public that disrupt commonly held spatial models of these as two separate 'spheres' (Sheller and Urry, 2003; compare Wellman, 2001). We require new ways of thinking not only about social connectivity and social exclusion within the networked city, but also about how these transformations are constraining and enabling the "coming together of private citizens as a public" (Habermas, 1989). Although there have been many attempts to rethink the bases for resistance, social movements, and democratic public participation in contemporary cities,[1] I suggest that taken-for-granted geographical understandings of public and private spheres as *spaces* and *networks* continue to limit the ways in which we might imagine the dynamics of public formation.

In normative democratic theory, the separation of the public and the private 'spheres' is central to envisioning the bases of social cohesion, political participation,

[1] For interesting explorations of new possibilities for the public domain see Stephen Graham and Simon Marvin (2001), Maarten Hajer and Arnold Reijndorp (2002), and Jennifer Light (1999).

and democracy itself.[2] As practices of social coordination and connectivity shift in contemporary urban spaces it would be useful to revisit our understandings of what constitutes 'public' life, and in particular the somewhat neglected dimension of the capacity for mobilities between private and public (see Sheller and Urry, 2003). Publics —in the sense of relational settings oriented towards the emergence of democratic participation in communicative action, debate, and decisionmaking—have always been on the move. From café society and the circulation of print in 18th-century urban centres in Europe (Habermas, 1989), to the new migrants, tumultuous crowds, and public parades of 19th-century US cities (Ryan, 1997), mobility has always underpinned public participation. As people and information come to be mobilised (and spatialised) in new ways today, what effects will these changing mobilities have on public life? Inasmuch as social, cultural, and technological transformations are restructuring the conditions of possibility for communication and connectivity of all kinds, what kinds of 'mobile publics' are emerging?

This paper contributes to a more 'fluid' modeling of these complex socialities through an exploration of the impact of mobile communication on the formation of shifting sites of publicity and privacy. Although there has been much critique of universalistic notions of 'the public' in favour of concepts of multiple publics, subaltern counterpublics, or publics as relational networks (see, for example, Cohen and Arato, 1992; Emirbayer and Sheller, 1999; Fraser, 1992), it remains unclear what the exact causal mechanisms are by which both the joining together and the 'unbundling' of publics occur. I argue that increasingly integrated modes of transportation, personal communication, and electronic work and entertainment have significant implications for the constitution of 'mobile publics' that exceed current understandings of the public domain as a set of spaces or institutions that can be easily distinguished from the private sphere. Rather than any kind of technological determinism, my aim is to pay more attention to the sociotechnical "geography of enablement and constraint" (Law and Bijker, 1992, page 30) that favours some emergent structures over others. Publics are constituted not simply as abstract moments of communication, but as part of deeply embedded social and machinic complexes involving the infrastructures that allow for the mobilities of people, objects, and information.

However, I also suggest the need to move beyond the increasingly prevalent metaphor of the network[3] in thinking about these public and private mobilities of both people and information. Although the idea of the network has been extremely productive in some respects, it is also limited by its reification of the grounds for presence and absence. Drawing on recent work on fluid dynamics and nonagentic action (Sheller, 2001) and on US sociologist Harrison White's descriptions of 'messy' social spaces (1992), I elucidate an alternative vision of mobile publics that departs from currently prevalent network models. Elsewhere I have considered the effects of new kinds of transportational and informational mobilities (and especially the convergence of moving vehicles and moving screens) on reconstituting and in fact dissolving the boundary between public and private (Sheller and Urry, 2003). Here I want to extend

[2] I discuss in more depth the historical formation of various kinds of publics and privates in Mustafa Emirbayer and Mimi Sheller (1999), and Sheller and John Urry (2003). These concepts arise out of a long tradition of normative theory (for example, Arendt, 1973; Benhabib, 1992; Cohen and Arato, 1992; Habermas, 1989), but are also crucial to more recent analyses of the postmodern city (for example, Amin and Thrift, 2000; Graham and Marvin, 2001).

[3] Manuel Castells (1996; 1997; 1998) has been influential in promoting the idea of 'network society', but we also have ideas of the 'networked city' (Graham and Marvin, 2001) and 'network sociality' (Wittel, 2001), as well as much interest in actor-network theory (Law and Hassard, 1999) and network analysis within the social sciences generally.

this analysis to consider how mobile communicational technologies play a part in the enablement of new kinds of mobile publics, hitherto unimagined and unpredictable. By easing the affordances for some social actors to slip in and out of different contexts, identities, and relationships, such mobile publics allow for the momentary 'gelling' of public identities and actions across dynamic social spaces and scales. Rather than mathematically precise network analytic approaches to describing social worlds, I argue that a 'messier' imagery of liquid social dynamics will enable a better understanding of the complexity of these mobile social interactions.

**Presence and absence in unbundled publics**

Technological optimists have long envisioned a trend toward telepresence, with people driving less, spending more time in their homes and communities, and thus contributing to greater local social interaction and social cohesion. At the end of the millennium such visions of cybertopia or 'e-topia' (Mitchell, 1999) were being promoted by not only those with a vested interest in selling the technology that would make it possible, but also those caught up in the 'messianic discourse' of the benefits of progressive change that has often accompanied new technological developments since at least the 19th century (Graham and Marvin, 2001, page 22). Finland has led the way here, often described in the British press as a 'Cybertopia' where young people have embraced the future. Indeed, in Arbianranta, near Helsinki, a $1 billion investment from Helsinki city council and companies including IBM, Nokia, Symbian, and Sonera has already led to the piloting of a 'virtual village', which will be 'the world's first truly wireless community' according to its developers, the 'wireless software architects' Digia. Here a sim card in inhabitants' mobile phones allows them to turn on appliances at home, check the inventory of local shops, and tell taxis services their exact location on a digital map (O'Hara, 2000).

Although Finland is well known as the laboratory for mobile communication devices, with 65% of the population owning a mobile phone in 2000 [said to be the highest market penetration in the world (O'Hara, 2000; Shaw, 2000)], it is significant that new modes of communication occur in poor countries as well as in the most wealthy (compare Townsend, 2000; Wellman, 2001). According to Emmanuel Forestier, an economist at the World Bank, "It's undisputed that wireless technology has had a far greater impact on people's lives in developing countries than the Internet" (Romero, 2000). Demand for cellular telephones is growing faster in some of the world's least-developed nations than it is in the United States, in part because many governments are unable to provide adequate public services. In Haiti the number of mobile subscribers grew 150% from 1998 to 1999; wireless customers account for almost 60% of telephone subscribers in Paraguay (436 000 in total), 57% in Venezuela, and more than half of telephone users in Botswana, Rwanda, and the Ivory Coast. While the growth rate for wireless users in 1999 was 24% in the United States, and 70% in Europe, it was 116% in Africa, with Zimbabwe accounting for the fastest-growing wireless industry in the world, increasing by more than 800% (Romero, 2000).

The social embedding of such technologies is of course very different in contexts of failing infrastructure and sharply skewed access, as found in many 'developing' countries (Graham and Marvin, 2001). But that is not to say that developments in electronic mobile communication are somehow less relevant to these places. Mobile phones have been crucial to oppositional politics in Zimbabwe, for example, where the Mugabe regime has cracked down on political opposition in part by exercising tight control over print media, radio, and television. Transnational and diasporic publics of various kinds are of course dependent on electronically mediated communication and on the constraints and possibilities for informational connectivity. Trinidadian self-positioning

on the Internet, for example, enables groups who would otherwise be marginal to "create possibilities for participating in a global cultural space" and to thus 'repair' their marginalisation through a sense of being cosmopolitan (Miller and Slater, 2000, page 20). This is very much a public gesture, and carries with it political implications. Whatever their limits and unevenness, then, the dream of cybertopias is by no means a monopoly of the developed Western metropoles, and may in fact hold even more attraction for the marginalised.

Pessimists (or realists!), on the other hand, see a more sinister side to the dystopic virtual village, in which network managers "will be able to identify not only what we consume, but where, and at what times we consume it" (Shaw, 2000, page 16). Electronic lifestyles, they contend, could lead to a polarised, car-dependent Britain locked into ever-sprawling crime-ridden suburbs, as people move away from urban centres and have little interaction with their neighbours. In a report prepared for the OECD, for example, John Adams argues that geographical communities characterised by neighbourliness and chats over the garden fence will increasingly be replaced by a 'hypermobile society'. Electronic mobility would contribute to communities having less social cohesion, more crime, and car-dominated streets as there was an "exodus to the suburbs and beyond, where most journeys ... are longer and mostly unfeasible by public transport" (quoted in Hetherington, 1999). This type of scenario is supported by Robert Putnam's research (2000) into the decrease in face-to-face social activities in the USA, which suggests a trend toward social life moving inside the private home, with homes connected to work places by private car journeys. For Putnam, this decline in social capital is directly correlated with a decline in democratic participation and civic cohesion.

But Putnam does not address the changing technologies of mobility and communication that are thought to be transforming practices of private and public sociality. Even as communication devices in some ways replace physical travel, they also create extensive social networks that require intermittent physical copresence according to Urry (2003, page 155). Are such developments isolating people into cocooned worlds of solitariness, as Putnam and others fear, or are mobile communications enabling new ways of organising the spatial scale and temporal rhythms of interaction? I want to focus on the convergence of transportational and communicational technologies, as together these have the most significant impact on those (largely urban) domains in which citizenship and civic participation have been described as emerging. Public spaces such as streets and squares, semipublic spaces for gathering and talk such as cafés, and the public sphere of the media such as newspapers, radio, and now Internet services no longer exist in their 'modern' form. How can we think about public and private 'spaces' in contexts of mobile communication and 'splintered urbanism' (Graham and Marvin, 2001)?

Graham and Marvin (2001) argue that the sense of a common public sphere within the modernist city (underpinned by the public monopolies and universal infrastructures of the Keynesian welfare state) has been 'splintered'. Urban space whether in developed, developing, or post-Communist regions, increasingly consists of fragmented systems of social and spatial apartheid, with high connectivity for affluent groups and severe social exclusion for the disconnected poor (Castells, 1996; 1997; 1998; Davis, 1990). There has been an 'unbundling' of systems of provision of public goods such as water, electricity, transportation, and communication networks. The very existence of public spaces and public life is threatened by the "retreat into the [privatised] corporate, domestic, consumption or transport cocoons of the postmodern city whilst using highly capable networks—particularly highways, telecommunications, television—physically to extend one's actions to link into the wider social worlds beyond the urban region" (Graham and Marvin, 2001, page 210).

Yet, spaces or moments of publicity have always been multiple, fragmented, enclaved, and above all contested (Fraser, 1992). If a new sociotechnical urban (dis)order is emerging it still remains to be seen what kinds of publics may be emerging within these reconfigured worlds (compare Light, 1999; Wellman, 2001). How are the fragmented spaces of the postmodern metropolis related to the 'free spaces' of subaltern resistance and formation of counterpublics (Emirbayer and Sheller, 1999)? How do changes in the urban, regional, and global fabric reconfigure the multiplicity of publics that have always been in contention? Rather than taking for granted the universalising and privatising claims of corporate actors, or the most pessimistic scenarios of social dystopians, we need to consider what the actual mechanisms of public formation might be in the new sociotechnical landscape. Thus we can ask what kinds of public presences and absences are enabled or constrained by the new technosocialities of mobility.

**The convergence of technologies of mobility and communication**

The creation of 'converging infrastructures' of transportation and information (Branscomb and Keller, 1996) is not only a technological process, but also a social process with major implications for how people come together. As mobile information and communication technologies become increasingly embedded into mechanical transportation systems, new forms of intermodality are starting to occur which allow not only for switching between various modes of public and private transportation, but also for the integration of various kinds of communicational activities into trajectories of mobility. Vehicles designed to be 'smarter' are not only becoming technologies of transportation, but also converging with the technologies of the mobile phone, the personal entertainment system, and the handheld computer (Sheller and Urry, 2000, page 754). Recent developments in mobile technology are evidently leading to changes in the spatial and temporal ordering of social practices for some social groups, which are just beginning to be researched (for example, Brown et al, 2002; Urry, 2002; Wittel, 2001). What impact are these changes having on the enabling conditions for public life, public space, and public politics?

The "mass diffusion of information technologies and automobiles, along with the simultaneous production and organisation ... of multiple and generic built spaces that are intimately coordinated across vast distances", argue Graham and Marvin, "are about the architectural shaping of time as well as spaces" (2001, page 30). The convergence and blurring of spaces and times of business, leisure, travel, and inhabitance for certain groups (especially young professionals) are said to be producing novel pressures to manage fragmented time budgets and dispersed social contacts in more complex ways (Shove, 2002; Wittel, 2001). Without assuming that everyone takes part in such social practices (given the unevenness of new technology adoption, the social stratification of cultural practices, and the powerful forces of social exclusion), it would be timely to consider how such transformations might affect normative models of 'good' public space and civic life. Sociotechnical and cultural developments in mobile communication and communicative mobility are not just of interest to a small elite, for they are effecting powerful changes in the entire urban, regional, and global fabric of spaces of public and private life.

A key development in the automotive industry has been to bring mobile communications and electronic entertainment into the moving car. If the mobility of information has been popularly summed up with motorway terminology such as 'information superhighway' or 'Infobahn', it is equally significant that cars equipped with MP3, DVD, and Internet devices are now described as cruising the 'techno-highway' (Zeitler, 2001). General Motors' OnStar voice-activated service, for example, enables drivers to make and receive telephone calls, send e-mails, and have limited Internet access; it accounts

for about half the telematics systems fitted in cars in the USA. Ford, meanwhile, has developed a 'plug and play' system that allows car drivers and passengers to use a wide range of electronic devices, including laptop computers, navigation systems, games consoles, and DVD players. Graham and Marvin (2001, page 231) reproduce a 1999 US advertisement for the Visteon voice-operated Internet system, which reads:

> "With a Visteon interior your car can take you virtually anywhere. Visit the Tokyo office on the way home from your office. Check the stock market on your way to the supermarket. Get the latest sports scores or even directions to that new seafood place ... . Visteon Voice Technology™ keeps you connected with information, navigation, and safety systems *Superintegrated*™ into your interior."

This appeal to the luxury-car market and a business elite emphasises connectivity to largely privatised worlds of work and leisure. It suggests the ways in which the new infrastructures of connectivity are being integrated into the private spheres of affluent family life and elite personal mobility, rather than into any kind of public sphere of communication or participation. Concept cars developed by Johnson Controls, the largest supplier of parts for auto interiors, include the Lego InMotion, which has "an electronic table called the Go Pad for Kids, which combines a DVD player with a digital camera and an Internet connection" (Patton, 2001, page F1). Another of their concept cars, the Kion, "began with the concept of designing the interior as a sort of rolling living room", but one in which "Each member of the family would have a personal data storage unit, much like a credit card, that would link the car's main computing system with ... [v]ideo screens, audio equipment and laptop computers" (2001, page F1). As mobile 'domestic' environments, bubbles of privacy moving through public spaces (Sheller and Urry, 2000), these examples suggest that private cars are now also becoming mobile leisure spaces, business places, and communicational devices.

With the soundscapes (Bull, 2001) and now 'screenscapes' of cars expanding beyond the radio and the carphone into voice-operated telemetry and Blue Connect[(4)] wireless communication, the time of driving also comes to have new meanings and possibilities. "In the slow-motion 21st century", a British journalist suggests, "the idea of the car has been transmuted. It's no longer Marinetti's goddess of speed. It's a cocoon. Radio 4 burbles soothingly on the car radio, or you can battle with the reception on your hands-free mobile. Soon, car phones will routinely connect drivers to e-mail: you'll then be able to drift happily in the flood of non-urgent messages" (Barker, 2000). Such premonitions suggest a future of increasing privatisation of public space. Whereas the automobile "served to accelerate privatization during the first half of the twentieth century, widespread access to communication technologies—particularly television, VCRs, the mobile phone, the Internet and personal computer, cast new dimensions on it" (Graham and Marvin, 2001, page 72). As the automobile system and information and communication technologies converge into hybrid 'cybercars' traveling through 'intelligent cities', there seems to be even greater scope for an intensification of such privatisation processes at the expense of public life.

A second development besides vehicular cyberisation is the remaking of entire road and transport systems to support parallel electronic infrastructures. The introduction of new communication technologies into car-use systems may have wider 'public' aims—for example, in efforts to reduce car use, such as car-sharing schemes. The City Car Share organisation in San Francisco uses a fleet of cars that can 'talk' to each other through a shortwave-radio system connecting each car's onboard computer

[(4)] This is an automotive version of Bluetooth, the fast wireless communications standard developed by IBM, Intel, Ericsson, Toshiba, and Nokia. Bluetooth (operating at 1Mbps) allows wireless connection of digital cameras, printers, PCs, personal organisers, mobile phones, and eventually shop tills.

to the reservations and billing system based at the garages where the cars are picked up and dropped off.[5] Congestion charging schemes designed to reduce levels of car traffic use some combination of information technologies, video surveillance, and in some cases 'smart cards', to track and control traffic. 'Intelligent' congestion charging schemes like those in Singapore, Melbourne, Trondheim, and London (Millar, 2001) are in part aimed at reclaiming the central core areas of cities as places of sociability, released from the stranglehold of traffic. However, road-pricing systems such as electronically tolled private highways, although being promoted as a way to limit traffic, also contribute to the further privatisation of mobility by bypassing public highway systems. Examples such as the Riverside SR 91 Freeway in Los Angeles, the Electronic Toll Road 407 in Toronto, and the I-15 highway in San Diego demonstrate how the convergence of highway networks and telecommunication and computer networks ensures that "affluent commuters can, in effect, completely bypass the wider public street and highway network by using their purchasing power to enjoy premium networked connections within the metropolis" (Graham and Marvin, 2001, pages 251, 253 – 255).

New communication technologies not only are relevant to private-car owners, but are also beginning to have an impact on public transportation systems. Although it is not available yet, a recent television advertising campaign for Nokia in the United Kingdom features a young woman watching a movie on her mobile-phone screen, while riding a busy bus. Text-messaging services are already being used for bus routing in some areas. Even in nonurban north Lancashire, for example, bus passengers "can tap into a new ground-breaking service which sends the latest information about routes direct to their mobile phones" (*The Westmorland Gazette* 2002). BusText is free and may appeal to the 99% of under-21-year-olds surveyed at these local bus stops who had mobile phones with them. New 'third-generation' mobile services are appearing daily, such as text-message alerts from banks, from television channels, or from public-transportation providers, allowing people on the move to mesh together fragmented activities and complex temporal schedules. The question is, though, could such networked mobility enable the emergence of new spaces and times of publicity?

Crucial to these processes is the miniaturisation of the screen and the creation of new screen-accessible services. For example, Symbian, a project started by Psion and joined by Nokia, Ericsson, Oracle, and Matsushita, is described in the press as developing "the technology that will fuse mobile phones and PCs—and revolutionise all our lives" (Beckett, 2000). Yet the revolution continues to be envisioned as a private one. Recent advertising for $O_2$'s 'pocket PC', which it claims can be used to play games, listen to music, make calls, surf the web, or send and receive e-mails, invites the reader to 'test drive the new xda' and 'take it for a spin'. Blurring together the notions of driving and using a mobile phone, the device is shown like a new car, posed on a wide open desert road stretching away to mountains in the distance. But the oxygen bubbles emanating from the blue screen into the sky above hint at the strange hybridities of this surreal new world of mobile communications, where air and liquid are indistinguishable media and PCs and cars are blurred technologies. The possibilities envisioned by corporate designers and advertisers remain firmly entrenched in the cocooned spheres of mobilised privacy rather than reaching out to any wider sense of public presence or civic connection.

The proliferation of screens, from the miniature ones displaying text messages on handheld devices to the large ones in public spaces is allowing for new kinds of informational mobilities that use public spaces for 'private' purposes (Sheller and Urry, 2000). Private conversations are increasingly occurring in various 'free spaces'

[5] "Why own a car when you can share?", http://news.bbc.co.uk/1/hi/in_depth/sci_tech/2000/dot_life/1613287.stm

that have been appropriated from the 'semipublic' realm of streets, trains, stairwells, hallways, and stations. New degrees and kinds of personal communication or 'keeping in touch' are now possible from shifting public locations. Wireless technology is further enabling the development of wireless hot spots where users can access the Internet at high speed in hotel lobbies, airport lounges, conference centres, railway stations, and cafés. Although some suggest that this electronic privatisation of public and semipublic spaces heralds the end of the democratic public sphere of face-to-face communication and identity formation, it could be argued that such an ideal public sphere never existed, at least not without widespread exclusions and inequalities (Benhabib, 1992; Cohen and Arato, 1992; Fraser, 1992). Yet, there is nothing to necessitate that such conversational ubiquity cannot be directed toward public (political) ends. Rather than nostalgia for a lost age of connectivity, the question should be to identify how the grounds for publicity have shifted. As Barry Wellman's research demonstrates, computer-supported and mobile-phone-supported social networks are producing new kinds of 'personal community' and 'personalised networking', in which communities of shared interest form both in physical places and in 'cyberplaces' (Wellman, 2001). Such communities are the basis for new publics.

Of course, many people do not participate in the new techno-socialities, either by choice or by lack of means, as well as because of the effects of various kinds of social exclusion. Nevertheless, those who have been swept up in these changes (or promoted them) have a disproportionate impact on 'public life' in both Western and non-Western societies not only because of their economic, social, and political influence, but also because of the concomitant restructurings of space and time that they foment. The enacting of new practices of mobility and communication enwraps those who are excluded as much as those who are included, insofar as infrastructural and cultural changes have far-reaching effects on the entire realm of political and social action. As Graham and Marvin argue, the new "splintered" urbanism has "major implications for the democratic possibilities of the city", including "the effective abandonment of the (always problematic) ideal of the cohesive, integrated and open city that can be characterised as having some organic unity" (2001, page 302). I want to suggest that the increasingly mobile conditions for communication are enabling a new kind of public–private, a kind of fluid social space in which communication occurs which spans absence and presence, personal and impersonal, micro and macro, local and global. Rather than attempting a roundup of empirical research on existing forms of cyber-resistance and democratic social movements in the interstices of the networked city, I want to turn instead to theorisations of more liquid or messy social structures, which are beginning to replace the 'hard' imagery of networks. I argue that these softer visions of porous sociality enable a better understanding of how publics might emerge out of the mobile socialities of unbundled urbanism.

**Coupling, decoupling, and contingent gels**

Communicational infrastructures have traditionally been envisioned as 'networks' (that is, webs of individual agents each linked to other individual agents to make up a system constituted by ties between nodes and interchange points at especially dense junctions). Yet, in many respects this metaphor of social networks is now being outmoded by the very processes of mobilisation of people, objects, and information enabled by the new communicational technologies. Although network analysis has made strides in the empirical study of social interactions, it is unable to depict these processes of uncertainty and dynamic social change. In this section I want to pursue some new ways of envisioning social structure that can help to describe this emergent situation. A more

precise description of messy and imprecise social interactions can help us to pinpoint exactly how new kinds of mobile publics may be forming.

The metaphors of 'flow' and 'liquidity' have recently captured the attention of social theorists concerned with emergent social processes in a world perceived to be increasingly 'disorganised' and 'complex' (for example, Bauman, 2000; Castells, 1996; Lash and Urry, 1994; Urry, 2000).[6] Castells, for example, theorises what he calls the "space of flows", while Urry speaks of "global fluids" as "the remarkably uneven and fragmented flows of people, information, objects, money, images and risks across regions in strikingly faster and unpredictable shapes" (2000, page 38). Zygmunt Bauman suggests that there are "reasons to consider 'fluidity' or 'liquidity' as fitting metaphors when we wish to grasp the nature of the present, in many ways *novel*, phase in the history of modernity" (Bauman, 2000, page 2, emphasis in original). And some urban geographers have referred to "the 'liquefaction' of the urban structure" (Graham and Marvin, 2001, page 115). Yet, in contrast to the mathematical precision of much network analysis, many of these suggestive metaphorical statements about the contemporary condition lack empirical specification of how such an unstructured structure might work. What mechanisms animate liquid sociality? What agencies are at work to make social connections gel or evaporate?

I will draw on the work of Harrison White, whose notion of a gel is one alternative way of thinking about interconnected social structures beyond the idea of a network.[7] Whereas networks connect smaller units into larger entities, and such entities in turn form their own networks which constitute still larger social organisations, a gel is something in which such levels are not distinct. If we understand socialities as always grounded in physical space and time, but in contexts of sheer messiness, we may need to think about social life in nonnetwork terms:

> "We are creatures living within social goos, shards, and rubbery gels made up by and of ourselves. We, like gels, may dissolve into a different order under some heat. Even the frozen shards exhibit only limited orderliness, and even then an orderliness lacking in homogeneity, and an orderliness made more problematic through its dual relation to physical space" (White, 1992, pages 337 – 338).

Whereas a network implies clean nodes and ties, then, a gel is suggestive of the softer, more blurred boundaries of social interaction. It also challenges our notions of scale, boundary, and structuration. Rather than a clean break between the micro and the macro, the private and the public, or the local and the global, we can think in terms of this messy gel of sociality occurring at different scales and scopes.

The 'inhomogenous environment' of social communication is full of lumpy contingencies—possibilities for coupling and decoupling—and it is precisely the capacity to manoeuvre across multiple social contexts that creates the gel-like character of contemporary communicational settings. In White's work on 'identity and control', coupling refers to the strings of ties that make up networks of various kinds. Decoupling, on the other hand, loosens such ties. It is a form of "lubrication which permits self-similarity of social organization across scopes and levels. Decoupling makes it possible

[6] There is also an antecedent preoccupation with flows in the work of Gilles Deleuze and Félix Guattari (1983 [1972]), which is cited by many later theorists.

[7] White was trained as a physicist, but later moved into the social sciences at Columbia University in New York. He was influential in introducing network analysis into the social sciences, and has continued in his work to draw on mathematical models and concepts from the physical sciences to advance social understanding. Like those working in the European field of actor-network theory and sociotechnical studies of science, such as John Law and Michel Callon, White is also principally concerned with the emergent relationship between structure and action, which he understands in terms of a complex tangle of relatively durable practices.

for levels of social organization, such as cities and organizations and families, to mix and blur into an inhomogeneous gel" (White, 1995, page 12). Here I want to consider mobile communicational systems as crucial to the decoupling that allows for the contemporary modes of flexibility by which the seeming social, spatial, and temporal disorder of the fragmented city is organised.

The idea of publics offers one especially fruitful way to think about the more fluid ways in which uncertainties are negotiated across gelling socialities. White suggests that publics are special social spaces that allow for 'switching' between communicative contexts. Easing social actors into and out of both social spaces and social times, "Publics decouple network-domains from each other, and thus enable slippage in social times" (White, 1995, page 14; also see Mische and White, 1998). Publics, in this formulation, are special moments or spaces of social opening that allow actors to switch from one setting to another, and slip from one kind of temporal focus to another. However, White's examples mainly envision this as something that occurs in terms of face-to-face communicative interactions, as social actors use publics to ease the move from one set of conversational couplings into another. If we add to his vision the element of electronic communication with 'absent' others, and the possibilities for carrying on personal communications in the midst of mobile public settings, we can see that there are more complex possibilities for coupling and decoupling across time and space.

White (1992, page 111) argues that it is the trade-off of ambage and ambiguity in contingent environments that constitutes "the social world of disorderly 'gels and goos' ". Whereas ambiguity is about fuzzy meanings or interpretations (which facilitate communication across differing contexts), ambage is a kind of slackness in "the concrete world of social ties, in networks of ties and corporates among nodes. Thus ambage is dual to ambiguity: fuzz in the concrete embodiment as opposed to fuzz in the rules of perception and interpretation" (1992, page 107). We can think of ambage, then, as a kind of instability, uncertainty, or polymorphology in social roles or positions which creates a built-in tendency toward enabling switching from one set of relations to another. It suggests the idea that social actors are never simply one thing, but always carry with them multiple identifications and capacities to 'play' different parts at once. Mobile communication technologies allow for many such identities to be held in play at one time.

White furthermore rejects the person as the basic 'atom' in social science, and suggests that "Conversation prefigures personal identity ... . Persons come to be generated only out of large-scale frictions among distinct network-populations" (1992, pages 196 – 197). In his account, 'persons' are constructed on the basis of identities (sustained through orderly interpretive frames that reduce ambiguity) and appear as real, but they are contingent by-products of social processes, held together by 'story lines'. "Each 'I', in the common parlance", he suggests, "is a more-or-less rickety ensemble; it is firm and whole only temporarily as a facet of one particular constituent discipline energized in some situation and style" (page 198). Persons, then, are not necessarily the animators and governors of communicational systems, but are nodes of story condensation and identity that occur at the interface between multiple networks and strings of social organisation. Mobile communication systems allow such persons to become more readily mobile through space because of the greater potential for 'self-retrieval' at the other end of a journey. Such identities can leave traces of their selves in informational space (contact numbers for family and friends, bank-account details, pin numbers, and access codes) which allow them more easily to pick up various 'story lines' through which their identities are stabilised. They can also plug into global communication systems that allow them to do things and talk to people without being present in a particular place, without even being in one place.

It is the capacity for coupling and decoupling in various ways that enables social action and the emergence of persons. For example, when someone has a telephone always available, he or she is holding in abeyance a wide range of 'absent presences', with whom a conversational coupling might easily be established. Rather than conversation being set aside as something one does at certain moments, for a delimited stretch of time, usually in a private space (or semiprivate telephone 'box' or 'booth'), there is now a constant flickering of conversation. The new modes of talking or texting on the move mean that there are more open-ended patterns of coupling and decoupling, with far less time 'out-of-pocket', when communication with distant others is impossible or unthinkable. Mediated conversation with distant others is now something that one can slip in and out of. Contact occurs with a more varied range of intensities, from the beeper, to the brief text message, to the short flicker of conversation on a mobile phone, and finally to a more extended conversation on a fixed telephone. What Christian Licoppe describes as a 'connected mode' of presence at a distance is becoming more common, achieved through intermittent but quasi-continuous activation of the bond by means of the telephone (2004).

Thus the 'public' resource provided by a telephonic communication system exponentially multiplies the possibilities for easing in and out of contingent socialities and picking up the multiple story lines through which identities are constituted. The pertinent connections may be very local or on the other side of the world, or might link together both at once. This rescaled and widened scope of communication is not simply an extension of existing networks, or even an increase in their density, but is a fundamental alteration of the very structural properties of the system. The communication system no longer operates like a network, but has instead taken on the characteristics of something far more like a gel or a viscous liquid. Persons themselves are not simply stationary nodes in a network, but are flexible constellations of identities-on-the-move.

This ability to shift contexts and personalities easily describes a structure with a higher degree of 'ambage' than a mathematically modeled network structure. This suggests that we need to move beyond the overly rigid model of networks in order to grasp social communicative systems in terms that indicate their fluid morphology. The question is, if we adapt this fluid metaphor to think about the complex social structures of communicational systems, what heretofore unimagined, nonlinear (non-network) social processes might also be imagined? When a social system is connected together in the form of a liquid, a gel, or a goo, will it not have different behavioural properties than a conventional network? A gel differs fundamentally from a network structure (which has been the prevailing metaphor for understanding and devising communicational and transportational systems). In White's polymer goo, actors are simultaneously and constantly in touch with many others and have access to many different kinds of informational resources. This is a more nebulous communicational system, with multiple 'interfaces' co-occurring, whether as conversations, transactions, or data transfers.

If 'persons' emerge as identities out of this social gel, it could likewise be argued that collective actors emerge in the same way—that is, as 'more or less rickety ensembles', or sociotechnical assemblages, 'energised in some situation and style'. Whereas White uses the term 'public' to describe a property of contexts for action (that is, those contexts that allow for the greatest degree of decoupling or slippage), it could in contrast be used to refer to emergent collective actors such as the publics and counterpublics found in normative democratic theory. Publics are not only collective actors, emerging situationally as action gels around particular issues or debates, but also the slippery quality that allows for persons to slip from one identity to another in the first place. This is an interesting and indeed productive duality in the conceptualisation

of publics. Insofar as technologies of mobile communication enable structural slippage (or ambage) to occur in new ways, they are crucial 'actants' in the formation of publics.

The mobilisation of publics, then, is not simply predicated on increasing the density or intensity of face-to-face ties (as in a network), but depends instead on the entire context of communication gelling, which enables momentary stabilisations of collective identities as publics. The structure of social interaction is metamorphosing not so much because increasing numbers of social actors join a 'network' (for example, adding more telephone lines to a fixed-line system, or more hubs to a transportation network), but because new 'persons' and 'places' are constantly emerging out of the social gel itself, bubbling up as it were from nowhere. The challenge before us, then, is to begin to devise empirical research that will reveal the dynamics of the communicative processes that animate these unstable fluid structures. Contesting the fragmentation and social exclusion of the splintered city cannot simply be a matter of expanding and connecting ever larger networks (which always brings with it further social exclusions and 'bypasses'), but must involve reconfiguring the couplings and decouplings through which persons, places, and publics emerge. Publics are no longer usefully envisioned as the open spaces or free spaces in which diverse participants could gather—the democratic spaces of the street, the square, or the town hall. Nor can we simply pretend that equivalent 'virtual spaces' exist in some kind of democratic cybertopia. Instead, the mechanisms for publics occurring in the context of new infrastructures of mobility should be imagined in entirely new ways.

Mobile publics can perhaps best be envisioned as capacitators for moving in and out of different social gels, including the capacity to take on an identity that is able to speak and to participate in specific contexts. Despite the extensive privatisation of the sociotechnical infrastructures for mobility and communication, and despite the emphasis on private zones of mobile luxury in the cultural imaginary of new devices of material and imaginative transportation, the capacity for publics to emerge remains a property of the structures of connectivity. In looking "far beyond the traditional 'public realm'" of normative democratic theory, Graham and Marvin call for new conceptual understandings of contemporary urban life that will break the "tyranny of spatial scale", with its idealised Cartesian geometries and singular time–space representations (2001, pages 408–412). Until social analysts begin to recognise the new possibilities for mobile publics within the unbundled infrastructures of urbanism, we will be unable to counter the powerful forces of privatisation, social exclusion, and enduring inequality that are already aligned against democratic participation and agency.

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