A graphic language for touch

RFID and everyday objects
Radio Frequency IDentification (RFID) is a means of giving physical objects a unique digital identity. Most current RFID applications focus on replacing barcodes in supply-chain management and logistics. But recent contactless payment services from Visa, Mastercard and American Express, numerous RFID-based ticketing trials, and the mass-market adoption of RFID enabled mobile phones in Japan suggest that this is rapidly becoming a technology that has a wider range of user-centred applications.

The interesting applications in this space are very difficult to predict, like trying to foresee the use of SMS in the early '90s. As with SMS it's the socially motivated uses within small communities and discrete social networks that are interesting. With RFID we should start thinking about annotating the personal environment and communicating and managing social functions through objects and places.

There are also interesting application areas in the organisation of personal information; cataloguing and tracking the history of personal objects, and opportunities for radically shifting the marketplace for craft in the form of personal product codes.

Touch-based interactions
RFID allows communication only in very close proximity, usually less than ten centimetres in the form that I'm interested in here. Although this might seem to be a limitation, it encourages us to think more about embodied interactions instead of an invisible, pervasive 'aura' of information. This has interesting implications for usability; using embodied actions in the physical world to select information or functions, instead of navigating a small screen.

Graphic language
I'm interested here in the visual link between information and physical objects or spaces. What are the visual clues for this interaction? How do we represent an informational object, that has digital function, information or history beyond it's physical form? We can't rely on a kind of 'mystery meat' navigation (the scourge of the web-design world) where we have to touch everything to find out it's meaning...

At the moment this research is concerned with generic iconography for a digitally augmented object. But it should develop into a richer language, as the applications for this type of interaction become more specific, and related specifically to the types of objects and information being used.

The inspiration for this is in existing iconography for interactions with objects: push buttons on pedestrian crossings, contactless cards, existing signage and instructional diagrams. There is also a large collection of existing iconography in contactless payment systems, with a number of interesting graphic treatments in a technology-led, vernacular form. There is more work to be done in cross-cultural iconography research.

References
Consumer Electronics and Digital Content RFID Market Opportunities
www.abiresearch.com/reports/NFC.html
Sony FeliCa
www.sony.net/Products/felica/
Phillips MiFare
www.mifare.net
NFC shell for Nokia 3220 phone
www.nokia.com/nfc
10 million FeliCa handsets by the end of March 2006.
http://ubiks.net/local/blog/jmt/archives3/003058.html
The Invisible Tail: How Free Product Codes Can Democratize The Global Market
http://ullamaaria.typepad.com/hobbyprincess/2005/10/the_invisible_t.html

Visual references
Oyster Card, Transport for London.
eNFC, Inside Contactless.
Paypass, Mastercard.
ExpressPay, American Express.
FeliCa, Sony.
MiFare, various vendors.
Suica, JR, East Japan Railway Company.
RFID Field Force Solutions, Nokia.
NFC shell for 3220, Nokia.
ERG Transit Systems payment, Dubai.
Various generic contactless vendors.
Open Here, Paul Mijksenaar, Piet Westendorp, Thames and Hudson, 1999.
Understanding Comics, Scott McCloud, Harper, 1994

Circles
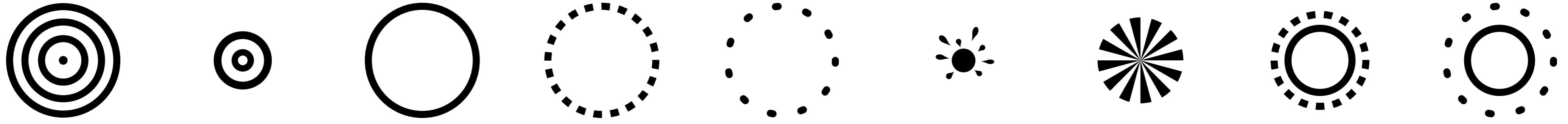
Target
Based on generic RFID tags.

Target
Based on Nokia 5140 Field Force Solution.

Container
Based on generic RFID tags.

Dashed container
Content waiting to be discovered.

Lightweight dashed container
Content waiting to be discovered.

Surprised circle
An action or reaction Ref. Scott McCloud.

Rays
Highly visible target.

Aura
An object surrounded by an aura.

Lightweight aura
An object surrounded by an aura.

Wireless

Wireless card
Based on generic MiFare reader graphics.

Wireless target
Based on generic security card reader.
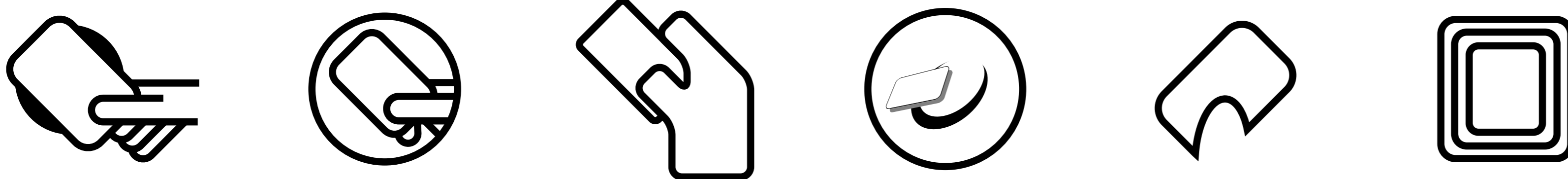
Wireless dot
Based on generic RFID readers.

Squiggle
Based on Nokia 3220 NFC shell, Copyright Nokia.

Wireless 1
A wireless dot.

Wireless 2
A wireless dot.

Tiny wireless
Smallest, simplest possible wireless icon.

Card

Card on reader
Based on Paypass reader.

Card in circle
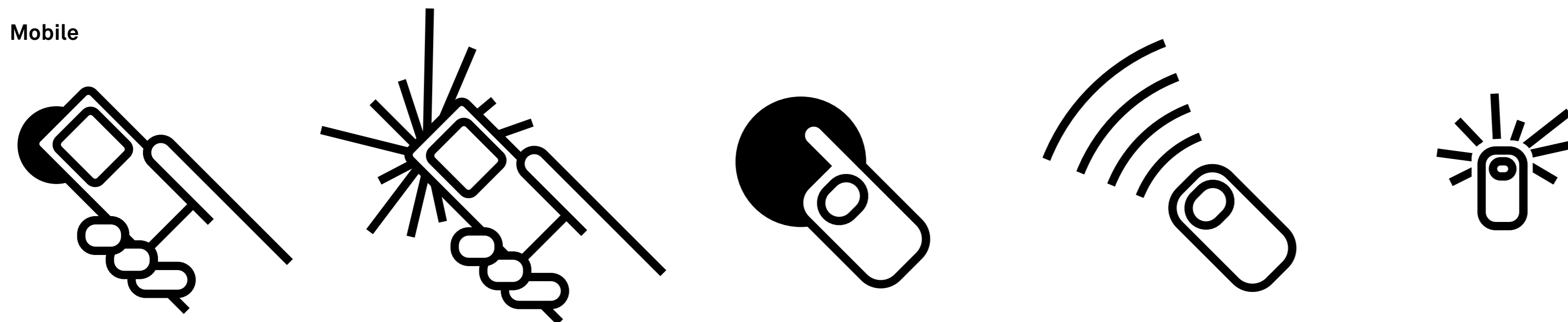Based on RFID ticketing system in Gøteborg, Sweden.

Card in hand
Indicating placement of card.

Card swoosh
Based on Oyster Card ticketing system London, UK, copyright Transport for London.

Thumb
Based on Sony FeliCa graphics, copyright Sony.

Wireless card
Based on generic RFID card reader.

Mobile

Mobile on tag
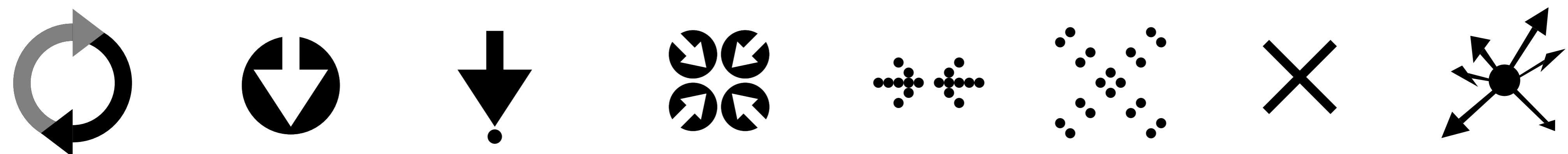Indicating placement of mobile (unfortunately at the wrong end of the phone).

Smash your phone
Indicating placement of mobile, and simple action/reaction.

Old mobile on tag
Indicating placement of mobile.

Phone beaming
Based on Japanese vending machine, not 'touchy' enough.

Little phone action
A phone activating an action or reaction.

Arrows

Recycle
Based on enhanced NFC system, copyright Inside Contactless.

Arrow in circle
Based on generic RFID reader.

Dot point
Indicating point of contact.

OTT arrows
Based on ERG Transit Systems payment, Dubai.

Dot matrix arrows
Indicating a point of contact.

Abstracted arrows
Indicates point of contact, and feels like 'data'.

Marks the spot
Simplest combination of arrows and point of contact.

Spikey
An object surrounded with indications of function and content.