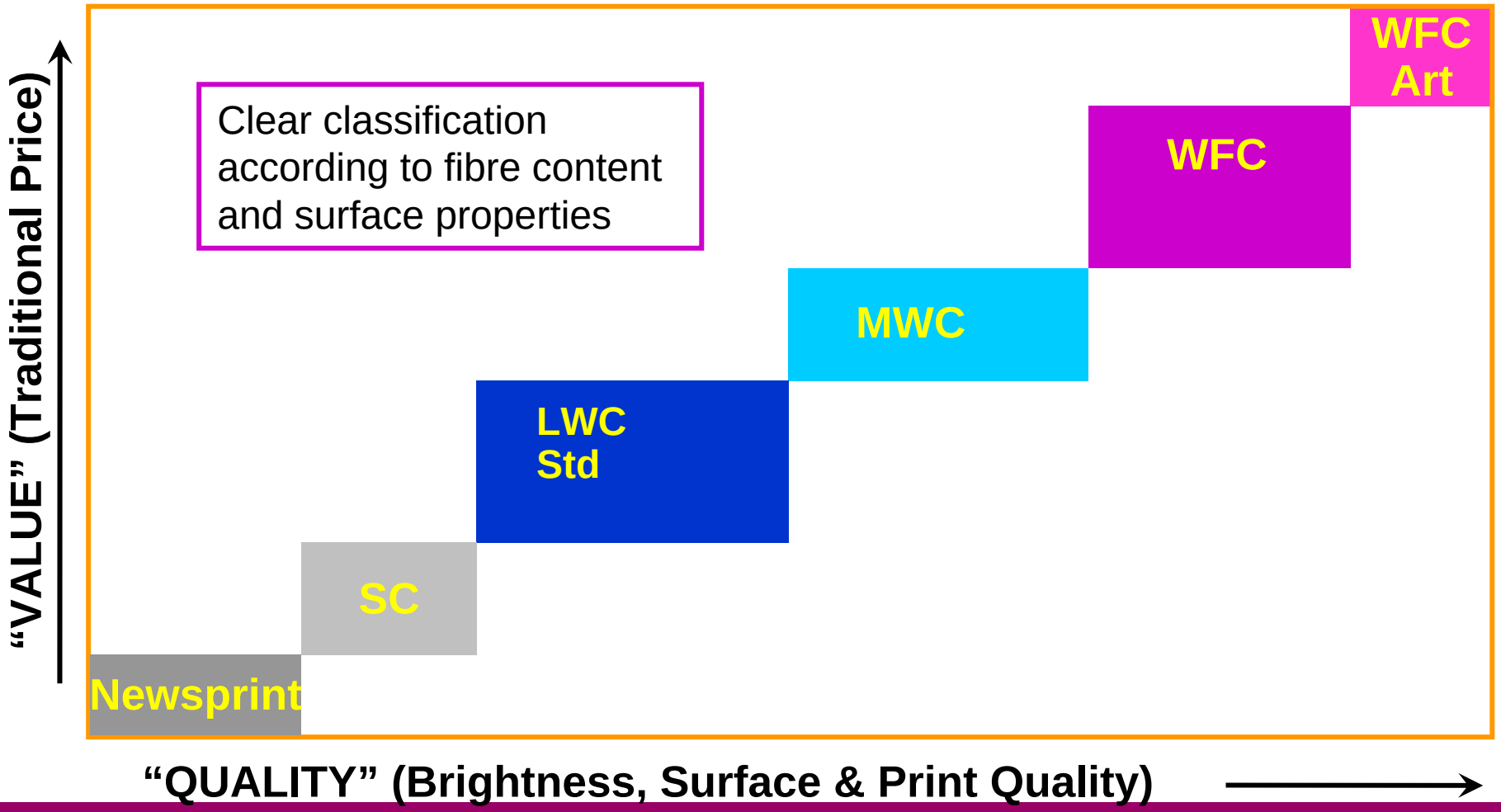

Publishing
paper grades
m-real

Traditional Classification of Printing Paper Grades



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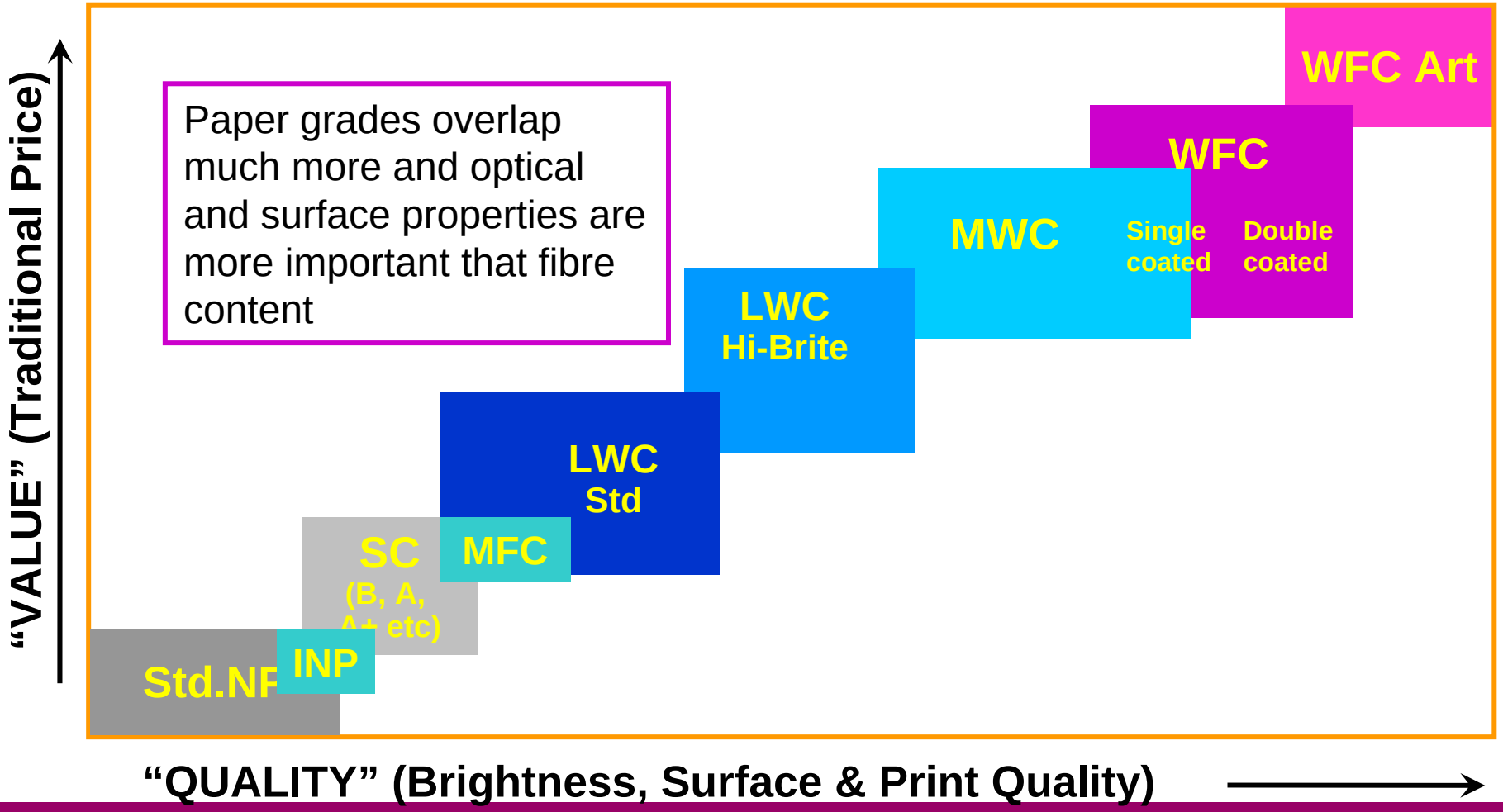
Evolving Classification of Printing Paper Grades



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Publishing paper grades

Abbreviation	Definition	Pulp	Coated/ Uncoated	Gloss/Silk/ Matt	gsm
WFC (Std. & Art)	Woodfree coated	Chemical	Single, double and triple (Art)	Gloss, silk and matt	> 80
MWC	Medium weight coated	Mostly mechanical	Double	Gloss, silk	70-115
Hi-Brite LWC	High brightness low weight coated	Mostly mechanical	Single	Gloss	57-90
Std. LWC	Standard low weight coated	Mostly mechanical	Single	Gloss	36-70
MFC	Machine finished coated	Mostly mechanical	Single	Matt	48-70
SC	Supercalandered	Mostly mechanical (high filler content)	Uncoated	Gloss	39-60
INP	Improved newsprint	Mostly mechanical	Uncoated	Matt	36-70 (52-55)
Std. NP	Standard newsprint	Mostly mechanical	Uncoated	Matt	35-48 (42-45)

Different Pulp Fibres Have Different Properties

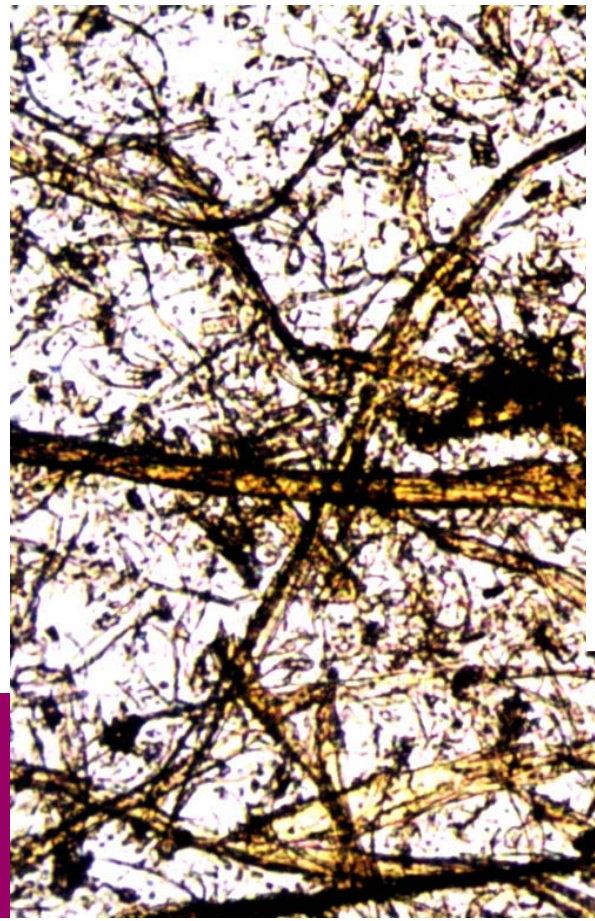
CHEMICAL PULP FIBRES

- stronger
- long
- flexible
- white
- very little fine particles

⬇

\+ Brigthness
\+ Strength
\+ Smoothness

MECHANICAL PULP FIBRES



- less strong
- short
- stiff
- yellowish
- lots of fine particles

⬇

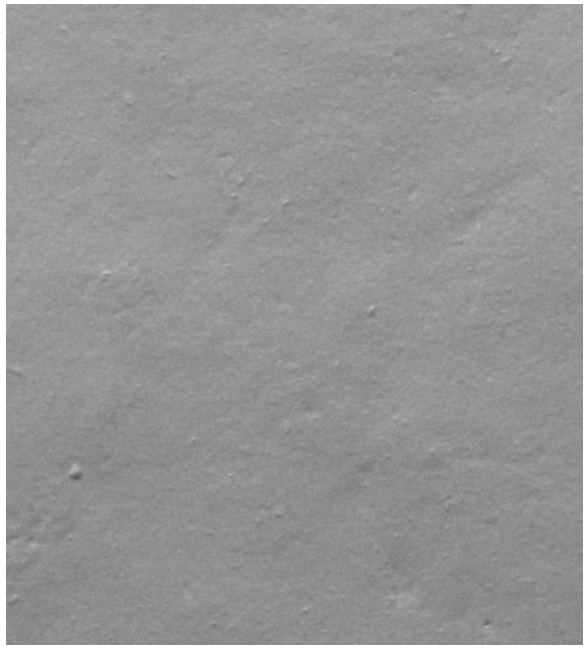
\+ Stiffness
\+ Bulk
\+ Opacity

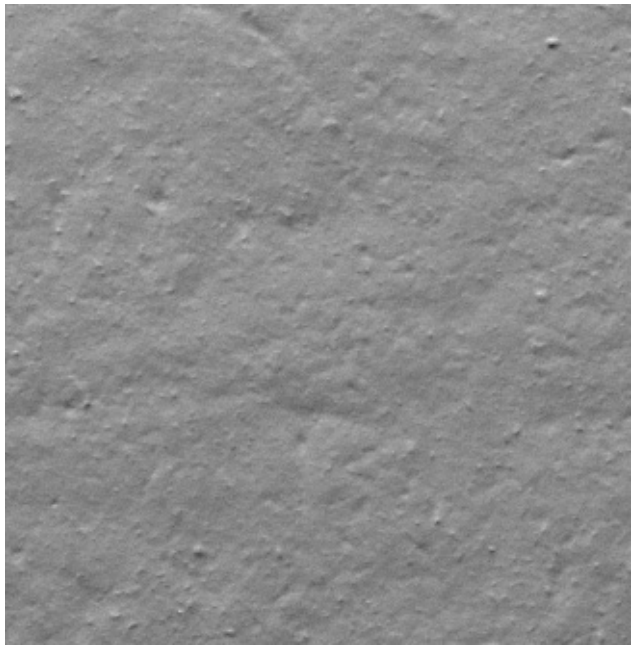
Surface of Gloss/Silk/Matt Papers

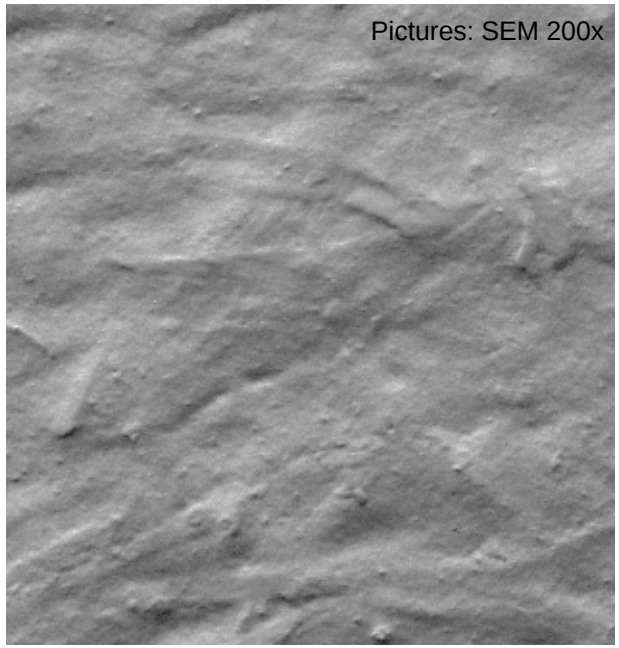
Gloss papers
Gloss*: 50-80
PPS: <1

Silk papers
Gloss*: 20-40
PPS: 1-2

Matt papers
Gloss*: 10-20
PPS: >2







Note! difference from dot gain point of view is greater between silk and matt than silk and gloss

* Tappi 75°

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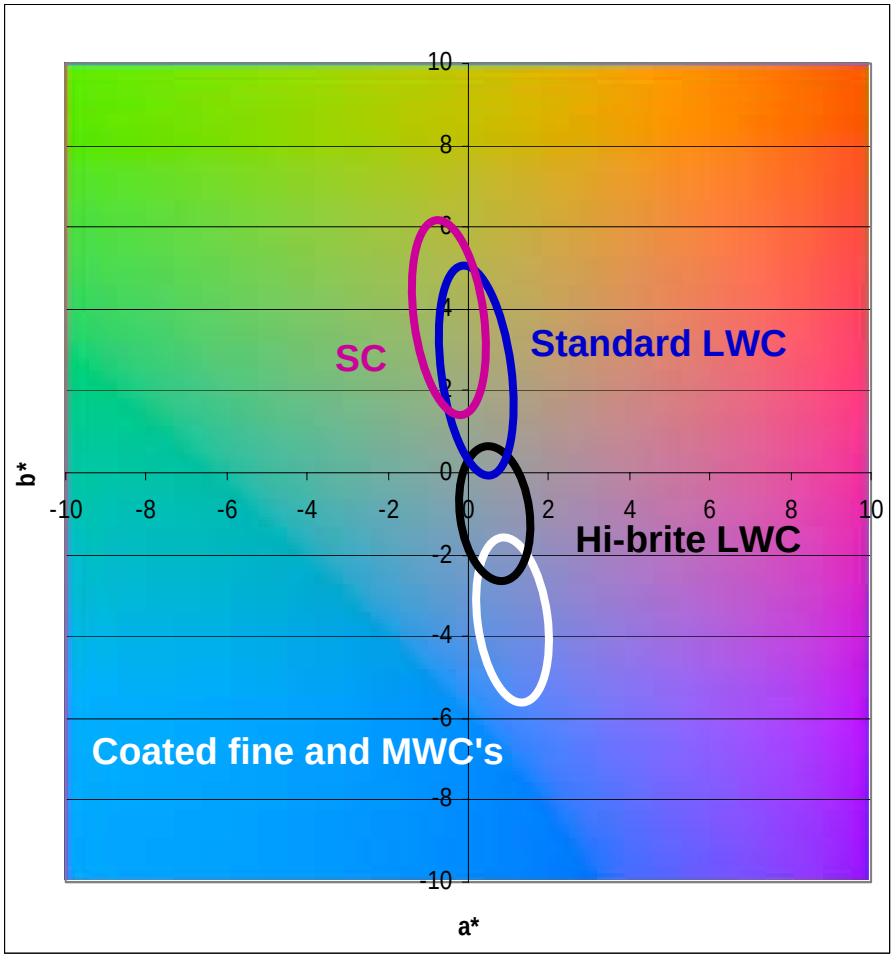
American paper grade classification

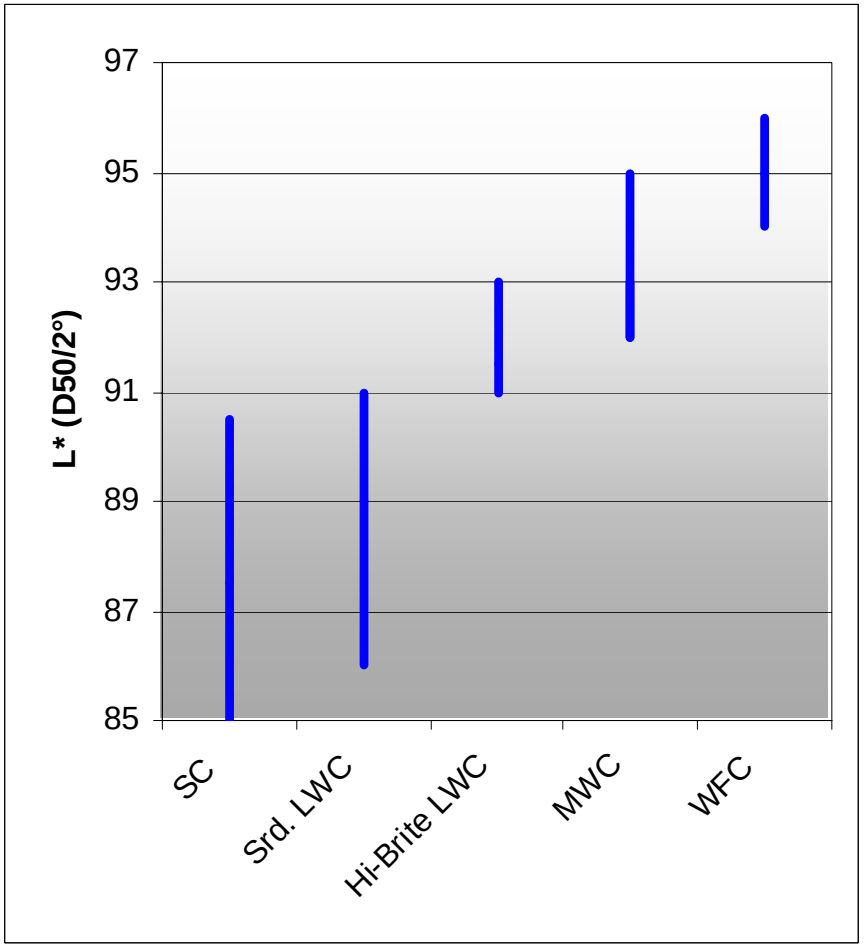
- American classification is based on brightness of a paper and mechanical/chemical fibre content

Coated paper grades	Brightness (GE), %	"Official" comparison to European paper grades	Comparison to European paper grades from paper shade point of view
Premium (chemical pulp only)	> 88	WFC Art	WFC Art/WFC
# 1 (chemical pulp only)	85-88	WFC	WFC/MWC
# 2 (chemical pulp only)	83-85	WFC	MWC/Hi-Brite LWC
# 3 (also mechanical pulp)	79-83	MWC	Hi-Brite LWC
# 4 (also mechanical pulp)	73-79	Hi-Brite LWC	Standard LWC
# 5 (also mechanical pulp)	< 73	Standard LWC	

Generally european papers have higher brightness than corresponding US grades

Paper shade and luminance





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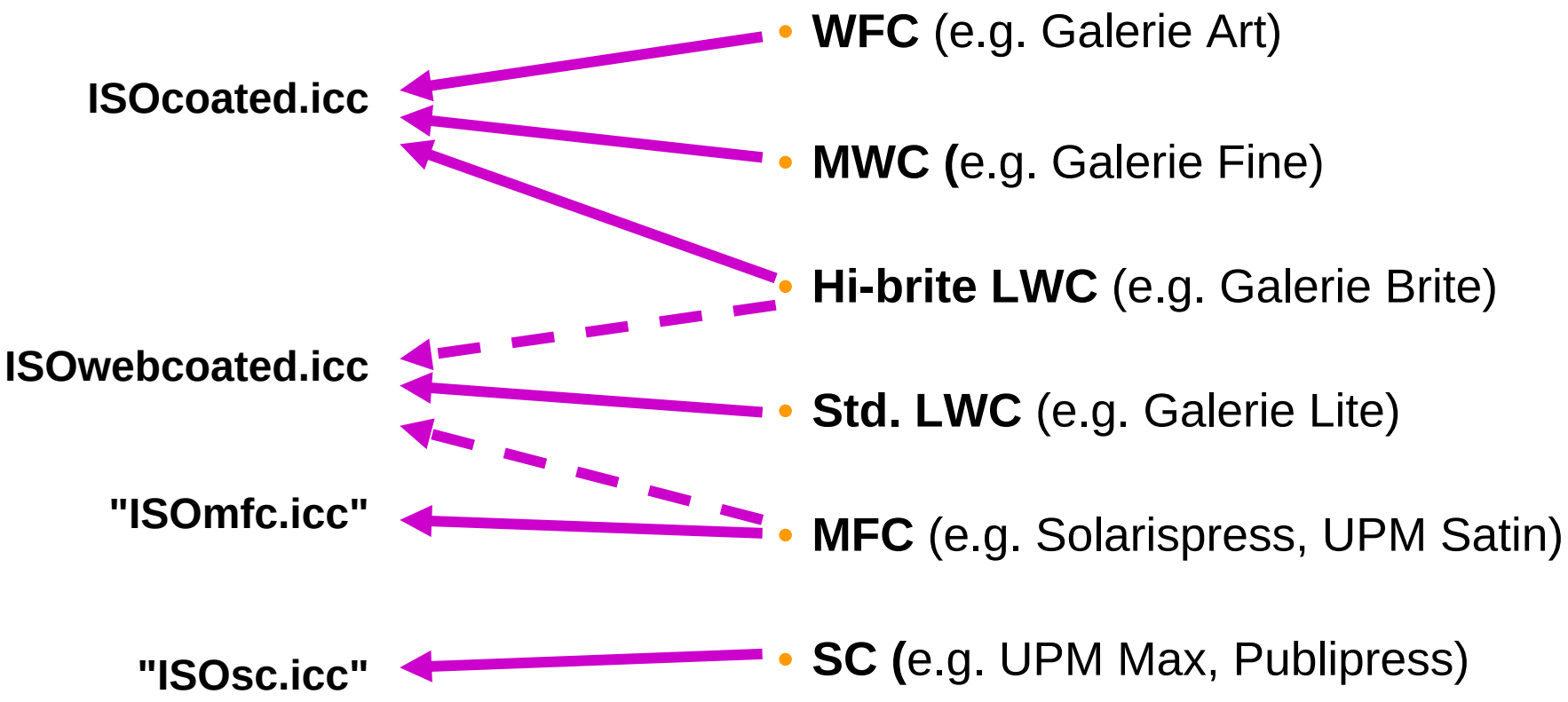
Web offset paper grades and ISO 12647-2



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Web offset paper grades and ISO 12647-2

- "Problematic" paper grades
  - WFC matt
    - Roughness of WFC matt grades can be high causing higher dot gain
    - With silk grades macroscopic roughness is close enough to glossy grades
  - Hi-Brite LWC
    - Depending on case the right profile can be either ISOcoated or ISOwebcoated
  - MFC
    - MFC is basically a matt version of std. LWC
      - paper shade and luminance are very similar
    - MFC can be however clearly rougher → higher dot gain