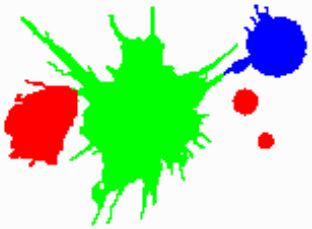
Sisteme software de prelucrarea imaginilor

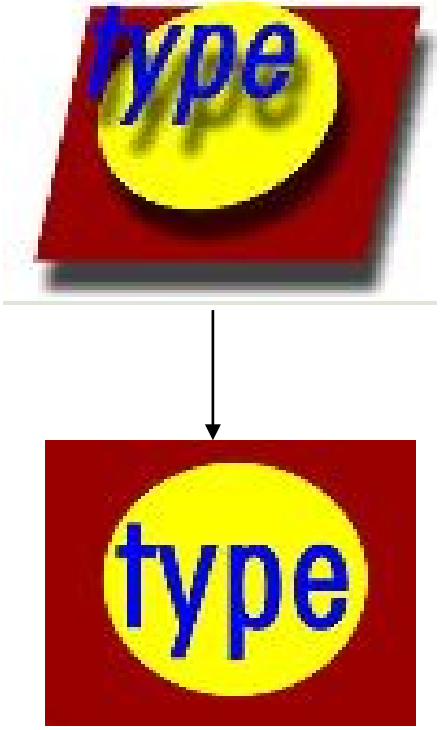
Lucrul cu straturi (layere)



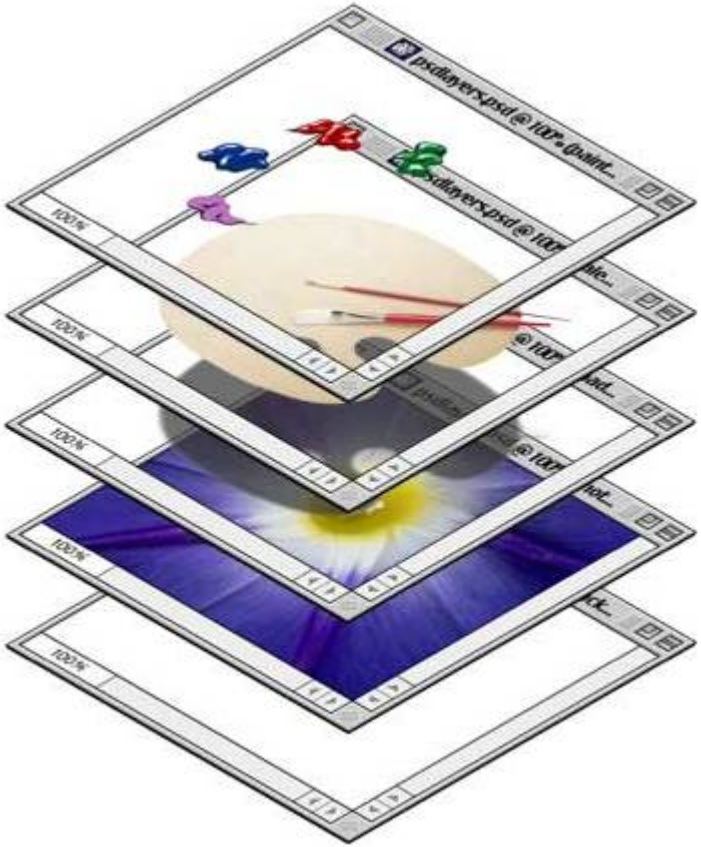
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea
LAPI

Straturile (layers)

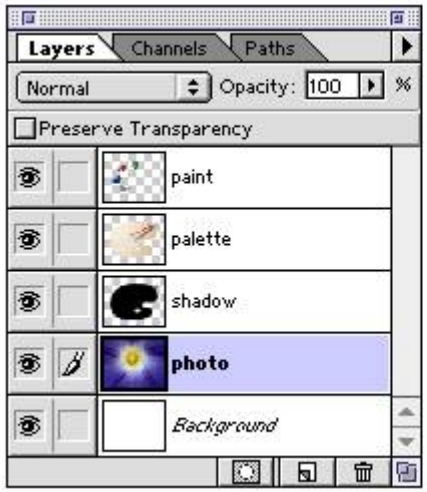
- Un strat
  - o coala/imagine cu zone transparente;
  - un desen pe o foaie transparenta
- Orice imagine: unul sau mai multe straturi suprapuse
- Orice strat se poate edita separat

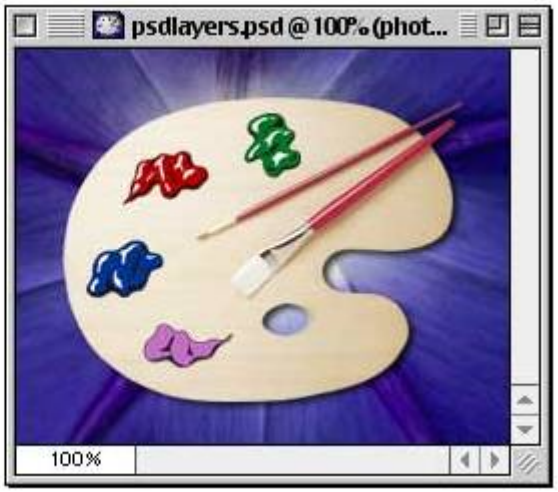


Paleta *Layers*



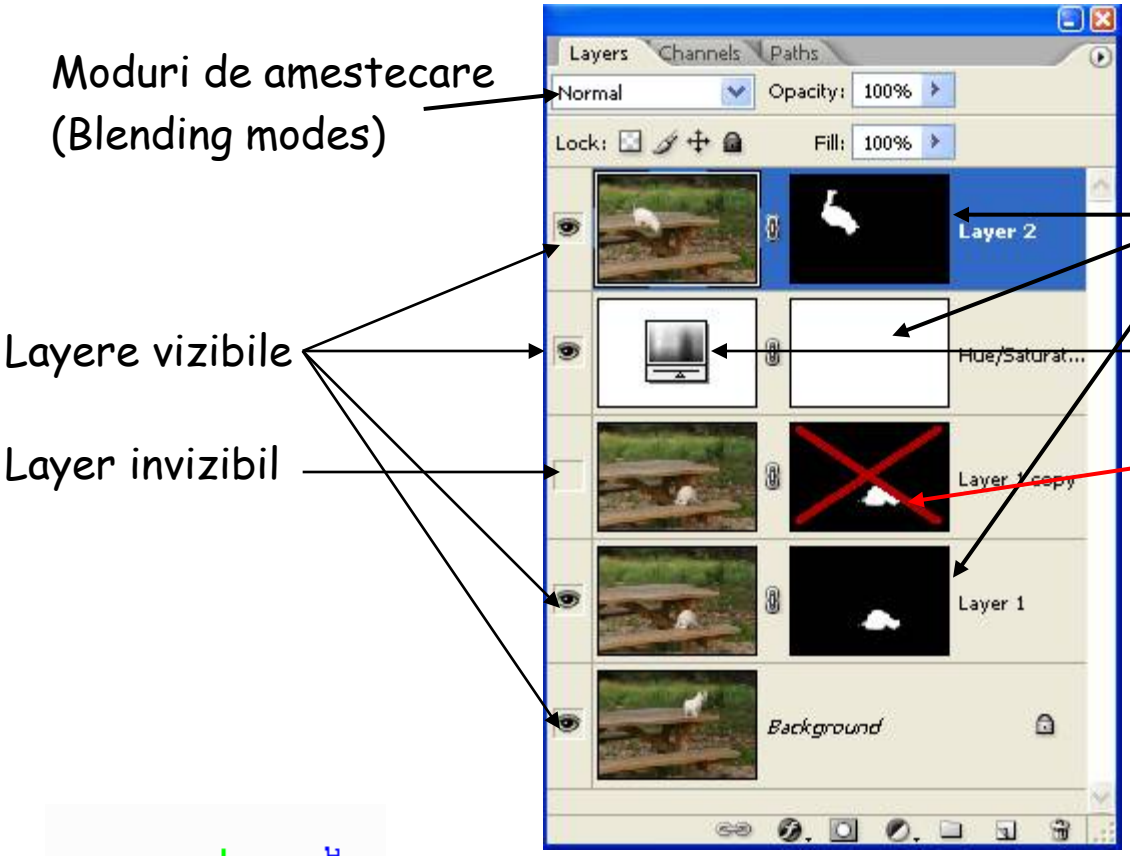
- Contine straturile ce formeaza imaginea curenta

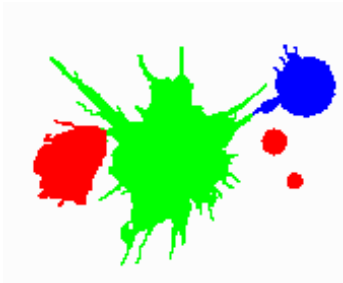






Paleta *Layers*

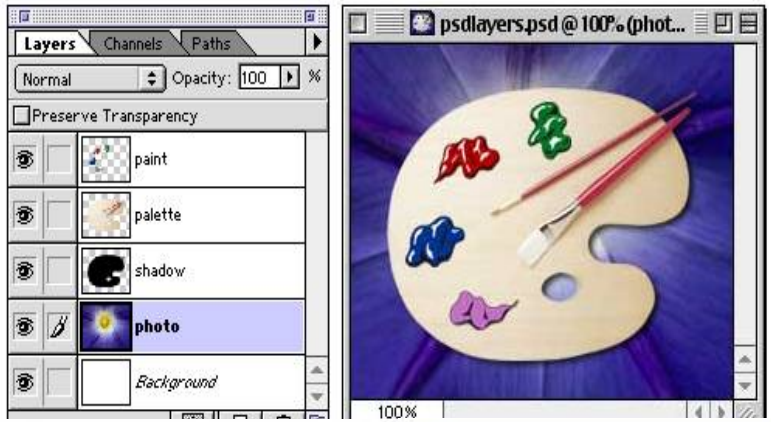




Sisteme Software de Prelucrarea Imaginilor

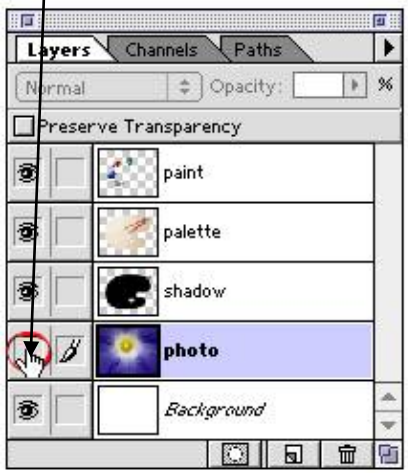
S.L. Dr. ing. Laura Florea

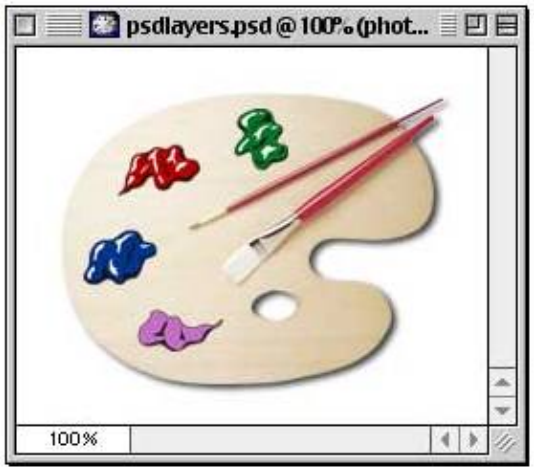
Vizibilitatea layerelor

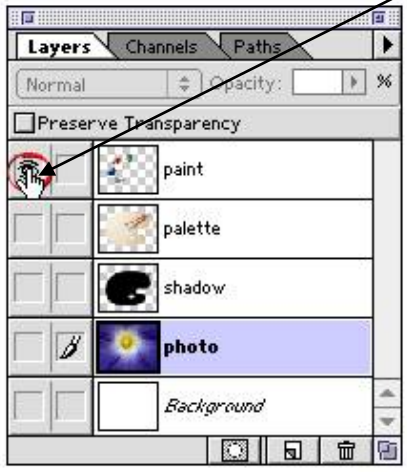


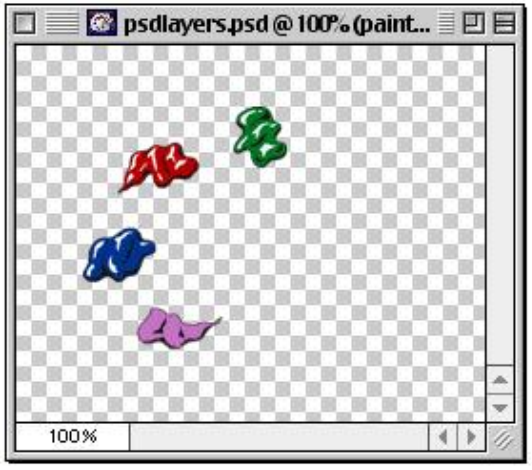
- Click pe iconita 'ochi' face layerul (in)vizibil

- Alt+click pe iconita 'ochi' face toate celelalte layere (in)vizibile



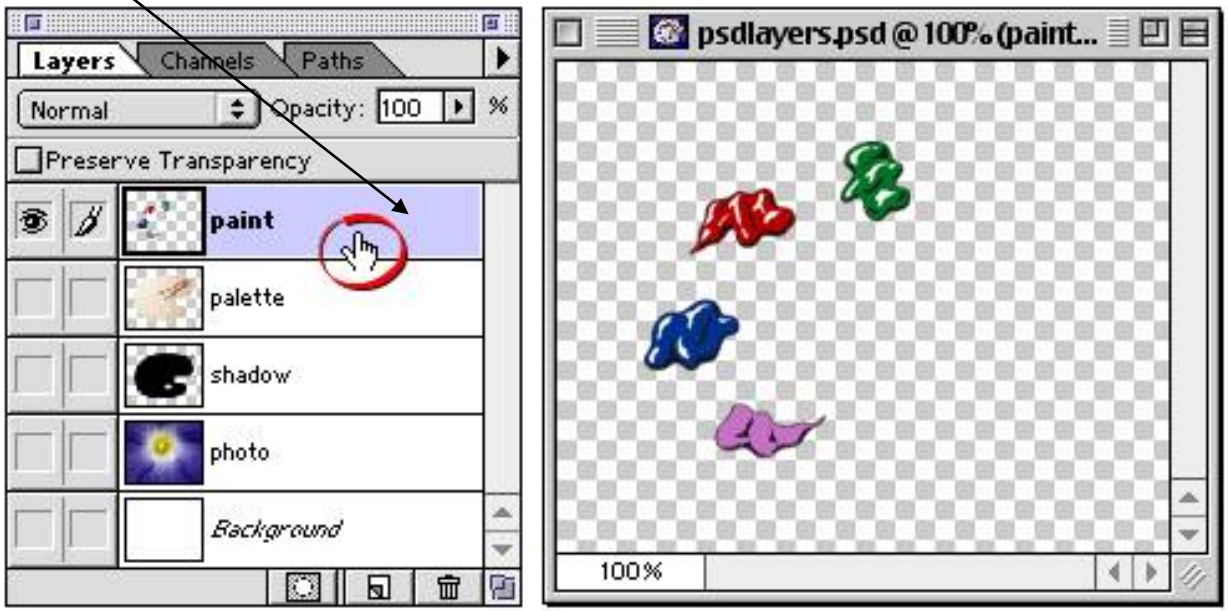




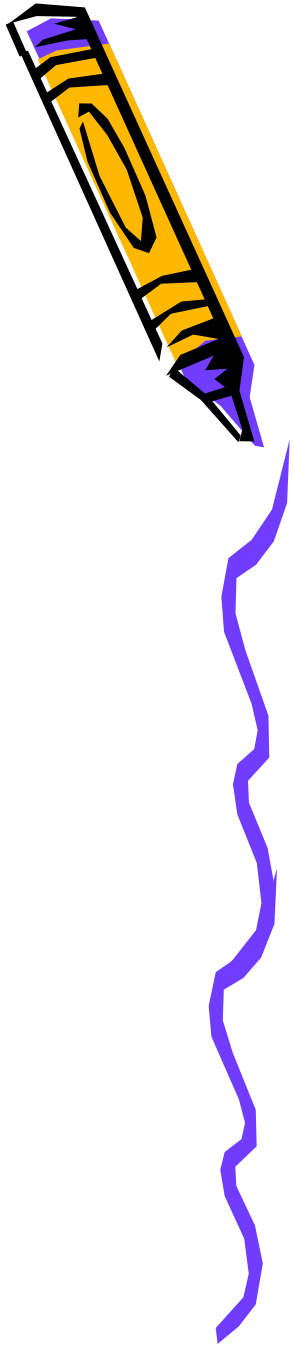


Activarea layerelor

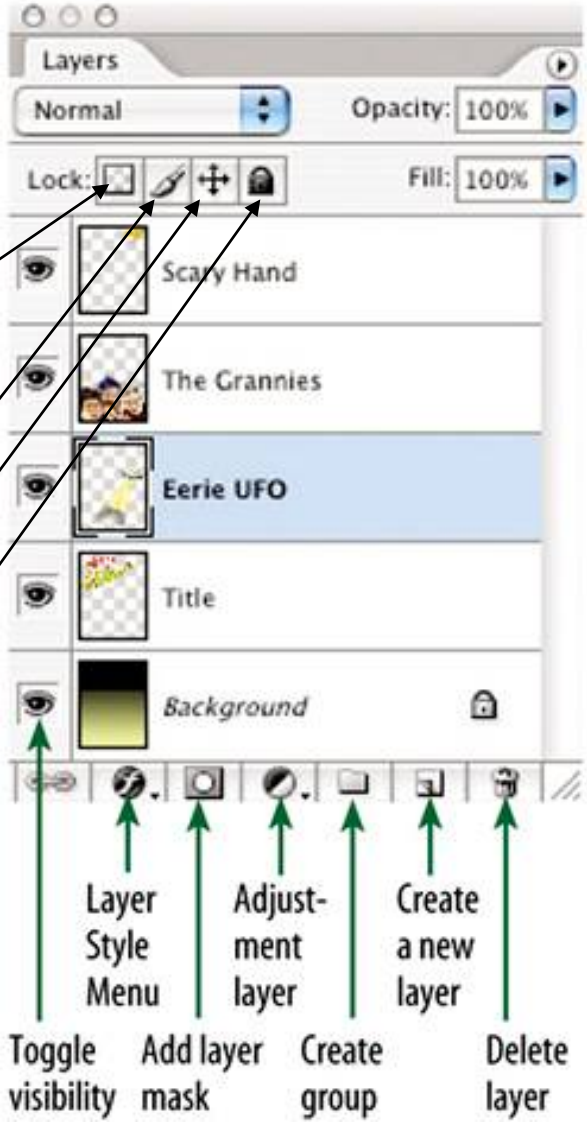
- Lucrul se face numai pe layerul activ (marcat in paleta Layers)

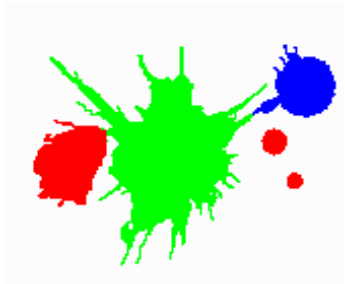






Lock transparent pixels
Lock image pixels
Lock position
Lock all



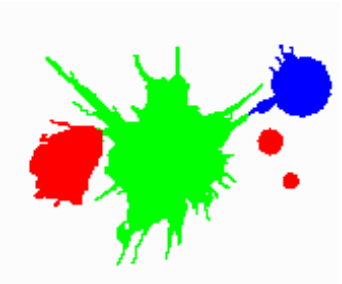


Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

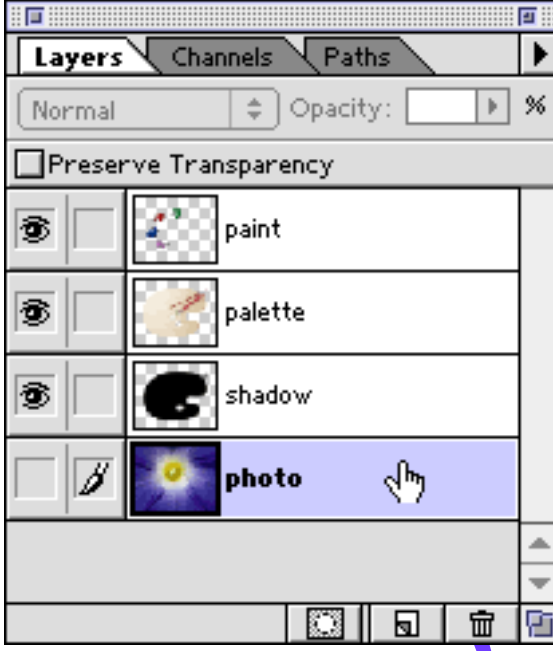
Background vs Layer

- O imagine noua contine doar background-ul
- Background-ul este intotdeauna 'incuiat' (*Locked),* nu poate avea transparenta, nu poate fi mai mare decat canvasul, nu se poate muta in interiorul canvasului, e mereu situat pe cel mai jos nivel
- Poate fi convertit in layer prin dublu-click sau din meniu *Layer->New->Layer from Background* sau click dreapta in paleta *Layers* pe Background si din meniu selectat *Layer from Background*
- Se poate converti un layer oarecare la background (doar daca nu exista deja un layer de Background) din meniu *Layer->New->Background from Layer*



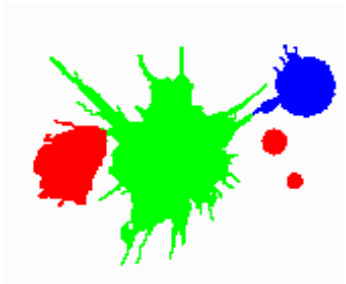


Modalitati de creare a layerelor



- Butonul *"New layer"* din Layers Palette
- *Layer (Menu) -> New -> Layer*
- Select -> Click Dreapta -> *Layer via Cut/Copy*
- Copy selection -> Paste it (New layer created)
- Click dreapta pe layer -> *Duplicate*
- Dublu click pe background -> Auto convert to layer

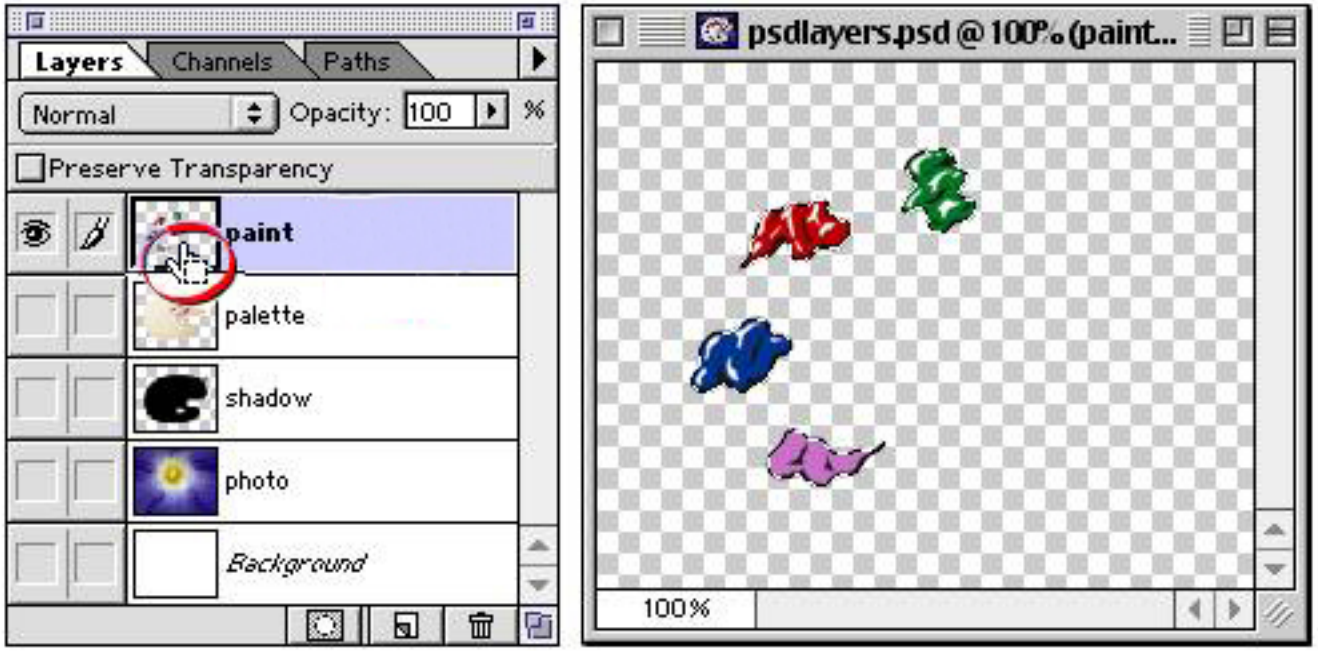
- Pentru a duplica un layer drag&drop pe butonul *"New Layer"*



Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Selectie pe layer

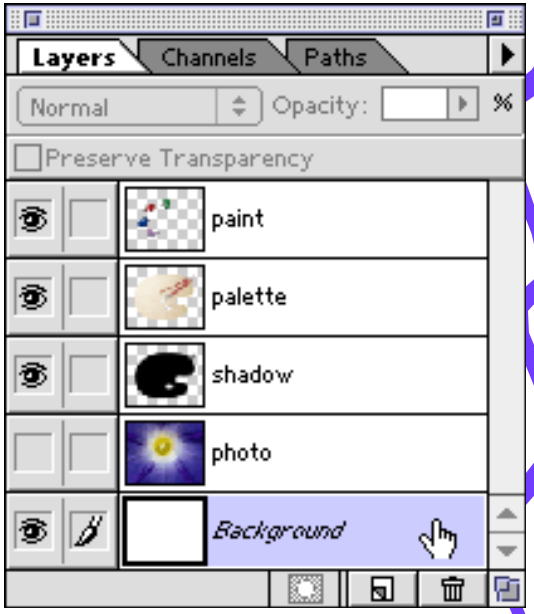
- Ctrl+click pe pictograma layerului selecteaza toate zonele opace din layer

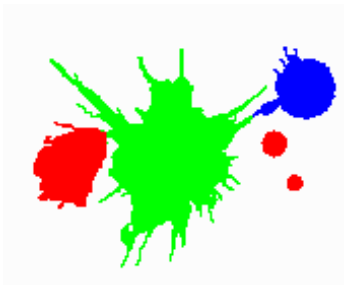


Stergere layer

- Drag&drop layerul pe butonul "*Delete*" din paleta *Layers*
- Click dreapta si ales *Delete Layer* din meniu rezultat
- Din meniu *Layer->Delete->Layer*

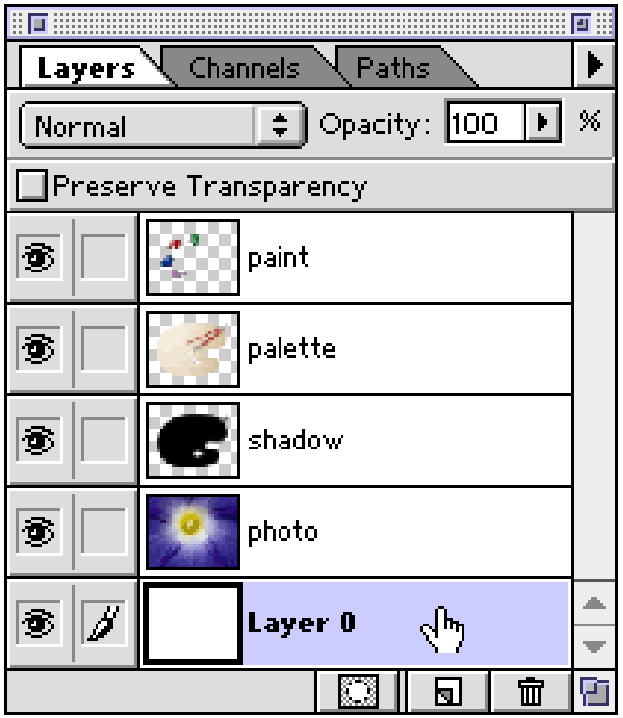
- Se pot sterge toate layerele invizibile din meniu de la *Layer->Delete->Hidden Layers*





Modificarea ordinii

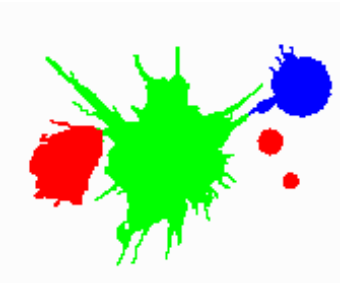
- Pentru modificarea ordinii de vizualizare se face drag&drop in paleta *Layers*



Legarea si unirea layerelor

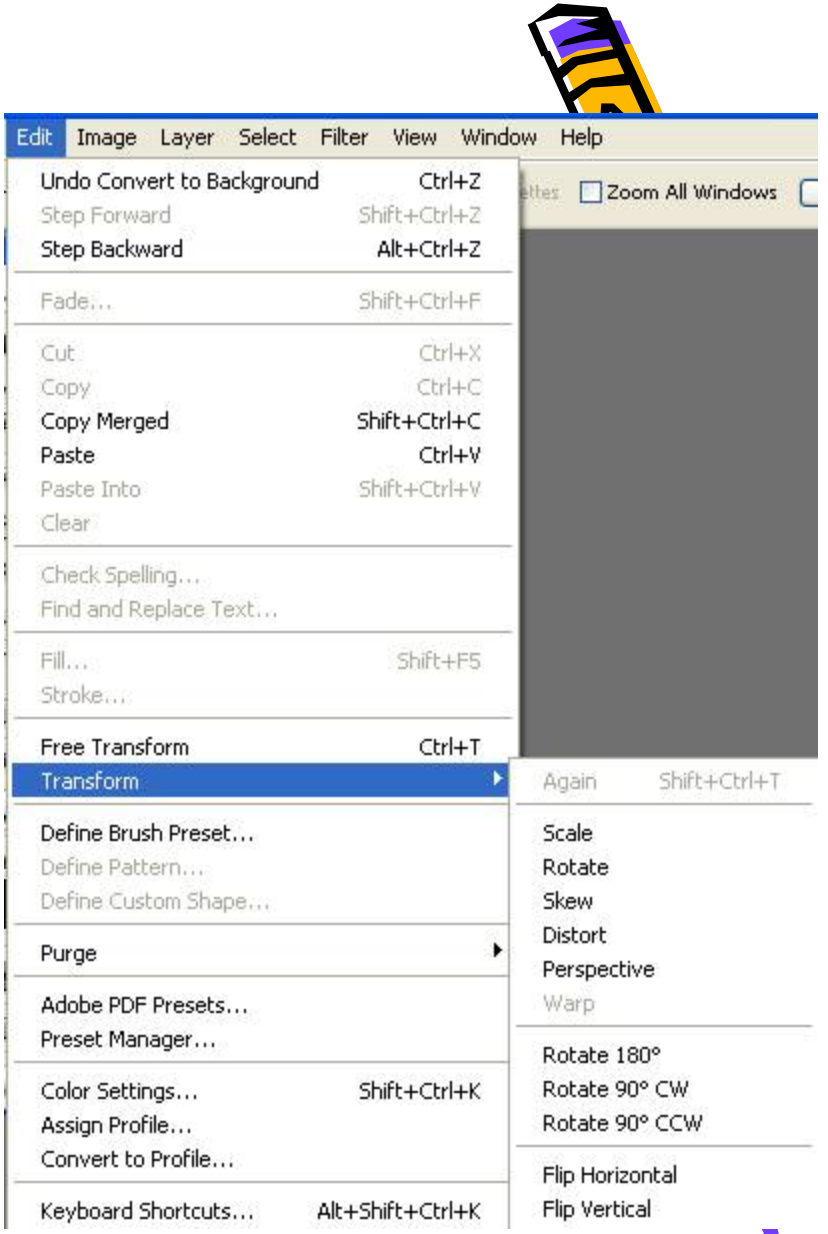
- Legarea layerelor pentru mutarea continutului se face prin selectia lor din paleta *Layers* si apoi click dreapta si alegerea din meniul rezultat *Link Layers* sau din meniul *Layer->Link Layers*

- Unirea layerelor se poate face din meniul *Layer->Merge Layers* sau cu click dreapta pe layerele selectate si ales din meniul rezultat *Merge Layers*. Similar se pot uni toate layerele vizibile (*Merge Visible*) sau se poate converti toata imaginea la layer de tip Background (*Flatten Image*)



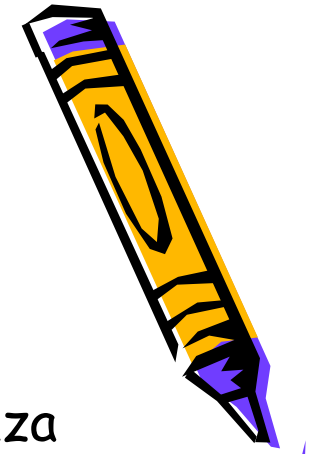
Transformari geometrice

- Orice layer poate suferi transformari geometrice
- Background-ul nu se poate modifica geometric

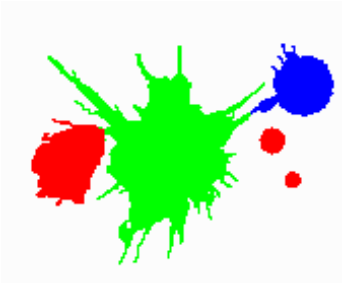




Masti



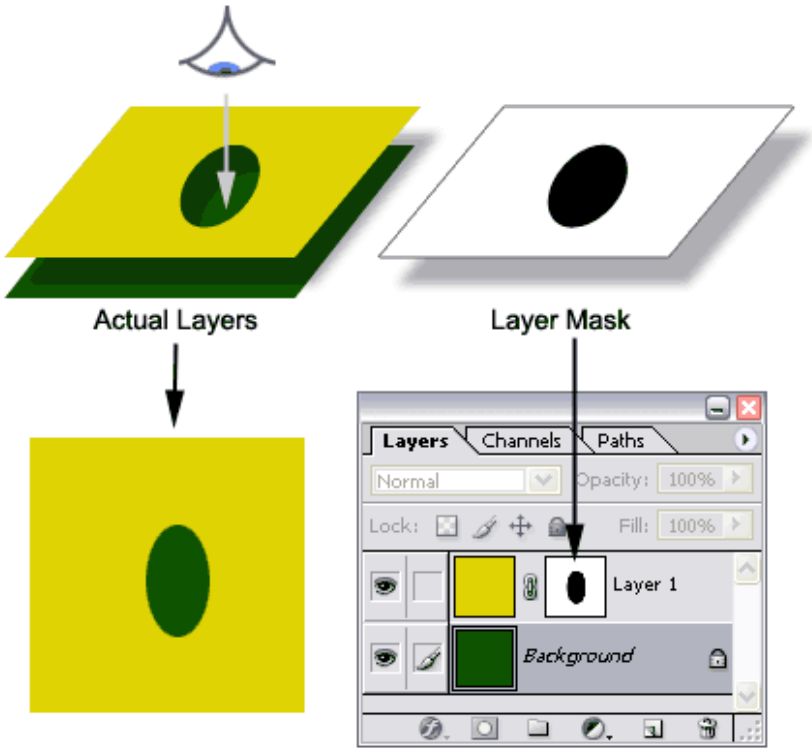
- Sunt folosite pentru editare nedestructiva (nu afecteaza layerele)
- Au un impact vizual, util in timpul editarii imaginii
- Ofera flexibilitate:
  - Se pot edita ca imagini monocrome
  - Pot fi parte din layere de ajustare (adjustment layers)
  - Pot fi salvate ca selectii



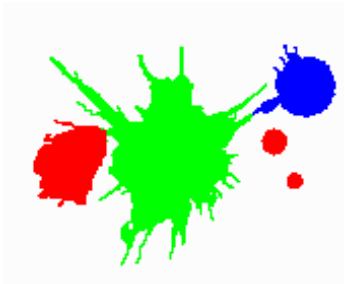
Masti

- **Negru = transparent**
- **Alb = opac**

- Se creaza o 'gaura' in layerul galben printr-o masca ce are o bulina neagra in mijloc. Numai unde exista alb in masca se vor vedea pixelii din layerul curent.



- Se observa ca pictograma layerului galben nu are o gaura in mijloc – pixelii nu au fost afectati. Se poate edita sau sterge masca, layerul curent ramanand neschimbat.



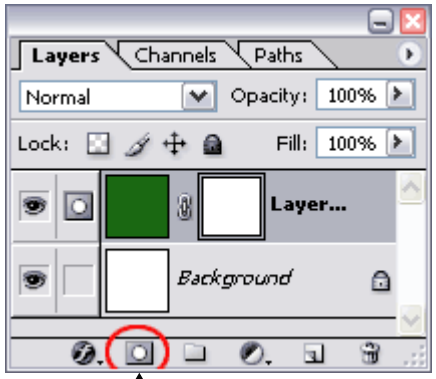
Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

Crearea mastilor

- Butonul "*Add layer mask*" din Layers Pallete
- meniul *Layer→Layer mask*

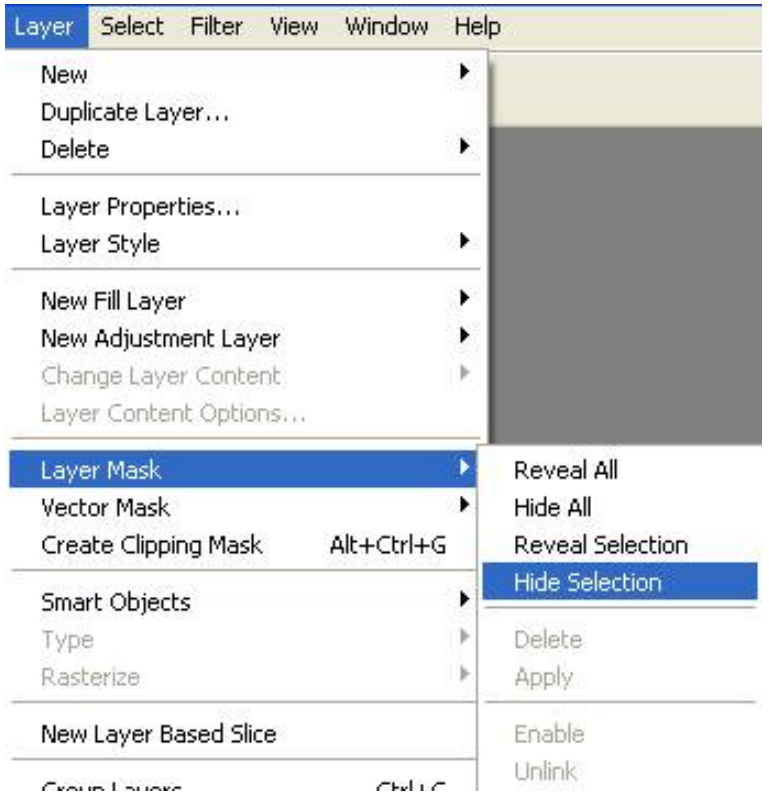
- Optiuni:
  - *Reveal All* (masca o sa fie alba)
  - *Hide All* (masca o sa fie neagra)
  - *From Transparency* – preiea trasparenta layerului



Click – Reveal All
Alt+Click – Hide All

Masti

- Daca exista o selectie facuta:
  - *Reveal Selection* (masca neagra mai putin in zona selectata)
  - *Hide selection* (masca alba si selectie neagra)



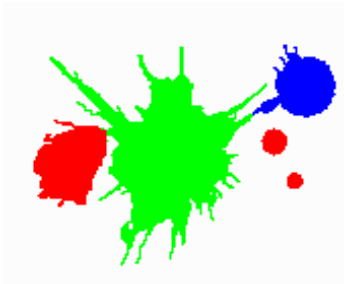


Lucrul cu masti

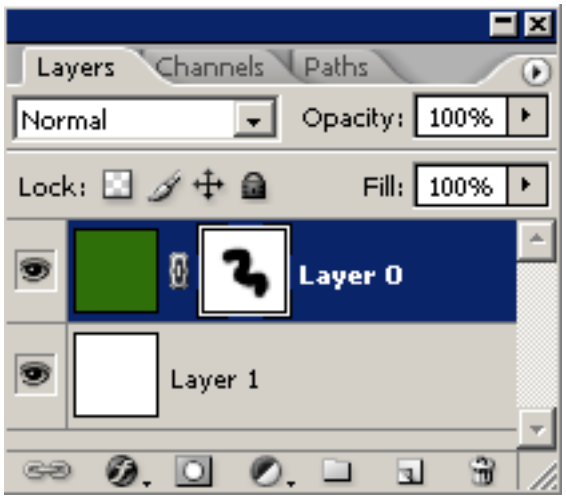


- O masca trebuie sa fie selectata si activa inainte de a o putea edita. Acest lucru este vizibil in caseta Layers printr-o bordura dubla in dreptul mastii.
- Masca se poate edita ca o imagine monocroma. Negru va face layerul curent transparent.

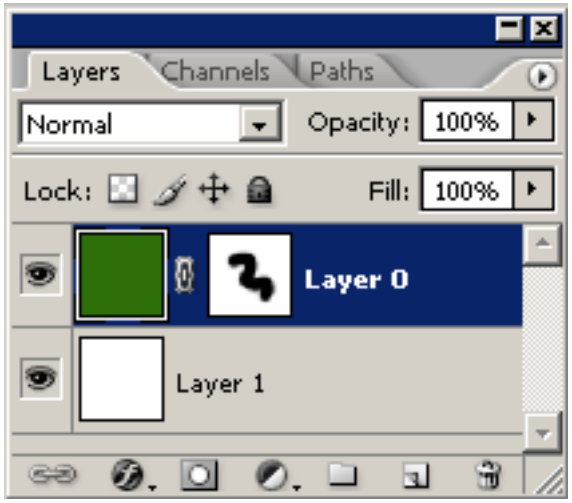
- Pentru intoarcerea la editarea layerului, se da click pe pictograma lui.



Lucrul cu masti



Masca **activa** si **selectata**



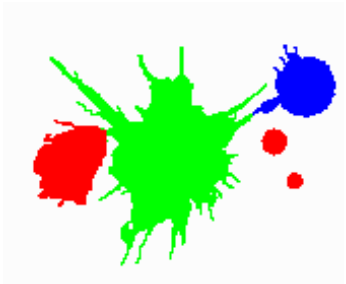
Masca **activa**, layer selectat



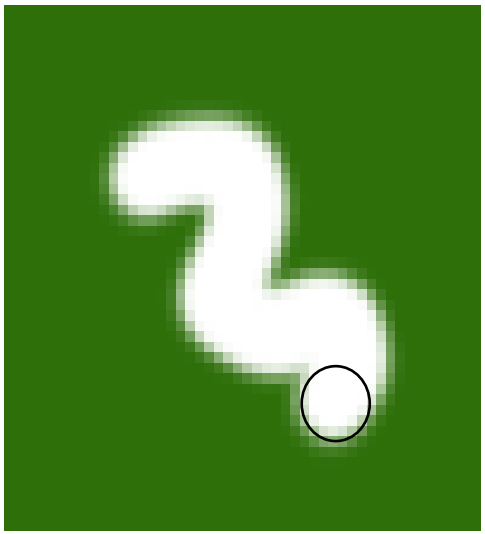
Rezultat

Editarea mastilor

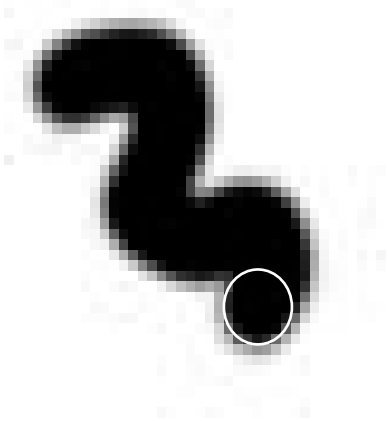
- Pentru a edita o masca:
  - Se activeaza masca si pictez 'orb' (ca si cand as sterge/restaura layerul curent)
  - Tinand apasat Alt se da click pe pictograma mastii. In acest moment se poate edita masca in acelasi fel ca pe o imagine monocroma. Se poate vedea canalul mastii creat in caseta Channels. Pentru a reveni la editarea layerului curent, se da click pe pictograma acestuia in caseta Layers



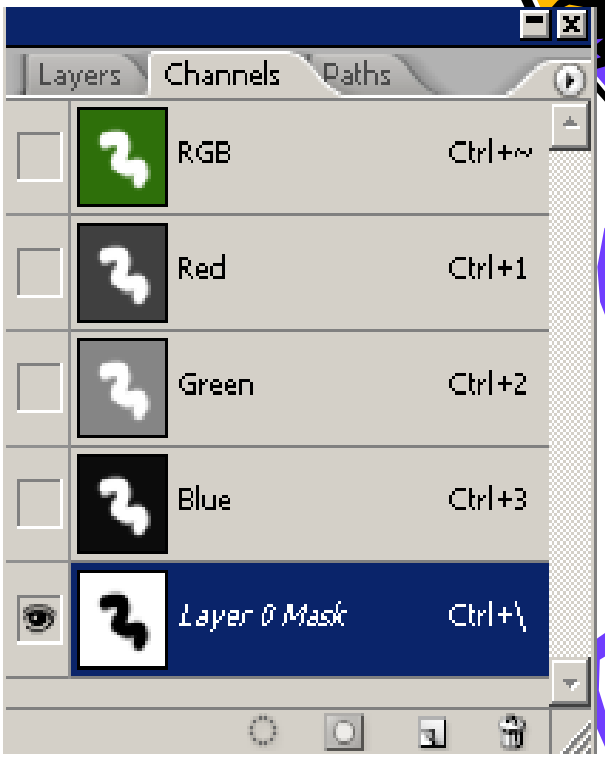
Editarea mastilor



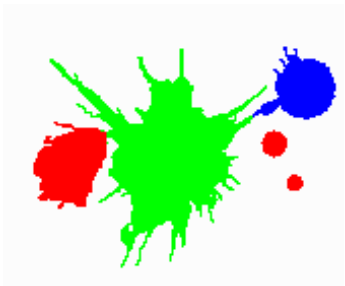
Lucrul pe masca ‘in orb’



Lucrul pe canalul mastii



Canalul nou creat cu masca

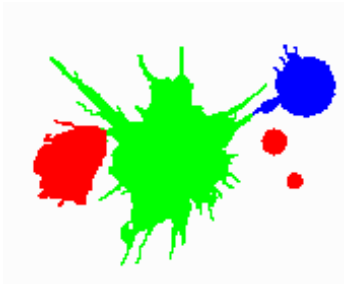


Sisteme Software de Prelucrarea Imaginilor

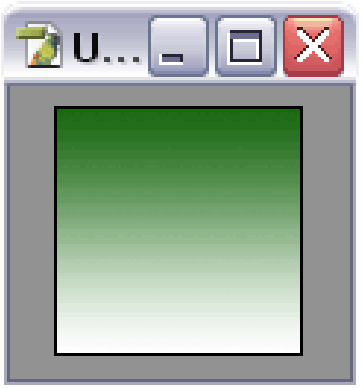
S.L. Dr. ing. Laura Florea

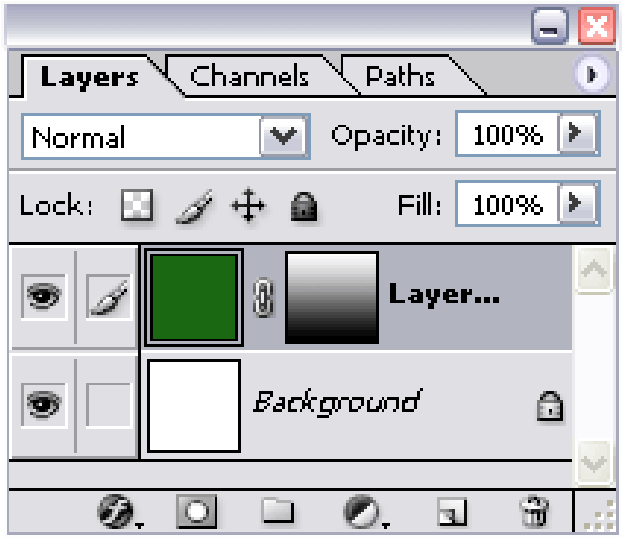
Editarea mastilor

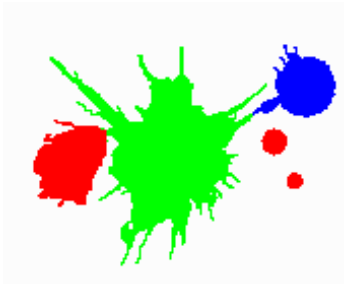
- In afara de alb=opac si negru=transparent, o masca poate contine si valori de gri
- Daca alb=100% opacitate si negru=0% opacitate, atunci un nivel de 50% gri va insemna o opacitate de 50% a layerului
- Acest lucru se poate vedea cu usurinta prin folosirea unui gradient ca masca



Editarea mastilor







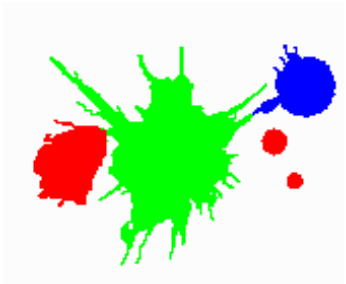
Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

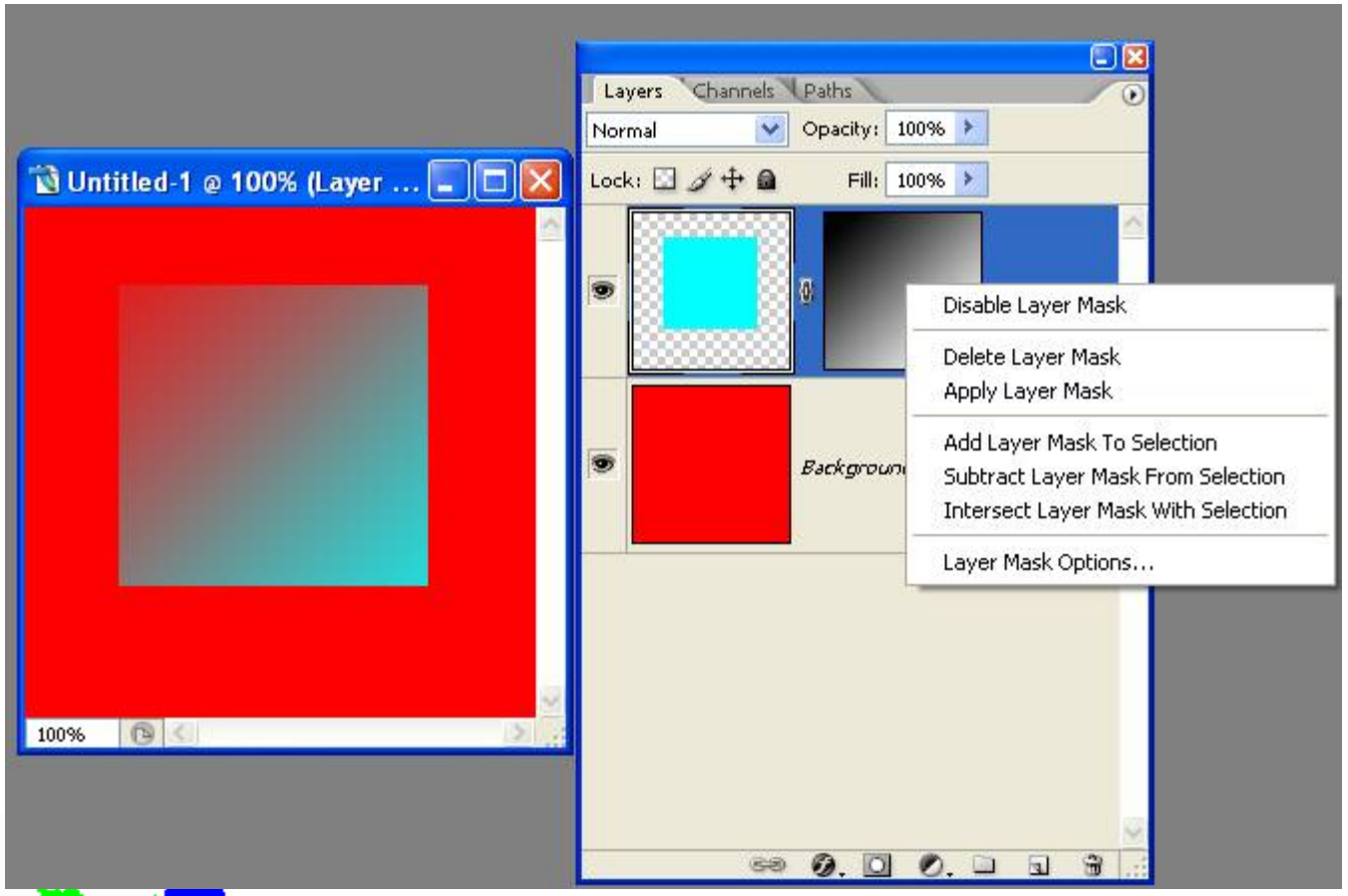
Lucrul cu masti

- Daca vreau sa vad cum arata layerul fara masca:
  - click dreapta pe pictograma mastii si *Disable layer mask*.
  - Din meniu *Layer->LayerMask->Disable*
  - Shift + click pe pictograma mastii

- Prin comanda *Enable Layer mask* se activeaza masca.
  - Shift + click pe pictograma mastii inactive

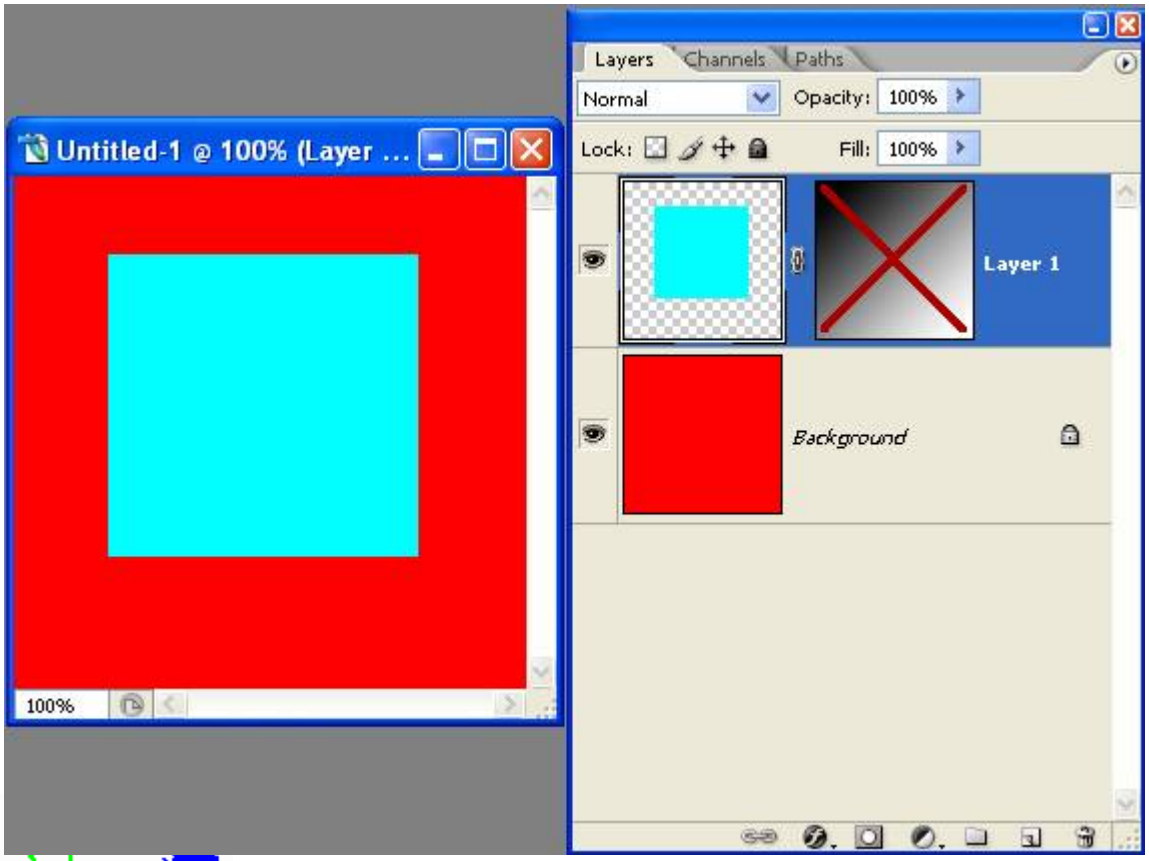


Lucrul cu masti



Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

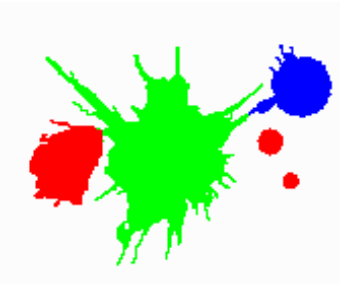
Lucrul cu masti



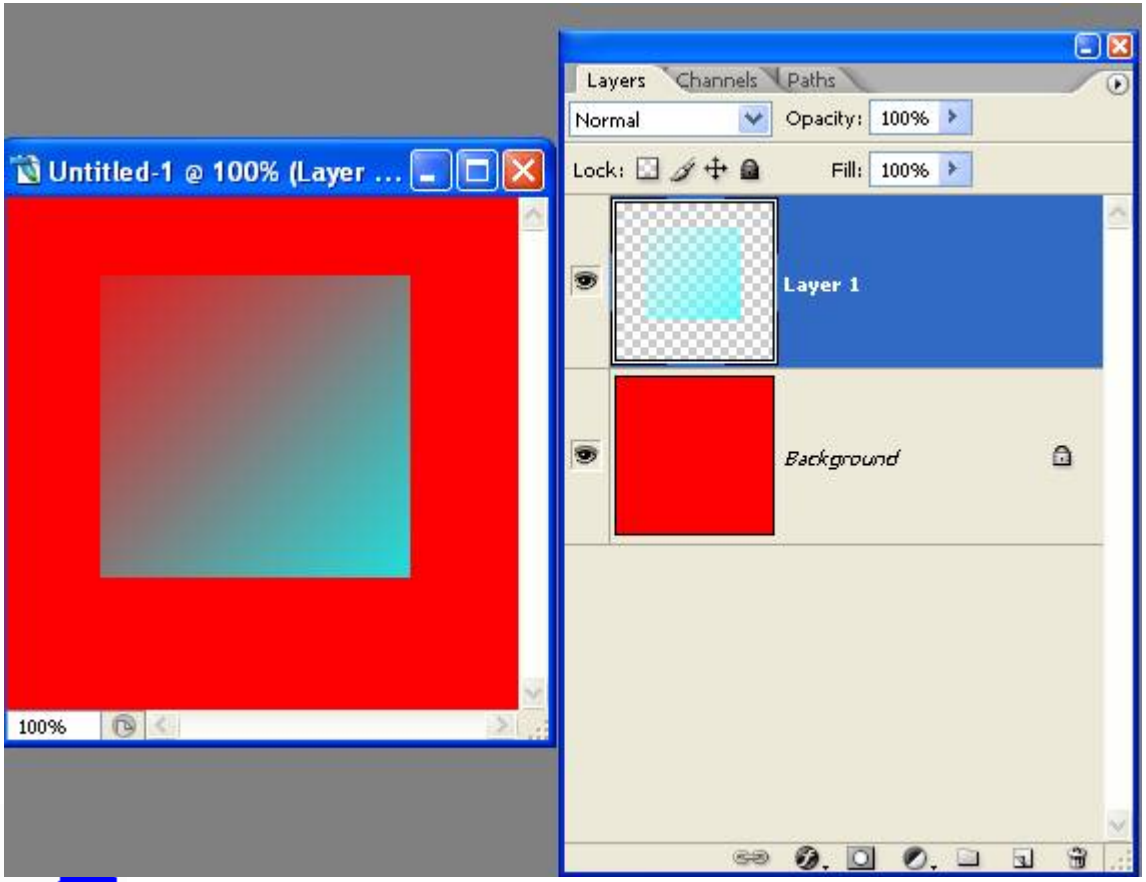
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Lucrul cu masti

- Pentru a elimina masca:
  - Se sterge masca prin comanda *Delete Mask* (layerul ramane neschimbat)
  - afectez definitiv pixelii layerului prin comanda *Apply Layer Mask*; acolo unde masca este neagra, pixelii din layerul curent vor fi stersi definitiv
    - Ambele optiuni se gasesc in meniul *Layer->Layer Mask* sau cu click dreapta pe pictograma mastii
  - Drag&Drop pictograma mastii pe iconita *Delete Layer* si ma va intreba daca sa o aplica sau sa o stearga.



Lucrul cu masti



Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

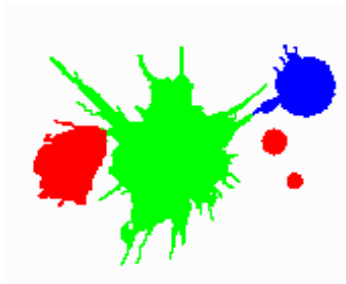


Lucrul cu masti

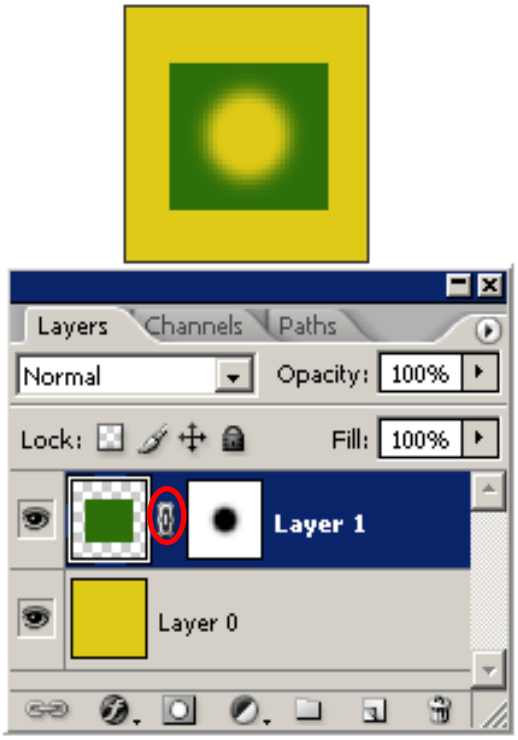


- Un layer este implicit 'legat' de masca sa. Se poate observa prezenta unui simbol intre pictogramele layerului si a mastii
- Acest lucru inseamna ca orice transformare facuta layerului se aplica in acelasi timp si mastii, si invers (include transformari afine, filtre, ajustari de contrast/luminozitate etc.)

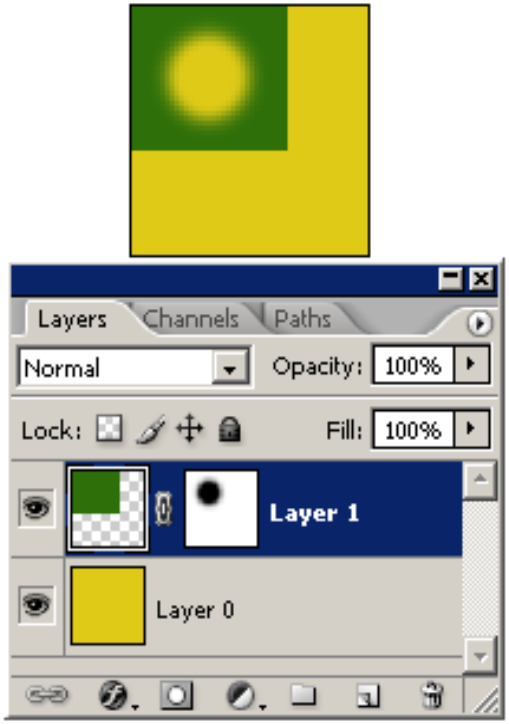
- Daca vreau sa tratez masca si layerul separat va trebui sa le 'dezleg'. Pentru aceasta se da click pe simbolul dintre pictograme



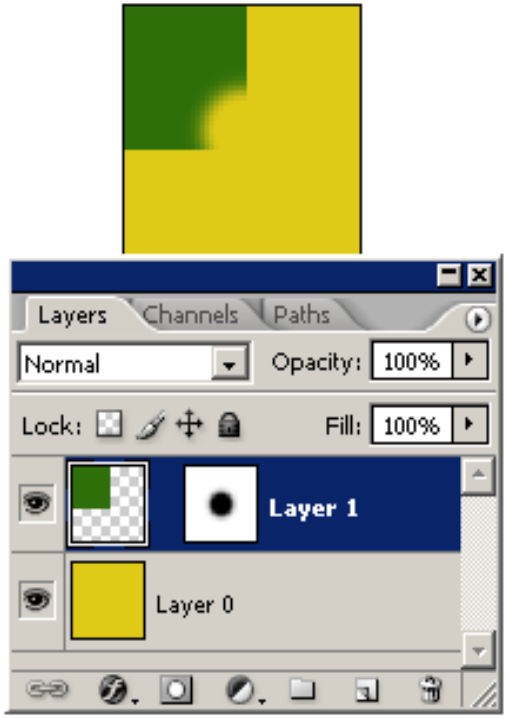
Lucrul cu masti



Situatia initiala



Layer legat de masca



Layer si masca independente

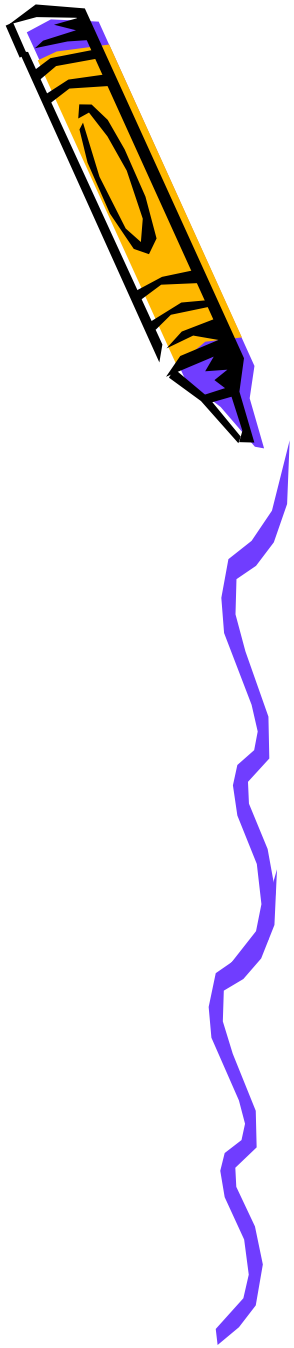


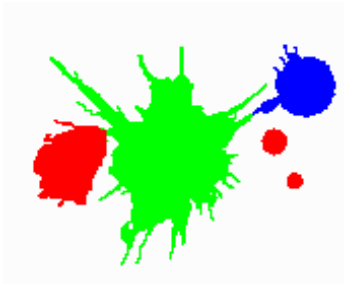
Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea



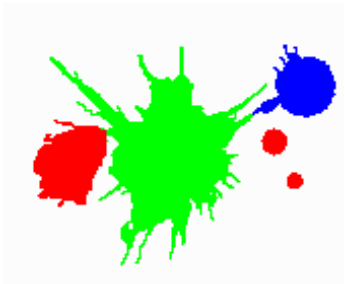
Exercitii



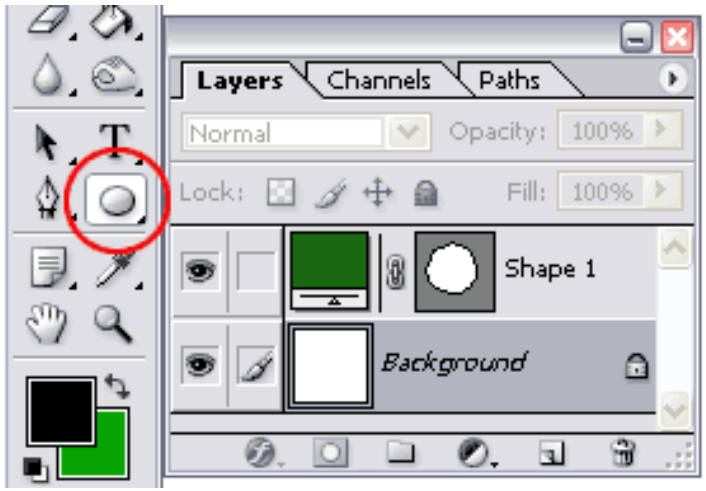


Masti vectoriale

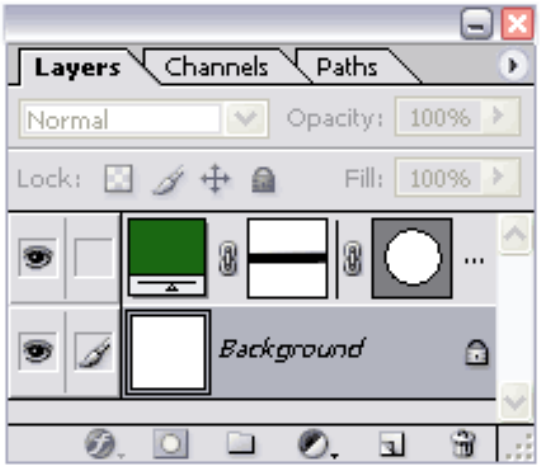
- Permit crearea de masti ce sunt independente de rezolutie
- Instrumentul *Shapes* va crea o masca vectoriala de forma dorita
- Se mai poate apela comanda Layer->Vector Mask… ce va crea o noua masca vectoriala dupa cum se doreste (Reveal All / Hide All)
- Masca vectoriala se poate vizualiza si edita prin caseta Paths
- Modul de editare este identic cu lucrul cu vectori
- Un layer poate avea atat o masca vectoriala cat si o masca normala

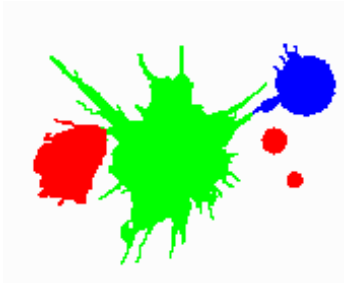


Masti vectoriale







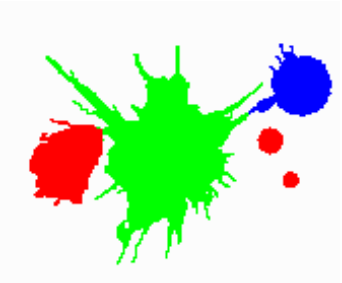


Sisteme Software de Prelucrarea Imaginilor

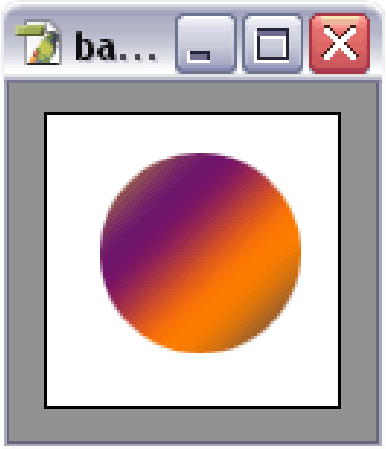
S.L. Dr. ing. Laura Florea

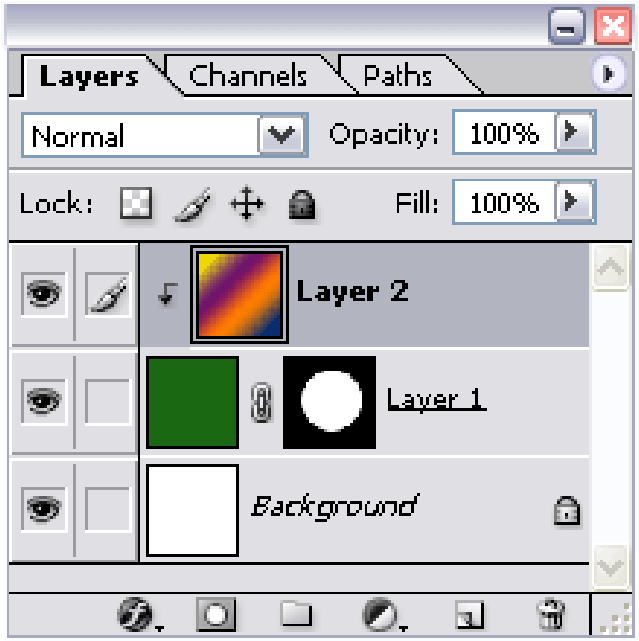
Clipping Masks

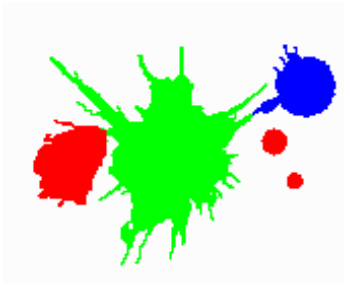
- Un layer ce a fost desemnat 'clipping' va afecta numai layerul de sub el
- Pentru a desemna un clipping mask (sau pentru a deselecta un clipping mask deja existent):
  - se va apasa Ctrl+Alt+G cu layerul selectat,
  - meniul Layer→Create Clipping Mask
  - click dreapta pe layer (nu pe pictograma) si ales din meniu
- In dreptul pictogramei layerului va apare o sageata ce semnaleaza ca acesta este un clipping mask
- Daca un layer ce se afla deasupra unui grup de layere este desemnat clippink mask, atunci acesta va afecta tot grupul – foarte util pentru lucrul cu layere de ajustare



Clipping Masks



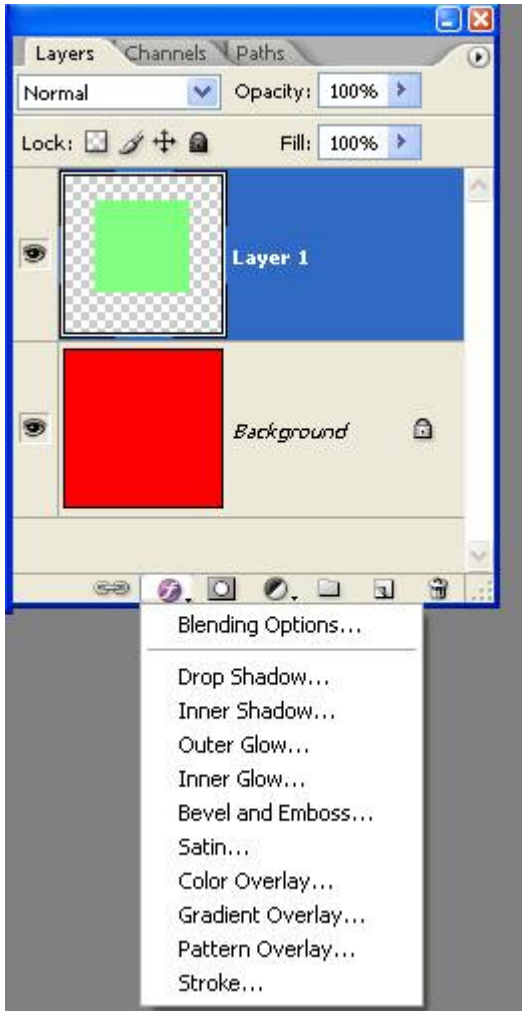


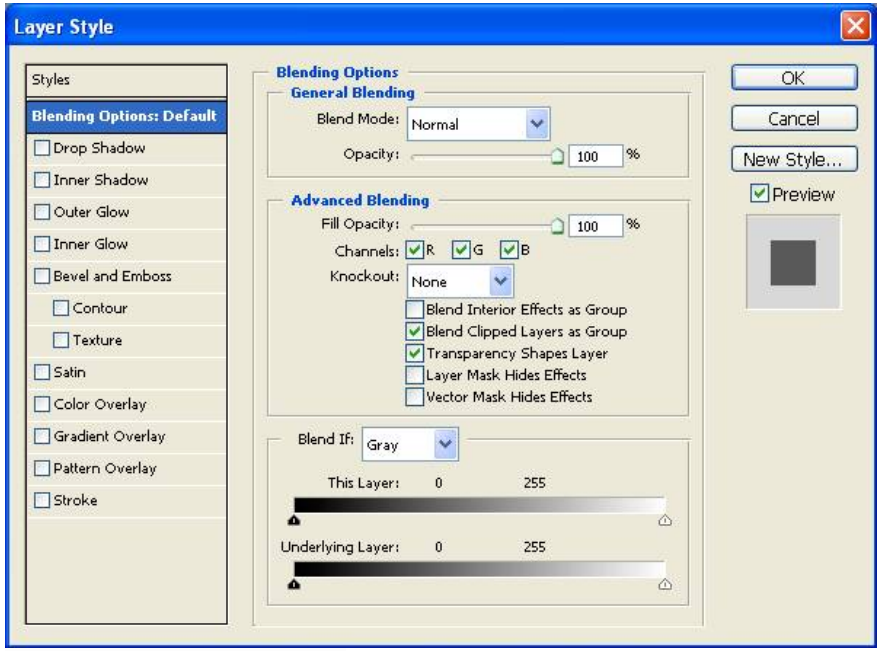


Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Stiluri

- Stil: efect care se aplica unui layer
- Fiecare efect are propriile optiuni



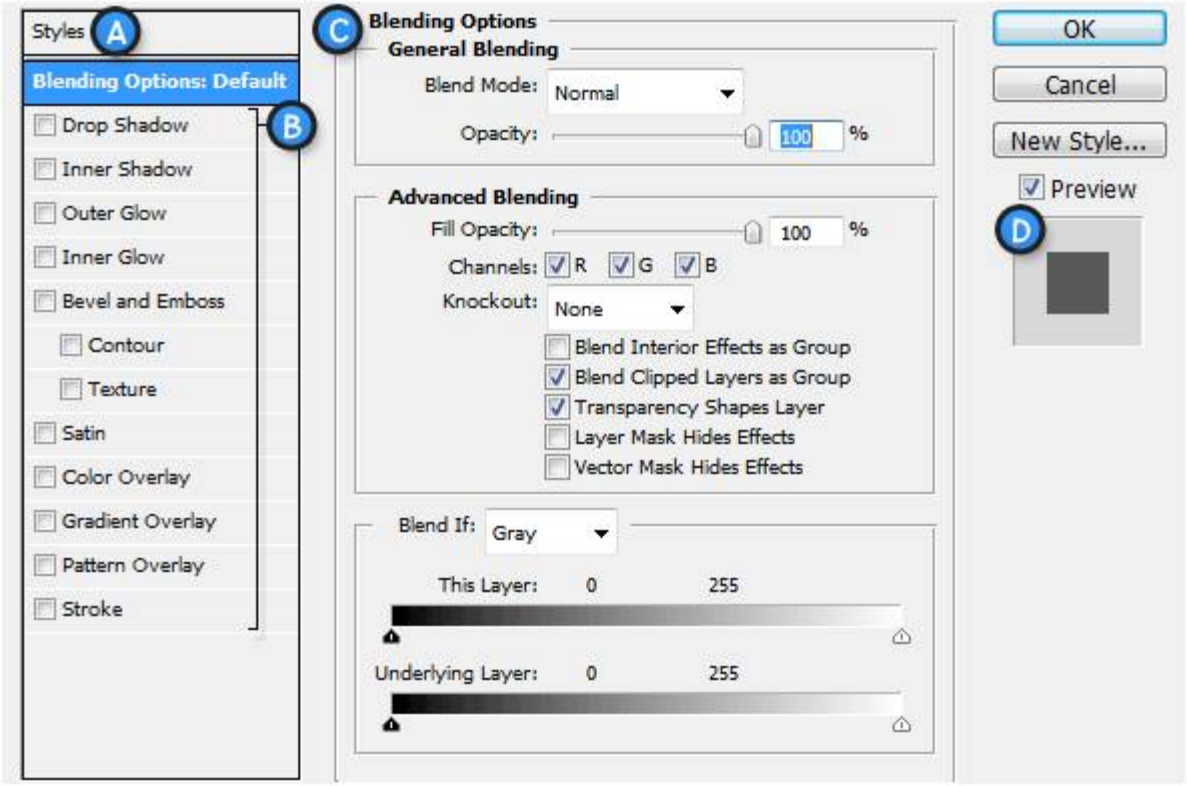


Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

Stiluri

- A = stiluri
- B = Efecte
- C = optiunile efectului selectat
- D = preview



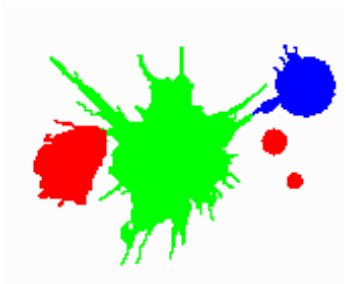


Stiluri



- **Drop Shadow** – Creaza o umbra in exteriorul (in spatele) layerului.
- **Inner Shadow** – Creaza o umbra in interiorul layerului.

- **Outer Glow** – Creaza o stralucire in spatele layerului. Nu poate fi distantat de layer (spre deosebire de drop shadow)
- **Inner Glow** – Creaza o stralucire in interiorul layerului. Nu poate fi distantat de layer (spre deosebire de drop shadow)





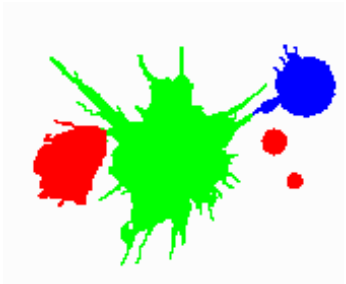
Stiluri



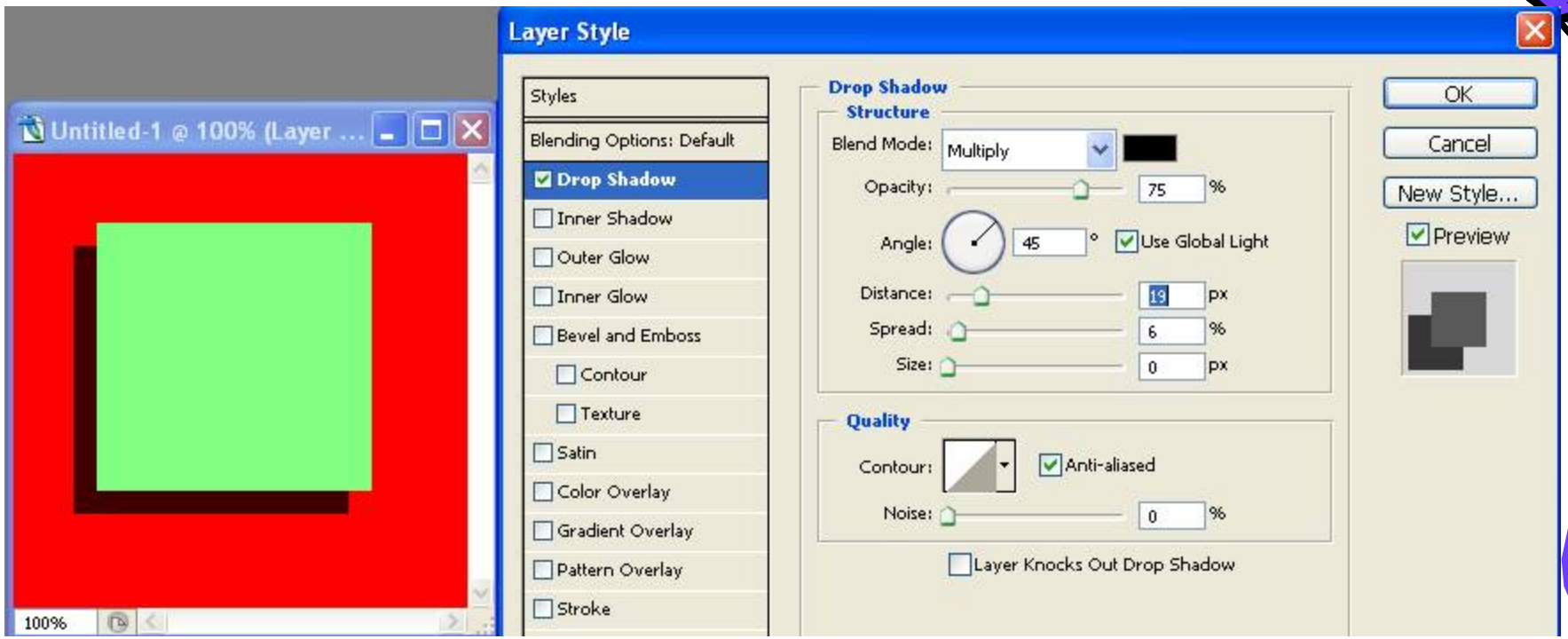
- **Bevel and Emboss** – Creaza un efect de lumina/umbra in interiorul layerului.
- **Satin** – Da impresia de satin, lucios.

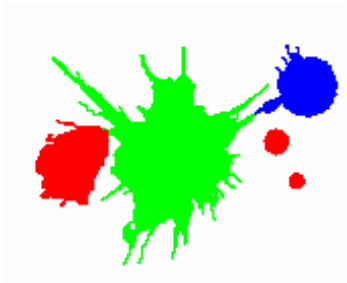
- **Color Overlay** – Umple layerul cu o culoare solida.
- **Gradient Overlay** – Umple layerul cu un gradient gradient.
- **Pattern Overlay** – Umple layerul cu o textura.

- **Stroke** - Creaza o bordura in jurul layerului folosind o culoare solida, un gradient sau o textura.



Stiluri
Drop Shadow

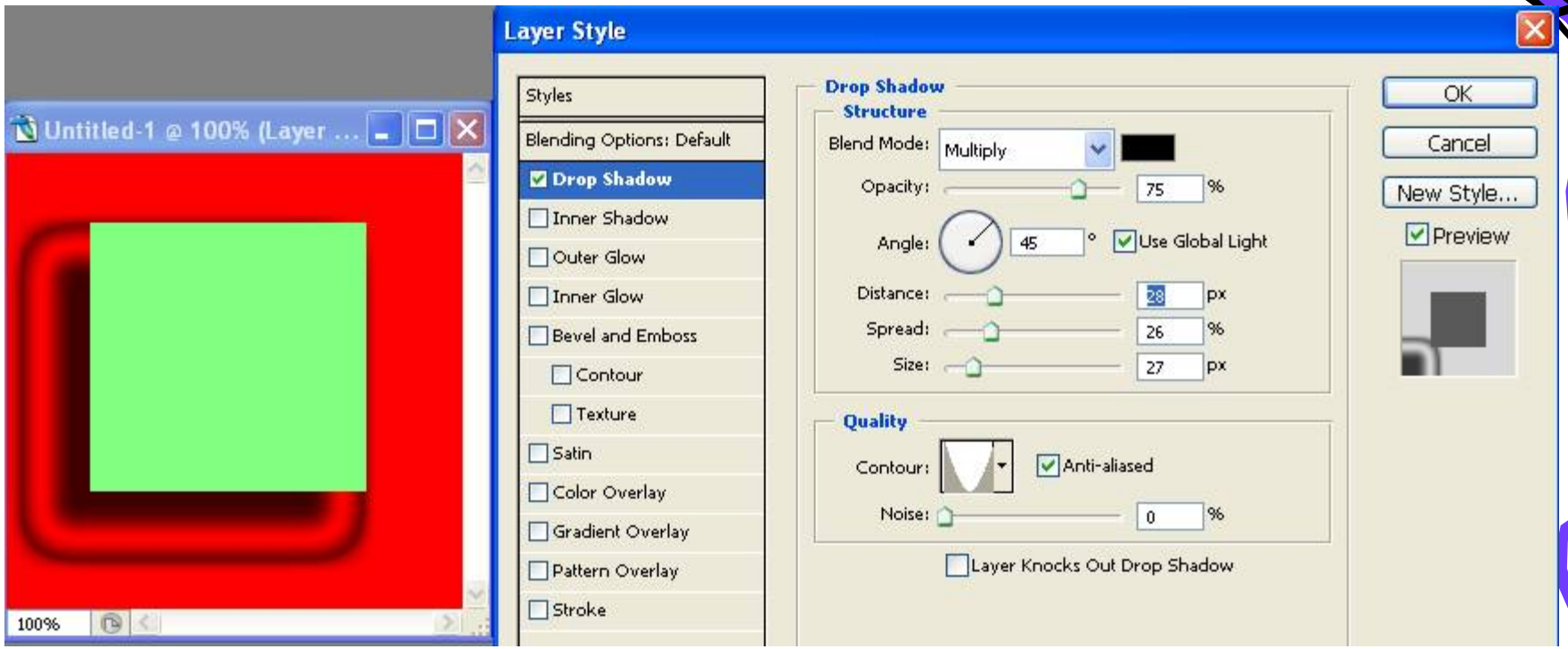




Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

Stiluri
Drop Shadow

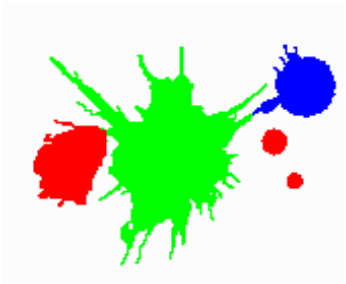


Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

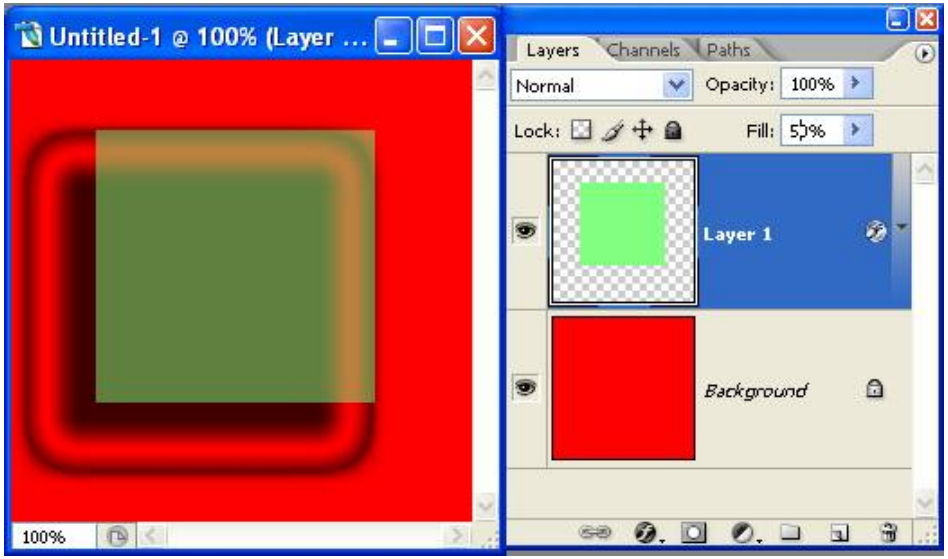
Fill & Opacity

- Permit stabilirea gradului de opacitate a unui layer
  - 100% - complet opac,
  - 0% - complet transparent

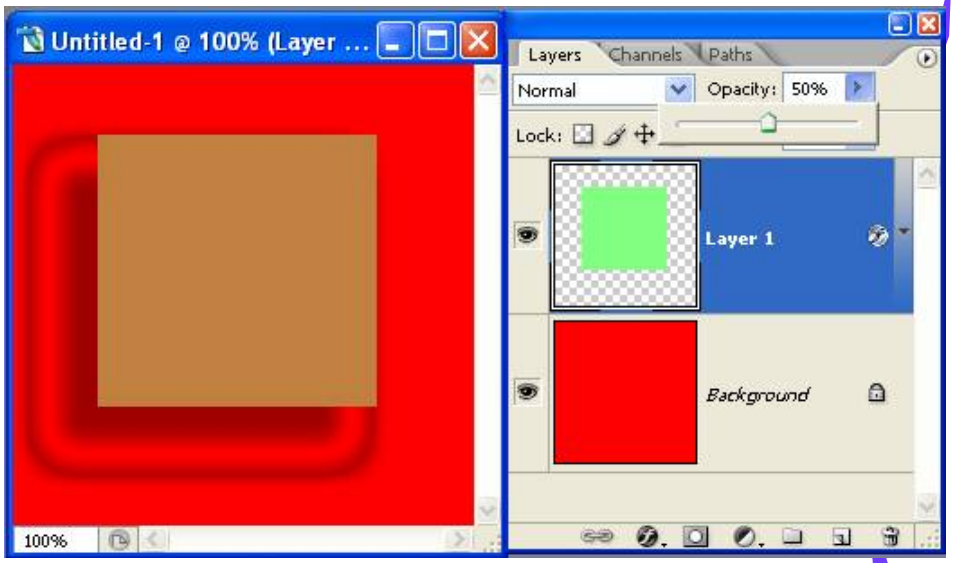
- *Opacity* – se aplica layer-ului si efectelor lui
- *Fill* – se aplica doar continutului layer-ului



Fill & Opacity



Fill=50%

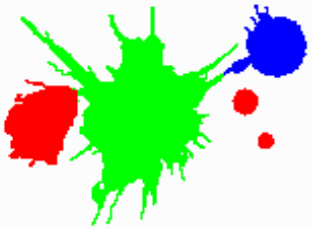


Opacity=50%

Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Instrumentul de text

- Se foloseste pentru a adauga un layer cu text
- Se comporta ca orice alt layer
- Se pot modifica optiunile clasice oricarui editor de text

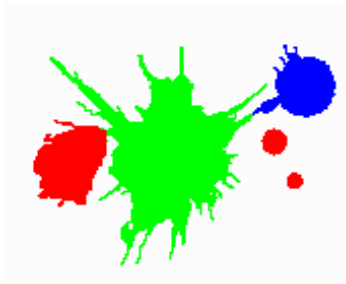




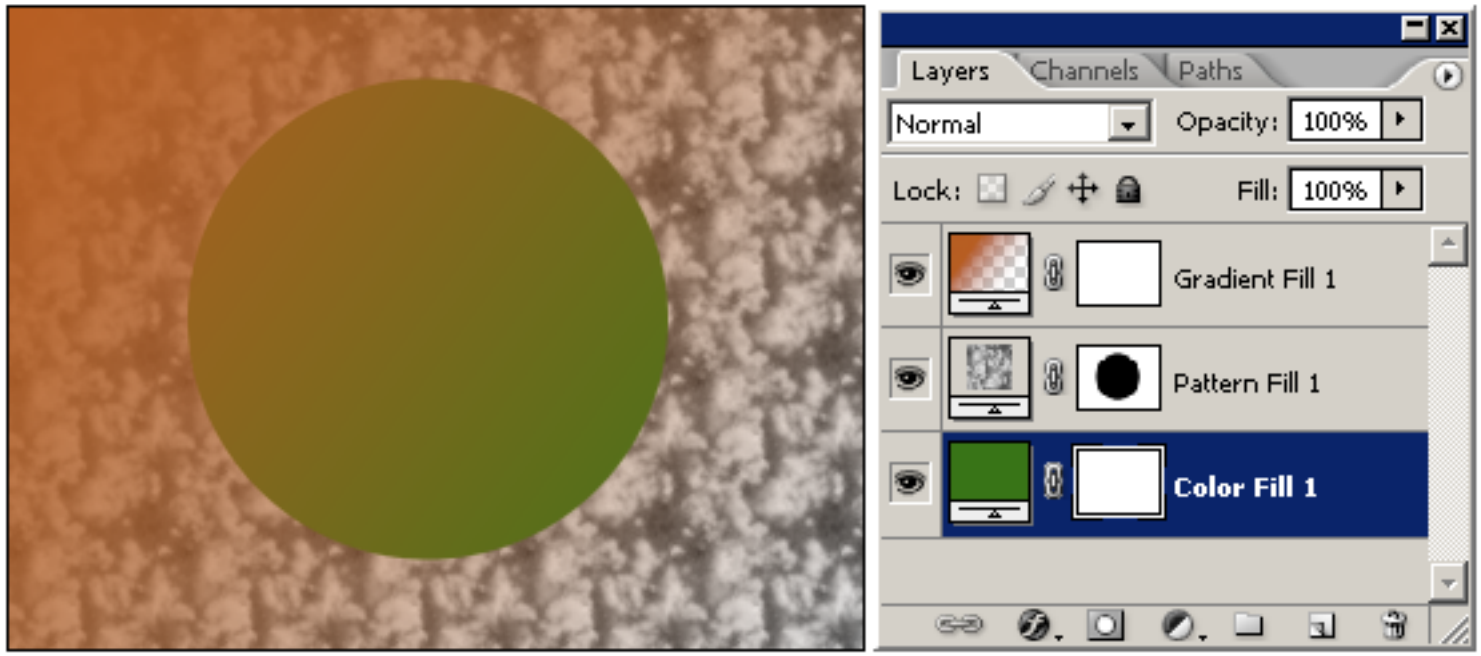
Fill Layers

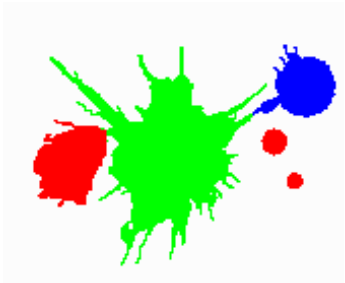


- Acestea se grupeaza in: Solid fill, Gradient fill si Pattern fill
- Toate trei creeaza un nou layer ajustabil cu proprietati diferite si legat de o masca editabila
- Pentru a crea un Fill layer se apeleaza meniul Layer->New Fill Layer… dupa care se alege tipul
- In toate cazurile de mai sus optiunile sunt editabile si dupa ce layerul a fost creat – pentru aceasta se da dublu click pe pictograma layerului



Fill Layers

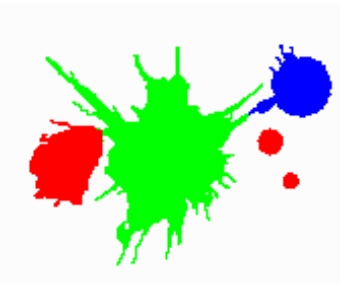




Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

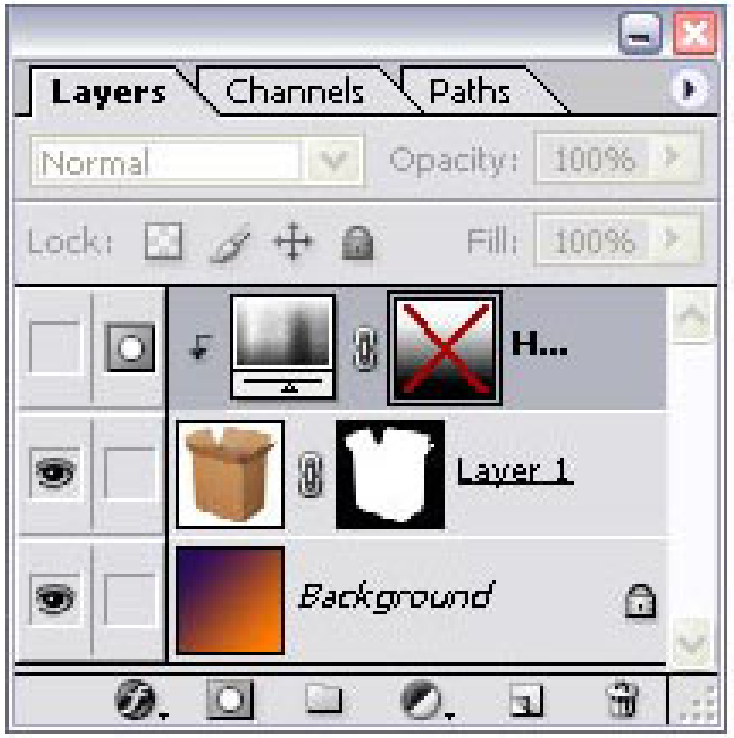
Adjustment Layers

- Layerele de ajustare se comporta exact ca si comenzile omoloage din meniul Image->Adjustments
- Avantajul este selectivitatea comenzii si faptul ca aceasta nu afecteaza pixelii layerului intr-un mod definitiv
- Cand este data comanda de creare a unui adjustment layer, acesta este legat automat de o masca Reveal All (alba)
- Un astfel de layer se poate desemna clipping mask, afectand layerul sau grupul de sub el
- Exista layere de ajustare pentru majoritatea comenzilor din meniul Image->Adjustments



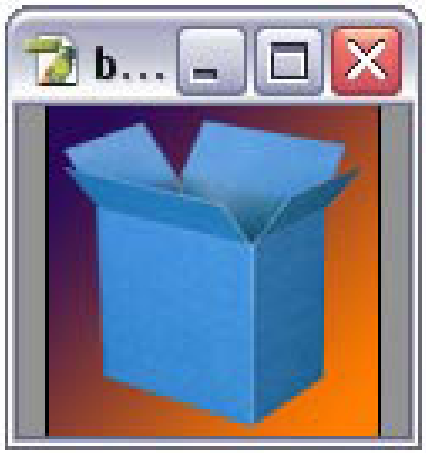
Adjustment Layers

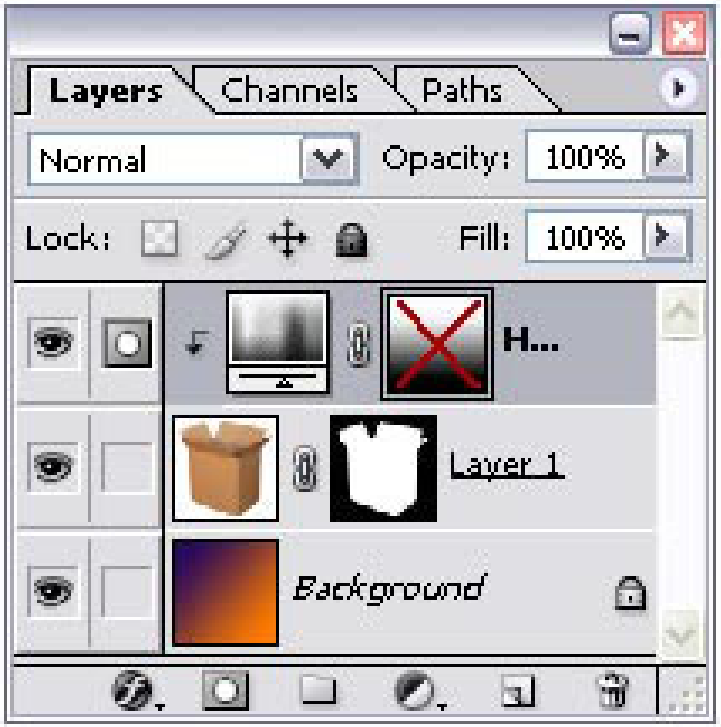


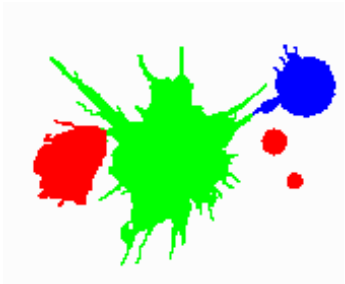


Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Adjustment Layers

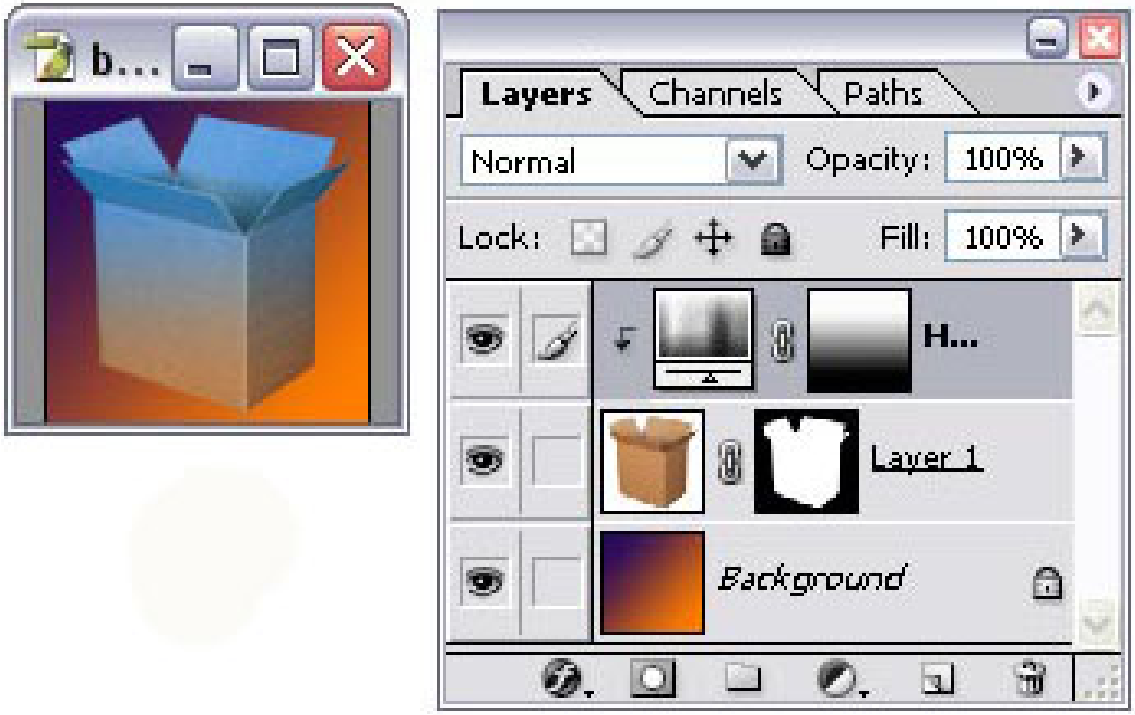






Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Adjustment Layers



Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea





Levels



Curves



Color Balance



Brightness/ contrast



Original



Hue/Sat



Sel. Color



Ch. Mixer



Gradient map



Photo filter



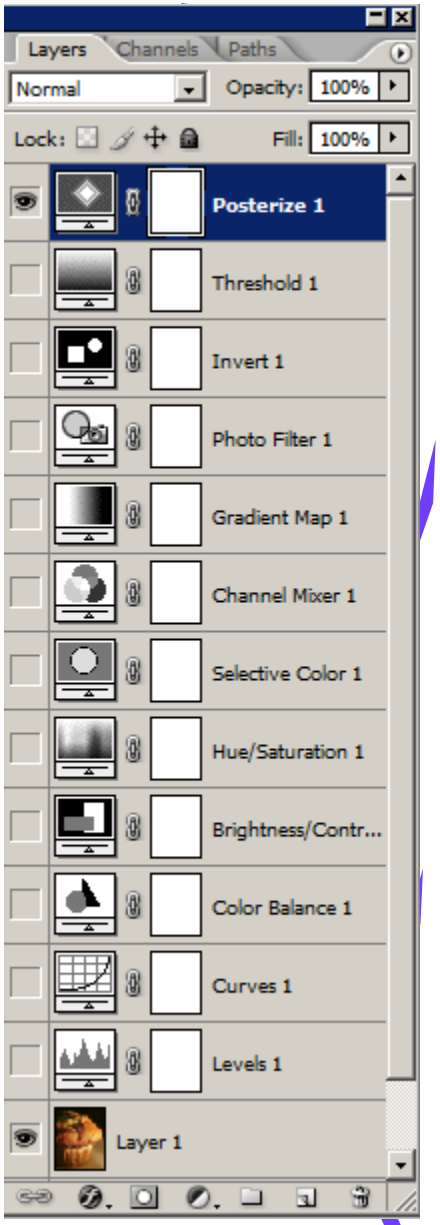
Invert

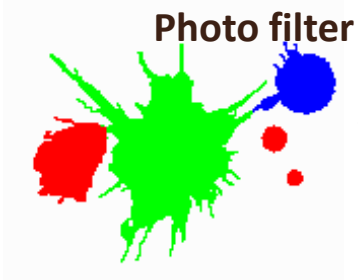


Threshold



Posterize



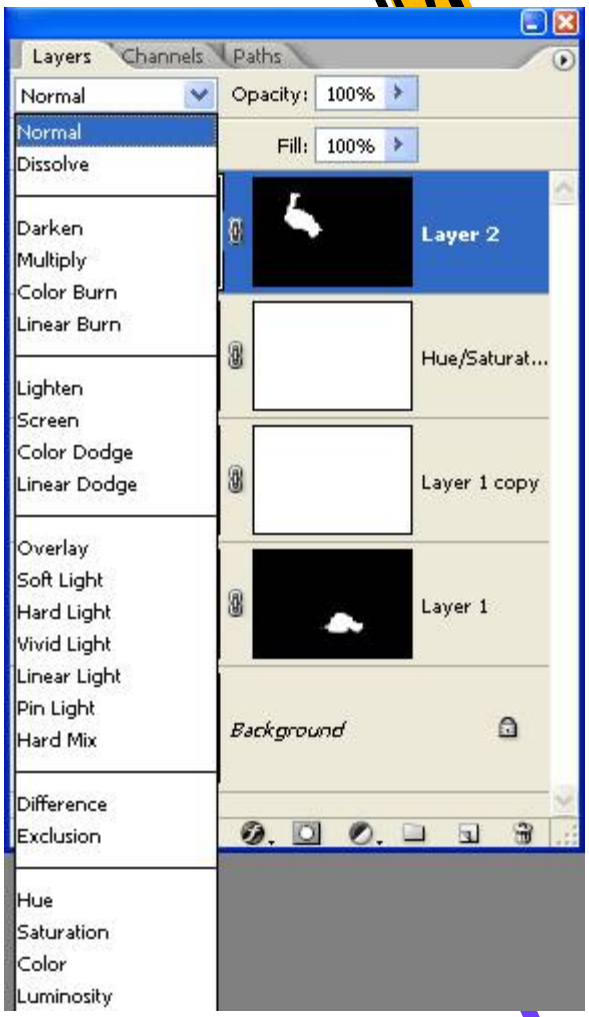


Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

Moduri de amestecare (Blending modes)

- Permite modificarea modurilor in care layerele 'interactioneaza';
- Specifica modul in care se vor amesteca culorile pixelilor din layere
- Sunt impartite in 6 categorii: de baza., de intunecare, de luminare, de contrast, comparative, compozite



- In formule se va considera negru=0 si alb=1
- Se lucreaza pe fiecare canal de culoare separat



Blending modes Normal/Dissolve



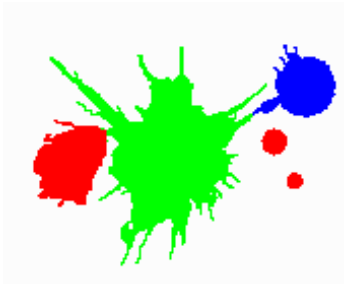
- ***Normal***: se vede fiecare pixel al layerului de deasupra (culori de amestec, *Blend*) asa cum este (fara a fi amestecat in nici un fel cu layerul de dedesubt – culori de baza, *Base*), este modul implicit. Daca pixelii sunt semitransparenti se face o medie ponderata in functie de transparenta acestora

R=Blend

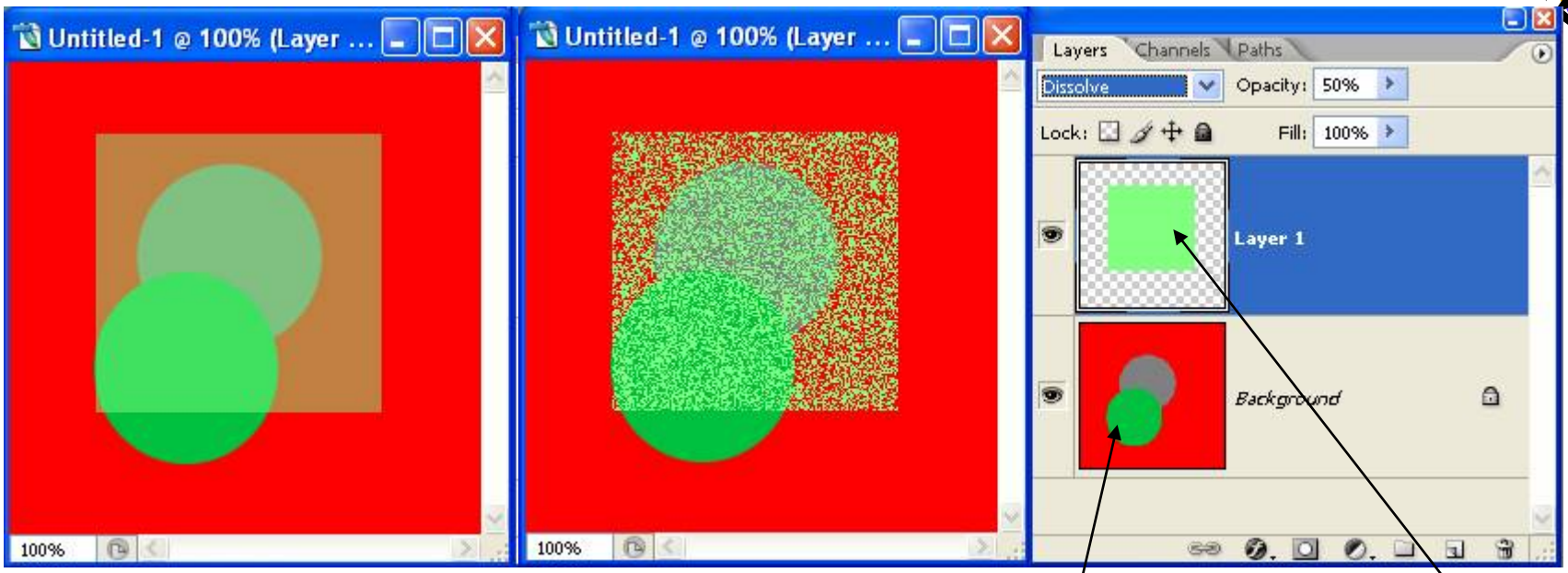
- ***Dissolve***: se vede in mod aleator culoarea de baza sau cea de amestec, in functie de opacitatea acestora.

R=aleator(Blend, Base)

- Nu functioneaza decat pentru pixeli semitransparenti.



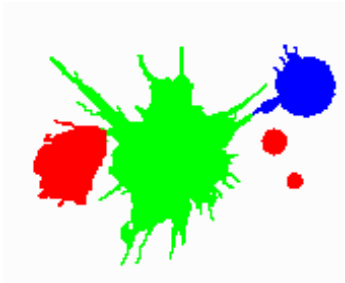
Blending Modes
Normal/Dissolve



Normal

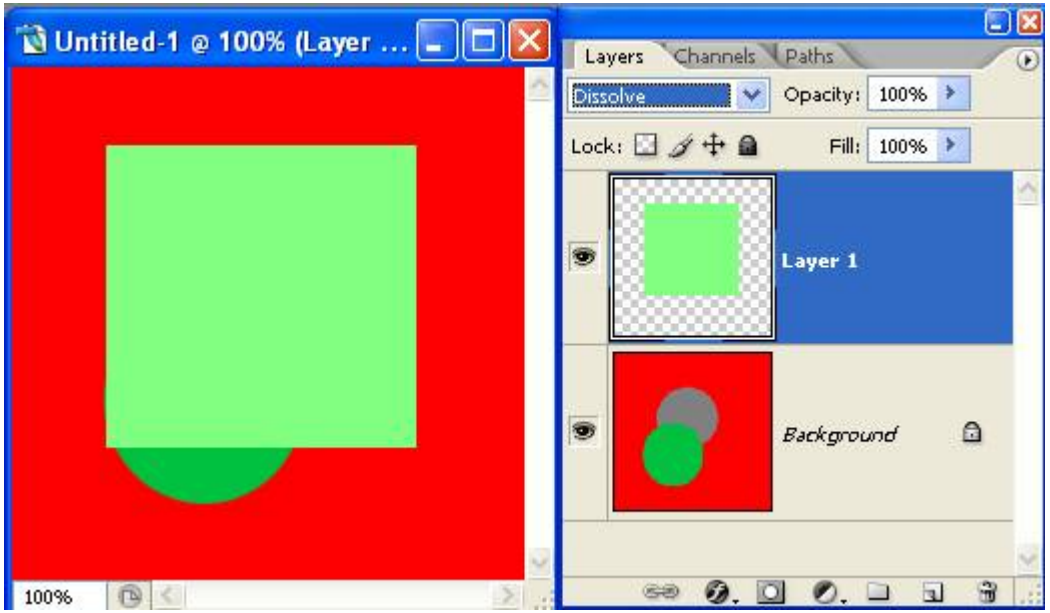
Dissolve
(Opacity = 50%)

Culori de baza, culoare de amestec



Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Normal/Dissolve

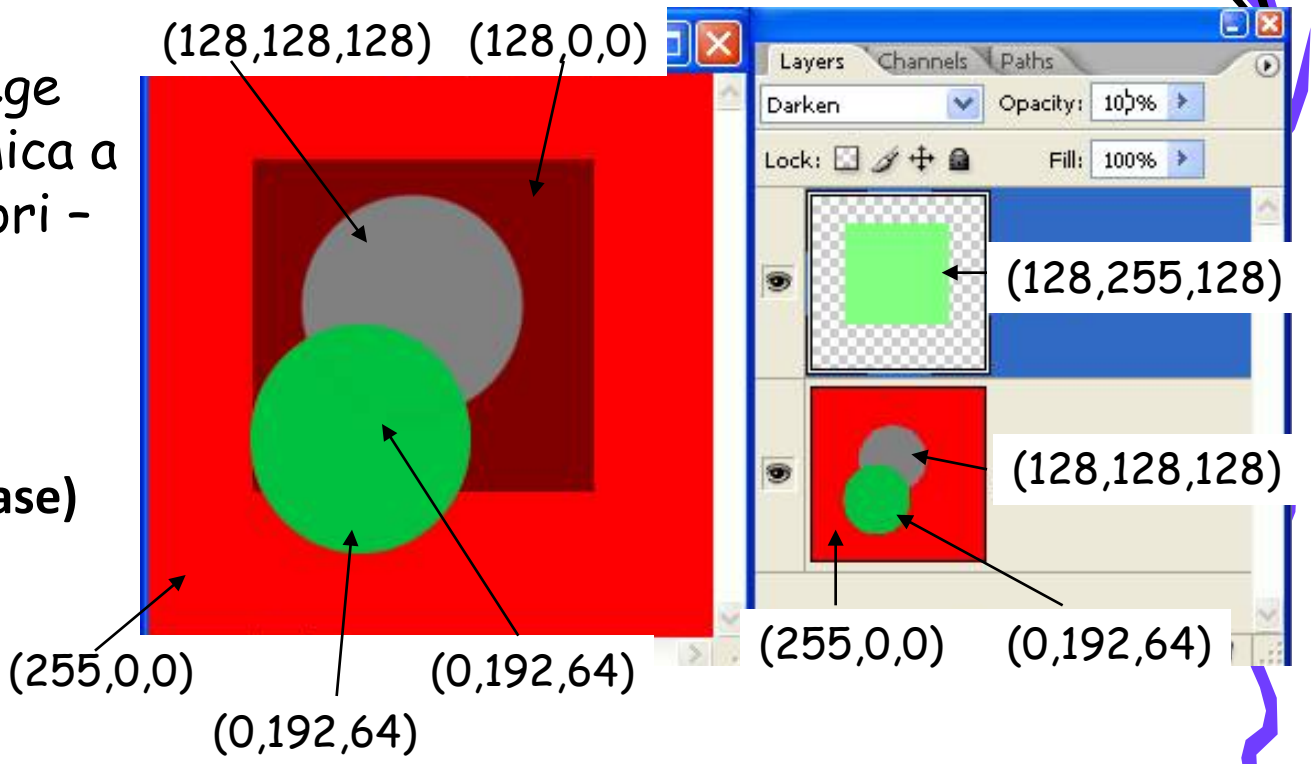


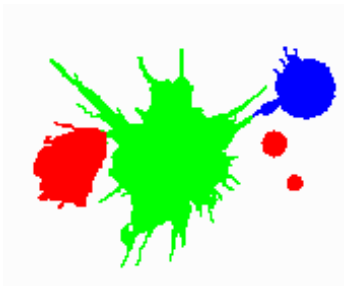
Normal/ Dissolve
(Opacity = 100%)

Blending modes
Darken

- ***Darken***: se alege valoarea mai mica a celor doua culori – de baza si de amestec.

R=min(Blend,Base)

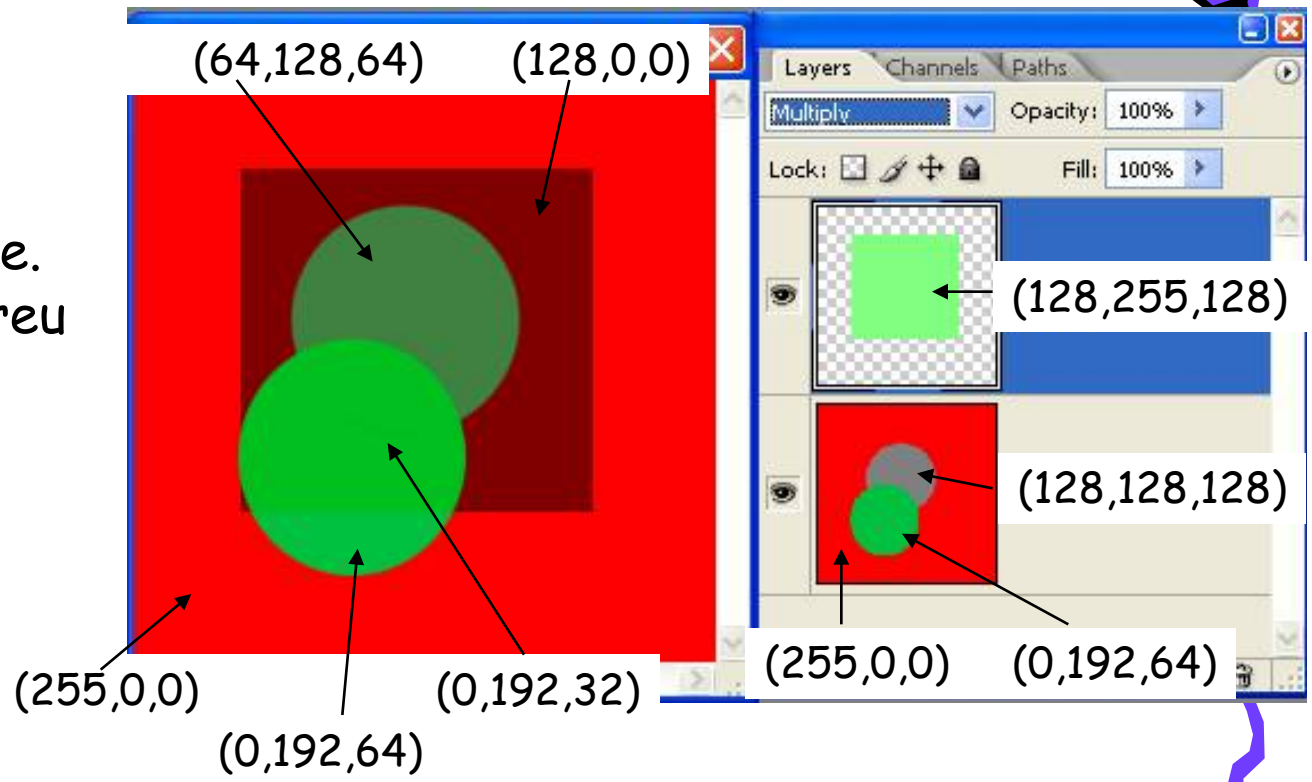


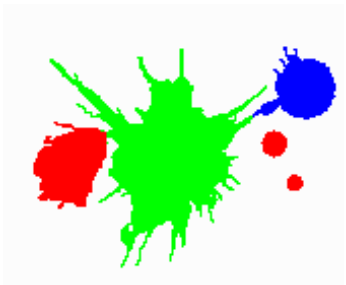


Blending modes
Multiply

- ***Multiply***: se inmultesc valorile. Rezultatul e mereu o culoare mai intunecata.

R = Base × Blend



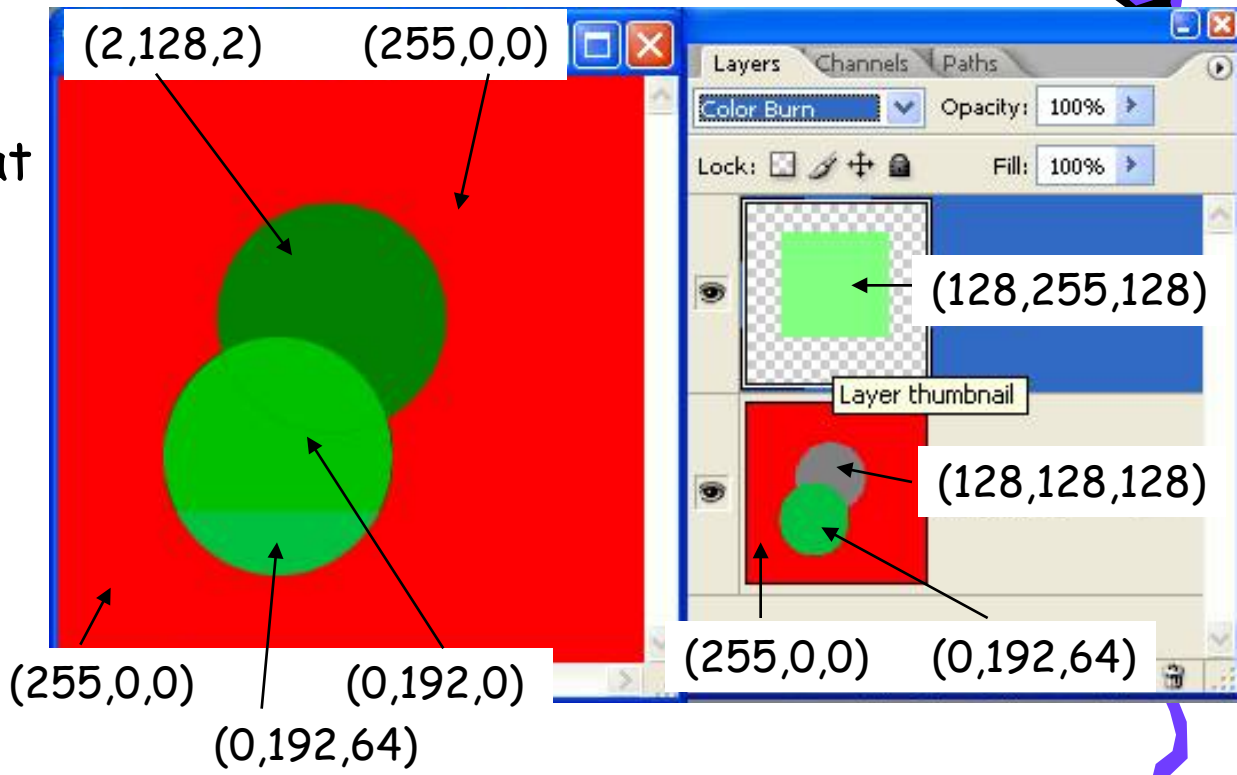


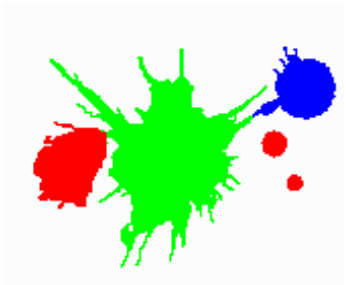
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending modes
Color Burn

- ***Color Burn***: se intuneca culoarea de baza in functie de cat de intunecata e culoare de amestec, prin cresterea contrastului.

R = 1 - (1-Base) / Blend



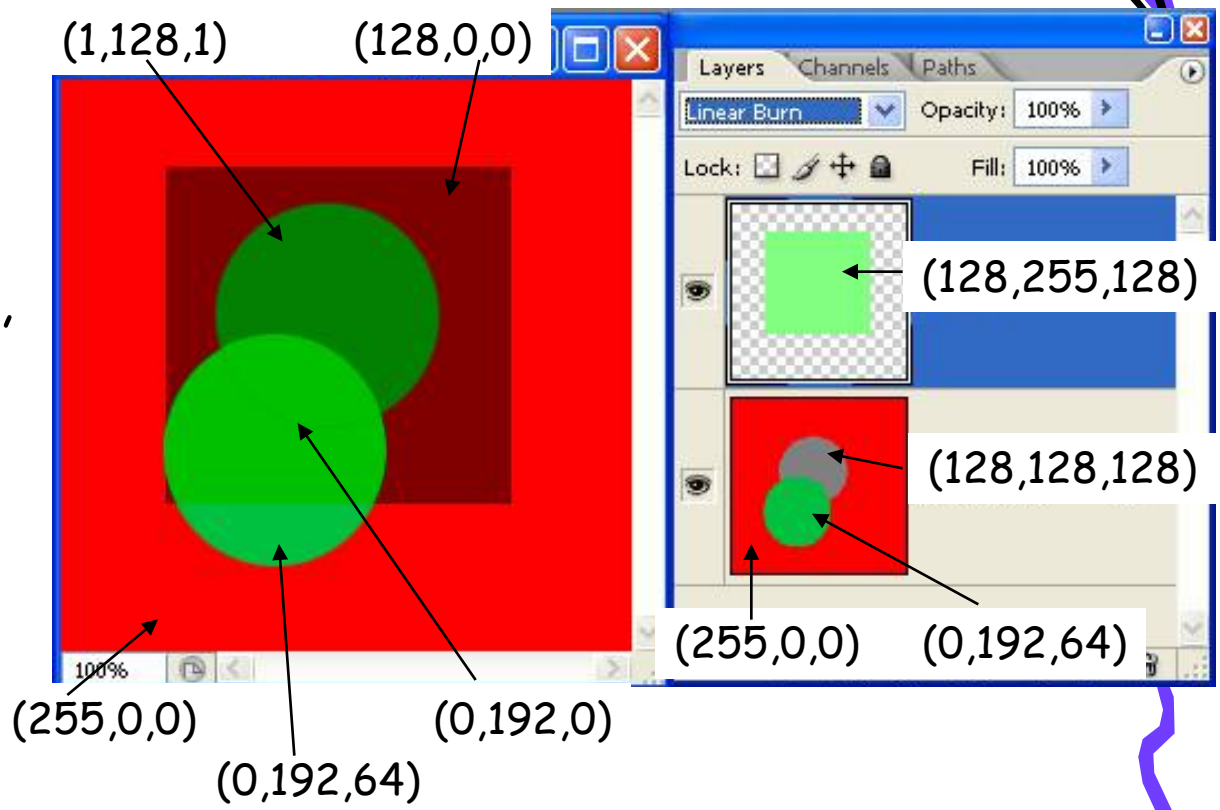


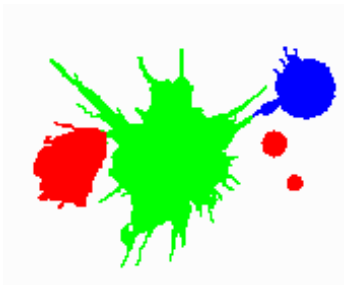
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Linear Burn

- ***Linear Burn***: se intuneca culoarea de baza in functie de cat de intunecata e culoarea de amestec, prin descresterea luminozitatii.

R = Base + Blend - 1





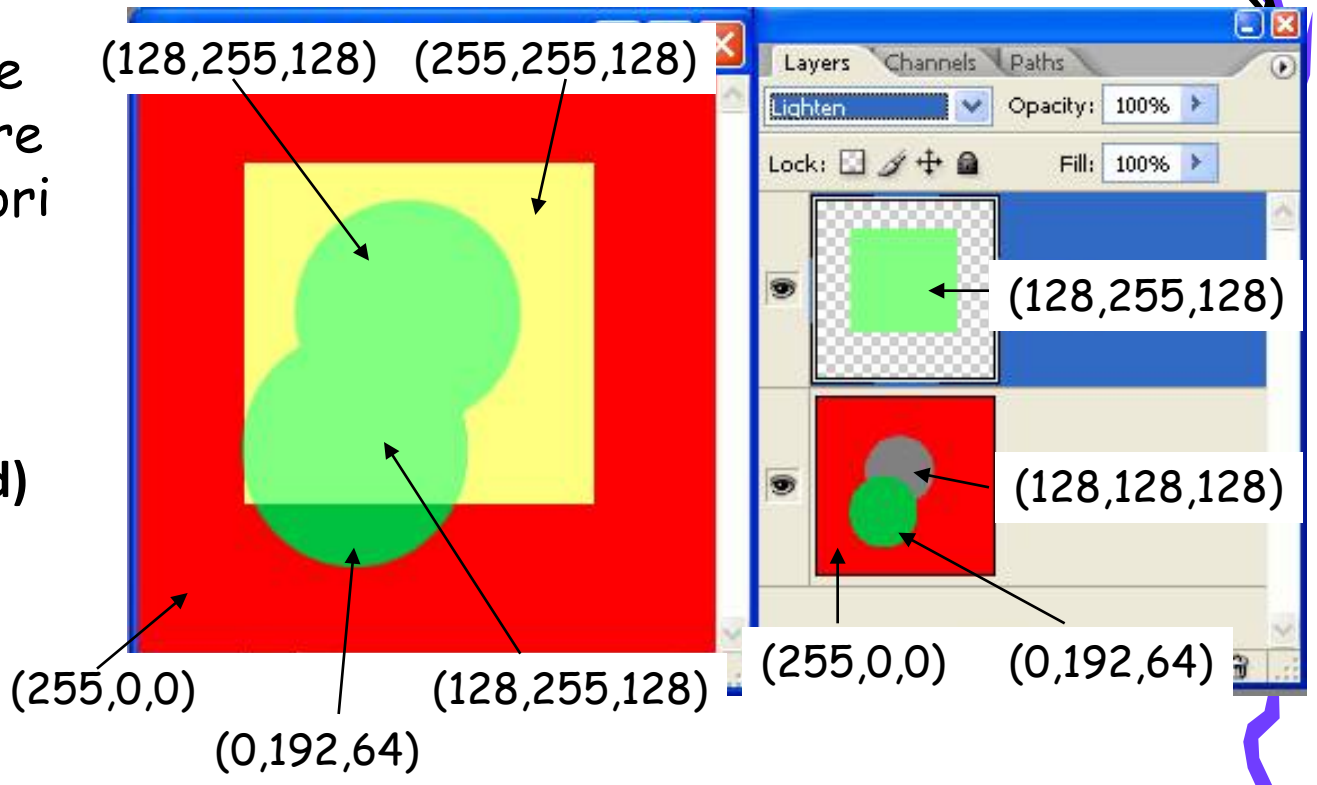
Sisteme Software de Prelucrarea Imaginilor

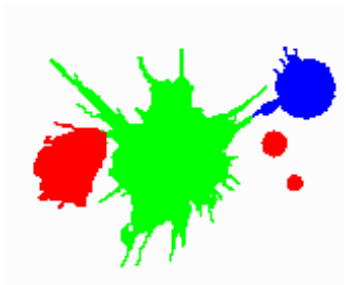
S.L. Dr. ing. Laura Florea

Blending Modes
Lighten

- ***Lighten***: se alege valoarea mai mare a celor doua culori – de baza si de amestec.

R = max(Base,Blend)



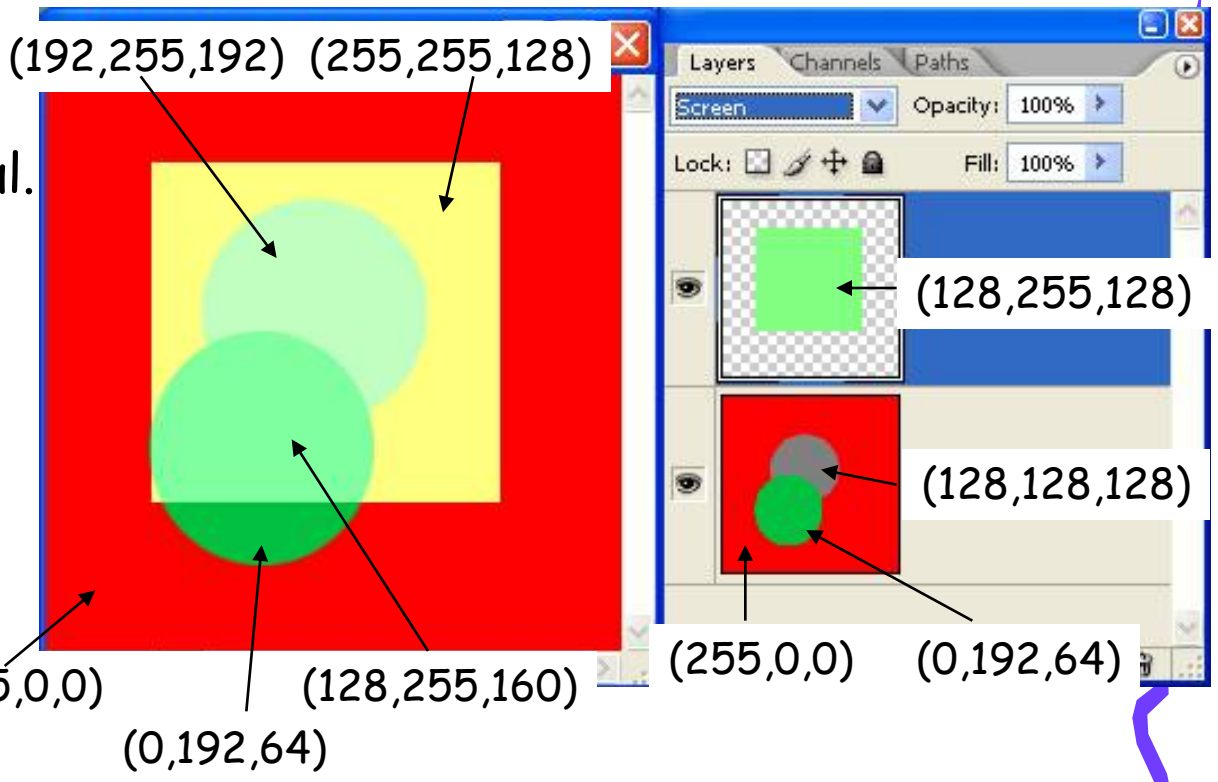


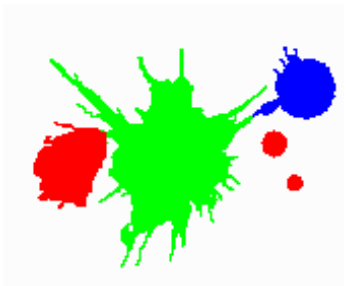
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Screen

- ***Screen***: se inmultesc inversele culorilor, apoi se inverseaza rezultatul.

R = 1 - (1-Base) × (1-Blend)

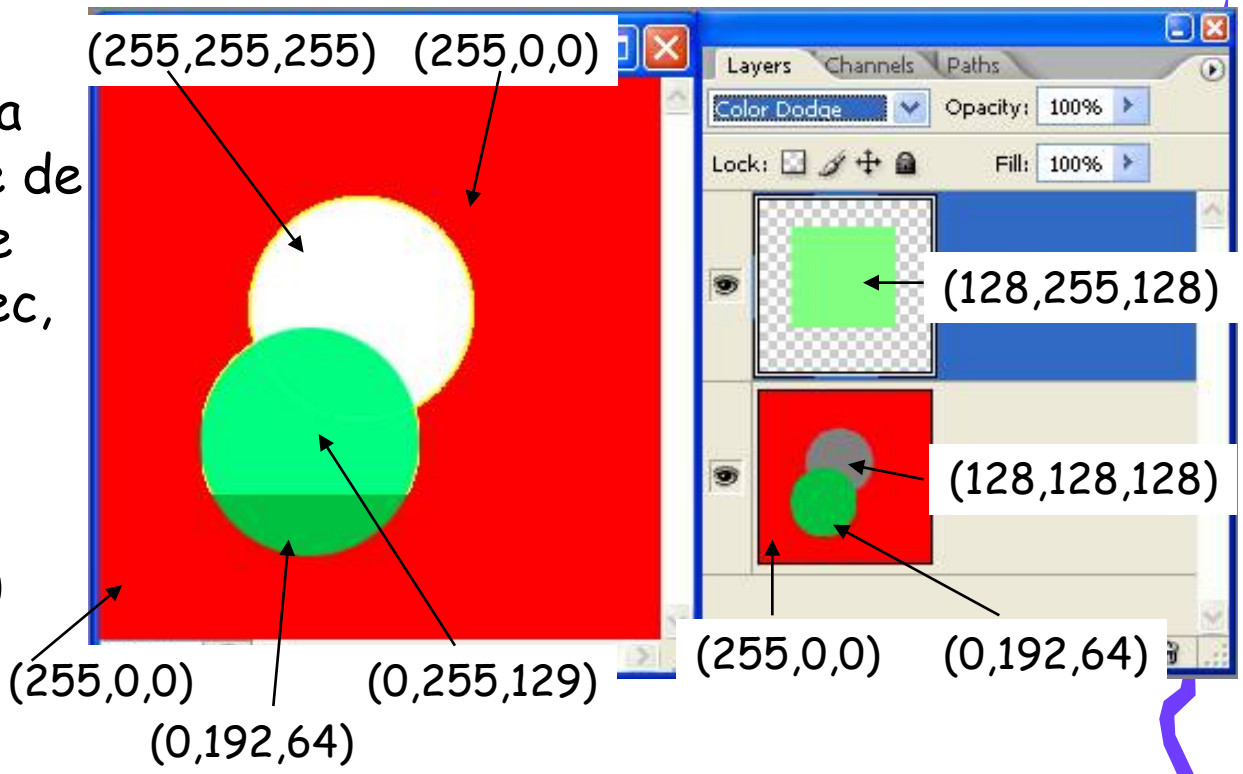


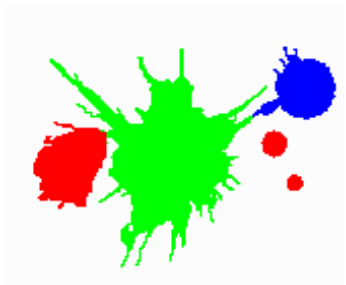


Blending modes
Color Dodge

- ***Color Dodge***: se lumineaza culoarea de baza in functie de cat de luminoasa e culoare de amestec, prin scaderea contrastului.

R = Base / (1-Blend)

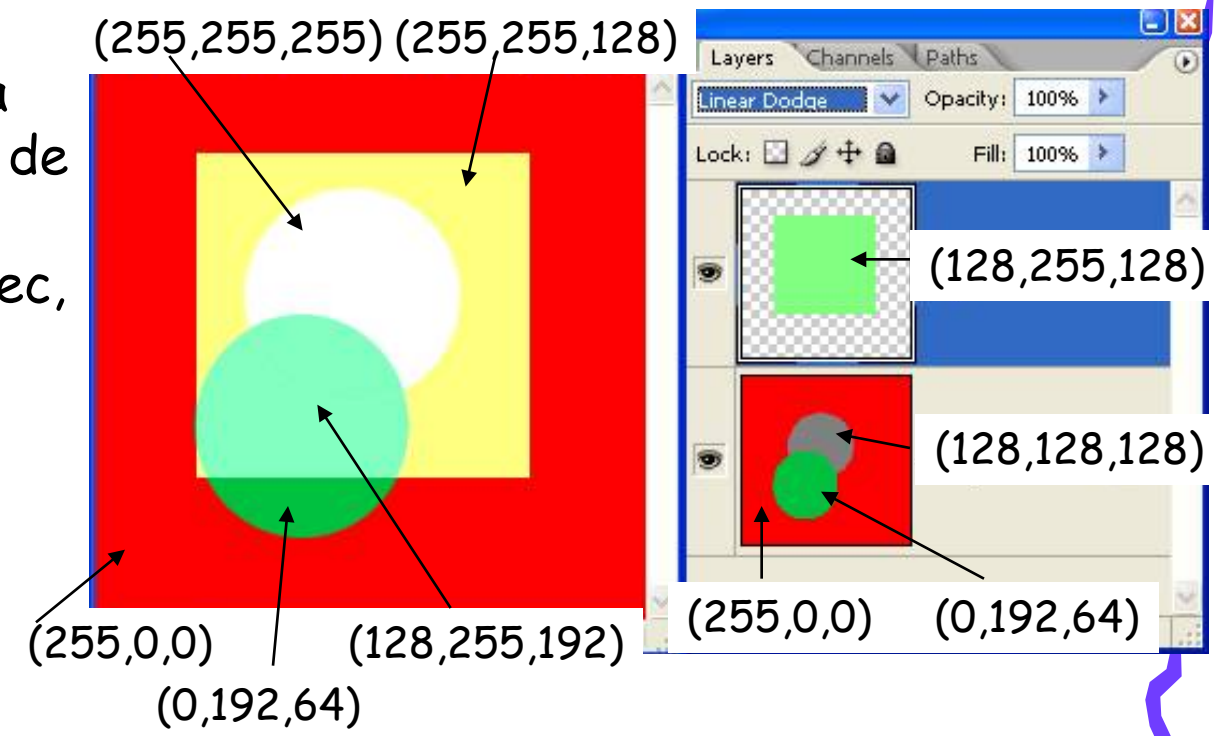


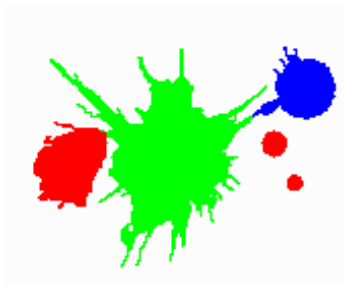


Blending Modes
Linear Dodge

- ***Linear Dodge***: se lumineaza culoarea de baza in functie de cat de luminoasa e culoarea de amestec, prin cresterea luminozitatii.

R = Base + Blend





Blending Modes
Overlay

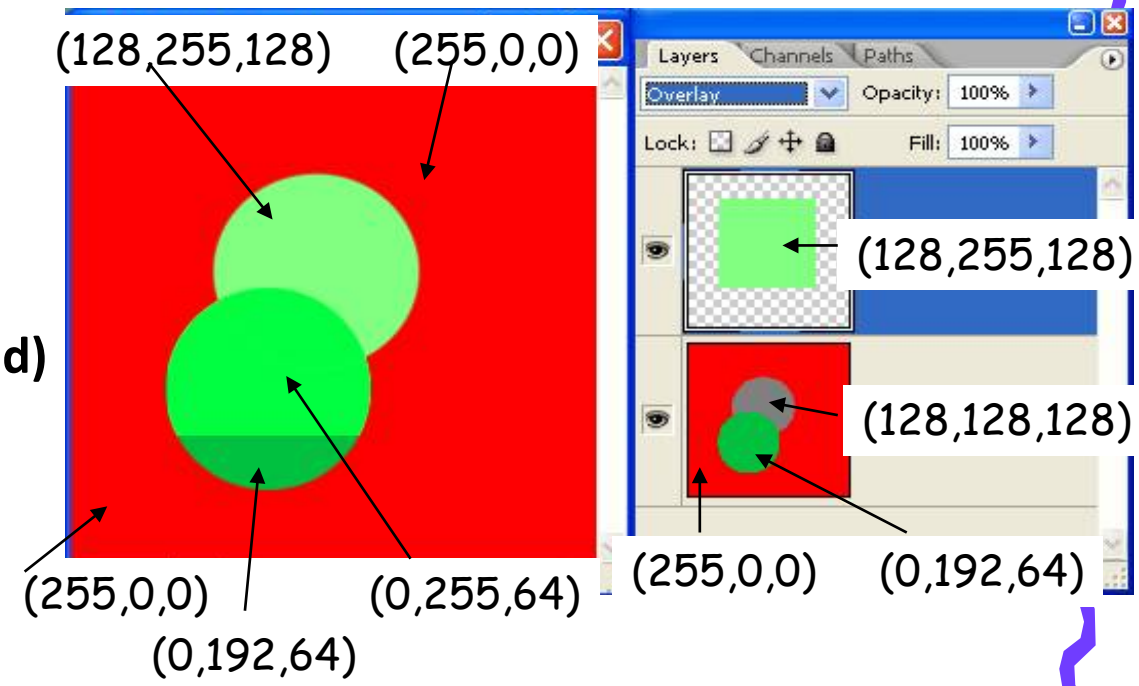
- ***Overlay***: se aplica *Multiply* sau *Screen* in functie de culoarea de baza.

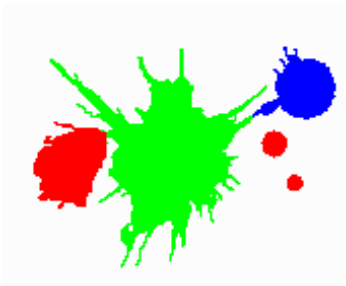
if (Base > ½)

R = 1 - (1-2×(Base-½)) × (1-Blend)

if (Base <= ½)

R = (2×Base) × Blend





Blending Modes
Soft Light

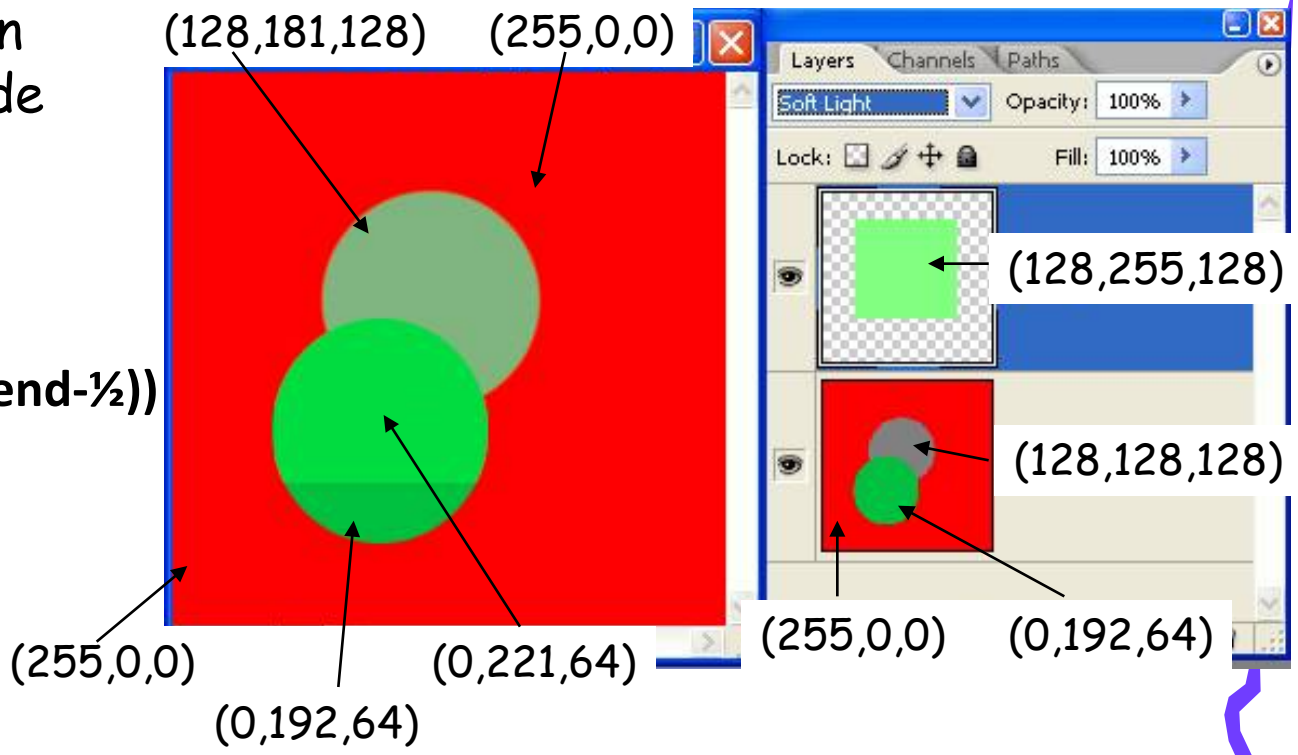
- ***Soft Light***: se aplica *Darken* sau *Lighten* in functie de culoarea de amestec.

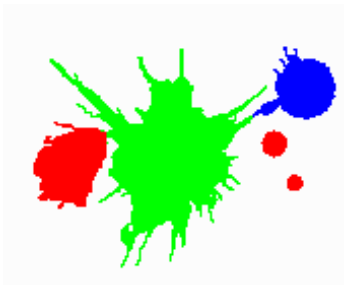
if (Blend > ½)

R = 1 - (1-Base) × (1-(Blend-½))

if (Blend <= ½)

R = Base × (Blend+½)





Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Hard Light

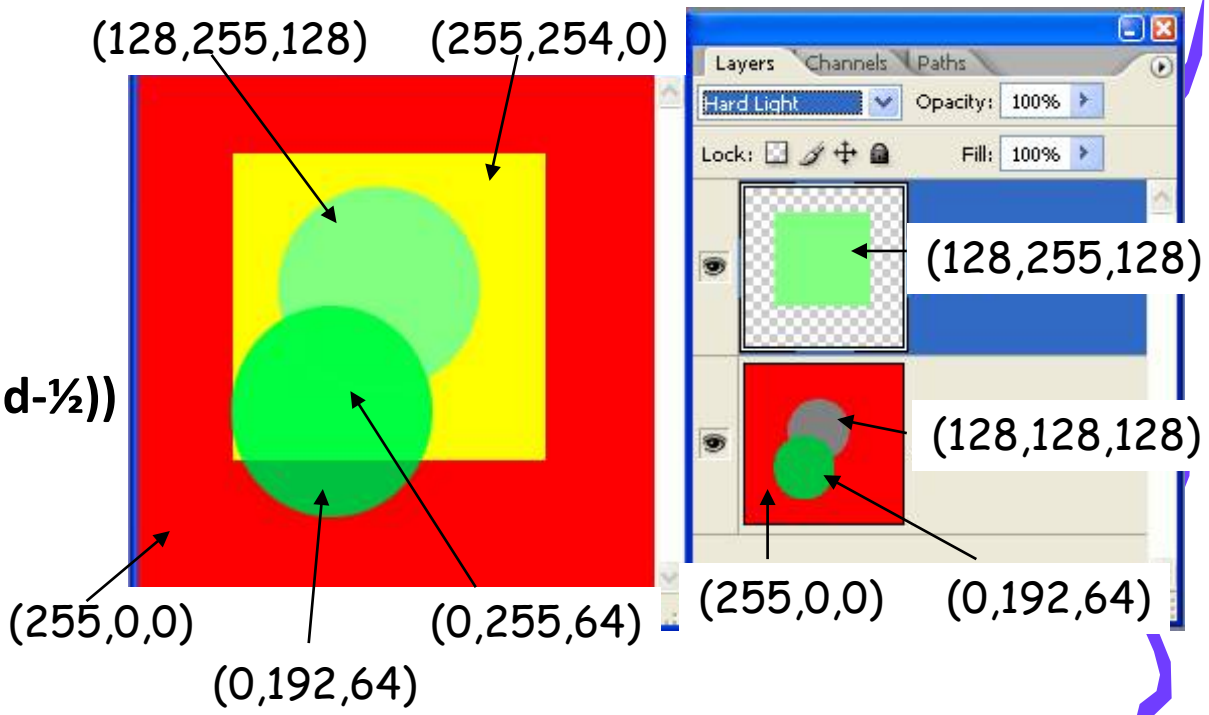
- *Hard Light:* se aplica *Multiply* sau *Screen* in functie de culoarea de amestec.

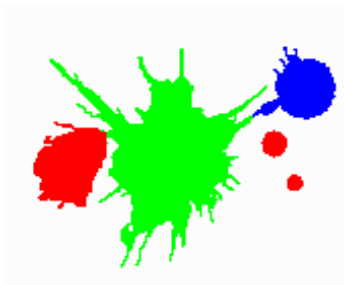
if (Blend > ½)

R = 1 - (1-Base) × (1-2×(Blend-½))

if (Blend <= ½)

R = Base × (2×Blend)





Blending Modes
Vivid Light

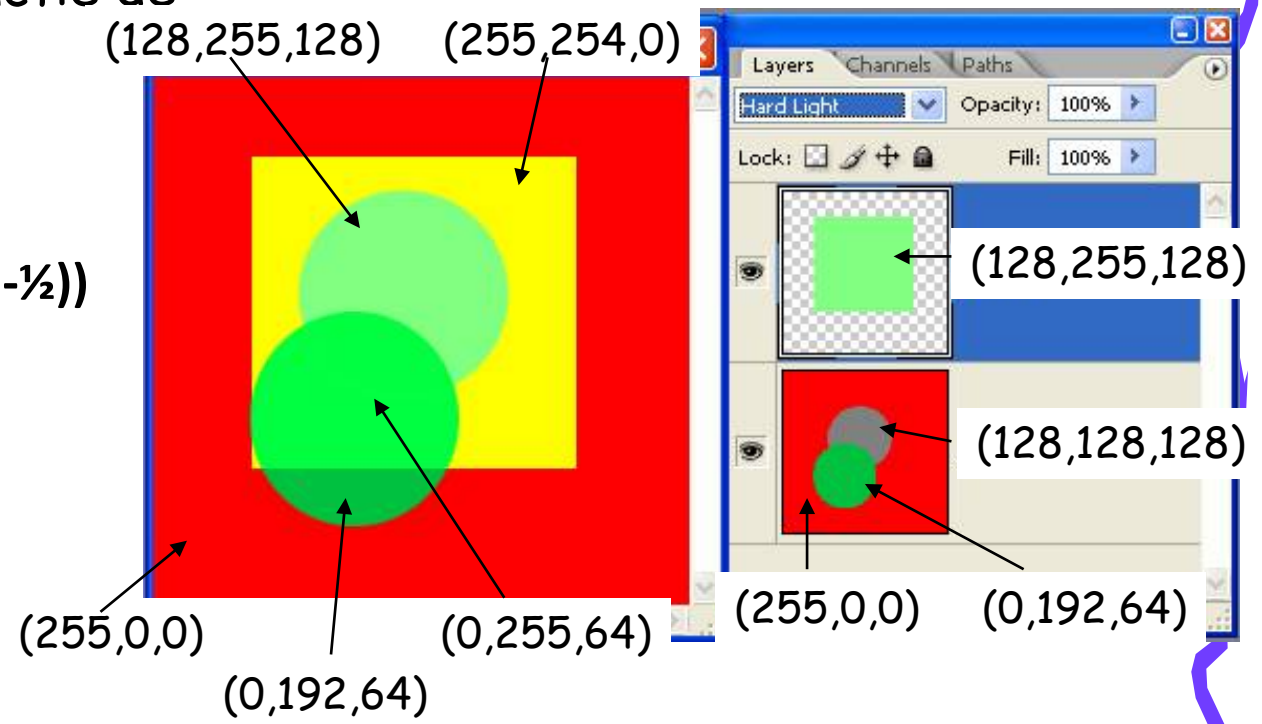
- *Vivid Light*: se aplica *Color Burn* sau *Color Dodge* in functie de culoarea de amestec.

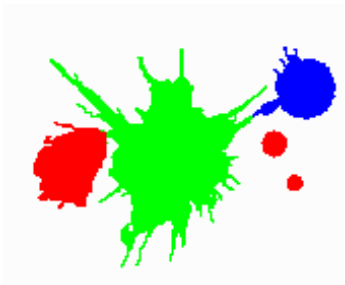
if (Blend > ½)

R = 1 - (1-Base) / (2×(Blend-½))

if (Blend <= ½)

R = Base / (1-2×Blend)





Blending Modes
Linear Light

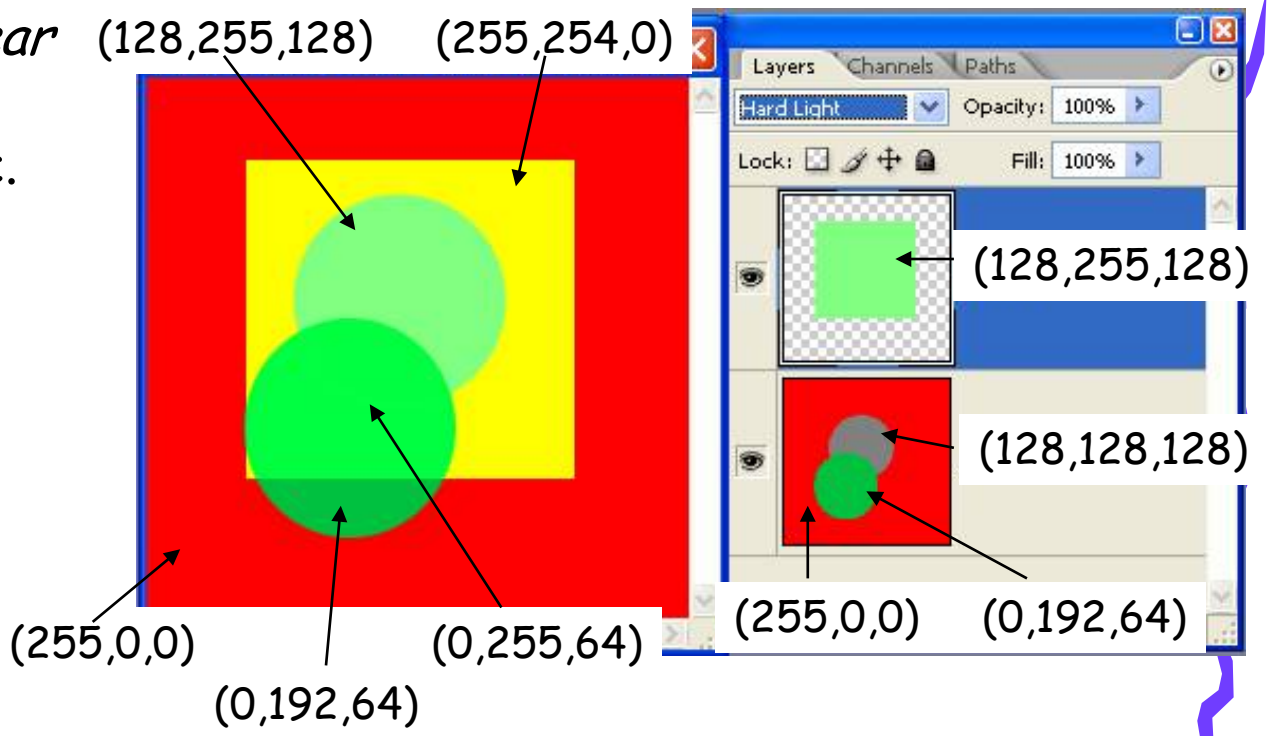
- *Linear Light*: se aplica *Linear Burn* sau *Linear Dodge* in functie de culoarea de amestec.

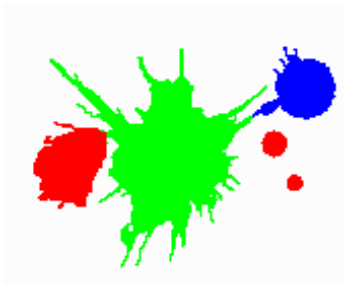
if (Blend > ½)

R = Base + 2×(Blend-½)

if (Blend <= ½)

R = Base + 2×Blend - 1





Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Pin Light

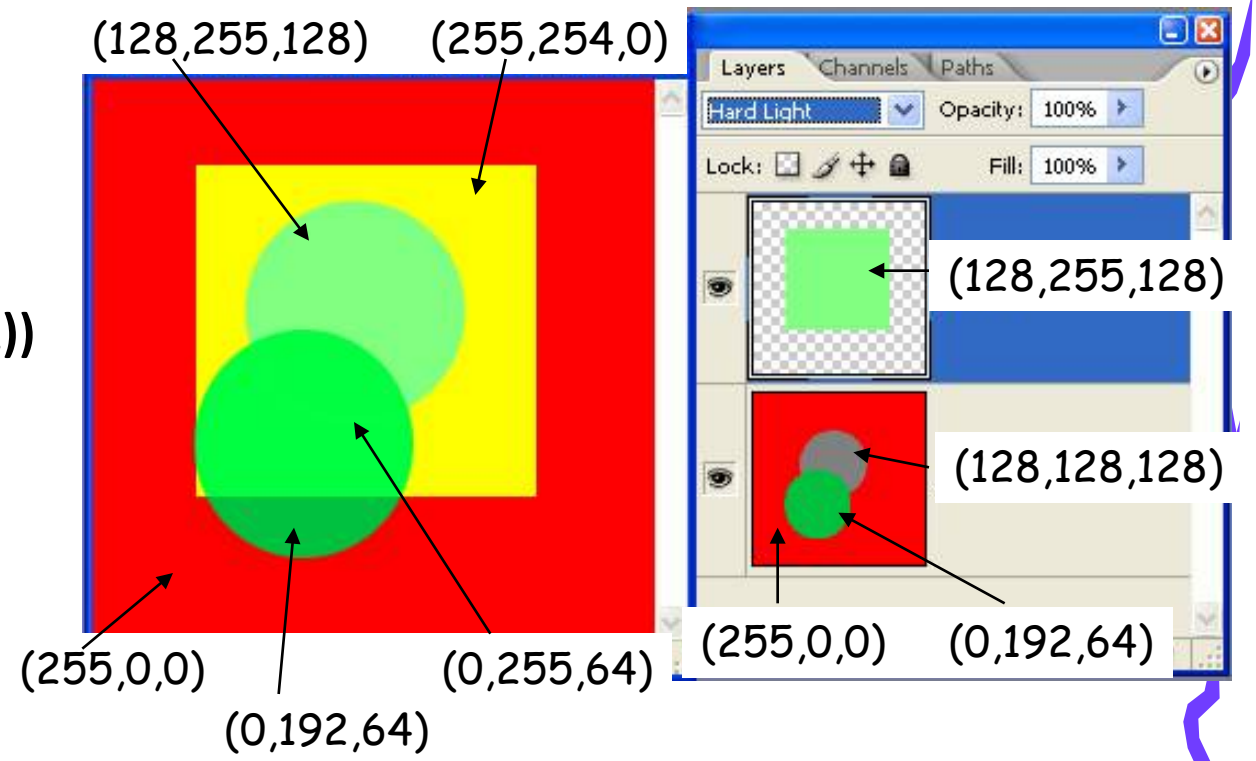
- *Pin Light* inlocuieste culorile in functie de culoarea de amestec.

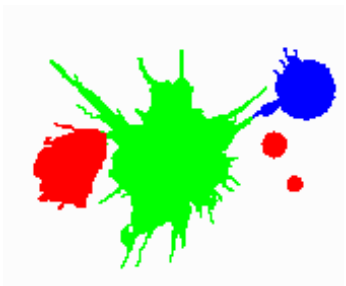
if (Blend > ½)

R = max(Base,2×(Blend-½))

if (Blend <= ½)

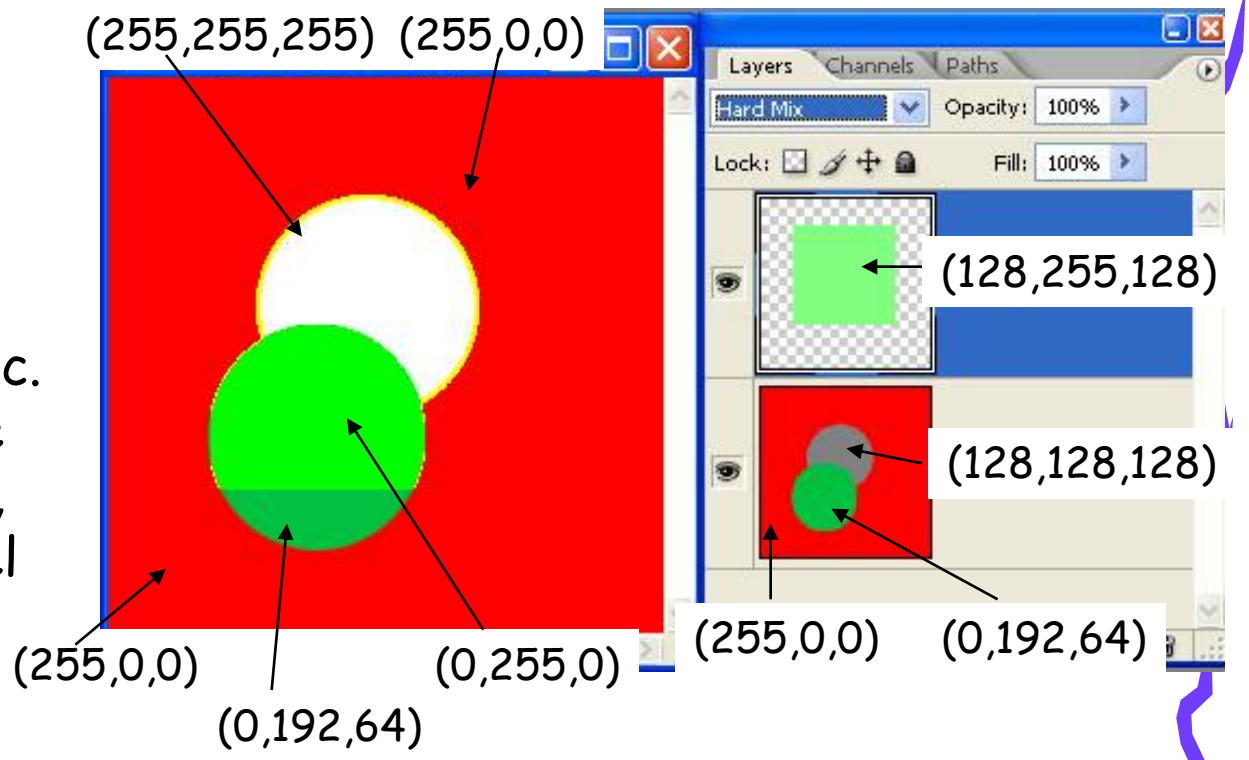
R = min(Base,2×Blend))

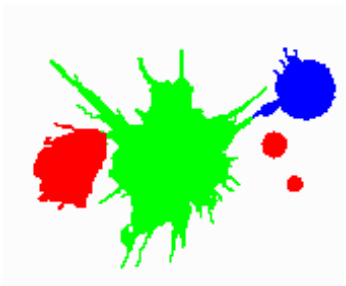




Blending Modes
Hard Mix

- ***Hard Mix*** aduna fiecare canal de culoare al culorii de baza cu cel corespunzator al culorii de amestec. Daca rezultatul e mai mare de 255, devine 255, altfel devine 0.

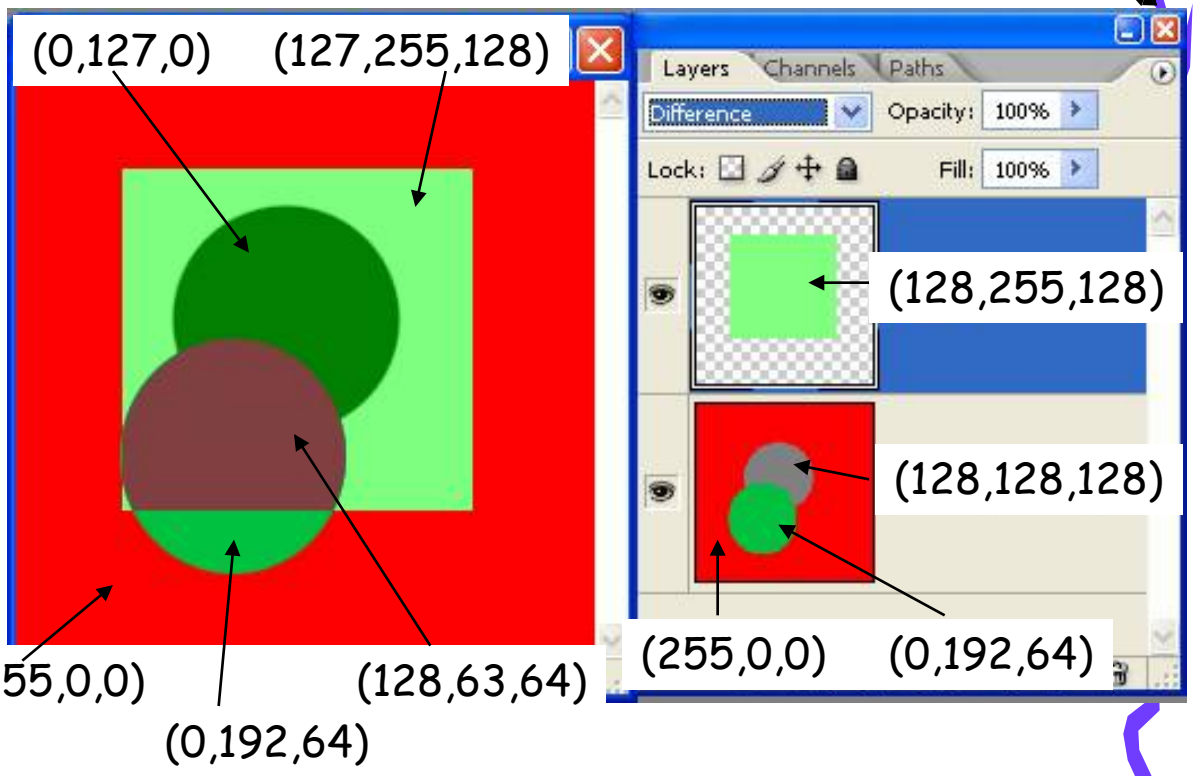


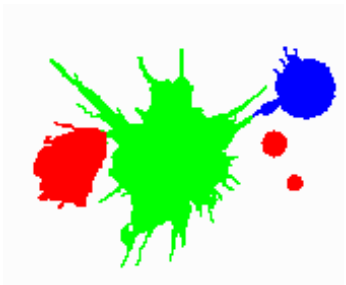


Blending Modes Difference

- ***Difference:*** face modulul diferentei dintre culoarea de baza si culoarea de amestec.

R = | Base - Blend |



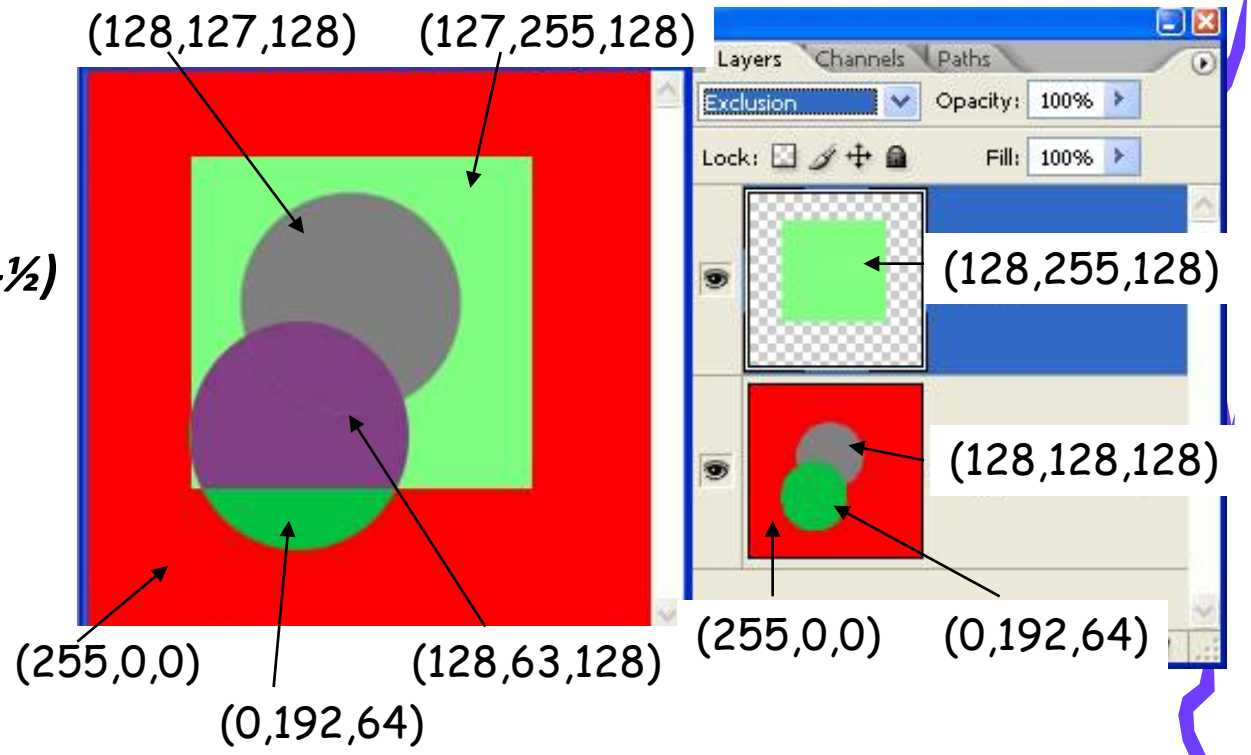


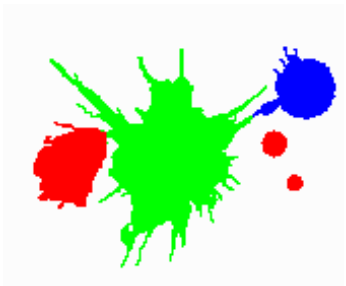
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Exclusion

- ***Exclusion***

R = ½ - 2×(Base-½)×(Blend-½)



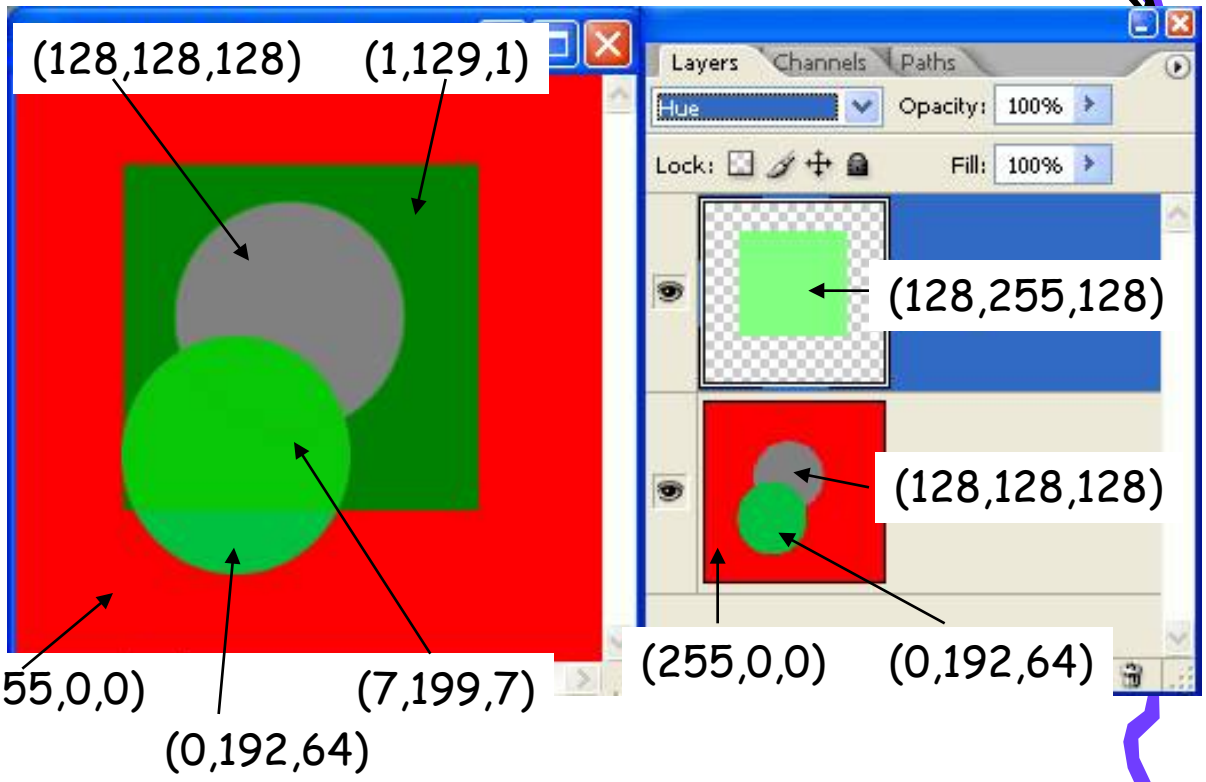


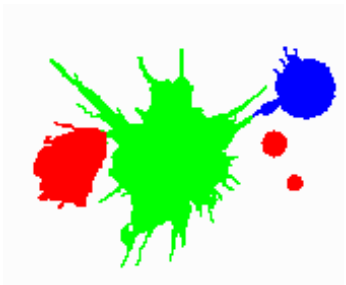
Sisteme Software de Prelucrarea Imaginilor

S.L. Dr. ing. Laura Florea

Blending Modes
Hue

- *Hue* pastreaza luminozitatea si saturatia culorii de baza si ii inlocuieste nuanta cu cea a culorii de amestec

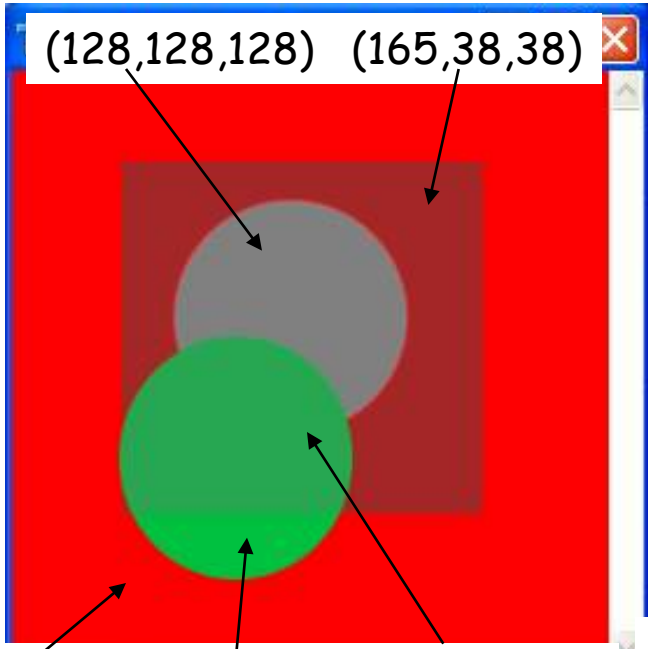


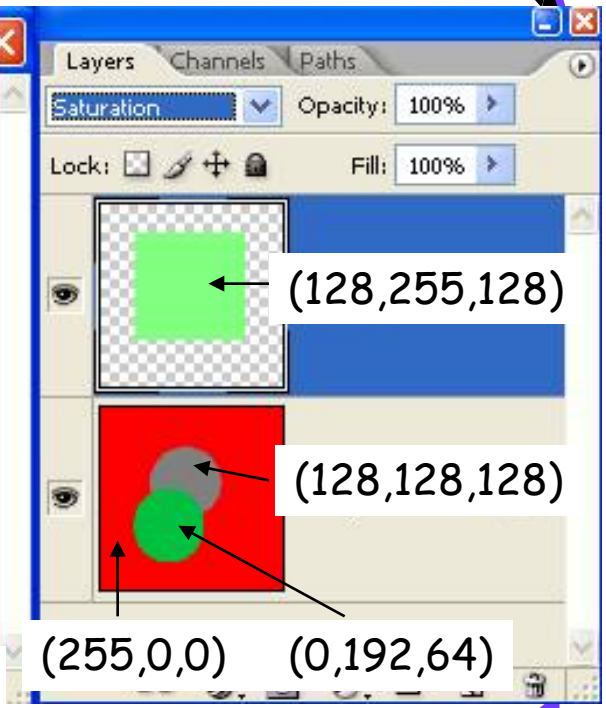


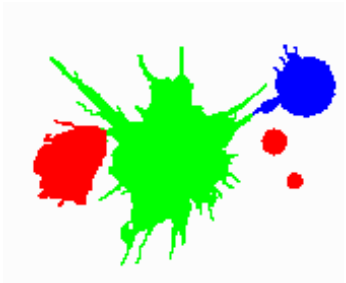
Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Blending Modes
Saturation

- ***Saturation*** pastreaza nuanta si luminozitatea culorii de baza si ii inlocuieste saturatia cu cea a culorii de amestec

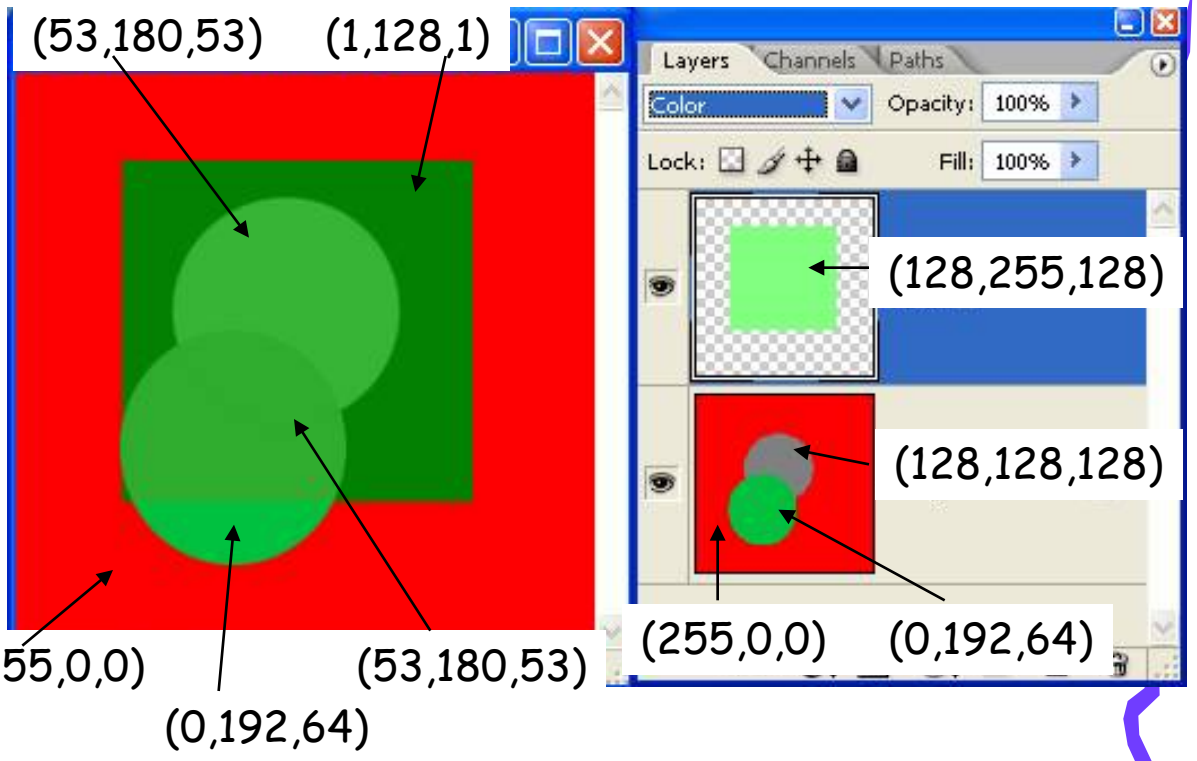


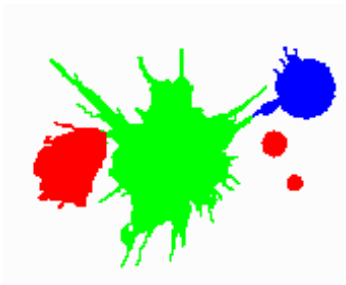




Blending Modes
Color

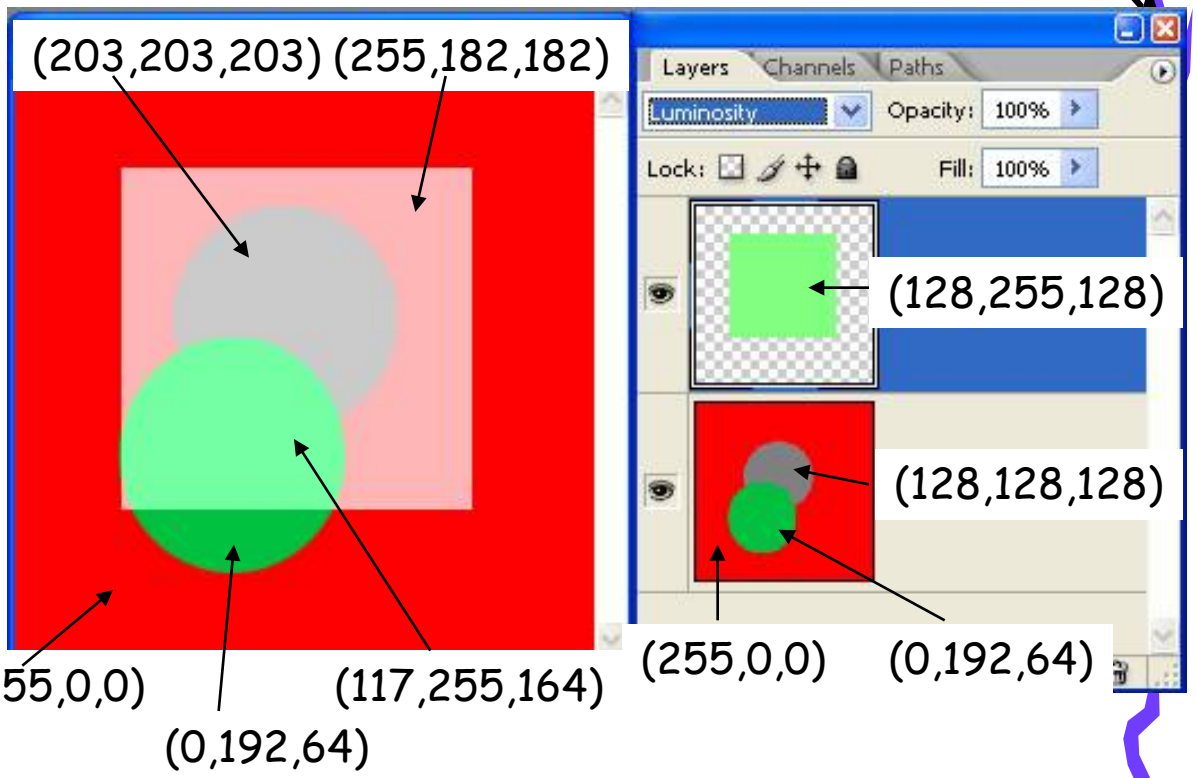
- ***Color*** pastreaza luminozitatea culorii de baza si ii inlocuieste nuanta si saturatia cu cele ale culorii de amestec

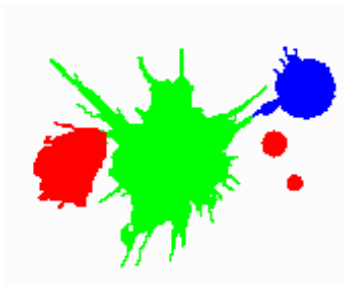




Blending Modes Luminosity

- ***Luminosity*** pastreaza nuanta si saturatia culorii de baza si ii inlocuieste luminozitatea cu cea a culorii de amestec





Sisteme Software de Prelucrarea Imaginilor
S.L. Dr. ing. Laura Florea

Bibliografie

- www.lynda.com
- http://www.photoshopessentials.com
- http://richworks.in/2010/06/unraveling-the-science-behind-the-photoshop-blend-modes-1/
- http://www.myinkblog.com/2009/07/14/an-explanation-of-photoshop-blend-modes/
- http://dunnbypaul.net/blends/
- http://www.ronbigelow.com/articles/blend4/blend4.htm
- Adobe Photoshop - Classroom in a Book, Adobe Press
- http://www.photoshopsupport.com
- http://www.sketchpad.net/psdlayer8.htm
- http://www.adobepress.com/

- Multumesc pentru ajutor masteranzilor Carmen Patrascu, Razvan Condorovici, Foti Coleca si Emi Pentea (TAID 2010)!

